3. Discussion of Oak Woodland Management Information.

(a) Oak Woodland Management Materials)

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    b) Sb 1334 2004 Section 21083 Public Resources Code.
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6. City Of Visalia Comprehensive Program.
    a) City Of Visalia Comprehensive Program.
7. Tulare County Oak Woodland Management Information.
    a) Board of Supervisors Oak Woodland Conservation Program Report July 7, 2009.
    b) Tulare County General Plan 2030 Update Policies and Implementation.
8. Oak Woodland Management Inventories.
    a) City Of Santa Clarita California Live Oak Inventory.
    b) Oak Tree Report San Luis Obispo County.
9. Wildlife Conservation Board Oak Woodlands Conservation Program 2010 Annual Report.
    a) Wildlife Conservation Board Oak Woodlands Conservation Program 2010 Annual Report.

1. CALIFORNIA OAK WOODLAND MANAGEMENT LAWS

A) OAK WOODLANDS CONSERVATION ACT

AB 242 2001 CHAPTER 588 ARTICLE 3.5 FISH AND GAME CODE

B) SB 1334 2004 SECTION 21083 PUBLIC RESOURCES CODE

C) PLANNERS GUIDE TO SECTION 21083 PUBLIC RESOURCES CODE

A) OAK WOODLANDS CONSERVATION ACT

AB 242 2001 CHAPTER 588 ARTICLE 3.5 FISH AND GAME CODE

California LEGISLATIVE INFORMATION

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FISH AND GAME CODE - FGC

DIVISION 2. DEPARTMENT OF FISH AND GAME [700 - 1940] *(Division 2 enacted by Stats. 1957, Ch. 456.)*

CHAPTER 4. Wildlife Conservation Law of 1947 [1300 - 1375] *(Chapter 4 enacted by Stats. 1957, Ch. 456.)*

ARTICLE 3.5. Oak Woodlands Conservation Act [1360 - 1372] *(Article 3.5 added by Stats. 2001, Ch. 588, Sec. 2.)*

1360. This article shall be known, and may be cited, as the Oak Woodlands Conservation Act.

(Added by Stats. 2001, Ch. 588, Sec. 2. Effective January 1, 2002.)

1361. For purposes of this article, the following terms have the following meanings:

(a) "Board" means the Wildlife Conservation Board established pursuant to Section 1320.

(b) "Conservation easement" means a conservation easement, as defined in Section 815.1 of the Civil Code.

(c) "Fund" means the Oak Woodlands Conservation Fund.

(d) "Land improvement" means restoration or enhancement of biologically functional oak woodlands habitat.

(e) "Local government entity" means any city, county, city and county, district, or other local government entity, if the entity is otherwise authorized to acquire and hold title to real property.

(f) "Nonprofit organization" means a tax-exempt nonprofit organization that meets the requirements of subdivision (a) of Section 815.3 of the Civil Code.

(g) "Oak" means any species in the genus Quercus.

(h) "Oak woodlands" means an oak stand with a greater than 10 percent canopy cover or that may have historically supported greater than 10 percent canopy cover.

(i) "Oak woodlands management plan" means a plan that provides protection for oak woodlands over time and compensates private landowners for conserving oak woodlands.

(j) "Special oak woodlands habitat elements" means multi- and single-layered canopy, riparian zones, cavity trees, snags, and downed woody debris.

(Added by Stats. 2001, Ch. 588, Sec. 2. Effective January 1, 2002.)

1362. It is the intent of the Legislature that this article accomplish all of the following:

(a) Support and encourage voluntary, long-term private stewardship and conservation of California's oak woodlands by offering landowners financial incentives to protect and promote biologically functional oak woodlands over time.

(b) Provide incentives to protect and encourage farming and ranching operations that are operated in a manner that protects and promotes healthy oak woodlands.

(c) Provide incentives for the protection of oak trees providing superior wildlife values on private lands.

(d) Encourage local land use planning that is consistent with the preservation of oak woodlands, particularly special oak woodlands habitat elements.

(e) Provide guidelines for spending the funds allocated for oak woodlands pursuant to the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act of 2000 (the Villaraigosa-Keeley Act (Chapter 1.692 (commencing with Section 5096.300) of Division 5 of the Public Resources Code)).

(f) Establish a fund for oak woodlands conservation, to which future appropriations for oak woodlands protection may be made, and specify grant making guidelines.

(Added by Stats. 2001, Ch. 588, Sec. 2. Effective January 1, 2002.)

1363.

(a) The Oak Woodlands Conservation Fund is hereby created in the State Treasury. The fund shall be administered by the board. Moneys in the fund may be expended, upon appropriation by the Legislature, for the purposes of this article.

(b) Money may be deposited into the fund from gifts, donations, funds appropriated by the Legislature for the purposes of this article, or from federal grants or loans or other sources, and shall be used for the purpose of implementing this article, including administrative costs. Funds from the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act of 2000 (the Villaraigosa-Keeley Act (Chapter 1.692 (commencing with Section 5096.300) of Division 5 of the Public Resources Code)), but not including funds dedicated as matching funds for the federal Forest Legacy Program, shall be deposited in the fund.

(c) To the extent consistent with the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act of 2000 (the Villaraigosa-Keeley Act (Chapter 1.692 (commencing with Section 5096.300) of Division 5 of the Public Resources Code)), the board may use money designated for the preservation and restoration of oak woodlands in the Oak Woodlands Conservation Fund for projects in conjunction with the California Forest Legacy Program (Div. 10.5 (commencing with Sec. 12200) of the P.R.C.)), but only for the purposes specified in this article and only if the following requirements are met:

(1) The Department of Forestry and Fire Protection shall make an initial recommendation to the board.

(2) The board may deny any initial recommendation to the Department of Forestry and Fire Protection. Subsequently, if the department alters an initial proposal, in a manner that the board determines to be significant, the board may withdraw its initial approval of the recommendation at any time during the process.

(d) The purposes for which moneys in the fund may be used include all of the following:

(1) Grants for the purchase of oak woodlands conservation easements. Any entity authorized to hold a conservation easement under Section 815.3 of the Civil Code may hold a conservation easement pursuant to this article. The holder of the conservation easement shall ensure, on an annual basis, that the conservation easement conditions have been met for that year.

(2) Grants for land improvement.

(3) Cost-sharing incentive payments to private landowners who enter into long-term conservation agreements. An agreement shall include management practices that benefit oak woodlands and promote the economic sustainability of farming and ranching operations.

(4) Public education and outreach by local government entities, park and open-space districts, resource conservation districts, and nonprofit organizations. The public education and outreach shall identify and communicate the social, economic, agricultural, and biological benefits of strategies to conserve oak woodlands habitat values, including watershed protection benefits that reduce soil erosion, increase streamflows, and increase water retention and sustainable agricultural operations.

(5) Assistance to local government entities, park and open-space districts, resource conservation districts, and nonprofit organizations for the development and implementation of oak conservation elements in local general plans.

(6) Technical assistance consistent with the purpose of preserving oak woodlands.

(e) Not more than 20 percent of all grants made by the board pursuant to this article may be used for the purposes described in paragraphs (4), (5), and (6) of subdivision (d). Not less than 80 percent of funds available for grants pursuant to this article shall be expended for the purposes described in paragraphs (1), (2), and (3) of subdivision (d).

(f) Notwithstanding any other provision of law, this article governs the expenditure of funds for the preservation of oak woodlands pursuant to paragraph (4) of subdivision (a) of Section 5096.350 of the Public Resources Code.

(Added by Stats. 2001, Ch. 588, Sec. 2. Effective January 1, 2002.)

1364. Moneys in the fund shall be available to local government entities, park and open-space districts, resource conservation districts, private landowners, and nonprofit organizations for the purposes set forth in subdivision (d) of Section 1363.

(Added by Stats. 2001, Ch. 588, Sec. 2. Effective January 1, 2002.)

1365. The board shall develop and adopt guidelines and criteria for awarding grants that achieve the greatest lasting conservation of oak woodlands. The board shall develop these guidelines in consultation with the Department of Forestry and Fire Protection, the Department of Food and Agriculture, the University of California's Integrated Hardwood Range Management Program, conservation groups, and farming and ranching associations. As it applies to the award of grants for the implementation of this article, the board criteria shall specify that

easement acquisitions that are the most cost-effective in comparison to the actual resource value of the easement shall be given priority.

(Added by Stats. 2001, Ch. 588, Sec. 2. Effective January 1, 2002.)

1366. (a) To qualify for a grant pursuant to this article, the county or city in which the grant money would be spent shall prepare, or demonstrate that it has already prepared, an oak woodlands management plan that includes a description of all native oak species located within the county's or city's jurisdiction.

(b) To qualify for a grant pursuant to this article, the board shall certify that any proposed easement was not, and is not, required to satisfy a condition imposed upon the landowner by any lease, permit, license, certificate, or other entitlement for use issued by one or more public agencies, including, but not limited to, the mitigation of significant effects on the environment of a project pursuant to an approved environmental impact report or to mitigate a negative declaration required pursuant to the California Environmental Quality Act (Division 13 (commencing with Section 21000)) of the Public Resources Code.

(c) To qualify for a grant under this article, the applicant shall demonstrate that its proposal provides protection of oak woodlands that is more protective than the applicable provisions of law in existence on the date of the proposal.

(d) A county or city may develop an oak woodlands management plan. A nonprofit corporation, park and open-space district, resource conservation district, or other local government entity may apply to the board for funds to develop an oak woodlands management plan for a county or city, but the county or city shall maintain ultimate authority to approve the oak woodlands management plan.

(e) The process for developing an initial oak woodlands management plan, and the adoption of significant amendments to a plan, as determined by the county or city, are subject to the Ralph M. Brown Act (Chapter 9 (commencing with Section 54950) of Part 1 of Division 2 of Title 5 of the Government Code).

(f) A proposal by a local government entity, nonprofit corporation, park and open-space district, private landowner, or resource conservation district for a grant to be expended for the purposes of this article shall be certified by the county or city as being consistent with the oak woodlands management plan of the county or city. If the land covered by the proposal is in the jurisdiction of more than one county or city, each county or city shall certify that the proposal is consistent with the oak woodlands management plan of each county or city.

(g) If two or more entities seek grant funding from the board pursuant to this article for the same jurisdiction, the county or city shall designate which entity shall lead the efforts to manage oak woodlands habitat in the area.

(Added by Stats. 2001, Ch. 588, Sec. 2. Effective January 1, 2002.)

1367. On or before April 1, 2002, the board and the Department of Forestry and Fire Protection shall develop a memorandum of understanding regarding the protection of oak woodlands that does all of the following:

(a) If necessary, creates a specific process for working together to use money from the fund in conjunction with the California Forest Legacy Program Act of 2000 (Division 10.5 (commencing with Section 12200) of the Public Resources Code).

(b) Lists elements a county or city shall include in its oak woodlands management plan. Items included in the plan shall assist a county or a city to specify conservation priorities and prevent oak woodlands habitat fragmentation while minimizing the cost and administrative burden associated with developing the plan. The elements may include any or all of the following:

(1) Tree inventory mapping.

(2) Oak canopy retention standards.

(3) Oak habitat mitigation measures.

(4) A procedure to monitor the effectiveness of the plan and to modify the plan as necessary.

(c) Designates an online repository for oak woodlands management plans that will be easily accessible to the public and any other state agency involved in oak woodlands conservation efforts.

(d) Discusses the relationship between oak woodlands conservation efforts under this article and efforts by other state agencies to protect oak woodlands, including efforts to combat sudden oak death, and outlines a plan, as necessary, for coordinating with these agencies.

(Added by Stats. 2001, Ch. 588, Sec. 2. Effective January 1, 2002.)

1368. The board may not approve a grant to a local government entity, park and open-space district, resource conservation district, or nonprofit organization if the entity requesting the grant has acquired, or proposes to

acquire, an oak woodlands conservation easement through the use of eminent domain, unless the owner of the affected lands requests the owner to do so.

(Added by Stats. 2001, Ch. 588, Sec. 2. Effective January 1, 2002.)

1369. A city or county planning department may utilize a grant awarded for the purposes of this article to consult with a citizen advisory committee and appropriate natural resource specialists in order to report publicly to the city council or the board of supervisors on the status of the city's or county's oak woodlands. Each city or county planning department that receives a grant for the purposes of this article shall report to the city council or to the board of supervisors of the county, as appropriate, on the use of those grant funds within one year from the date the grant is received.

(Added by Stats. 2001, Ch. 588, Sec. 2. Effective January 1, 2002.)

1370. No money may be expended from the fund to adopt guidelines or to administer the fund until at least one million dollars ($1,000,000) is deposited in the fund.

(Added by Stats. 2001, Ch. 588, Sec. 2. Effective January 1, 2002.)

1372. Nothing in this article grants any new authority to the board or any other agency, office, or department to affect local policy or land use decisionmaking.

(Added by Stats. 2001, Ch. 588, Sec. 2. Effective January 1, 2002.)

Assembly Bill No. 242

CHAPTER 588

An act to add Article 3.5 (commencing with Section 1360) to Chapter 4 of Division 2 of and to add and repeal Section 1363.5 of, the Fish and Game Code, relating to oak woodlands conservation.

[Approved by Governor October 7, 2001. Filed with Secretary of State October 9, 2001.]

LEGISLATIVE COUNSEL'S DIGEST

AB 242, Thomson. Wildlife conservation: oak woodlands.

The existing Wildlife Conservation Law of 1947 establishes the Wildlife Conservation Board, and requires the board, among other things, to determine the areas in the state that are most essential and suitable for wildlife production and preservation, as prescribed.

This bill would enact the Oak Woodlands Conservation Act to provide funding for the conservation and protection of California's oak woodlands. The bill would create the Oak Woodlands Conservation Fund in the State Treasury, and would authorize the expenditure of moneys in the fund, upon appropriation by the Legislature, for purposes of the act. The bill would require the board to administer the fund, as prescribed, and would provide that moneys in the fund shall be available to local government entities, park and open-space districts, resource conservation districts, private landowners, and nonprofit organizations for implementation and administration of the act, as provided.

The bill would require each city or county planning department that receives a grant for the purposes of the act to report to the city council or board of supervisors of the county, as appropriate, on the uses of those funds within one year from the date the grant is received.

The existing Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act of 2000 (the Villaraigosa-Keeley Act) provides that not less than $5,000,000 of the proceeds of bonds issued under that act be allocated, upon appropriation by the Legislature, for the preservation of oak woodlands.

This bill would provide for the transfer of not less than $5,000,000 and not more than $8,000,000, as determined by the Wildlife Conservation Board, to the Oak Woodlands Conservation Fund to be used for the purposes of the bill.

The people of the State of California do enact as follows:

SECTION 1. The Legislature hereby finds and declares all of the following:

(a) The conservation of oak woodlands enhances the natural scenic beauty for residents and visitors, increases real property values, promotes ecological balance, provides habitat for over 300 wildlife species, moderates temperature extremes, reduces soil erosion, sustains water quality, and aids with nutrient cycling, all of which affect and improve the health, safety, and general welfare of the residents of the state.

(b) Widespread changes in land use patterns across the landscape are fragmenting the oak woodlands wildland character over extensive areas.

(c) The future viability of California's oak woodlands resources are dependent, to a large extent, on the maintenance of large scale land holdings or on smaller multiple holdings that are not divided into fragmented, nonfunctioning biological units.

(d) The growing population and expanding economy of the state have had a profound impact on the ability of the public and private sectors to conserve the biological values of oak woodlands. Many of the privately owned oak woodlands stands are in areas of rapid urban and suburban expansion.

(e) A program to encourage and make possible the long-term conservation of oak woodlands is a necessary part of the state's wildlands protection policies and programs, and it is appropriate to expend money for that purpose. An incentive program of this nature will only be effective when used in concert with local planning and zoning strategies to conserve oak woodlands.

(f) Funding is necessary to sufficiently address the needs of conserving oak woodlands resources for future generations of Californians.

(g) California voters recognized the importance of funding that is needed to sufficiently protect the state's oak woodlands by passing Proposition 12, the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act of 2000 (the Villaraigosa-Keeley Act), which included not less than five million dollars ($5,000,000) for oak woodlands conservation.

SEC. 2. Article 3.5 (commencing with Section 1360) is added to Chapter 4 of Division 2 of the Fish and Game Code, to read:

Article 3.5. Oak Woodlands Conservation Act

1360. This article shall be known, and may be cited, as the Oak Woodlands Conservation Act.

1361. For purposes of this article, the following terms have the following meanings:

(a) "Board" means the Wildlife Conservation Board established pursuant to Section 1320.

(b) "Conservation easement" means a conservation easement, as defined in Section 815.1 of the Civil Code.

(c) "Fund" means the Oak Woodlands Conservation Fund.

(d) "Land improvement" means restoration or enhancement of biologically functional oak woodlands habitat.

(e) "Local government entity" means any city, county, city and county, district, or other local government entity, if the entity is otherwise authorized to acquire and hold title to real property.

(f) "Nonprofit organization" means a tax-exempt nonprofit organization that meets the requirements of subdivision (a) of Section 815.3 of the Civil Code.

(g) "Oak" means any species in the genus Quercus.

(h) "Oak woodlands" means an oak stand with a greater than 10 percent canopy cover or that may have historically supported greater than 10 percent canopy cover.

(i) "Oak woodlands management plan" means a plan that provides protection for oak woodlands over time and compensates private landowners for conserving oak woodlands.

(j) "Special oak woodlands habitat elements" means multi- and single-layered canopy, riparian zones, cavity trees, snags, and downed woody debris.

1362. It is the intent of the Legislature that this article accomplish all of the following:

(a) Support and encourage voluntary, long-term private stewardship and conservation of California's oak woodlands by offering landowners financial incentives to protect and promote biologically functional oak woodlands over time.

(b) Provide incentives to protect and encourage farming and ranching operations that are operated in a manner that protects and promotes healthy oak woodlands.

(c) Provide incentives for the protection of oak trees providing superior wildlife values on private lands.

(d) Encourage local land use planning that is consistent with the preservation of oak woodlands, particularly special oak woodlands habitat elements.

(e) Provide guidelines for spending the funds allocated for oak woodlands pursuant to the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act of 2000 (the Villaraigosa-Keeley Act (Chapter 1.692 (commencing with Section 5096.300) of Division 5 of the Public Resources Code)).

(f) Establish a fund for oak woodlands conservation, to which future appropriations for oak woodlands protection may be made, and specify grant making guidelines.

1363. (a) The Oak Woodlands Conservation Fund is hereby created in the State Treasury. The fund shall be administered by the board. Moneys in the fund may be expended, upon appropriation by the Legislature, for the purposes of this article.

(b) Money may be deposited into the fund from gifts, donations, funds appropriated by the Legislature for the purposes of this article, or from federal grants or loans or other sources, and shall be used for the purpose of implementing this article, including administrative costs. Funds from the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act of 2000 (the Villaraigosa-Keeley Act (Chapter 1.692 (commencing with Section 5096.300) of Division 5 of the Public Resources Code)), but not including funds dedicated as matching funds for the federal Forest Legacy Program, shall be deposited in the fund.

(c) To the extent consistent with the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act of 2000 (the Villaraigosa-Keeley Act (Chapter 1.692 (commencing with Section 5096.300) of Division 5 of the Public Resources Code)), the board may use money designated for the preservation and restoration of oak woodlands in the Oak Woodlands Conservation Fund for projects in conjunction with the California Forest Legacy Program (Div. 10.5 (commencing with Sec. 12200) of the P.R.C.)), but only for the purposes specified in this article and only if the following requirements are met:

(1) The Department of Forestry and Fire Protection shall make an initial recommendation to the board.

(2) The board may deny any initial recommendation to the Department of Forestry and Fire Protection. Subsequently, if the department alters an initial proposal, in a manner that the board determines to be significant, the board may withdraw its initial approval of the recommendation at any time during the process.

(d) The purposes for which moneys in the fund may be used include all of the following:

(1) Grants for the purchase of oak woodlands conservation easements. Any entity authorized to hold a conservation easement under Section 815.3 of the Civil Code may hold a conservation easement

pursuant to this article. The holder of the conservation easement shall ensure, on an annual basis, that the conservation easement conditions have been met for that year.

(2) Grants for land improvement.

(3) Cost-sharing incentive payments to private landowners who enter into long-term conservation agreements. An agreement shall include management practices that benefit oak woodlands and promote the economic sustainability of farming and ranching operations.

(4) Public education and outreach by local government entities, park and open-space districts, resource conservation districts, and nonprofit organizations. The public education and outreach shall identify and communicate the social, economic, agricultural, and biological benefits of strategies to conserve oak woodlands habitat values, including watershed protection benefits that reduce soil erosion, increase streamflows, and increase water retention and sustainable agricultural operations.

(5) Assistance to local government entities, park and open-space districts, resource conservation districts, and nonprofit organizations for the development and implementation of oak conservation elements in local general plans.

(6) Technical assistance consistent with the purpose of preserving oak woodlands.

(e) Not more than 20 percent of all grants made by the board pursuant to this article may be used for the purposes described in paragraphs (4), (5), and (6) of subdivision (d). Not less than 80 percent of funds available for grants pursuant to this article shall be expended for the purposes described in paragraphs (1), (2), and (3) of subdivision (d).

(f) Notwithstanding any other provision of law, this article governs the expenditure of funds for the preservation of oak woodlands pursuant to paragraph (4) of subdivision (a) of Section 5096.350 of the Public Resources Code.

1363.5. (a) Commencing on June 30, 2003, and annually thereafter, the board shall report to the Legislature and the Governor concerning the activities and expenditures of the fund.

(b) (1) In the first report to the Legislature, the board shall provide its best estimate of the total amount, in terms of acreage, species, and coverage, of oak woodlands habitat purchased with funds from the Habitat Conservation Fund and other funds pursuant to the California Wildlife Protection Act of 1990 (Chapter 9 (commencing with Section 2780) of Division 3.

(2) In each subsequent annual report, the board shall update the information required by paragraph (1) to reflect additional oak woodlands habitat purchased with funds from the Habitat Conservation

Fund pursuant to Chapter 9 (commencing with Section 2780) of Division 3, and any purchases made with moneys deposited in the Oak Woodlands Conservation Fund.

(c) The board shall annually provide its best estimate in the report, the acreage, cover, and species of oak woodlands habitat purchased with all moneys from the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Fund.

(d) The board shall make all information available online at its Web site.

(e) This section shall become inoperative on July 1, 2020, and, as of January 1, 2021, is repealed, unless a later enacted statute that is enacted before January 1, 2021, deletes or extends the dates on which it becomes inoperative and is repealed.

1364. Moneys in the fund shall be available to local government entities, park and open-space districts, resource conservation districts, private landowners, and nonprofit organizations for the purposes set forth in subdivision (d) of Section 1363.

1365. The board shall develop and adopt guidelines and criteria for awarding grants that achieve the greatest lasting conservation of oak woodlands. The board shall develop these guidelines in consultation with the Department of Forestry and Fire Protection, the Department of Food and Agriculture, the University of California's Integrated Hardwood Range Management Program, conservation groups, and farming and ranching associations. As it applies to the award of grants for the implementation of this article, the board criteria shall specify that easement acquisitions that are the most cost-effective in comparison to the actual resource value of the easement shall be given priority.

1366. (a) To qualify for a grant pursuant to this article, the county or city in which the grant money would be spent shall prepare, or demonstrate that it has already prepared, an oak woodlands management plan that includes a description of all native oak species located within the county's or city's jurisdiction.

(b) To qualify for a grant pursuant to this article, the board shall certify that any proposed easement was not, and is not, required to satisfy a condition imposed upon the landowner by any lease, permit, license, certificate, or other entitlement for use issued by one or more public agencies, including, but not limited to, the mitigation of significant effects on the environment of a project pursuant to an approved environmental impact report or to mitigate a negative declaration required pursuant to the California Environmental Quality Act (Division 13 (commencing with Section 21000)) of the Public Resources Code.

(c) To qualify for a grant under this article, the applicant shall demonstrate that its proposal provides protection of oak woodlands that

is more protective than the applicable provisions of law in existence on the date of the proposal.

(d) A county or city may develop an oak woodlands management plan. A nonprofit corporation, park and open-space district, resource conservation district, or other local government entity may apply to the board for funds to develop an oak woodlands management plan for a county or city, but the county or city shall maintain ultimate authority to approve the oak woodlands management plan.

(e) The process for developing an initial oak woodlands management plan, and the adoption of significant amendments to a plan, as determined by the county or city, are subject to the Ralph M. Brown Act (Chapter 9 (commencing with Section 54950) of Part 1 of Division 2 of Title 5 of the Government Code).

(f) A proposal by a local government entity, nonprofit corporation, park and open-space district, private landowner, or resource conservation district for a grant to be expended for the purposes of this article shall be certified by the county or city as being consistent with the oak woodlands management plan of the county or city. If the land covered by the proposal is in the jurisdiction of more than one county or city, each county or city shall certify that the proposal is consistent with the oak woodlands management plan of each county or city.

(g) If two or more entities seek grant funding from the board pursuant to this article for the same jurisdiction, the county or city shall designate which entity shall lead the efforts to manage oak woodlands habitat in the area.

1367. On or before April 1, 2002, the board and the Department of Forestry and Fire Protection shall develop a memorandum of understanding regarding the protection of oak woodlands that does all of the following:

(a) If necessary, creates a specific process for working together to use money from the fund in conjunction with the California Forest Legacy Program Act of 2000 (Division 10.5 (commencing with Section 12200) of the Public Resources Code).

(b) Lists elements a county or city shall include in its oak woodlands management plan. Items included in the plan shall assist a county or a city to specify conservation priorities and prevent oak woodlands habitat fragmentation while minimizing the cost and administrative burden associated with developing the plan. The elements may include any or all of the following:

(1) Tree inventory mapping.

(2) Oak canopy retention standards.

(3) Oak habitat mitigation measures.

(4) A procedure to monitor the effectiveness of the plan and to modify the plan as necessary.

(c) Designates an online repository for oak woodlands management plans that will be easily accessible to the public and any other state agency involved in oak woodlands conservation efforts.

(d) Discusses the relationship between oak woodlands conservation efforts under this article and efforts by other state agencies to protect oak woodlands, including efforts to combat sudden oak death, and outlines a plan, as necessary, for coordinating with these agencies.

1368. The board may not approve a grant to a local government entity, park and open-space district, resource conservation district, or nonprofit organization if the entity requesting the grant has acquired, or proposes to acquire, an oak woodlands conservation easement through the use of eminent domain, unless the owner of the affected lands requests the owner to do so.

1369. A city or county planning department may utilize a grant awarded for the purposes of this article to consult with a citizen advisory committee and appropriate natural resource specialists in order to report publicly to the city council or the board of supervisors on the status of the city's or county's oak woodlands. Each city or county planning department that receives a grant for the purposes of this article shall report to the city council or to the board of supervisors of the county, as appropriate, on the use of those grant funds within one year from the date the grant is received.

1370. No money may be expended from the fund to adopt guidelines or to administer the fund until at least one million dollars ($1,000,000) is deposited in the fund.

1372. Nothing in this article grants any new authority to the board or any other agency, office, or department to affect local policy or land use decisionmaking.

SEC. 3. An amount not less than five million dollars ($5,000,000) and not more than eight million dollars ($8,000,000), as determined by the Wildlife Conservation Board, from moneys in the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Fund available for oak woodlands conservation pursuant to paragraph (4) of subdivision (a) of Section 5096.350 of the Public Resources Code shall be transferred to the Oak Woodlands Conservation Fund created pursuant to Section 1363 of the Fish and Game Code, to be used for the purposes of Article 3.5 (commencing with Section 1360) of Chapter 4 of Division 2 of the Fish and Game Code.

O

The

Oak Woodlands Conservation

Act of 2001

Program Application and Guidelines

State of California Resources Agency
California Wildlife Conservation Board

Wednesday, November 5, 2014

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Oaks

Oak Woodlands Conservation Program

Overview

The Oak Woodlands Conservation Program offers landowners, conservation organizations, cities and counties, an opportunity to obtain funding for projects designed to conserve and restore California's oak woodlands. While the Program is statewide in nature, it provides opportunities to address oak woodland issues on a regional priority basis.

The Program is designed to help local efforts achieve oak woodland protection. More importantly, this Program provides a mechanism to bring ranchers and conservationists together in a manner that allows both to achieve that which is so valued—sustainable ranch and farming operations and healthy oak woodlands.

Application and Guidelines

Almost all funding available for this program has been allocated. Before completing an application please contact the Assistant Executive Director of Acquisitions, Dave Means at (916) 445-1095.

While applications are accepted on a year-round basis, the WCB generally meets four times a year. Typically, Board meetings are held in February, May, August and November. All applications that comply with the program requirements and meet program eligibility criteria will be scheduled for Board consideration if sufficient money exists to fund the request. Applicants will be notified as to when the project will be considered by the Board. The Board must approve any project to be funded.

Call (916) 445-8448 with any questions prior to completing an application package.

- The Oak Woodlands Conservation Act of 2001, Program Application and Guidelines (Word)

Mail applications to:

Executive Director, Wildlife Conservation Board
1807 13th Street, Suite 103
Sacramento, California 95811

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Wildlife Conservation Board
1807 13th Street, Suite 103, Sacramento, CA 95811 | (916) 445-8448 | Contact WCB
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Preface

The management of our natural resources is a complex and challenging endeavor; conservation of oak woodlands is no exception. Currently there are about 10 million acres of oak woodlands found in 54 of California's 58 counties, 80 percent of which are located on privately owned property. As the population of California continues to increase and more and more Californian's are leaving the metropolitan areas in favor of a more rural lifestyle, the debate over how best to protect and conserve oak trees and oak woodlands is becoming more controversial.

In response to the continuing loss of oak woodlands, Chapter 588, Statutes of 2001, enacted the Oak Woodlands Conservation Act. The Act specifically recognizes the importance of oak woodlands and how oak trees enhance the natural and scenic beauty of this State. Further, the Act acknowledges the important role oak woodlands play in the economic, social, environmental and ecological matters of this State. More importantly, the Act is designed to serve a segment of California's population that is directly associated with the preservation of oak woodlands, the private landowner.

The Act mandates the Wildlife Conservation Board to establish a grant program designed to protect and restore oak woodlands using conservation easements, cost-share and long-term agreements, technical assistance and public education and outreach. The Program provides incentives designed to foster the conservation of oak woodlands in a manner that promotes local priorities while sustaining the economic viability of farming and ranching operations.

Developing partnerships and working with private landowners, city and county entities, nonprofit organizations and other state departments, the Oak Woodlands Conservation Act provides an opportunity to reward landowners that have implemented good stewardship practices. Further, an opportunity exists to provide financial rewards to landowners who continue to integrate oak woodland conservation into their farming and ranching operations.

The following information has been prepared to familiarize the potential applicant with the provisions of the Oak Woodlands Conservation Act and the requirements of the new program. Applicants are encouraged to carefully review the following information and submit an application to the Wildlife Conservation Board.

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CHAPTER 1

The Oak Woodlands Conservation Act

California's Oak Woodlands

An innovative effort called the California Oak Woodlands Conservation Program, enacted by Chapter 588, Statutes of 2001 has recently been implemented. The Act recognizes the importance of California's oak woodlands, how they enhance the natural and scenic beauty of this great State, the critical role of the private landowner and the importance of private land stewardship. The Act further acknowledges how oak woodlands increase the monetary and ecological value of real property and promote ecological balance.

Oak woodlands provide habitat for more than 300 species of wildlife, moderate temperature extremes, reduce soil erosion and sustain water quality. Moreover, oak woodlands facilitate nutrient cycling and provide forage for numerous wildlife species.

The oak tree has played such an important role in California history that one only has to travel a few miles to find a town, city or residential complex named after the majestic oak tree. Yet, in spite of the importance and critical role oaks have played in shaping California's history, its economy and landscape, the State continues to lose oak woodlands to development, firewood harvesting and agricultural conversions.

Approximately two-thirds or 10 million acres of California's oak woodlands remain intact, about 80 percent of which are found on private property. Of the remaining oak woodlands, only about 4 percent are protected from conversion. Today, the single largest threat to oak woodlands is residential, commercial and industrial development. Conversion of oak woodlands to intensive agricultural development such as orchards and vineyards also takes a heavy toll.

Other factors, contributing to the loss of oak woodlands (as seen in Appendix A, Table 1,) include woodcutting, the lack of oak regeneration and Sudden Oak Death (SOD). For these reasons and because the preponderance of remaining oak woodlands can be found on privately owned property, the California Oak Woodlands Conservation Program is designed to accommodate the needs of the private landowner while fostering protection for oak woodlands.

Opportunities for People and Oak Woodlands

Although the rate of conversion of oak woodlands, coupled with the lack of oak regeneration and the emergence of SOD present a very dismal outlook and future for California oak woodlands, there is an opportunity to reverse the present trend. With 80 percent of the remaining oak woodlands on private lands, an opportunity exists to compensate landowners who have maintained economic opportunities for the property without sacrificing open space, healthy watersheds and quality wildlife habitat. In addition, opportunities exist for private landowners to restore oak woodlands while further enhancing the economic potential of their ranchlands.

The Oak Woodlands Conservation Program

The Oak Woodlands Conservation Program offers landowners, conservation organizations, cities and counties, an opportunity to obtain funding for projects designed to conserve and restore California's oak woodlands. While the Program is statewide in nature, it provides opportunities to address oak woodland issues on a regional priority basis.

The Program is designed to help local efforts achieve oak woodland protection. More importantly, this Program provides a mechanism to bring ranchers and conservationists together in a manner that allows both to achieve that which is so valued, -- sustainable ranch and farming operations and healthy oak woodlands.

Legislative Intent

Recognizing the importance of oak woodlands and the critical role private landowners have in the conservation of oaks, the Legislature created the Oak Woodlands Program with the expressed intent the Program accomplish the following:

1. Support and encourage voluntary, long-term private stewardship and conservation of California oak woodlands by offering landowners financial incentives to protect and promote biologically functional oak woodlands;

2. Provide incentives to protect and encourage farming and ranching operations that are operated in a manner that protect and promote healthy oak woodlands;

3. Provide incentives for the protection of oak trees providing superior wildlife values on private land, and;

4. Encourage planning that is consistent with oak woodlands preservation.

Purpose and Authority

To accomplish the legislative intent, the Act identifies the Wildlife Conservation Board (WCB) as the responsible entity to implement the Oak Woodlands Conservation Program. The Act authorizes the WCB to purchase oak woodland conservation easements and provide grants for land improvements and restoration efforts.

In addition, the WCB is authorized to award cost-sharing incentive payments to private landowners who enter into long-term agreements. Such agreements will be structured to include management practices that benefit oak woodlands and promote the economic sustainability of the farming or ranching operation.

The Act requires that at least 80 percent of the money be used for grants for the purchase of easements, for restoration activities or for enhancement projects. In addition, the funds may be used for grants that provide cost-share incentive payments and long-term agreements.

The remaining 20 percent may be used for public education and outreach efforts by local governments, park and open space districts, resource conservation districts and nonprofit organizations. Within the 20 percent category, funds may also be used for grants designed to provide technical assistance and to develop and implement oak conservation elements in local general plans.

While the Act specifies how the monies are to be allocated, the Act requires that priority be given to grants that result in the purchase of oak woodland conservation easements.

Definitions

For purposes of the Oak Woodlands Conservation Program, the following definitions govern the implementation of this program:

> ***Board*** means the Wildlife Conservation Board.
>
> ***Baseline Condition Report*** *means a description of existing oak woodland resources present on the property and their management.*
>
> ***Conservation Easement*** as defined in Section 815.1 of the Civil Code.
>
> ***Ground Fire*** means a fire that consumes material lying beneath the ground surface including deep duff, roots, etc.
>
> ***Land improvement*** means a restoration or enhancement project.
>
> ***Local government entity*** means any city, county, city and county, district, Resource Conservation District or other local governmental entity.

Nonprofit organization means an entity that meets requirements of Section 815.3 of Civil Code.

Oak means any species in the genus *Quercus.*

Oak Woodlands means an oak stand with a greater than 10% canopy cover or that may have historically supported greater than 10% canopy cover.

Special oak woodlands habitat elements means multi and single layer canopy, riparian zones, cavity trees, snags and downed woody debris.

Stand Replacing Fire means a fire that is of sufficient intensity to convert the stand to earlier stages of plant community succession and composition.

Surface Fire means a fire that burns surface litter, debris and short vegetation.

Working Landscape means property from which income is derived from the management of natural resources present on the land.

Program Development and Stakeholder Group

The Oak Woodlands Conservation Act requires the WCB to develop guidelines and criteria for awarding grants that achieve the greatest conservation for oak woodlands. The Act further requires the Board to develop these guidelines in consultation with the California Department of Forestry and Fire Protection, the California Department of Food and Agriculture, the University of California's Integrated Hardwood Range Management Program and representatives from farming, ranching and conservation groups.

WCB expanded the original stakeholder group to include input from the following organizations: several county boards of supervisors, special district representatives, California Department of Fish and Game, California Resources Agency, California Department of Conservation, California Oaks Foundation, The Nature Conservancy, California Cattlemen's Association, California Rangeland Trust, High Sierra Resource Conservation & Development Area and the Santa Barbara County Planning Department.

Mission and Program Goal Statements

Through a series of workshops and small group meetings, the stakeholder group developed a program mission and goal statements to further clarify the program and guide the WCB in selecting projects designed to meet the legislative intent and purpose of the program. To this end, the following statements were developed:

Mission Statement:

"Conserve the integrity and diversity of oak woodlands across California's working landscapes through incentives and education."

Legislative Goal Statements:

- ✓ Support and encourage voluntary, long-term private stewardship and conservation of California oak woodlands by offering landowners financial incentives to protect and promote biologically functional oak woodlands;
- ✓ Provide incentives to protect and encourage farming and ranching operations that are operated in a manner that protect and promote healthy oak woodlands;
- ✓ Provide incentives for the protection of oak trees providing superior wildlife values on private land, and;
- ✓ Encourage planning that is consistent with oak woodlands preservation

Complimentary Stakeholder Goal Statements:

- ✓ Provide technical and financial assistance to counties that will result in effective oak conservation measures in local planning efforts. Such measures shall encourage and support the conservation, enhancement and management of sustainable oak woodlands across working landscapes and other privately owned oak woodlands.
- ✓ Provide financial incentives, education and technical assistance to private landowners that will result in oak habitat conservation and enhancement across working landscapes and other privately owned oak woodlands.
- ✓ Support projects in counties that have adopted oak retention, enhancement and management policies consistent with the intent of the Oak Woodlands Conservation Act of 2001. Using long-term agreements and easements, projects shall be designed to benefit private landowners that conserve oak woodlands, the community and wildlife species dependent on oak woodlands and associated habitats.

CHAPTER 2

Status of Oak Woodlands

As previously mentioned, there are about 10 million acres of oak woodlands remaining in California. For purposes of the Oak Woodlands Conservation Program, oak trees are defined as any species in the genus *Quercus*, and oak woodlands are defined as oak stands with greater than 10 percent canopy cover or stands that may have historically supported greater than 10 percent canopy cover in the past.

The California Wildlife Habitat Relationships System (CWHR) describes five habitat types used to identify California's oak-dominated woodlands. The CWHRS types are based on the dominant tree species and include Valley Oak, Blue Oak, Blue Oak-Foothill Pine and Coastal Oak.

For additional information on oak woodlands, wildlife and wildlife habitats in oak woodlands, applicants are encouraged to consult with the local biologist from the California Department of Fish and Game or the UC Integrated Hardwood Range Management Program (IHRMP). In addition, for excellent information on oak woodlands contact the IHRMP website at the following address: http://danr.ucop.edu/ihrmp/wildhab

Oak Regeneration

While the loss of oak woodlands to urbanization and intensive agriculture is alarming, another threat is even more troublesome. Several oak species are not regenerating in portions of their range. Young trees are not replacing older trees that are removed (for various reasons) or die of natural causes.

Oak species that are particularly impacted by the lack of regeneration include the valley oak, blue oak, coast live oak and in some areas, the California black oak. While the reasons for the lack of regeneration are varied, complex and controversial, i.e., over grazing, fire suppression, noxious weeds, invasion of weedy annual grasses and suppression of native perennial grasses, the solutions are equally complex and varied. Facilitating oak regeneration, while challenging, can be successful if collaboration and partnerships are developed with private landowners. Regeneration techniques such as seedling shelters, weed control, and improved grazing practices have proven successful in promoting the regeneration of oak trees.

For additional information on oak regeneration or recruitment, applicants are encouraged to contact the following:

1. Point Reyes Bird Observatory at (414) 868-1221 or www.prbo.org
2. CDF Fire and Resource Assessment Program (916) 227-2651 or http://frap.cdf.ca.gov
3. California Department of Fish and Game (916) 653-1738 or www.dfg.ca.gov
4. UC Integrated Range Management Program at (530) 639-8807 or http://danr.ucop.edu/ihrmp
5. California Oaks Foundation at (510) 763-0282 or www.californiaoaks.org

Sudden Oak Death Syndrome

Another threat to California's oak woodlands is Sudden Oak Death (SOD). While first discovered in 1995, today, the disease has spread to 12 counties and has killed tens of thousands of oaks and tanoaks. Oak trees observed to have symptoms of SOD include black oak, coast live oak, interior live oak and Shreves oak. The disease is currently restricted to oaks trees along California coastal areas though some fear the disease will continue to spread inland.

To date, there is no known cure for the disease. Because of the severity of SOD and the potential, large-scale impact upon numerous economic, social and recreational sectors throughout California, extensive research is underway to understand and find the means to limit the spread of this disease. Furthermore, in light of the severity of this disease and the ease of transmission, there are strict state and federal regulations governing the movement of plant material and soil within and out of counties with observed occurrences of SOD.

The Oak Woodlands Conservation Program is not equipped to address issues associated with SOD. As such, it is recommended that potential applicants from a county that has been quarantined because of SOD consult with their local agricultural commissioner, Fish and Game biologist and UC Extension Office. In addition, any proposal submitted from a quarantined county will be forwarded to the California Oak Mortality Task Force for additional review and comment.

For additional information on SOD, applicants are encouraged to contact the following:

1. California Oak Mortality Task Force at (510) 642-5938 or http://www.cnr.berkeley.edu/comtf/
2. Local County Agricultural Commissioners Office

3. CDF Fire and Resource Assessment Program (916) 227-2651 or http://frap.cdf.ca.gov

4. California Department of Food and Agriculture at (916) 445-6214 or www.kkosta@cdfa.ca.gov

5. California Department of Fish and Game at (916) 653-1738 or www.dfg.ca.gov

6. Sudden Oak Death at www.suddenoakdeath.org

7. Local UC Cooperative Extension Office

Geographic Distribution of Oak Woodlands

To understand the distribution, status and management issues associated with approximately 10 million acres of oak woodlands throughout California, the Stakeholder Group divided the State into eight unique geographical areas or oak sections. Using information from the Ecological Units of California, each of the oak sections are described below and displayed in Appendix A (maps 1 through 8). In addition, Table 1 summarizes the major threats facing oak woodlands within each of the eight sections.

1. North Coast Oak Woodland Section

The North Coast Section contains approximately 2.1 million acres of oak woodlands. The boundaries run from Crescent City in the North to Marin in the South. The entire Section covers approximately 12,618 square miles (8.08 million acres) and varies in elevation from sea level on the western edge to approximately 8,100 feet.

The predominant oak species include valley oaks in the southern reaches of the area, blue oak, black oak, canyon oak, interior live oak, Shrives oak and Oregon white oak in the upper reaches of Humboldt and Del Norte Counties and coastal live oak along coastal areas.

Oak woodlands face conversion pressures, predominantly to vineyards, residential developments and ranchettes. Over grazing, lack of oak regeneration, firewood cutting and in some areas, Sudden Oak Death threaten the biological integrity of the oak woodlands.

Precipitation: 20 to 120 inches

Fire Disturbance Regime: Historic occurrence is changing from frequent, low intensity surface fires, to infrequent, moderate to high intensity ground or stand replacing fires.

2. Klamath/South Cascade Oak Woodland Section

This Section contains approximately 940,000 acres of oak woodlands and borders the North Coast Region on the west. The Section covers approximately 15,198 square miles (9.7 million acres) and varies in elevation from 200 feet to 14,600-foot elevation at Mt. Shasta.

The predominant oak species include valley oak, blue oak, black oak, interior live oak, and Oregon white oak.

The major threat in this Section comes from firewood cutting. In addition, threats include agricultural conversion, development of mini ranchettes, and lack of oak regeneration, drought and poor watershed conditions.

Precipitation: 8-120 inches

Fire Disturbance Regime: In the western portion of the section and at lower and mid-elevations, historic fire occurrence has changed from frequent, low intensity ground fires to infrequent, high intensity stand replacing fires. In the eastern portion of the section and at lower and mid-elevations, historic fire occurrence has changed from frequent low intensity surface fires to infrequent, high intensity stand replacing fires.

3. Modoc Oak Woodland Section

This Section contains approximately 5,000 acres of oak woodlands comprised of a few areas of blue oak woodlands and montane hardwood forests. The Section is 6,222 square miles (4 million acres) in size and ranges in elevation from 300 to 9,900 feet. The principal threat in this area comes from over grazing and extensive firewood cutting.

Precipitation: 8-30 inches

Fire Disturbance Regime: Historic occurrence has changed from frequent, low intensity ground fires to infrequent, high intensity stand replacing fires.

4. Central Coast Oak Woodland Section

The Central Coast Section contains approximately 1.9 million acres of oak woodlands and covers the area from San Francisco in the north to San Luis Obispo in the south. The entire Section covers approximately 14,891 square miles (9.5 million acres) and varies in elevation from sea level on the western edge to approximately 5,200 feet in the eastern portion of the Section.

The predominant oak species include valley oak, a few black oak, blue oak, interior live oak and coastal live oak.

Intensive agricultural development and conversion of oak woodlands to vineyards is the major threat in this Section. In addition, the northwest and central portions of the Section are experiencing confirmed cases of Sudden Oak Death. Lack of oak regeneration, coupled with periodic drought and increased fire risk, threatens many of the remaining large stands of oak woodlands.

Precipitation: 6-60 inches

Fire Disturbance Regime: Fires are of variable intensity and frequency and are ground or stand replacing.

5. Southern California Coast Oak Woodland Section

The Southern Coast Section has approximately 590,000 acres of oak woodlands remaining throughout the area. The Section covers the area from Santa Barbara County in the north to San Diego County in the south. The entire Section covers approximately 15,893 square miles (10.2 million acres) and varies in elevation from sea level on the western edge to approximately 11,500 feet in the eastern portion of the Section.

The predominant oak species include Engleman oak, valley oak, coast live oak, interior live oak, canyon live oak and blue oak.

High density, residential development is the principal threat in this area resulting in fragmented landscapes and few remaining large tracks of oak woodlands. Intensive agricultural development also threatens the remaining oak woodlands.

Precipitation: 6-40 inches

Fire Disturbance Regime: Historic occurrence has changed from fires of variable frequency, season and intensity to more frequent, larger and more intense fires. In the eastern portion of the Section, fires that are stand replacing, are of variable frequency, season and intensity.

6. Great Valley Oak Woodland Section

This Section contains approximately 960,000 acres of oak woodlands and covers the Central Valley from Redding in the north to Bakersfield in the south. The entire area covers approximately 21,815 square miles (about 14 million acres) and varies in elevation from 300 foot elevation on the western edge to 50 foot in the center to approximately 3,000 feet on the east side.

The predominant oak species include valley oak, blue oak, Oregon white oak, black oak, interior live oak and canyon live oak.

The principal threat to oak woodland values in the Central Valley comes from residential development and intensive agricultural conversion. In addition, extensive firewood cutting in the northern areas of Shasta and Tehama County, poor oak regeneration, development of small ranchettes, over grazing and hobby livestock coupled with ground water diversions pose additional threats to the oak woodlands.

Precipitation: 5-40 inches

Fire Disturbance Regime: Historic occurrence has changed from frequent, fast-moving large fires to infrequent, small fires, or fire has been mostly excluded due to conversion to irrigated agriculture and urban development. In the northwest portion of the section, fires are presently of low, moderate, or high intensity and surface or stand replacing.

7. Sierra Nevada Foothills Oak Woodland Section

The Sierra Nevada Foothill Section, one of the largest oak woodland areas remaining in California, contains approximately 2.1 million acres of oak woodlands. The Section covers the eastern edge of the Central Valley from Redding in the north to Kern County in the south. The Section covers approximately 7,024 square miles (4.5 million acres) and varies in elevation from 200 feet on the western edge to approximately 5,000 feet elevation level on the eastern edge of the Section.

The predominant oak species include blue oak, black oak, interior live oak, and some valley oak.

Residential development and intensive agricultural conversion to vineyards threaten the oak woodlands. In addition, firewood cutting, poor oak regeneration and low density, suburban development in the form of small ranchettes, affect the oak woodlands.

Precipitation: 8-40 inches

Fire Disturbance Regime: Fires are currently of low, moderate or high intensity and surface or stand replacing.

8. Sierra Nevada Oak Woodland Section

The Sierra Nevada Section contains approximately 590,000 acres of oak woodlands and covers the higher elevations of the west side and the eastern edge of the Sierra Nevada. The Section covers approximately 19,919 square miles (12.7 million acres) and varies in elevation from 1,000 feet on the western edge to approximately 15,000 feet in the eastern portion of the Section.

The predominant oak species include blue oak, black oak, interior live oak and some valley oak. The Section also provides critical riparian vegetation containing oaks.

The important threats for this Section include residential development and intensified agricultural conversion, primarily vineyards. In addition, poor oak regeneration, increasing low density, suburban development, and high fire risk are concerns.

Precipitation: 10-90 inches

Fire Disturbance Regime: At lower and mid-elevation of the section, historic occurrence has changed from frequent, low intensity ground fires to infrequent, high intensity stand replacing fires.

CHAPTER 3

Program Requirements

The Oak Woodlands Conservation Act requires that to qualify for a grant, the county or city in which the grant money would be spent, shall prepare or demonstrate that it has already prepared an oak woodlands management plan. Once the city or county has prepared or demonstrated that an Oak Woodland Management Plan exists, a landowner would then be eligible to participate in the program.

The Oak Woodlands Management Plan

Prior to WCB awarding a grant for an oak woodland conservation easement, restoration or enhancement project or any public education or outreach project, Section 1366 of the Act requires that a city or county in which grant money would be spent shall prepare or demonstrate that it has already prepared an Oak Woodlands Management Plan. The Act requires the plan to include a description of all native oak species located within the county or city's jurisdiction.

To assist with the preparation of the plan, the Act allows a nonprofit organization, park or open space district, resources conservation district or other local government entity to apply to the Board for funds to develop an Oak Woodlands Management Plan for a county or city. However, the county or city shall maintain ultimate authority to approve the Oak Woodlands Management Plan. If two or more entities seek grant funding from the Board to prepare an Oak Woodlands Management Plan for the same jurisdiction, the county or city shall designate which entity shall lead the efforts to prepare the necessary document.

The Advisory Committee recognized that such a plan should contain elements designed to encourage the long-term conservation of oak woodlands. More importantly, the committee recognized that elements of the required plan should not be overly restrictive to discourage landowners, or local jurisdictions from participating in the program.

To participate in the Oak Woodlands Conservation Program, a county or city shall adopt an Oak Woodlands Management Plan in the form of a Resolution. The Resolution does not have to be part of the General Plan. If a county or city currently has a plan in place that meets the minimum requirements of the Oak Woodlands Management Plan, a resolution by the governing body certifying such compliance is sufficient.

A Resolution shall be adopted that contains at least the following elements:

Minimum Elements
Oak Woodlands Management Plan
To Be
Approved by
Local Resolution

1. The county or city agrees to adopt a Resolution to offer private landowners the opportunity to participate in the Oak Woodlands Conservation Program. The Oak Woodlands Management Plan and Resolution is adopted pursuant to the requirements of California Fish and Game Code Section 1366 (a). Previously adopted resolutions are acceptable if they meet the minimum requirements of the Resolution.

2. The county or city shall prepare statements that describe the status of oak woodlands in their jurisdiction. Such statements shall include a description of all native oak species, estimates of the current and historical distribution of oak woodlands, existing threats, status of natural regeneration and growth trends. To the extent possible, local jurisdictions shall prepare maps displaying the current distribution of oak woodlands.

3. The county or city shall prepare statements recognizing the economic value of oak woodlands to landowners and the community at large. These statements shall encourages and support farming, ranching and grazing operations that are compatible with oak woodland conservation.

4. The county or city shall prepare statements recognizing the natural resource values of oak woodlands including the critical role oak woodlands play relative to the health and function of local watersheds, soil and water retention, wildlife habitat, open space and the reproduction or reduction of fuel loads.

5. The county or city shall prepare statements recognizing that the loss of oak woodlands has serious effects on wildlife habitat, retention of soil and water and that planning decisions for oak woodlands should take into account potential effects of fragmentation of oak woodlands.

6. The county or city shall prepare statements expressing support for landowners that participate in the Oak Woodlands Conservation Program. To qualify for funding consideration by the Wildlife Conservation Board, the county or city agree, pursuant to Section 1366 (f) of the Act to certify that individual proposals are consistent with the county or city Oak Woodlands Management Plan.

7. The county or city shall prepare statements that support and encourage education and outreach efforts designed to demonstrate the economic, social and ecological values associated with oak woodlands.

8. The county or city shall review and update as necessary, the Oak Woodlands Management Plan.

Eligible Participants

The Oak Woodlands Conservation Program is designed to consider grant proposals from the following participants: private landowners, local government entities, park and open space districts, resource conservation districts and nonprofit organizations. Participants are encouraged to develop partnerships with interested individuals or organizations that are designed to leverage available technical and financial resources.

In addition, pursuant to Section 1366 (f), the county or city shall certify that proposed grant requests are consistent with the Oak Woodlands Management Plan of the county or city. As such, eligible participants must consult with the local county or city and obtain a certification (see Application, Required Attachments and Certifications) that the proposal is consistent with local Oak Woodlands Management Plan.

Further, Section 1366 (f) requires that if the land covered by the proposal is in the jurisdiction of more than one county or city, then each county or city shall certify that the proposal is consistent with the Oak Woodlands Management Plan of each county or city.

Eligible Easement Acquisition, Restoration or Long-Term Agreement Projects

Pursuant to the requirements of Section 1363, the Act requires that no less than 80 percent of the funds be used for the following type of projects:

1. Grants for the purchase of oak woodland easements.

   The holder of the conservation easement shall ensure, on an annual basis that the conservation easement conditions have been met for that year. To facilitate this annual review, a *Baseline Condition Report* shall be prepared that identifies the biological resources that are present on the property and covered under the conservation easement. The Act requires that priority be given to projects designed to protect oak woodlands in perpetuity with conservation easements.

2. Grants for restoration or enhancement projects.

   Project proposals must contain an appropriate management plan that describes the restoration effort and the management practices that will be used to ensure the restoration or enhancement effort achieves the goals of the landowner and the goals of the project.

3. Grant for long-term leases.

   Projects are designed to protect oak woodlands for purposes of open space, viewshed, wildlife habitat or alternative grazing opportunities. Such leases must be managed according to a management plan prepared to meet the goals stated in the long-term lease or project agreement.

4. Grants for cost-sharing incentive payments.

   Projects designed to achieve conservation objectives and the landowner is willing to enter into long-term agreements. Such agreements shall include management practices that benefit the goals of the landowner and the oak woodlands. The length of the long-term agreement will be dependent upon the nature of the project, the goals of the landowner and benefits to the oak woodlands. Typical long-term agreements could run 15, to 45-years. Cost-share incentive payments could include, but are not necessarily limited to the following:

   - Compensation for not cutting trees for firewood.
   - Long-term payment to keep the land in open space, managed according to a plan designed to benefit the landowner and the oak woodlands.
   - Reimbursement for conservation improvements such as fencing, solar panels, grazing cages to protect young oak saplings, alternative water sources, tree planting and tree maintenance.
   - Compensation for alternative grazing practices such as up-front payments to defer grazing on restoration areas. Areas would be managed according to a plan designed to benefit the goals of the landowner and the restoration of the oak woodlands.

Applicants are encouraged to seek input from the local Fish and Game Biologist or other resource professionals when developing proposals that request funding for conservation easements, development of management plans or long-term agreements.

Criteria for Easement Acquisition, Restoration or Long-Term Agreement Projects

To qualify for funding consideration for a restoration, enhancement, purchase of an oak conservation easement or long-term agreement, projects must meet one or more of the following criteria, must contain an appropriate management plan to assure project goals are maintained and the oak stand must have greater than 10 percent canopy:

- ✓ The project is of sufficient size to provide superior wildlife values.
- ✓ The project area contains a diverse size-class structure of oak woodlands and/or a diversity of oak species that will promote the sustainability and perpetuation of oak woodlands.
- ✓ The property is adjacent to other protected areas or will contribute toward ease of wildlife movement across ownerships.
- ✓ The project contributes toward regional or community goals, provides scenic open-space, protects historic or archeological values, or contains unique geologic features.
- ✓ The property is a working landscape. The landowners have implemented or agree to implement stewardship practices that recognize and incorporate the ecological requirements of oak woodlands and associated habitats, thus promoting the economic and resource sustainability of the farming and ranching operation
- ✓ The property removes or reduces the threat of habitat conversion from oak woodlands to some other use.
- ✓ The project has the potential to serve as a stewardship model for other landowners.

Eligible Public Education, Outreach and Technical Assistance Projects

Pursuant to the requirements of Section 1363, the Act allows for 20 percent of the funds to be used for the following type of projects:

1. Grants for public education and outreach by local governments, park and open space districts, resource conservation districts and nonprofit organizations.
2. Assistance to local government entities, park and open space districts, resource conservation districts and nonprofit organization for the development and implementation of oak conservation elements in local general plans.
3. Technical Assistance.

Criteria for Education, Outreach and Technical Assistance Projects

To qualify for funding consideration for a public education, outreach proposal or technical assistance project, the project must meet the following criteria:

- ✓ The project shall be designed to identify and communicate the social, economic, agricultural and biological benefits of conserving oak woodlands.
- ✓ The project shall be designed and targeted to reach the maximum number of local landowners that could benefit from public education and outreach efforts.
- ✓ The project shall be designed and implemented as a collective effort or partnership that, where appropriate, includes local entities such as; landowners, the Resource Conservation District, Fish and Game Biologist, UCCE Farm Advisor, representatives from farming or ranching organizations and the county or city planning department.
- ✓ The project shall be designed to promote and encourage oak woodland conservation through voluntary approaches.
- ✓ The project shall provide sources of available financial and/or technical information to assist landowners wishing to conserve their oak woodlands.
- ✓ The project will identify measurable goals and objectives to evaluate the success of the project. For projects not completed within one year of approval, the design shall include specific interim deliverables or benchmarks and a timeline for completion.
- ✓ If requested by the WCB, project sponsors must be willing to make education, outreach and technical assistance information available online so that other project proponents may benefit from the education and outreach effort. Such information should not include private or proprietary information about private landowners or their operations.

CHAPTER 4

Administrative Process

Developing Partnerships

While the Oak Woodlands Conservation Program promotes conservation of privately owned oak woodlands, the easement acquisition portion of the Program is not designed to accept applications directly from private landowners. As such, landowners interested in participating in the Oak Woodlands Conservation Program must coordinate the preparation of the application package with an eligible participant.

The WCB encourages projects to be developed with partners attempting to address regional landscape issues and oak preservation needs. A partnership approach brings to the project a diversity of skills, expertise, ideas and sometimes-even money that may not otherwise be available to complete a desired project.

Submitting Applications

While applications are accepted on a year-round basis, the WCB generally meets four times a year. Typically, Board meetings are held in February, May, August and November. All applications that comply with the program requirements and meet program eligibility criteria will be scheduled for Board consideration if sufficient money exists to fund the request. Applicants will be notified as to when the project will be considered by the Board. The Board must approve any project to be funded.

All applications should be mailed to the following:

Executive Director, Wildlife Conservation Board
1807 13th Street, Suite 103
Sacramento, California 95811

Applicants are encouraged to call (916) 445-8448, with any questions prior to completing an application package. Additional information regarding the program or the Board may be obtained by visiting the Board's website located at www.dfg.ca.gov/wcb

What to Submit

To qualify for funding consideration, a complete application package must be submitted (see Appendix B). To facilitate the review of the proposal, applicants are encouraged to consult with the local Fish and Game biologist or other resource professionals while developing the project. Soliciting the comments from local biologist will also facilitate the review process, as a copy of the application package will be forwarded to the Regional Manager for review and comment.

Applicants are required to submit three copies of the application package to WCB. In addition, one copy of the required county or city resolution or Oak Woodlands Management Plan must be submitted with the application.

If a project proposal is submitted requesting funds for the purchase of a conservation easement or long-term lease agreement, the fair market value of the project must be determined by an appraisal of the property. All appraisals must be conducted by a state licensed, independent appraiser and must be prepared in conformance with the Uniform Standards of Professional Appraisal Practices (USPAP).

If the application is complete and the program requirements and criteria are met, the WCB staff will notify the applicant to have the property appraised. Once WCB receives two copies of the appraisal document, WCB staff will submit the appraisal to the State Department of General Services for an independent review and approval of the appraisal document. ALL APPRAISALS MUST BE REVIEWED AND APPROVED BY THE DEPARTMENT OF GENERAL SERVICES.

If the appraisal is approved by the State Department of General Services, applicants will be notified of the approved fair market value of the property and the necessary real estate documents will be prepared by Board staff in preparation for the full Board meeting. If the appraisal is denied, applicants will be notified and provided with an explanation as to why the appraisal was denied.

Important

Applicants are cautioned, that appraisals must be approved prior to taking the project to the full Board for consideration. As such, project applications must be submitted at least four months in advance of a scheduled Board meeting to allow sufficient review time by Board staff and the State Department of General Services.

Notice To The Public of WCB Meeting

For all projects eligible for consideration by the Board, landowners adjacent to the project site must be notified of the pending Board's review. Project applicants must submit a list of names and mailing address of all adjacent landowners.

Summary of Grant Process

1. A project applicant submits three copies of a complete application package and one copy of the Oak Woodlands Management Plan Resolution to WCB.

2. One copy of the application package will be forwarded to the Regional Manager of the California Department of Fish and Game for review and comment.

3. WCB staff will review the proposal for compliance with program requirements and criteria and decide if a proposal should be recommended to the Board for funding consideration.

4. Prior to presenting a proposed project to the WCB for final approval, grant agreements and/or appropriate real estate documents will be prepared and forwarded to the applicant for signature.

5. The applicant must return all signed agreements prior to the scheduled Board meeting.

6. WCB staff will present recommended project proposals to the Board for funding consideration. Project applicants are encouraged to attend the Board meeting.

7. If the Board approves the project, the applicant will be provided with a *Notice to Proceed* with the Project.

8. For restoration and enhancement projects, WCB staff may conduct a preconstruction meeting with the project sponsor, landowner and any contractors.

9. WCB, in consultation with the landowners, may conduct periodic progress inspections.

10. All invoices must be submitted to WCB for approval of payment.

11. After completion of the project, WCB will conduct a final inspection.

12. Upon WCB completion of final inspection, an applicant must submit a request for final grant payment, along with a project completion report.

13. The State may conduct an audit of the completed project.

14. WCB, in consultation with the landowner, may monitor the project for the term of the agreement or lease.

Appendix A

Table 1

Oak Woodlands --- Regional Threats

Element of Threat	North Coast Section	Central Coast Section	South Coast Section	Modoc Section	Klamath South Section	Sierra Foothill Section	Sierra Nevada Section	Great Valley Section
Riparian Protection	✓		✓					✓
Water Control					✓		✓	✓
Vineyards	✓	✓				✓	✓	
Ag Develop		✓	✓		✓	✓		✓
Ranchettes	✓				✓	✓		✓
Fragmentation			✓			✓	✓	✓
Over Grazing	✓			✓		✓	✓	✓
Regeneration	✓	✓			✓	✓	✓	✓
Wood Cutting	✓			✓	✓	✓	✓	✓
High Fire Risk		✓					✓	
Drought		✓						
Development	✓		✓			✓	✓	✓
Water Diversion					✓			✓
SOD	✓	✓						

Appendix B

Oak Woodlands Conservation Act of 2001 Program Application Package

Part I	Grantee and Landowner Information
Part II	Required Attachments and Certifications
Part III	Program Guidelines and Selection Criteria

Part I

Grantee and Landowner Information

Name of Applicant: _____

Project Title: _____

Project Manager: _____

Mailing Address: _____

Telephone Number: ( ) Fax Number ( )

Email Address:

Tax Payer ID Number: _____

Landowner Information

Name of Landowner:_____

Mailing Address: _____

Telephone Number: ( ) Fax Number ( )

Email Address:

Type of Project: (check one) ( ) Lease ( ) Easement ( ) Restoration

( ) Technical Assistance

Project Location (County, nearest City and major crossroads):_____

Part II

REQUIRED ATTACHMENTS

and

CERTIFICATIONS

Required Attachments

Complete applications must contain the following attachments to facilitate the review of the grant request. Applications that do not contain the required attachments will be returned to the applicant.

1. Required resolution or Oak Woodlands Management Plan adopted by the city or county whose jurisdiction the project falls under. If project falls within the jurisdiction of more than one city or county, each city or county must adopt and submit a copy of the resolution or Oak Woodlands Management Plan.
2. Project location map (regional and site specific).
3. Identification and location of project site within the Oak Woodland Section.
4. Six color, 4 x 5 photographs of the project area.
5. Acquisition map showing exterior boundaries and parcel numbers (acquisition projects only).
6. Topographic map of property highlighting oak woodlands and associated habitat.
7. Name and mailing address of all adjacent landowners.
8. Restoration Plan (restoration projects only).
9. Applicable management plans.

Required Certifications

Complete applications must contain the following certifications as required by the Oak Woodlands Conservation Act. Applications that do not contain the required certifications will be returned to the applicant.

1. Pursuant to the requirements of Section 1363 (d) (1), the grantee or holder of the conservation easement hereby certifies to review, on an annual basis, the conservation easement conditions have been met for that year. The grantee or holder of the conservation easement further agrees to notify the WCB that said review was performed and provide a brief summary of the review.

Certification: _____ Date: _____

2. Pursuant to the requirement of Section 1366 (b), we, the project applicant and the landowner, hereby certify the conservation easement, restoration project or long term lease is not required to satisfy a condition imposed upon the landowner by any lease, permit, license, certificate, or other entitlement of use issued by one or more public agencies, including but not limited to, the mitigation of significant effects on the environment of a project pursuant to an approved environmental impact report or to mitigate a negative declaration required pursuant to the California Environmental Quality Act.

Project Applicant Certification:

_____ Date: _____

Landowner Certification:

_____ Date: _____

3. Pursuant to the requirements of Section 1366 (f), the county or city hereby certifies that the project submitted for consideration by the Wildlife Conservation Board is consistent with the Oak Woodlands Management Plan of the county or city whose jurisdiction in which the project is located. If the project is in the jurisdiction of more than one county or city, each county or city shall certify that the proposal is consistent with the Oak Woodlands Management Plan of each county or city.

Certification:_____Date:_____

Certification:_____Date_____

4. Pursuant to the requirements of Section 1369, a city or county planning department that receives a grant from the Oak Woodlands Conservation Program is required to report to the city council or board of supervisors on the use of those grant funds within one year from the date the grant was awarded. Accordingly, the planning department hereby certifies to report to their local governing body and provide the Wildlife Conservation Board with notice as to when the reporting requirement will be calendared before the city council or the board of supervisors.

Certification: _____Date: _____

5. Pursuant to the requirements of Section 1368, the project applicant hereby certifies that eminent domain proceedings have not been utilized to acquire the conservation easement.

Certification: _____Date: _____

Part III

Program Guidelines
and
Selection Criteria

To qualify for funding consideration for an easement acquisition, restoration, enhancement or long-term agreement, proposals should address the following criteria; and contain an implementation and management plan, if applicable. Applicants are encouraged to contact their Forestry Assistance Specialists or Unit Forester for assistance with the completion of this application.

For all projects describe your long-term goals and objectives for the property and please explain how this proposal will contribute toward those goals and objectives.

A. Criteria for Easement Acquisition, Restoration or Long-Term Agreement Projects

✓ The project is of sufficient size to promote biological integrity and provide superior wildlife values.

1. How many acres of oak woodland does the project conserve?
2. Describe other habitat types (for example, wetlands, riparian, grasslands, mixed conifer) found on the property and how the project will conserve perennial or seasonal creek frontage, if present.
3. Does the property meet multiple natural resource conservation objectives, including but not limited to, wetlands, riparian habitat and/or scenic open-space preservation? Please explain.
4. Please describe the aquatic, plant and wildlife species that benefit from your proposal or will benefit because of the restoration effort.
5. Does the property contain sufficient surface or ground water to sustain the goals and objectives of the restoration project? Please explain.

✓ **The project area contains oak woodlands and/or a diversity of oak classes that will promote the sustainability and perpetuation of oak woodlands.**

1. What oak species are present on the property? Describe the approximate size classes of oaks present on the property, i.e., presence of oak seedlings, young oak trees and older, mature oak trees and the approximate percentage of area occupied by such trees relative to the entire project area

2. If applicable, describe how the project will contribute toward the regeneration of oak woodlands on your property.

3. Please provide a topographic map or aerial photo showing distribution/location of other habitat types present on the property, i.e., wetlands, chaparral, mixed conifer, grasslands, etc. For additional information on habitat types, applicants are encouraged to visit the California Wildlife Habitat Relationship System habitat guide at http://dfg.ca.gov/whdab/html/cwhr.html

✓ **The property is adjacent to other protected areas and will contribute toward ease of wildlife movement across ownerships.**

1. Is the project area located adjacent to other protected property (e.g. State Parks, Wildlife Management Area, conservation easement)? Please indicate on a map the location of the project area in relation to other protected areas.

2. Describe the degree of similarity in habitat types and conditions across adjacent ownerships.

✓ **The project contributes toward regional or community goals, provides scenic open-space, protects historic or archeological values or contains unique geologic features.**

1. Describe how the project contributes toward a regional or community land use goals.

2. Describe the relationship of the project to any publicly protected open-

space, viewshed or other habitat plan.

3. What historic or unique geological features are present on the property?

✓ **The property is a working landscape. The landowners have implemented or agree to implement, stewardship practices that recognize and incorporate the ecological requirements of oak woodlands and associated habitats, thus promoting the economic and resource sustainability of the farming and ranching operation.**

1. What stewardship practices has the landowner implemented (or agrees to implement) that makes the ranch operation unique and promotes the conservation and integrity of the oak woodlands located on the project area?

2. Please describe or attach pertinent sections of any ranch or other plan guiding the management of the property.

✓ **The project removes or reduces the threat of conversion to the oak woodland resource.**

1. Describe the project location relative to the nearest population center (name of town)?

2. What is the project's proximity to an urban sphere of influence?

3. Describe any the current and/or foreseeable potential land use threat to the property including but not limited to conversion to urban or the intensification of agriculture.

4. How is the property zoned?

✓ **The project has the potential to serve as a stewardship model for other landowners.**

1. Does the project provide an opportunity to work with contiguous properties and conserve oak woodlands? Please explain.

2. Does the project provide an opportunity to foster cooperation with local ranchers and other community organizations? Please explain.

✓ **In addition to the above criteria and questions, for all restoration and enhancement projects, please answer the following questions:**

1. Explain how the restoration project contributes toward sustaining oak communities that were historically present on your property. Include a description of the soil types.

2. What type of short and long-term management practices will be used to assure the success of the restoration project?

B. Criteria for Education and Outreach Projects

To qualify for funding consideration for a public education and outreach proposal, the project must be designed to address the following criteria:

- ✓ The project shall be designed to identify and communicate the social, economic, agricultural and biological benefits of conserving oak woodlands.
- ✓ The project shall be designed and targeted to reach the maximum number of local landowners that could benefit from public education and outreach efforts.
- ✓ The project shall be designed and implemented as a collective effort or partnership that, where appropriate, includes local entities such as; landowners, the resource conservation district, the California Fish and Game biologist, UCCE Farm Advisor, representatives from farming or ranching organizations and the county or city planning department.
- ✓ The project shall be designed to promote and encourage oak woodland conservation through voluntary approaches.
- ✓ The project shall provide sources of available financial and/or technical information to assist landowners conserve their oak woodlands.
- ✓ The project will identify measurable goals and objectives to evaluate the success of the project. For projects not completed within one year of the approval date, the proposal shall include specific interim deliverables or benchmarks and a timeline for completion.
- ✓ If requested by the WCB, project sponsors must be willing to make project information available online so that other project proponents may benefit from the education and outreach effort. Such information should not include private or proprietary information about private landowners or their operations.

B) SB 1334 2004 SECTION 21083 PUBLIC RESOURCES CODE

PUBLIC RESOURCES CODE - PRC

DIVISION 13. ENVIRONMENTAL QUALITY [21000 - 21189.3] *(Division 13 added by Stats. 1970, Ch. 1433.)*

CHAPTER 2.6. General [21080 - 21098] *(Chapter 2.6 added by Stats. 1972, Ch. 1154.)*

21083.4. (a) For purposes of this section, "oak" means a native tree species in the genus Quercus, not designated as Group A or Group B commercial species pursuant to regulations adopted by the State Board of Forestry and Fire Protection pursuant to Section 4526, and that is 5 inches or more in diameter at breast height.

(b) As part of the determination made pursuant to Section 21080.1, a county shall determine whether a project within its jurisdiction may result in a conversion of oak woodlands that will have a significant effect on the environment. If a county determines that there may be a significant effect to oak woodlands, the county shall require one or more of the following oak woodlands mitigation alternatives to mitigate the significant effect of the conversion of oak woodlands:

(1) Conserve oak woodlands, through the use of conservation easements.

(2) (A) Plant an appropriate number of trees, including maintaining plantings and replacing dead or diseased trees.

(B) The requirement to maintain trees pursuant to this paragraph terminates seven years after the trees are planted.

(C) Mitigation pursuant to this paragraph shall not fulfill more than one-half of the mitigation requirement for the project.

(D) The requirements imposed pursuant to this paragraph also may be used to restore former oak woodlands.

(3) Contribute funds to the Oak Woodlands Conservation Fund, as established under subdivision (a) of Section 1363 of the Fish and Game Code, for the purpose of purchasing oak woodlands conservation easements, as specified under paragraph (1) of subdivision (d) of that section and the guidelines and criteria of the Wildlife Conservation Board. A project applicant that contributes funds under this paragraph shall not receive a grant from the Oak Woodlands Conservation Fund as part of the mitigation for the project.

(4)Other mitigation measures developed by the county.

(c) Notwithstanding subdivision (d) of Section 1363 of the Fish and Game Code, a county may use a grant awarded pursuant to the Oak Woodlands Conservation Act (Article 3.5 (commencing with Section 1360) of Chapter 4 of Division 2 of the Fish and Game Code) to prepare an oak conservation element for a general plan, an oak protection ordinance, or an oak woodlands management plan, or amendments thereto, that meets the requirements of this section.

(d) The following are exempt from this section:

(1) Projects undertaken pursuant to an approved Natural Community Conservation Plan or approved subarea plan within an approved Natural Community Conservation Plan that includes oaks as a covered species or that conserves oak habitat through natural community conservation preserve designation and implementation and mitigation measures that are consistent with this section.

(2) Affordable housing projects for lower income households, as defined pursuant to Section 50079.5 of the Health and Safety Code, that are located within an urbanized area, or within a sphere of influence as defined pursuant to Section 56076 of the Government Code.

(3) Conversion of oak woodlands on agricultural land that includes land that is used to produce or process plant and animal products for commercial purposes.

(4) Projects undertaken pursuant to Section 21080.5 of the Public Resources Code.

(e) (1) A lead agency that adopts, and a project that incorporates, one or more of the measures specified in this section to mitigate the significant effects to oaks and oak woodlands shall be deemed to be in compliance with this division only as it applies to effects on oaks and oak woodlands.

(2) The Legislature does not intend this section to modify requirements of this division, other than with regard to effects on oaks and oak woodlands.

(f) This section does not preclude the application of Section 21081 to a project.

(g) This section, and the regulations adopted pursuant to this section, shall not be construed as a limitation on the power of a public agency to comply with this division or any other provision of law.

(Added by Stats. 2004, Ch. 732, Sec. 1. Effective January 1, 2005.)

BILL NUMBER: SB 1334 CHAPTERED
BILL TEXT

CHAPTER 732
FILED WITH SECRETARY OF STATE SEPTEMBER 24, 2004
APPROVED BY GOVERNOR SEPTEMBER 24, 2004
PASSED THE SENATE AUGUST 26, 2004
PASSED THE ASSEMBLY AUGUST 23, 2004
AMENDED IN ASSEMBLY AUGUST 17, 2004
AMENDED IN ASSEMBLY JUNE 17, 2004
AMENDED IN ASSEMBLY JUNE 7, 2004
AMENDED IN SENATE MAY 24, 2004
AMENDED IN SENATE APRIL 28, 2004
AMENDED IN SENATE MARCH 31, 2004

INTRODUCED BY Senator Kuehl
(Coauthor: Senator Romero)
(Coauthors: Assembly Members Hancock, Koretz, and Liu)

FEBRUARY 18, 2004

An act to add Section 21083.4 to the Public Resources Code, relating to oak woodlands conservation.

LEGISLATIVE COUNSEL'S DIGEST

SB 1334, Kuehl. Oak woodlands conservation: environmental quality.

(1) The Oak Woodlands Conservation Act provides funding for the conservation and protection of California's oak woodlands.

The California Environmental Quality Act (CEQA) requires a lead agency to prepare, or cause to be prepared, and certify the completion of, an environmental impact report on a discretionary project that it proposes to carry out or approve that may have a significant effect on the environment, as defined, or to adopt a negative declaration if it finds that the project will not have that effect. CEQA also requires a lead agency to prepare a mitigated negative declaration for a project that may have a significant effect on the environment if revisions in the project would avoid or mitigate that effect and there is no substantial evidence that the project, as revised, would have a significant effect on the environment. CEQA provides some exemptions from its requirements for specified projects.

This bill would require a county, in determining whether CEQA requires an environmental impact report, negative declaration, or mitigated negative declaration, to determine whether a project in its jurisdiction may result in a conversion of oak woodlands that will have a significant effect on the environment, and would require the county, if it determines there may be a significant effect to oak woodlands, to require one or more of specified mitigation alternatives to mitigate the significant effect of the conversion of oak woodlands. The bill would exempt specified activities from its requirements. By imposing new duties on local governments with respect to oak woodlands mitigation, the bill would impose a state-mandated local program.

(2) The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that

reimbursement.

This bill would provide that no reimbursement is required by this act for a specified reason.

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. Section 21083.4 is added to the Public Resources Code, to read:

21083.4. (a) For purposes of this section, "oak" means a native tree species in the genus Quercus, not designated as Group A or Group B commercial species pursuant to regulations adopted by the State Board of Forestry and Fire Protection pursuant to Section 4526, and that is 5 inches or more in diameter at breast height.

(b) As part of the determination made pursuant to Section 21080.1, a county shall determine whether a project within its jurisdiction may result in a conversion of oak woodlands that will have a significant effect on the environment. If a county determines that there may be a significant effect to oak woodlands, the county shall require one or more of the following oak woodlands mitigation alternatives to mitigate the significant effect of the conversion of oak woodlands:

(1) Conserve oak woodlands, through the use of conservation easements.

(2) (A) Plant an appropriate number of trees, including maintaining plantings and replacing dead or diseased trees.

(B) The requirement to maintain trees pursuant to this paragraph terminates seven years after the trees are planted.

(C) Mitigation pursuant to this paragraph shall not fulfill more than one-half of the mitigation requirement for the project.

(D) The requirements imposed pursuant to this paragraph also may be used to restore former oak woodlands.

(3) Contribute funds to the Oak Woodlands Conservation Fund, as established under subdivision (a) of Section 1363 of the Fish and Game Code, for the purpose of purchasing oak woodlands conservation easements, as specified under paragraph (1) of subdivision (d) of that section and the guidelines and criteria of the Wildlife Conservation Board. A project applicant that contributes funds under this paragraph shall not receive a grant from the Oak Woodlands Conservation Fund as part of the mitigation for the project.

(4) Other mitigation measures developed by the county.

(c) Notwithstanding subdivision (d) of Section 1363 of the Fish and Game Code, a county may use a grant awarded pursuant to the Oak Woodlands Conservation Act (Article 3.5 (commencing with Section 1360) of Chapter 4 of Division 2 of the Fish and Game Code) to prepare an oak conservation element for a general plan, an oak protection ordinance, or an oak woodlands management plan, or amendments thereto, that meets the requirements of this section.

(d) The following are exempt from this section:

(1) Projects undertaken pursuant to an approved Natural Community Conservation Plan or approved subarea plan within an approved Natural Community Conservation Plan that includes oaks as a covered species or that conserves oak habitat through natural community conservation preserve designation and implementation and mitigation measures that are consistent with this section.

(2) Affordable housing projects for lower income households, as defined pursuant to Section 50079.5 of the Health and Safety Code, that are located within an urbanized area, or within a sphere of influence as defined pursuant to Section 56076 of the Government

Code.

(3) Conversion of oak woodlands on agricultural land that includes land that is used to produce or process plant and animal products for commercial purposes.

(4) Projects undertaken pursuant to Section 21080.5 of the Public Resources Code.

(e) (1) A lead agency that adopts, and a project that incorporates, one or more of the measures specified in this section to mitigate the significant effects to oaks and oak woodlands shall be deemed to be in compliance with this division only as it applies to effects on oaks and oak woodlands.

(2) The Legislature does not intend this section to modify requirements of this division, other than with regard to effects on oaks and oak woodlands.

(f) This section does not preclude the application of Section 21081 to a project.

(g) This section, and the regulations adopted pursuant to this section, shall not be construed as a limitation on the power of a public agency to comply with this division or any other provision of law.

SEC. 2. No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution because a local agency or school district has the authority to levy service charges, fees, or assessments sufficient to pay for the program or level of service mandated by this act, within the meaning of Section 17556 of the Government Code.

C) PLANNERS GUIDE TO SECTION 21083 PUBLIC RESOURCES CODE

Oak Woodland Impact Decision Matrix

A Guide for Planner's to Determine Significant Impacts to Oaks
as Required by SB 1334.
(Public Resources Code 21083.4)

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Introduction

In 2004 the California Environmental Quality Act (CEQA) was amended with the passage of SB 1334, (Chapter 732, and Statutes of 2004). As amended, CEQA now requires a county to determine whether a project within its jurisdiction may result in a conversion of oak woodlands that will have a significant effect on the environment. According to the law (PRC 21083.4) if a county determines that a project will result in a significant effect to oak woodlands, the county shall require one or more oak woodland mitigation alternatives to mitigate for the significant effect associated with the conversion of oak woodlands.

In response to numerous inquiries from county planners, developers and concerned citizens on how to implement this new provision of CEQA, the University of California (UC) Integrated Hardwood Range Management Program (IHRMP) convened a working group comprised of the California Department of Fish and Game, the California Department of Forestry and Fire Protection and the Wildlife Conservation Board (WCB). The purpose of the working group was to develop information to assist county planners with the process of determining project significance including, what types of projects fall under the purview of the law, what constitutes a "significant impact," compliance standards, effective strategies to conserve oak woodlands and how to determine suitable, appropriate mitigation.

In addition to this report, tools such as a web-based decision key, PowerPoint presentations and visual comparison standards for assessing oak woodland impacts will be made available through the IHRMP web site. This represents an ongoing effort to assist county planners on how to protect and conserve critical oak woodland resources and comply with new regulations.

What Science Tells Us About County Conservation Planning

Given the variety of regional situations that face county planners, it is important to first consider broad, conceptual conservation goals and then develop applicable tools that allow the concepts to be visualized "on the ground." Forman and Collinge (1997) maintain that in order to conserve biological diversity conservation planning should be done before more than 40 percent of the natural vegetation is altered or removed from the landscape. Conservation planning grounded in science-based information allows for the development of sensitive planning scenarios that if initiated in the early stages of the development process can prevent environmental crises.

The Ecological Society of America (ESA) provides a basis for the conceptual approach to planning that should be included in conservation planning. In their Land Use Committee Guidelines for Land Use Planning and Management (Dale and others 2000) the ESA recommends:

1) Examine the impacts of local decisions in a regional context;
2) Plan for long-term change and unexpected events;
3) Preserve rare landscape elements and associated species;
4) Avoid land uses that deplete natural resources over a broad area;

5) Retain large contiguous or connected areas that contain critical habitats;
6) Minimize the introduction and spread of non-native species;
7) Avoid or compensate for effects of development on ecological processes; and
8) Implement land use and land management practices that are compatible with the natural potential of the area.

Furthermore, it is broadly recognized that a gap exists between conceptual planning designs and pragmatic implementation in the politically charged reality of county planning. Given this reality, it is important that scientifically valid approaches be included in the planning process. Also, well articulated decision-making tools need to be developed that specifically address the idiosyncrasies of oak woodlands. These tools must strive to incorporate the current conventional wisdom pervasive throughout the literature that identifies those elements or characteristics most important for maintaining the integrity of oak woodlands, i.e., old trees/forests, maintaining rare and representative habitats, riparian corridors, water quality and quantity, ecosystem functions and natural connectivity. Additionally, any planning tools should strive to assist planners in promoting compatible land uses to avoid or minimize habitat loss and fragmentation whenever possible.

All current projects should be viewed in context of past events.

In order to address the issue of "*significance*" there needs to be recognition that each project site has a peculiar history and situation. This history of site-specific land use practices may result in sites whose qualities span from relatively undisturbed sites to properties whose oak woodlands have been entirely altered.

We propose a decision matrix, described herein, that uses a process beginning with establishing a baseline site condition from which to initiate decision making process. It relies on the judgment of the resource professional and their ability to objectively determine is likely to have a significant impact.

What is a Woodland?

There are two very different approaches to address what appears to be a relatively straight-forward question.

- The first is to answer this question with a definition of oak woodland;
- The second is to use a *description* of oak woodland.

1. The first is a prescriptive, arbitrary standard or definition that is used to define a woodland, i.e., 10% canopy closure; trees of a certain diameter size class; number of trees per acre, etc.
2. The second option uses other qualitative standards such as soil type, or plant classifications that describe where different types of woodlands are expected to occur, i.e., valley oak woodland soil types. This approach can also be used to describe where woodlands are capable of occurring based on site attributes.

Both options have merit. A jurisdiction has the freedom to decide which option better suits its particular needs.

There are eight major oak species that are generally recognized to occur across California;

- **Blue oak, valley oak, Oregon white oak** and **Engelmann oak** are all deciduous and members of the white oak group.

- **Coast live oak, interior live oak,** and **canyon live oak** are three important evergreen oaks in the red oak group. **California black oak** is a deciduous oak in the red oak group.

Oaks can be found in a wide range of canopy densities depending on site characteristics and landscape characteristics (e.g. aspect, soil type, vegetation community type) as well as historical land use practices (e.g. burning, clearing). Small isolated stands (less than 1 acre) with lower than 10 percent cover are often not considered to be part of a woodland but rather represent remnant trees which can have ecological value but may not be part of a functioning woodland.

It is not unusual for woodlands to have both multiple oak species and other non-oak associates growing in close approximation including madrones, alders, maples, sycamores, and Douglas-fir.

For information on how to identify California's tree oaks, their biology, and the associated plants that are commonly found with them, please see http://danr.ucop.edu/ihrmp/oaks.html.

Step I: Getting Started—Establishing Site Condition

To use this matrix a planner must first establish the condition of the site (*for a review of the CEQA guidelines on establishing site condition see §15125 and §15126*). Site condition should evaluate either the oaks as individual trees, or the condition of the oaks as a component of a larger forest. Significance at both scales can then be determined based on the alterations being proposed and how these alterations might affect the ability of the site to continue providing the ecological goods and services currently in place.

By assessing past, present and future impacts on oak woodlands this matrix is designed to help address potential *Cumulative Impacts* as part of the assessment of significance. Significance criteria for cumulative impacts to biological resources may include:

- The cumulative contribution of other approved and proposed projects that lead to fragmentation of oak woodlands in the project vicinity.

- The net loss of sensitive habitats and species.

- Increased fragmentation of woodlands and loss of habitat connectivity.

- Contribution of the project to urban expansion into natural areas.

- The potential for the proposed project to increase run-off, nutrients and other pollutants into adjacent waterways.

- Isolation of open space within the proposed project by future projects in the vicinity.

To evaluate the quality and ecological condition of a site, we propose that a planner should ascertain if the site represents an oak woodland whose ecological functions are still relatively "intact," "moderately degraded," or "severely degraded." This relative comparison is intended to classify the current state of the site to what would be considered undisturbed oak woodland.

Intact?

The site is currently in a "wild state" being managed for grazing, open space, recreation, etc., where all of the ecological functions are still being provided, i.e., shade, ground water filtration, wildlife/fish habitat, nutrient cycling, wind/noise/dust abatement, carbon sequestration, etc. In this condition roads and buildings are rare across the site. Trees, both dead and alive, dominate the landscape and the site is capable of natural regeneration of oaks and other plant species. The site allows for movement of wildlife and the existing development is localized and limited to a small number of residences with service buildings or barns. The site is relatively undisturbed and is recognized as ***Intact.*** Examples of an ***Intact*** woodland may include large to moderately (even relatively small parcels may qualify) sized private ranches; expansive oak woodlands zoned for agriculture, open space, scenic corridors, etc.

Some latitude is necessary to allow a site to be classified as ***Intact.*** There are very few private lands in California that are entirely free from land use and ecological impacts. Virtually all oak woodland-grass communities are dominated by exotic grasses and forbs in the understory. Also, fire exclusion has affected the density and species composition of oak woodlands in many locations. The designation ***Intact*** refers mainly to being free from destructive land use practices that inhibit or limit the oak woodland to naturally sustain itself and its associated flora and fauna.

If a site is classified as ***Intact***, any proposed project that would substantially change its conditions may be determined to have significant impacts. That determination should be based on the findings of an impact assessment process; an example is described in the next section of this matrix.

Moderately Degraded?

In this case, the site has obviously been altered from a "wild" condition but is currently in a state where oak trees are present; natural regeneration is capable of occurring; limited ecological services are still being provided and the site still provides for utilization by wildlife. Roads and stream crossings are present but limited or clustered. Developed areas are centralized and concentrated over a small percentage of the site. The site is recognized as being ***Moderately Degraded***. Examples of ***Moderately Degraded*** oak woodlands may include some golf courses, large ranches that have been subdivided into

large parcels, oak woodland subdivisions that share "common grounds" of woodland acres.

A *Moderately Degraded* site has been changed in one or more ways that has reduced its potential for providing ecological and socially important services. For example, it may have been partially developed resulting in the net loss of trees; the canopy or understory may have been reduced or eliminated over all or part of the site; past grazing or soil disturbance may have impaired regeneration in some areas or it may be a situation where "ranchettes" dot the landscape.

Severely Degraded?

Here a site has been dramatically altered and is currently in a condition that has no trees or very few remain; it is being managed in such a way that natural regeneration is not possible or practical; the soil is compacted or contaminated; and/or has been used for residential, commercial or industrial purposes. Roads and stream crossings are commonplace and fencing and other obstructions limit wildlife access and movement. This site should be considered *Severely Degraded.*

> Some isolated rare oak trees, even though found in a severely degraded site, such as valley oak or Englemann oak may warrant special consideration based on their overall distribution within a county. These types of trees or small stands should be evaluated on the basis of regional occurrence and site potential for restoration. Additionally, some jurisdictions may have local statutes that provide additional protection to heritage trees.

Although a site in a severely degraded state may perform limited or no ecological or socially important functions, it may have potential for restoration or enhancement as part of a proposed development. That said, it should not simply be dismissed without considering possibilities for mitigating past damage. Restoring or improving the woodland on the site could provide benefits such as improving connectivity or patch size for locally important wildlife habitat.

Step II: Assessing Thresholds of Significance

The Guide to CEQA, 11th edition states: "In the absence of an impact necessarily deemed significant, the lead agency has discretion to adopt standards for determining whether an impact is significant. In recent years interest has focused on encouraging agencies to develop standardized "thresholds of significance", rather than to continue making ad hoc determinations in the context of particular projects..." See CEQA Guidelines § 15064.7 for more on establishing thresholds.

As with the determination of existing conditions, the evaluation of potential impacts of a project should be considered at three scales: (1) landscape, (2) site and (3) individual trees or groves. A project may have significant impacts at one scale but not at another. Or, in some cases, it may have significant impacts at all scales. For example, a project in an oak woodland deemed *Intact* that results in the removal of some trees but retention of other woodland qualities such as species composition and canopy cover may only have

significant impacts at the tree scale. Another project that creates a barrier, such as a road that interrupts wildlife migrations, may have significant impacts at the landscape scale even if few trees are removed.

The determination of significance in an impact assessment is by no means simple. Any assessment should consider and address more than simply the impacts to the trees; the planner should consider the potential impacts to the other tangible aspects of the woodland.

Many jurisdictions have arbitrarily established thresholds of significance to aid in the determination process. The vast majority of examples to date have focused on the tree scale. [Only a few examples exist of counties developing spatial thresholds, i.e., Lake County's grading ordinance specifies one quarter acre of native vegetation as a threshold.] These include: individual tree diameter limits established in tree ordinances; soil disturbance limits often contained in grading ordinances; heritage tree designations initiating a discretionary permit review process prior to removal.

Here we propose another means of determining thresholds through a process of pre-determining those oak woodlands whose site qualities qualify them to be recognized according to there existing condition. By using spatially derived images (aerial photos, GIS data, etc) a planner can determine contiguous acreages of oak woodlands that may qualify as *Intact* woodlands; using other available planning tools areas could be identified as *Moderately Degraded* and the same could be done for *Severely Degraded* areas. Conceptually, this approach mimics other planning designations identified through zoning.

Developing a System Using Impact Prediction as a Means of Determining Significance

An important consideration dealing with *significance* in wildlands is the assessment and prediction of both the nature and extent of the potential impacts. Predictions can be based on simplified conceptual models of how natural processes function. Models range in complexity from those that are very intuitive to those based on explicit assumptions about environmental processes. We propose a combination of intuition and strict quantitative assessment to help make a determination. Criteria that can be used to describe the nature and duration of an impact may include:

Determination of Impact Magnitude

Spatial Extent

1) At the site scale:

What proportion of the woodland will be removed or changed to the extent that ecological functions or goods and services will be impaired? Metrics that can be evaluated include:

1. Road density pre and post development.
2. Percent canopy cover pre and post development.
3. Oak species present pre and post development.

4. Vegetation composition pre and post development.

2) At the landscape scale:

Would changes at the site cause fragmentation, loss of connectivity or interruption of processes such as wildlife migration, water flow, or increased fire risk over a larger geographic area? Metrics that can be evaluated include:

1. Road density within 1 km of the site,
2. Results in reduced distance between woodlands and urban development.
3. Changes in size and configuration of woodland habitat patches and increased edge habitat.
4. Severe wildlife corridors or habitat linkages thereby impacting animal and plant movement.

Temporal Extent

Does the proposal result in long-term impacts to the structure and ecological services being provided? Metrics that can be evaluated include:

5. What is the duration of the proposed impacts?
6. Are the impacts reversible?
7. Does the project protect oaks and other oak woodland components from future potential impacts to the site?
8. Are exotic and weedy species likely to increase at the site?

Impact Prediction Checklist—Intact Woodlands

If a project is being proposed for ***Intact*** woodland, the following criteria could be considered to determine significance.

- ✓ Net loss of oak woodland acreage.
- ✓ Increase habitat fragmentation.
- ✓ Loss of vertical and horizontal structural complexity.
- ✓ Loss of understory species diversity.
- ✓ Loss of food sources.
- ✓ Loss of nesting, denning, burrowing, hibernating, and roosting structures.
- ✓ Loss of habitats and refugia for sedentary species and those with special habitat requirements, i.e., mosses, lichens, rocks, native grasses and fungi.
- ✓ Net loss of oak woodland acreage.
- ✓ Road construction, grading, trenching, activities affecting changes in grade, other road-related impacts.
- ✓ Stream crossings, culverts, and road associated erosion and sediment inputs.

Although mitigation measures may help to diminish some of the negative aspects of a project, they can not ensure that the cumulative effects would not result in long-term changes affecting the ecological processes associated with an *Intact* woodland. Therefore, cumulative impacts may have to be considered when predicting the affect of a project proposed for designated *Intact* woodland.

Impact Prediction Checklist—Moderately Degraded Woodlands

Moderately Degraded woodlands may be the most frequently encountered oak woodland condition found in California. When a site is determined to be moderately degraded, the baseline conditions may be such that further perturbations will have a significant impact. Conversely, a proposed development may present opportunities for improving or enhancing site conditions.

If a project is being proposed for woodland you determine to be Moderately Degraded, the following criteria could be considered to determine significance:

- ✓ Net loss of oak woodland acreage.
- ✓ Increase habitat fragmentation.
- ✓ Loss of vertical and horizontal structural complexity.
- ✓ Loss of understory species diversity.
- ✓ Loss of food sources.
- ✓ Loss of nesting, denning, burrowing, hibernating, and roosting structures.
- ✓ Loss of habitats and refugia for sedentary species and those with special habitat requirements i.e. mosses, lichens, rocks, native grasses and fungi.
- ✓ Net loss of oak woodland acreage.
- ✓ Road construction, grading, trenching, activities affecting changes in grade, other road-related impacts.
- ✓ Stream crossings, culverts, and road associated erosion and sediment inputs.
- ✓ Road building activities that aggravate existing conditions.
- ✓ Changes in environmental conditions that prevent existing residual trees the ability to naturally regenerate.
- ✓ Proposed project designs that result in the construction of obstacles that pose as barriers to wildlife or fish passage.
- ✓ Proposed project designs that result in the probable introduction of invasive plants and animals.

Impact Prediction Checklist—Severely Degraded Woodlands

If the project is being proposed for a ***Severely Degraded*** woodland, consideration of the following impacts should be recognized to determine potential significance. In order for a site to be initially classified as ***Severely Degraded*** it should be highly altered, fragmented or in such a state as to make it virtually unrecognizable as ever having been an oak woodland. These sites may be urban, suburban or agricultural sites whose only link to its past natural heritage is found in the name of the community. In these sites, the oaks

remain only as a relic of the past and the reality of oak regeneration is highly unlikely and constrained.

Take note that these sites may have significance if the relic trees represent a resource protected by local ordinance or statute. Additionally, the site may have significance if the relic trees are considered in a spatial context of what may have been found throughout the county prior to development, and though mitigation may never fully recover the lost biological attributes of a forest, it may serve as a strong source of civic pride that should be considered as part of the determination of significance.

The conversion of these resources may not lead directly to the loss or reduction of sensitive habitat or species but in a cumulative sense may be significant. Thus, impacts to *Severely Degraded sites may be less than significant* when dealing with individual trees on a small scale, but some projects, depending on specific attributes, may in fact be significant.

Scenarios where the loss of trees may be considered significant in a *Severely Degraded* oak woodland:

- ✓ Loss of individual heritage tress that are recognized and/or protected by ordinance or statute.
- ✓ Loss of appropriate recruitment sites for recognized and/or protected heritage tree species.
- ✓ Loss of individual trees in a county where the natural range and occurrence of the species has been dramatically reduced and/or altered thereby affecting the recruitment/restoration potential for the species.
- ✓ The removal of even a few individual trees, taken in spatial context of the county and species being considered, may represent a significant portion of the existing population of that species.

Scenarios that may be less than significant under this classification may include:

- ✓ Removal of a small number of immature trees for a road-widening project.
- ✓ Removal of a single tree(s) from a residential property associated with a remodeling project.
- ✓ Actions associated with tree care, maintenance and health, i.e., pruning, shaping, etc..
- ✓ Removal and replacement of street trees.
- ✓ Removal and replacement of landscape trees associated with existing developments.
- ✓ Removal of hazard trees where the threat of a tree failure could injure people or property.

Designing an Oak Woodland Decision Matrix

As has been previously stated, the matrix being proposed here relies on the planner making an assessment of the proposed project based on:

1. the site condition of the oak woodlands at the project site; and
2. the degree to which the initial site condition will be changed as a result of the project.

When developing your matrix start by using a set of broadly defined criteria as a means to identify rudimentary thresholds of significance in simple terms. These criteria apply subjective reasoning to determine the level of impact being proposed (Table 1).

Conceptually, your matrix should compare the site condition (Step I) to the relative impacts being proposed (Step II) thus, the matrix will provide both the planner and the applicant a relatively straight-forward and economically cost effective assessment of environmental impacts and their potential significance.

Table 1. Conceptual sample of how the decision matrix is intended to demonstrate the determination of ***significance*** by comparing the initial condition of the site with the proposed impacts of the project.

	Site Condition		
Degree of Impact	Undisturbed (Intact)	Moderately Degraded	Severely Degraded
Low	Moderately Significant	Least likely significant	Least likely significant
Moderate	Highly likely significant	Moderately likely significant	Less likely significant

If a county has pre-determined designated lands that are assigned a condition rating of ***Intact***, ***Moderately Degraded*** or ***Severely Degraded***, it will facilitate the process.

Table 2 provides example criteria that can be considered when trying to qualify impacts at a project level (Table 3). Supporting documents to consider should include maps, aerial photos, landsat imagery or areas/trees with special designation (rare, threatened or endangered habitats, heritage trees, zoning overlays, etc.)

Table 2. Criteria for consideration when rating of impact magnitude and significance. (Adapted from Rossouw 2003).

Impact Magnitude and Significance Rating	Examples
HIGH Of the highest order possible within the bounds of impacts that could occur. In the case of adverse impacts, there is no possible mitigation that could offset the impact, or mitigation is difficult, expensive, time consuming or some combination of these. Site scale—Typically on a small scale (less than 3 acres) a high impact would result in the removal of a majority of the existing trees. Landscape scale—Does the loss of trees result in habitat fragmentation because the site is located within a larger continuous patch of woodland. Existing threshold limits delineating significant impacts currently in use in California range from ¼ acre to 3 acres.	Examples include alterations/conversion of oak woodlands resulting in: ✓ Loss of vertical and horizontal structural complexity. ✓ Loss of understory species diversity. ✓ Loss of food sources. ✓ Loss of nesting, denning, burrowing, hibernating, and roosting structures. ✓ Loss of habitats and refugia for sedentary species and those with special habitat requirements, i.e., mosses, lichens, rocks, native grasses and fungi. ✓ Net loss of oak woodland acreage. ✓ Road construction, culverts, grading and other road-related impacts. ✓ Stream crossings, culverts, and road associated erosion and sediment inputs.
MODERATE A second order or tier impact. In the case of adverse impacts, mitigation or minimization of impacts is sometimes possible to offset overall alterations. Site scale—Both tree and non-tree components of the oak woodland are being considered for removal or alteration. Removal of trees will result in the creation of more edge impacts. Landscape scale—Increased edge habitat but less than 1 kilometer. Complete loss of habitat resulting in a disturbance envelops less than 3 acres. Existing threshold limits delineating significant impacts currently in use in California range from ¼ acre to 3 acres.	Examples of moderate impacts at a site scale may include: ✓ Understory removal. ✓ Thinning of existing trees. ✓ Removal of snags and other wildlife elements. Examples of moderate impacts at a landscape scale may include: ✓ Right of way clearing. ✓ Road alignments. ✓ Road expansion.
LOW A third tier or order of proposed impacts. In the case of adverse impacts, minimal disturbance is anticipated or can easily be avoided, minimized or mitigated.	Examples of low impacts at a site scale – Less than 10 trees. Large scale—No change to the stand structure and immeasurable impacts on canopy cover.

Table 3. This illustrates an example matrix and how it might be used to help determine significance.

	Initial Site Condition		
Impact Level	Intact Woodland	Moderately Degraded Woodland	Highly Degraded Woodland
Low Impact	Minimal disturbance to stand structure and composition and habitat features resulting in no increased edge habitat or fragmentation; road and stream crossings are not being considered; activities will not result in the introduction of exotic or invasive species. [Minimal site or spatial disturbance may still result in significant impacts to an intact or core woodland.]	Regeneration potential is being maintained across the site; expansion of developed areas are maintained and centralized; new road and stream crossings are not being considered. [In the absence of special circumstances, statutes or ordinances this may represent a non-significant impact.]	Majority of remnant trees are retained; understory removal or road widening protects existing tree health; individual tree removal on a residential, commercial or industrial site. [In the absence of special circumstances, statutes or ordinances this may represent a non-significant impact.]
Moderate Impact	Detectable change or reduction in canopy, structure or composition; loss of some habitat features, subtle impacts increasing fragmentation, edge creation or loss of connectivity (roads, fences, other introduced artificial barriers or buffers). [These impacts are considered significant.]	Regeneration potential is being marginalized; develop areas are expanding into previously undeveloped sites; new roads or stream crossing are being proposed; habitat features are being lost; activities being proposed will add to the existence of exotic and invasive species. [These impacts are considered significant.]	Loss of a majority of existing trees; activities will inhibit or harm residual tree health and vigor; barriers are constructed that increase fragmentation and connectivity; [These impacts may be significant.]
High Impact	Obvious change or reduction or loss in canopy, structure or composition loss of most of the existing habitat features and services; fragmentation and or parcelization of contiguous ownerships; introduction of roads or stream crossings; creation of edge habitats previously absent; construction of barriers (fences). [These impacts are considered significant.]	Large scale impacts including loss of habitat resulting in habitat fragmentation and increased edge. Loss of woodland structure and changes in composition occurring in large continuous patch of woodland. [These impacts are considered significant.]	Loss of remnant trees or stand increases fragmentation across the landscape through the loss of connectivity. [In the absence of special circumstances, statutes or ordinances this may represent a non-significant impact to oak woodlands.]

Step III: Identifying Potential Mitigatory or Remedial Actions

CEQA does not mandate similar mitigation for all similar projects. Nothing in CEQA requires a local legislative body to enact legislation which uniformly applies a certain level or standard of mitigation to all similar project submitted for environmental review within its jurisdiction. Guidelines § 15130.

Projects predicted to have significant impacts at the individual tree, site (or stand) and/or landscape scale should include mitigation measures designed to avoid, minimize or compensate the impacts. If that is not feasible, a project with residual significant impacts cannot be approved without a finding of overriding considerations by the approving jurisdiction. Mitigation measures may be proposed to reduce the level of impacts, restore impacted resources or enhance degraded resources. In some cases, on-site mitigation will not be practical and so provisions must be made for off-site mitigation or even compensation. Off-site compensation may include both direct measures at other suitable locations or contribution of in-lieu fees. To some extent, the existing conditions at a site, whether ***Intact, Moderately Degraded*** or ***Severely Degraded***, will determine the nature and feasibility of on-site mitigation. For example, although on-site mitigation is always preferred, a project within ***Severely Degraded*** oak woodland may have few options. Consequently, only off-site compensation may be feasible.

Appropriate Mitigation measures may include:

- ✓ Old trees with irreplaceable characteristics are retained.
- ✓ Snags are maintained or recruited where safe and feasible.
- ✓ Snags are well represented by size, specie, and decay class.
- ✓ Measures are initiated to minimize storm water runoff and other sources of non-point source pollution.
- ✓ Stream crossings include measures to minimize water quality degradation and facilitate fish passage.
- ✓ Hydrologically disconnect effects of impervious surfaces from waterways.
- ✓ Areas are designated to serve as seedling/sampling receptor sites or are designed to facilitate natural oak recruitment.
- ✓ Appropriate sites for long-term oak recruitment should be identified within the project impact area, e.g., roadside right-of-ways, utility easements, publicly owned open space, etc.
- ✓ Replacement of like-species of trees.
- ✓ Use of like-species of trees in off-site planting sites.
- ✓ A county-wide policy stipulating a percentage of native oaks be planted in all projects requiring landscape design approval.

- ✓ In-lieu fees, or the Wildlife Conservation Board or County department in order to provide a funding source to expand the impact of oak restorative actions across a larger spatial context on publicly maintained sites and roadways.

The matrix you develop for your particular jurisdiction should be fluid and elastic over time. As information becomes available, the decision matrix you use should be adaptable to address the challenges of your county.

Appendix I: Mitigation Considerations

The following recommended process was developed to help estimate a compensation fee listed as a mitigation option in California Public Resources Code 21083.4. This text will be incorporated into the implementation Section III of the overall decision-support document.

1. The WCB or Counties themselves are the only entities that can receive funds under option 3 of California Public Resources Code 21083.4[1].

2. Consider where in the County oak woodlands should be conserved to protect the natural communities they harbor and associated natural resource values. Ultimately, these are areas where funds will be required to protect privately-owned oak woodlands in the county. Existing regional land conservation plans developed by the county, stakeholders, or conservation organizations can be used. If no such plan exists, large continuous areas of mixed oak woodlands that are in need of protection from land conversion should be identified through a planning process (see Planners Guidelines – link to order).

3. Acquire all recent sales (1-3 years) data from woodland properties that are a priority for land conservation identified in step 2. Using this data, determine median value per acre for purchasing land in its entirety and the price range for acquiring a conservation easement from properties in these areas. If the project area falls within the area of interest for conservation then these values should also be determined based on the area impacted by the project. We encourage you to use a qualified property appraiser who has met the educational requirements for General Certification pursuant to the Appraisal Qualifications Board of the Appraisal Foundation and who holds a designation from a recognized professional appraisal organization. The appraiser should be familiar with conservation easement valuation and should follow best practice guidelines (web link here to SCAOSD guidelines).

4. Calculate the impact area of the project and include; the building envelope, new roads, landscaping, all areas enclosed by a fence that prohibits animal movement, and include a border surrounding the building envelope which will likely be impacted by activities associated with development such as pets and invasive weeds. Development results in human-created woodland edges where the natural habitat

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[1] (3) Contribute funds to the Oak Woodlands Conservation Fund, as established under subdivision (a) of Section 1363 of the Fish and Game Code, for the purpose of purchasing oak woodlands conservation easements, as specified under paragraph (1) of subdivision (d) of that section and the guidelines and criteria of the Wildlife Conservation Board. A project applicant that contributes funds under this paragraph shall not receive a grant from the Oak Woodlands Conservation Fund as part of the mitigation for the project.

ends and abuts the human-altered parts of the landscape. These edges can result in strong negative physical and biological impacts detectable as far as 1,640 feet into forested systems (Laurance 1995); therefore woodlands immediately adjacent to development will be impacted and should be considered as part of the impact area of the project.

5. Determine an appropriate mitigation ratio to determine the amount of in-kind (i.e. same type of woodland such as blue, valley or mixed) area that should be protected to compensate for the likely impacts associated with the proposed project.
    a. If you go with a 1:1 replacement this means that 50% of the woodland resources could ultimately be lost to development over the long-run.
    b. A 2:1 replacement will more fully compensate for the land impacted by the proposed development.

6. Calculate fee based on the cost of purchasing protected land in its entirety or through a conservation easement in the area identified as a priority for woodland conservation. The amount of protected land to base the fee on can be based on the number of acres impacted by the proposed (see #4) project times the mitigation ratio.

7. If the development being proposed is simply an addition to an existing structure or an outbuilding adjacent to an existing structure that will require the removal of a few trees; then compensation may best be approached through estimating the costs of replacing the trees removed. These estimates can be provided by a certified arborist or consult the International Society of Arboriculture standards for valuing trees of different sizes.

8. Sending this fee to the WCB satisfies the CEQA mitigation requirement detailed in California Public Resources Code 21083.4. The funds will remain with the WCB for future land conservation projects within that county. This allows for a transparent public process for reallocation of these funds to protect public trust benefits.

9. If the County is going to receive the money for compensation rather than the WCB they should consider:
    a. Collecting a fee for stewardship including compliance and resource monitoring. These fees often range from 5-10% of the total.
    b. The county should develop and continually update (every 5 years at least) a land acquisition plan that is approved by the county.
    c. The county should establish an independent spending authority to provide checks and balances to protect the public interest.
    d. County legal counsel will be responsible for ensuring that the public trust interests are protected through CEQA and for every negotiated conservation easement.
    e. The county will be responsible for compliance and resource monitoring of any conservation easements that they hold.

f. The funds collected as mitigation should not be transferred to a private company or non-profit without public oversight.
g. The time lag between collecting the fee and purchasing land as compensation should be minimized, while still allowing for enough funds to be accumulated to implement a beneficial acquisition.
h. If funds are held for a period of time, interest should be accrued in order to offset expected increases in land values.

Appendix II: PRC 12220

PUBLIC RESOURCES CODE SECTION 12220

12220. Unless the context otherwise requires, the definitions in this article govern the construction of this division.

(a) "Applicant" means a landowner who is eligible for cost-sharing grants pursuant to the federal Forest Legacy Program (16 U.S.C. Sec. 2103 et seq.) or who is eligible to participate in the California Forest Legacy Program and the operation of the program, with regard to that applicant, does not rely on federal funding.

(b) "Biodiversity" is a component and measure of ecosystem health and function. It is the number and genetic richness of different individuals found within the population of a species, of populations found within a species range, of different species found within a natural community or ecosystem, and of different communities and ecosystems found within a region.

(c) "Board" means the State Board of Forestry and Fire Protection.

(d) "Conservation easement" has the same meaning as found in Chapter 4 (commencing with Section 815) of Title 2 of Part 2 of Division 2 of the Civil Code.

(e) "Conversions" is a generic term for situations in which forest lands become used for nonforest uses, particularly those uses that alter the landscape in a relatively permanent fashion.

(f) "Department" means the Department of Forestry and Fire Protection and "Director" means the Director of Forestry and Fire Prevention.

(g) "Forest land" is land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.

(h) "Landowner" means an individual, partnership, private, public, or municipal corporation, Indian tribe, state agency, county, or local government entity, educational institution, or association of individuals of whatever nature that own private forest lands or woodlands.

(i) "Local government" means a city, county, district, or city and county.

(j) "Nonprofit organization" means any qualified land trust organization, as defined in Section 170(h)(3) of Title 26 of the United States Code, that is organized for one of the purposes of Section 170(b)(1)(A)(vi) or 170(h)(3) of Title 26 of the United States Code, and that has, among its purposes, the conservation of forest lands.

(k) "Program" means the California Forest Legacy Program established under this division.

(l) "Woodlands" are forest lands composed mostly of hardwood species such as oak.

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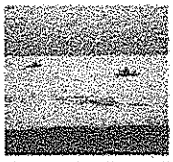
2. OAK WOODLAND MANAGEMENT PLANS

A) SANTA BARBARA COUNTY

B) PLACER COUNTY

A) SANTA BARBARA COUNTY



SANTA BARBARA COUNTY COMPREHENSIVE PLAN

CONSERVATION ELEMENT

OAK TREE PROTECTION IN THE INLAND RURAL AREAS OF SANTA BARBARA COUNTY

SUPPLEMENT TO THE MAPPED AREAS AND COMMUNITIES SECTION

ADOPTED 2003

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County of Santa Barbara
Planning and Development
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SUPPLEMENT TO THE MAPPED AREAS AND COMMUNITIES SECTION OF THE CONSERVATION ELEMENT

OAK TREE PROTECTION IN THE INLAND RURAL AREAS OF SANTA BARBARA COUNTY

I. INTRODUCTION [1]

A. Purpose and Organization

This section of the Santa Barbara County Comprehensive Plan Conservation Element provides for the protection of native oak trees in the inland rural areas of Santa Barbara County. To achieve protection of the remaining oak tree resource, the County will regulate the removal of oak trees; seek financial assistance for landowners, incentives and purchase toward their conservation; and distribute information about oak trees and their propagation to promote oak woodland restoration.

Part I provides an introduction and background to the development of this section of the Conservation Element, including a history of the process that generated the oak tree protection Goals, Policies, Actions, and Development Standards. Part II is an overview of oak tree resources in Santa Barbara County. Part III contains the Goals, Policies, Actions, and Development Standards that address oak trees in the inland rural areas of the county.

B. Process History

Outside of the coastal zone boundary, the County of Santa Barbara has no regulations specifically written to address the removal of native oak trees unless the removal is associated with another action requiring a permit. On February 10, 1998 the County's Board of Supervisors initiated a collaborative public process to develop recommendations for oak protection. This decision was made in response to the accelerated clearing of native oak trees on the county's rural lands to prepare ground for planting new crops. The County's Planning & Development Department estimated that more than 2,000 oak trees were removed for agricultural intensification in the eighteen months preceding the February 1998 hearing, more than had been removed for urban development in the previous ten years.

The County invited over 400 people to participate in the collaborative discussions, including grape growers, vintners, farmers, ranchers, Agricultural Advisory Committee members, scientists, environmentalists, and other interested parties. In sixteen public meetings over 14 months, a balanced core group of approximately 25 participants and many other occasional participants came close to agreeing on recommendations to address large-scale oak removal. However, the group was ultimately unable to unanimously approve final recommendations.

In September of 1999 the Board recognized that complete consensus was not forthcoming. The Board directed Planning & Development to hold another series of public workshops and to develop oak protection regulations based on public comment, the work of the Oak Protection Collaborative Process, and County policies that call for the encouragement of agricultural expansion and the protection of natural resources.

The regulations were prepared and an Environmental Impact Report prepared by spring of 2001.

In July of 2001, after five public hearings, the County Planning Commission recommended that the Board of Supervisors adopt the Oak Protection Program. When Planning & Development brought the program to the Board in spring of 2002, however, the Board chose instead to encourage a small group of farming and environmental representatives to work on another consensus based alternative. After several meetings supported and facilitated in part by County staff, the group now known as the Oak Working Group produced the recommendations that are the basis for the Oak Tree Protection and Regeneration Program that was adopted in April 2003.

The uniqueness of the Oak Tree Protection and Regeneration Program produced by the Oak Working Group, which calls for stewardship and cooperation, has received support and buy-in from both the agricultural and environmental communities. Such bipartisan support is critical for the success of this type of program.

The goal, policies, development standards and implementing actions in Section III below are based on the work of the collaborative process and on other input from the community. They were subsequently refined and finalized by the Oak Working Group.

II. OVERVIEW OF OAK TREE RESOURCES IN THE SANTA BARBARA COUNTY RURAL AREA

A. Oak Trees in California

Oak savannas, woodlands, forests, and the grassland and riparian systems that complement them are California's most biologically diverse ecosystems and integral parts of the state's cultural and historical heritage. Santa Barbara County is fortunate to retain a significant, though reduced, distribution of the oak habitats that once blanketed the Central Coast.

Oak habitats contribute greatly to the ecological diversity of California. In terms of species diversity, California's native oak woodlands provide habitat for approximately 2,000 species of plants, 170 birds, 100 mammals (approximately one-third of all mammals native to California), 60 amphibians and reptiles, and 5,000 species of insects (University of California 1993 and 1996). These species include eagles, owls, hawks, reptiles, bobcats, foxes, deer, and 300 or more other vertebrate species that depend on oak habitats during their breeding seasons. In terms of ecological function, intact oak habitats stabilize the soil on which they occur, serving to help prevent the erosion of topsoil and protect water quality. Oak trees also provide shade, influencing the temperature and growth conditions for understory species. The community of oak-associated plants, vertebrates, invertebrates, and soil microbes varies from site to site, in response to site-specific conditions and the extent of influence by the dominant oaks. Within these communities, structural complexity is enhanced by the presence of riparian areas, downed and woody debris, snags, and diverse ages and conditions in oaks and other plants (Merrick et al. 1999).

California's oaks are also important for their aesthetic, economic, historical, and cultural values. Oak trees and their habitats are woven into California and Santa Barbara County's cultural heritage, beginning with the indigenous peoples that utilized oak tree products and valued the oak woodlands in their cultural traditions. After European settlement in California, oak habitats have continued to be an enduring symbol of the state's rich ranching tradition, and to be valued economically and aesthetically. The presence of oak trees on a property can increase the property's value by 20% or more (University of California 1993). They are one of the county's and the state's most widely recognized and admired visual assets. In both the urban and rural areas of Santa Barbara County, oak woodlands and large, individual oak trees contribute significantly to the scenic beauty for which the county is known.

B. Distribution and Characteristics of Oak Trees in Santa Barbara County

Distribution

Oaks in Santa Barbara County are widely distributed and occur in a variety of diverse biological communities. Some oak species always occur as trees, others occur as shrubs, and for some, size and growth form depends on site conditions and genetics.

The tree-sized oak species in Santa Barbara County include coast live oak trees (*Quercus agrifolia*), valley oak trees (*Quercus lobata*), blue oak trees (*Quercus douglasii*), canyon live oak trees (*Quercus chrysolepis*), black oak trees (*Quercus kelloggii*), and interior live oak trees (*Quercus wislizenii*). Table 1 provides the inventory of each of the different oak woodland and forest communities occurring in Santa Barbara County.

Coast live oak trees occur predominantly in coastal areas, and throughout the county on north-facing slopes and along perennial and intermittent creeks. Multi-trunked coast live oak trees are often a component of the sensitive Burton Mesa chaparral community in the Lompoc Valley. In the Santa Ynez Valley, stands of coast live oak trees mingle with relatively widely spaced valley oak trees on rolling savannas. Beginning on the cool, north-facing slopes of the upper Santa Ynez Valley and extending northward, blue oak woodlands become prevalent. Canyon live oak, black oak, and interior live oak trees occur in montane and interior areas of the County, largely on lands included within Los Padres National Forest.

Table 1: Oak Woodland and Forest Communities in Santa Barbara County

Oak Community	*Approximate Acreage*
Coast Live Oak Forest*	71,381
Canyon Live Oak Forest	12,325
Interior Live Oak Forest	1,902
Valley Oak Woodland	9,682
Blue Oak Woodland	22,872
Coast Live Oak Woodland	80,077
Total Oak Woodlands and Forests	198,239
Source: ICESS, U.C. Santa Barbara; (personal communication, Davis 2000) *Includes central coast live oak riparian forest and south coast live oak riparian forest	

Of the oak trees occurring in Santa Barbara County, the valley oak trees (*Quercus lobata*), blue oak trees (*Quercus douglasii*), and black oak trees(*Quercus kelloggii*), are deciduous, losing their leaves in winter. Coast live oak trees (*Quercus agrifolia*), canyon live oak trees (*Quercus chrysolepis*), and interior live oak trees (*Quercus wislizenii*) are live oak trees, retaining their foliage throughout the year. Some of the other characteristics of the oak trees of Santa Barbara County are described below.

Characteristics

Coast live oak *(Quercus agrifolia):* Coast live oak trees are generally low trees, with trees in open stands ranging from 20 to 40 feet tall. However, trees in dense stands can reach 80 feet tall. A dense, layered canopy is characteristic, and coast live oak trees often have multiple trunks when the stumps re-sprout after fire. They commonly reach greater than 250 years in age (Pavlik et al. 1991) and occur from Northern Baja

California to Mendocino County along the coast as well as in inland areas where fog provides adequate moisture (Pavlik et al. 1991).

Valley oak *(Quercus lobata):* Valley oak trees are thought to be the largest oak species in North America, reaching up to 100 feet in height (though they are most typically 40 to 50 feet tall) with canopies that are generally 40 to 50 feet wide (Pavlik et al. 1991). The limbs are relatively large and often droop near the ground, especially on trees that occur in open savannas rather than on trees in more dense riparian habitats. Valley oak trees can live to be 400 to 600 years old. Their distribution is limited to California, in the Central Valley and the inner coast and transverse ranges. Within their range, they occur on deep, rich soils in riparian areas, alluvial fans and valleys, and upland terraces (University of California 1993).

Blue oak *(Quercus douglasii):* Blue oak trees average 30 to 40 feet in height, and have a compact canopy (Pavlik et al. 1991). The tree's name indicates the blue-ish color of the upper leaf surfaces, which is most dramatic in the late summer (Pavlik et al. 1991). Blue oak trees are thought to live for 200 to 300 years, though trees as old as 390 years have been reported (White 1966). Blue oaks occur only in California, from Santa Barbara to Shasta counties (University of California 1993), mainly in foothills bordering interior valleys (Pavlik et al. 1991).

Canyon live oak *(Quercus chrysolepis):* Canyon live oak trees can grow to be between 15 and 60 feet tall (University of California 1993), with the taller trees generally occurring in dense stands. The species approaches a shrub stature in open, harsh conditions (Pavlik et al. 1991). Canyon live oak trees generally live for 250 to 300 years (Plumb and Gomez 1983). They are found from central Baja California to southwestern Oregon, Nevada, and central Arizona (Pavlik et al. 1991) in foothills and coastal canyons, and on mountain ridges (University of California 1993).

Black oak *(Quercus kelloggii):* Black oak trees occurring in dense stands can reach 100 feet in height, while trees occurring in more open stands are generally 30 to 80 feet tall (Little 1980, Plumb and Gomez 1983). The trees do not usually dominate the communities in which they occur, but are often subordinate to the pines, firs, and cedars in the landscape (Pavlik et al. 1991). Black oaks live for approximately 200 to 300 years (McDonald 1969, Plumb and Gomez 1983). Found in mountains and fairly distant from the coast, black oak trees are distributed from southern San Diego County to central Oregon.

Interior live oak (Quercus wislizenii): A dense, round tree, interior live oaks are usually between 30 and 75 feet tall (University of California 1993). They generally live for approximately 150 to 200 years and are capable of vigorous re-sprouting after fire (Plumb and Gomez 1983). The species is common in the Klamath and southwestern Cascade ranges and scattered in the Coast, inner Transverse, and Peninsular ranges (Pavlik et al. 1991). Within its range, interior live oak trees occur away from the coast and can tolerate both extremely wet and extremely dry conditions (University of California 1993).

C. Changes in Oak Tree Distribution in California and Santa Barbara County

California's oak woodlands are declining in both viability and distribution. The state's original 10-12 million acres of oak woodland have been reduced to approximately 7 million acres today (Thomas 1997). The greatest concentrations of oak woodlands remain in the foothills of the coast and valleys (University of California 1993). Though millions of acres remain, there is concern regarding the viability of some relict populations of older oak trees that do not appear capable of regenerating the aging stands in which they occur (Pavlik et al. 1991, University of California 1993). After the existing oak trees die, these areas will be added to the tally of acreage where oak woodlands have been lost.

Santa Barbara County's oak populations have not been spared from the declines observed in the rest of the state. A large percentage of coast live oak, valley oak, and blue oak habitats occur on private lands within the jurisdiction of the County of Santa Barbara. Santa Barbara County's populations of black oak, canyon live oak, and interior live oak are concentrated within the boundaries of Los Padres National Forest. As a result, valley oak, blue oak, and coast live oak woodland have experienced the most severe contractions in their populations and are of the most concern.

Valley oak savannas and woodlands in the county, naturally occurring on the deep, fertile soils also preferred by agriculture and development, have been especially affected. The California Department of Fish and Game considers virtually every valley oak community threatened and of high priority (Davis 1999). Countywide, valley oak savanna and woodland is estimated to have declined from 62,000 acres in the 1700's to approximately 10,000 acres today (Davis 1999).

In the San Antonio Creek watershed, including the Los Alamos Valley and exclusive of Vandenberg Air Force Base, approximately 4,100 acres of coast live oak woodlands and forests were cleared between 1930s and 1999. Approximately 2,200 acres of blue oak woodland have been lost in the same area. This study area represents approximately 10% of the privately owned land in the jurisdiction of the County of Santa Barbara and it includes much of the area of vineyard development in the county (Davis 1999).

Much of the historic and current declines in oak tree populations in Santa Barbara County and the rest of the state have been due to direct removal for the purposes of urban development and cultivated agriculture. Livestock raising, wood cutting, flood control and fire suppression have also had a hand in the clearing of oak trees in California during the last 200 years (Rossi 1980). Some oak trees continue to be lost to urban expansion in the county. However, agriculture, especially vineyard expansion, made a notable contribution to oak tree clearing in Santa Barbara County in the mid to late 1990's. Planning and Development estimates that approximately 2,000 oak trees were removed by agricultural operations between 1996 and 1998.

In addition to the direct effects of tree removal on oak communities, many oak populations in Santa Barbara County and throughout the state are known for their lack of successful natural recruitment. Recruitment is the transition of oak seedlings to saplings and young adults that will eventually serve to replace the older trees. In Santa Barbara County, savannas and woodlands dominated by valley oak and blue oak trees are particularly lacking young trees.

This less direct and less visible threat to the county's oak woodlands cannot be attributed to any one simple cause. A number of determinants appear to be involved in the lack of oak tree saplings. Competition with annual grasses (originally introduced during European settlement) for scarce moisture, and the cumulative effects of numerous rodents, livestock, and other herbivorous species such as deer are thought to be the main factors (Sweicki and Bernhardt 1991). The native perennial grasses remove moisture from the soil over a longer growing season relative to introduced annual grasses that more quickly deplete soil moisture during a crucial period of oak seedling growth (Danielson 1990). Increases in the number of livestock and in deer and rodent populations further impact oak seedling survival (Griffin 1976 and 1980). Fire suppression and ground water depletion are also thought to play a role in altering the natural conditions of oak tree communities, leading to an effect on their reproductive capabilities (Muick and Bartolome 1986).

D. Protection and Restoration of Oak Trees in Santa Barbara County

The goal of oak preservation in California can best be achieved through an approach that includes preservation of the remaining savannas, woodlands and forests, replacement and restoration of oak resources, and education (Pavlik et al. 1991). Santa Barbara County's Oak Tree Protection and Regeneration Program promotes the protection of the existing oak tree populations, and seeks to increase the acreage of oak woodlands, forests and savannas using a variety of methods and approaches.

With the large percentage of oak woodlands occurring on private lands, it is important for oak protection strategies, especially regulations, to take the property owners' needs into consideration. The oak tree protection policies and standards that are now part of Santa Barbara County's Comprehensive Plan were adopted to provide protection for our county's important oak resources while allowing for continued reasonable use of agricultural properties and other lands.

Restoration of oak habitats to approximate historic oak tree populations and extent will require more than project by project regulatory protection. To accomplish this goal, the program calls for the development of incentives for landowners to protect and increase oak resources, including funding for conservation easements. Funding for oak tree restoration projects is another incentive option. Long-term enhancement and restoration could also be accomplished through outright public acquisition of important oak resources on the properties of willing landowners.

The program also highlights the importance of public education and outreach. This component of the program will provide information on the importance of oak trees, oak habitats, and methods for their successful protection and restoration. These non-regulatory approaches will further the goal of protecting, enhancing, and increasing oak tree populations and habitats in Santa Barbara County.

III. GOAL, POLICIES, AND IMPLEMENTING ACTIONS

OAK TREE PROTECTION GOAL	*Intent*
Santa Barbara County shall promote the conservation and regeneration of oak woodlands in the County over the long term, and, where feasible, shall work to increase the native oak population and extent of woodland acreage. The highest priority for conservation, protection and regeneration shall be for valley oak trees, valley oak woodlands and valley oak savanna.	*Defines the county's overall objective for oak protection and regeneration.*

OAK TREE PROTECTION POLICY 1	*Intent*
Native oak trees, native oak woodlands and native oak savannas shall be protected to the maximum extent feasible in the County's rural and/or agricultural lands. Regeneration of oak trees shall be encouraged. Because of the limited range and increasing scarcity of valley oak trees, valley oak woodlands and valley oak savanna, special priority shall be given to their protection and regeneration.	*Establishes the basis for implementation of the Oak Protection Goal; promotes replanting or restoration of degraded oak woodlands to offset loss of oak trees through removals and defines approach to protect valley oaks.*

DEVELOPMENT STANDARDS FOR DEVELOPMENT

The following standards shall apply to all development (as defined in the Land Use Element of the Comprehensive Plan) in the rural areas of the County requiring a permit.

Development Standard 1: Protection of all species of mature oak trees

All development shall avoid removal of or damage to mature oak trees, to the maximum extent feasible. Mature oak trees are considered to be live oak trees six inches or greater diameter at breast height and blue oak trees four inches or greater diameter at breast height, or live and blue oaks six feet or greater in height. Native oak trees that cannot be avoided shall be replanted on site. When replanting oak trees on site is not feasible, replanting shall occur on receiver sites known to be capable of supporting the particular oak tree species, and in areas contiguous with existing woodlands or savannas where the removed species occurs. Replanting shall conform to the County's *Standard Conditions and Mitigation Measures*. (This development standard applies to oak trees other than valley oaks. Valley oak trees are addressed in separate Development Standards.)

Development Standard 2: Protection of valley oak trees

All development shall avoid removal of or damage to protected valley oak trees. Development shall not encroach within six feet of the dripline of any protected valley oak trees. Protected valley oak trees are those valley oak trees two inches or greater diameter at breast height, or six feet or taller in height. Valley oak trees that cannot be avoided shall be appropriately replaced on site. If replanting valley oak trees on site is not feasible, replanting shall occur on receiver sites known to be capable of supporting valley oaks, and that allow re-planting in areas contiguous with existing woodlands or savannas where valley oaks occur. All oak tree replanting shall conform to the County's *Standard Conditions and Mitigation Measures.*

Development Standard 3: Restoration of the valley oak tree population

Where development is proposed within historic valley oak tree habitat (even if no valley oak trees would be removed), mitigation of the loss of historic habitat shall be required, where feasible, through planting of locally obtained valley oaks as part of the project landscaping.

OAK TREE PROTECTION ACTION 1

Concurrent with the adoption of these amendments, the County shall amend the Santa Barbara County Code to include oak tree protection regulations developed by the Oak Working Group consistent with the Oak Tree Protection Goal and Oak Tree Protection Policy 1, and endorse a voluntary oak conservation and regeneration program.

OAK TREE PROTECTION POLICY 2

	Intent
The County shall pursue funding for conservation easements, incentive programs and funding or other assistance for landowners to retain and regenerate native oak trees.	*Contributes to the protection of some oak woodlands.*

OAK TREE PROTECTION ACTION 2

The County shall establish a fund to pursue grants for creating conservation easements, or to acquire property for protection of oaks from willing landowners. These efforts should target the most significant oak resources, especially valley oak woodlands and savanna. The Oak Tree Specialist shall work with other agencies and County departments to prepare a conservation program which will identify priorities for acquisition, funding and other means to preserve selected oak habitat, and outline the steps to achieve the program goals.

OAK TREE PROTECTION ACTION 3

The County shall support and, where appropriate, directly carry out public education and outreach (e.g. to private landowners) regarding oak trees, management, incentives and other relevant topics, and seek funding for oak tree regeneration projects on public and private land.

OAK TREE PROTECTION ACTION 4

The County shall monitor the Oak Tree Protection and Regeneration Program, particularly the effectiveness of the regulations, and report to the Board of Supervisors initially at two years and five years following adoption of the Program and then again every five years.

OAK TREE PROTECTION ACTION 5

The County shall pursue funding and staffing for an Oak Tree Specialist to assist with regeneration and management plans, seek incentive funding, carry out education and outreach, monitor the program and report to the Board of Supervisors on program effectiveness.

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CITATIONS

[1] Resolution No. 03-120 (Case No. 00-GPA-6) Adopted April 15th, 2003 (Adopted Supplement to the Mapped Areas and Communities Section, Oak Tree Protection In the Inland Rural Areas of Santa Barbara County)

B) PLACER COUNTY

PLACER COUNTY OAK WOODLAND MANAGEMENT PLAN

PROBLEM STATEMENT

More than a third of all oak woodlands have been lost since the settlement of California by Europeans; of an estimated 10-12 million acres, only some seven million remain. Of the remaining oak woodlands, most have been modified or degraded, and only about four percent are formally protected. Oak woodlands cover approximately 10 percent of the state's total land area, and are the most biologically diverse habitat in California, with over 300 vertebrate species relying on these areas. Most of the recent loss of oak woodlands has been due to the ever-increasing urban, suburban and rural residential growth of California, as evidenced in Placer County which is the one of the fastest growing counties in the state.

California has one of the most rapidly growing human populations in the world. The state's population has grown from less than 100,000 people in 1850, to over 31 million people today (an average annual rate of growth of 3.4 percent) to a projected 63 million people in the next 50 years. Placer County's population over this same period of time is expected to increase from nearly 230,000 people to over 560,000 residents. This is resulting in considerable increase in new home construction, some of which is concentrated in Placer County's oak woodlands. Statewide over 30,000 acres of oak woodlands are converted each year to residential and commercial land uses. As new home construction expands into oak woodlands, many of the habitat values of oak woodlands are lost as extensively managed large blocks of grazing land are fragmented into smaller blocks. The urban interface with oak woodlands, once confined to the major population centers of the San Francisco Bay, Sacramento, and the Los Angeles basin, now extends throughout the entire state.

In spite of this growth and due to its unique geography, Placer County contains a wide variety of habitat dominated by oak woodlands. These woodland habitats include the valley oaks of the Central Valley, the riparian areas along the stream and river corridors, through the broad band of blue oak woodland habitat in the Sierra Nevada foothills and the mixed hardwood of the montane forest. The unincorporated areas contain the majority of the Placer's oak woodland habitat, the majority of which is privately owned.

Land use designations associated with oak woodland resources range from agricultural to rural residential to urban in character. Each of these land use types brings its own land management and land development activities that have the potential to detrimentally impact oak woodland resources. The County has long sought to address the impacts of development through implementation of a range of mitigation requirements under the CEQA and the County's Tree Preservation Ordinance. The manner in which these mitigation measures have been implemented has varied widely project-by-project and area-by-area.

PURPOSE

The purpose of Placer County's Oak Woodland Management Plan is to provide a consistent policy for oak woodland habitats throughout the County and compliment programs and policies including: 1) projects subject to an environmental assessment under the California Environmental Quality Act (CEQA); 2) projects subject to the Placer County Tree Ordinance; and (3) projects evolving out of The Placer Legacy. Ultimately the goal of this plan will be to mitigate the impact of the loss of oak woodland communities, and provide guidance on the conservation of the oak woodland communities. The management plan also takes into consideration other trees and plants associated with the oak woodland-dominated natural communities and the value these communities provide to wildlife, air quality, water quality, and quality of life.

Placer County's Oak Woodlands Management Plan will give the County the opportunity to obtain funding for projects designed to conserve and restore Placer's oak woodlands. While the Plan is countywide in nature, it provides opportunities to address oak woodland issues on a project priority basis to achieve oak woodland protection. More importantly, this Plan will provide a mechanism to bring ranchers and conservationists together in a manner that allows both to achieve that which is so valued, -- sustainable ranch and farming operations and healthy oak woodlands.

Recognizing the importance of oak woodlands and the critical role private landowners have in the conservation of oaks, Placer County created the Oak Woodlands Management Plan Program with the expressed intent the Plan accomplish the following:

- Support and encourage voluntary, long-term private stewardship and conservation of Placer County oak woodlands by offering landowners incentives to protect and promote biologically functional oak woodlands;

- Provide incentives to protect and encourage farming and ranching operations that are operated in a manner that protect and promote healthy oak woodlands;

- Provide incentives for the protection of oak trees providing superior wildlife values on private land, and;

- Encourage planning that is consistent with oak woodlands preservation.

- Identify appropriate methods to mitigate oak woodland losses.

Importance of Oak Habitats for Wildlife

Placer County acknowledges oak woodlands provide habitat for some 331 species of wildlife, moderate temperature extremes, reduce soil erosion and sustain water quality. Moreover, Placer County believes oak woodlands facilitate nutrient cycling and provide forage for numerous wildlife species. Oak woodlands are thought to have the richest wildlife species abundance of any habitat in California, as some 331 species depend on

this habitat to varying degrees. The key connection between much of the wildlife and oak woodlands is through the oak's production of acorns. Forests with at least some oaks have higher average vertebrate species diversity than similar forests without oaks. This difference is due both to acorn production and the increased cavity-nesting sites afforded by large oak trees in the landscape. Large oak trees in oak woodland habitats are important for cover, nesting sites, as well as caching sites for birds storing acorns.

The Economic Importance of Oak Woodlands

Placer County recognizes forests such as oak woodlands are important assets, and their economic and social value to the state is well documented. The Oak Woodlands Conservation Act of 2001 recognizes the importance of California's oak woodlands, how they enhance the natural and scenic beauty of California, the critical role of the private landowner and the importance of private land stewardship. Placer County similarly shares these values and further acknowledges how oak woodlands increase the monetary and ecological value of real property and promote ecological balance. Wood is perhaps one of the world's most environmentally friendly raw materials. The timberland regions of California supply nearly 20 percent of the nation's lumber needs and continue to be a significant employer in eastern Placer County. Moreover, the potential of oak woodlands as a resource for higher-valued wood specialty products is yet to be tapped into. Placer County's oak woodlands could not adequately supply large-scale commodity markets, but small-scale niche markets could be developed. Economic value of various oak species and tanoak found in Placer County:

- Blue oak: fuel and acorns for livestock
- Canyon Live oak: furniture, tools, farm implements, and shade tree
- California Black Oak: fuel wood and furniture, livestock browse the foliage
- Interior Live oak: fuel and shade tree
- Valley oak: acorns for live stock, shade tree
- Tanoak: tannin and furniture

In addition to wood products, oak woodland resources are a vital component of wildlife and plant ecosystems, water quality, recreation, and esthetic needs of Placer County. Eco-tourism is one of the fastest growing industries globally and is particularly significant in the eastern reaches of the county.

Furthermore, a recent study by Richard B. Standiford of the University of California-Berkeley and Thomas Scott of the University of California-Riverside showed how real dollar pricing could be used to evaluate the relative value of open space on individual house and land prices, as well as its overall community value. The regression equation used to determine the economic value of open space was based on the idea that households maximize their utility by equating the marginal willingness to pay for an additional unit of each characteristic to the marginal aesthetic price of that characteristic. It was hypothesized that housing and land value is a function of the characteristics of the housing (size, number of rooms, presence of swimming pools, etc.), location of the units (access to job location, condition of roads), the improvements at the site (roads, fencing, utilities), and the amenity aspects of the area (view, vegetation type, access to open space). Multiple regression analysis was used to break down the relative contribution of these variables to the overall value of the property.

It was found that the open space land has the effect of increasing the overall value of the entire community. In addition to providing important conservation values for an area, the overall value of all the land in the area increases. The effect of increasing the amount of open space land (decreasing the distance to the open space area) on an individual's land value can be investigated by applying the results of the regression analysis.

By using a regression model with a aesthetic price as the primary variable, it was determined that a 10 percent decrease in the distance to the nearest oak stands and to the edge of the permanent open space land resulted in an increase of over $20 million in the total land and home value of 4,800 parcels immediately surrounding The Nature Conservancy oak woodland reserve on the Santa Rosa Plateau in Riverside County California. Private owners receive a premium by being located adjacent to land that will remain as dedicated open space. Moreover, this 10 percent decrease in the distance to open space land and oaks also results in additional tax revenue of $160,000 annually, with a present value of $3.2 million (at a 5% percent real discount factor).

In addition, previous work has shown that native oak trees on rural subdivisions may contribute as much as 27 percent to the value of the property. It is clear that natural resources in a broad geographic area contribute to the economic value of real property. This increased value provides an economic incentive for investing in oak woodland conservation. The increasing scarcity of natural resources in rapidly urbanizing areas is resulting in economic values that are reflected in both individual and community economic values promising results that can be used to evaluate how public and private investments in conservation and restoration can be justified in economic terms.

EXISTING POLICIES AND PROGRAMS

The County has recognized the value of native trees over the years through the adoption of both policy language and ordinances. The 1994 Placer County *General Plan Policy Document* and numerous community plans contain policy language, which is explicitly written to protect woodland habitat. Moreover, in 1987, Placer County adopted a tree ordinance (Chapter 12, Article 12.16 PCC). In addition, Placer County has developed the Placer Legacy Open Space and Agricultural Conservation Program to protect and conserve open space and agricultural lands. Placer Legacy has identified oak woodlands as natural communities with the single greatest opportunity for large-scale conservation. Placer County is working with landowners through easement agreements and education to protect our oak woodland resources.

County staff has applied a range of conditions for mitigation standards on individual projects. These standards generally represent the nexus between a project's impacts and the degree to which these impacts must be mitigated for a project to meet its CEQA obligations, Tree Ordinance requirements, and to be consistent with General Plan policy.

In addition to the standard conditions the staff routinely applies other standards generally derived from the negotiation on individual projects. These standards are typically developed as mitigation measures during environmental review for tree losses. They have been applied to other woodland resources, but more often than not the focus has been on individual trees or grouping of trees. This policy for the most part, focused on individual tree replacement and has not taken into account tree size, age, species type, and relationship to other ecological factors. This Plan will codify all existing oak woodland protection efforts into one program. Greater consistency and coordination of effort will ensue, resulting in a cooperative more efficient conservation strategy.

WOODLAND RESOURCES CLASSIFICATION

The classification system of woodland resources in Placer County identified in this policy is based upon the Wildlife Habitat Relationship (WHR) system used by the California Department of Fish and Game (DFG). In Placer County, the WHR system identifies a total of 36 different natural communities. Statewide, WHR identifies 52 different natural communities. Therefore, as a single county we possess 69% of all natural communities in the state.

Oaks are in the plant family Fagaceae. The members of this family include *Lithocarpus* (tanoaks, the majority of species (ca. 300) are in Asia), *Castanopsis* (now more frequently referred to as *Chrysolepis*) (the chinquapins), *Castanea* (chestnuts), and *Quercus* (oaks). All produce hardened fruits. *Lithocarpus* is considered the most plesiomorphic ("primitive") while *Quercus* is considered the most apomorphic ("advanced"), as evidenced from floral morphology.

There is a long history of classification of present vegetation in California (see review in Sawyer and Keeler-Wolf 1995). Holland (1986) identified 18 natural communities dominated by oaks in California. Six are forest communities (e.g., coast live oak riparian forest), four are chaparral communities (e.g., scrub oak chaparral), and eight are woodland and savanna communities (e.g., blue oak woodland and Oregon oak woodland).

Thus, for our purposes, we define oak woodlands as simply those forests or woodlands where oaks (or tanoaks) are common or predominate. We wish instead to emphasize that for wildlife, including the bird community, the key issue of oak woodlands is not so much in the detail of which oak species are present, but rather that all oaks (and tanoaks) produce acorns. Acorns are perhaps the most important food product for wildlife produced in California's many diverse habitats. That said, for management plan purposes we have identified 4 oak habitat types within the County as follows: Valley oak woodland, valley foothill riparian, blue oak woodland, and montane hardwood.

The conservation objective described for each of the four oak woodland communities provides the foundation from which conservation opportunities will be identified and what mitigation standards will be created. The conservation objective will encourage the development of new programs with two complementary goals: (1) make it easier for private landowners to foster oak regeneration on their property, (2) make it more difficult

for large-scale clearing of oak woodland to take place without adequate mitigation, and (3) promote the passage of oak preservation ordinances and smart-growth planning initiatives at the local (city and county) level.

Descriptions of the four oak woodland types located in Placer County are provided below. The following information on woodlands was summarized from *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer, 1988).

1. Valley Oak Woodland

This natural community is dominated by valley oaks (*Quercus lobata*) and varies from savanna-like to forest-like stands with partially closed canopies. (WHR type – Valley Oak Woodland)

Vegetation Composition and Structure

Valley oaks dominate this savannah like habitat. Associated tree species in the Central Valley include California sycamore (*Platanus racemosa*), California black walnut (*Juglans californica*), California boxelder (*Acer negundo*), Oregon ash (*Fraxinus latifolia*), interior live oak (*Quercus wislizeni*), California buckeye (*Aesculus californica*), and blue oak (*Quercus douglasii*). At low elevations close to water, valley oak is associated with Fremont cottonwood (*Populus fremontii*) and willows (*Salix* spp.). Valley oak woodlands vary from open savannahs to closed canopy forests. Dense stands occur along natural drainages in deep soils. Tree density tends to decrease as one moves from lowlands to uplands. The understory shrub layer can be dense along drainages and very sparse in uplands. The shrub understory can consist of poison oak (*Toxicodendron diversilobum*), California wild grape (*Vitis californica*), toyon (*Heteromeles arbutifolia*), California coffeeberry (*Rhamnus californica*), and Himalayan blackberry (*Rubus discolor*). Understory grasses and forbs are mostly introduced annuals such as Italian ryegrass (*Lolium multiflorum*), ripgut brome (*Bromus diandrus*), Mediterranean barley (*Hordeum marinum*), yellow star thistle (*Centaurea solstitialis*), wild oats (*Avena* sp.), and tarweed (*Hemizonia fitchii*). Mature valley oaks have well-developed crowns and reach maximum heights of 50 to 120 ft. The massive trunks (often up to 6 feet DBH) and branches of mature trees are characteristic of valley oak woodlands.

General Locational Characteristics

Valley oaks are endemic to the state, meaning that they are found only in California. They occur in a patchy distribution throughout most major lowland valleys including the Sacramento-San Joaquin and those valleys occurring in the Coast Range and Transverse Range. Many valley oak woodlands occur as isolated stands in areas where surrounding habitats have been modified by agricultural, urban, and suburban activities. Annual grasslands, riparian forests, and other oak woodland types occur adjacent to valley oak woodlands. Conversion of valley oak woodlands to irrigated agricultural land uses has had the largest effect on the acreage decline of this community.

Physical Characteristics

Valley oak communities generally occur on deep, well-drained alluvial soils found in valleys and foothills below 2,400 feet above mean sea level (MSL).

Distribution in Placer County

In Placer County, valley oaks are typically associated with riparian corridors. A large intact woodland remains on the Bear River and other small stands are associated with major creek drainages in western Placer County (e.g., Auburn Ravine, Coon Creek and Dry Creek).

The majority of valley oaks were presumably cleared for fuel wood and to clear lands for farming activities. Today, the greatest threats to valley oak woodlands are lack of regeneration and continued losses due to agricultural practices and land development. The failure of valley oak regeneration seems to be related to competition for soil nutrients and moisture between oak seedlings and introduced annuals, consumption of acorns and seedlings by wild and domestic animals, and flood control projects. Valley oaks are tolerant of flooding while other components of the community that are potential predators or competitors are not. Fire suppression has encouraged live oak and pine invasion in upland valley oak sites.

Conservation/Restoration Objectives

The remaining valley oak woodlands should be protected and restoration should be a priority. Impacts to valley oaks should be avoided particularly when they are part of larger unfragmented woodlands or connected to other unfragmented ecological landscape. Where impacts occur, prior to issuance of a tree permit, County staff should analyze the connection of onsite woodlands to adjacent woodlands. Impacts resulting in woodland fragmentation should be avoided. If impacts to valley oak woodlands are unavoidable, mitigation priority should be given to restoration of onsite woodlands when existing habitat value can be maintained or enhanced or restoration at an offsite location supporting valley oak woodland where a fragmented condition can be improved, habitat value can be enhanced, or where connectivity can be achieved.

2. Valley Foothill Riparian

Valley foothill riparian habitats are those plant communities supporting woody vegetation found along rivers, creeks and streams in western Placer County in the lower foothills of the Sierra Nevada and on the floor of the Sacramento Valley. Riparian habitat can range from a dense thicket of shrubs and low growing trees to a closed canopy of large mature trees covered by vines. (WHR type – Valley foothill riparian)

Vegetation Composition and Structure

This habitat has three distinct structural layers: canopy cover of 20-80 percent, subcanopy layer, and an understory shrub layer. Valley oaks, blue oak, Fremont cottonwood and California sycamore are the dominant woody vegetation types along major streams. The sub-canopy trees include willows, Oregon ash, and white alder (*Alnus rhombifolia*). The understory shrub layer consists mostly of willows, wild rose (*Rosa californica*), Himalayan blackberry, and poison oak. Herbaceous vegetation including sedges, rushes, and grasses are also associated with the understory. The valley foothill riparian

community provides resources that make it the most bio-diverse, densely populated habitat in the western United States, and it plays a crucial role in the migration and dispersal of wildlife as they use these riparian habitats for movement corridors (Rogers et al., 1996).

Riparian systems are one of our most important renewable natural resources. While small in total area when compared to California's size, they are of special value as wildlife habitat. Over 135 species of California birds such as the willow flycatcher, yellow-billed cuckoo and red-shouldered hawk either completely depend upon riparian habitats or use them preferentially at some stage in their life history. Another 90 species of mammals, reptiles, fish, invertebrates and amphibians, including sensitive species such as California red-legged frog, Valley elderberry longhorn beetle and riparian brush rabbit, depend on California's riparian habitats. Riparian habitat provides food, breeding habitat, cover, and migration corridors for wildlife. This community also provides riverbank protection, erosion control and improved water quality, as well as numerous recreational and esthetic values.

General Locational Characteristics

The Valley Foothill Riparian community occurs along the California coast and inland to about 3,000 feet MSL. It is often associated with valley bottoms along slow moving streams with deep alluvial soils and a high water table. It can also be associated with incised channels in steeper canyons but in these cases it is generally limited to the area immediately along the stream corridor.

Physical Characteristics

These are communities that usually consist of one or more species of deciduous trees plus an assortment of shrubs and herbs, many of which are restricted to the banks and flood plains of these waterways. The extent of the vegetation away from the watercourse depends on the size and nature of the banks and the flood plains, the amount of water carried by the stream or present in the lake, and very importantly on the depth and lateral extent of subterranean aquifers. Additionally, historical patterns of land use often determine the actual extent of the riparian corridor. Along small stream channels a riparian community may form a very narrow band, whereas along larger streams or in broad valleys with meandering stream courses, the riparian woodland or forest areas may be quite extensive. Rates of precipitation are consistent with those found in the blue oak woodland community (i.e., 20 to 60 inches annually).

Distribution in Placer County

Valley foothill riparian habitat in Placer County, like most regions in California, has seen a significant reduction in acreage since European settlement of the region. Clearing for agricultural practices, flood control, infrastructure development, road construction and land development have eliminated much of the riparian forests of western Placer County. Remaining habitat is associated with major stream corridors and the American and Bear Rivers. Auburn Ravine, Dry Creek and Coon Creek contain the largest expanses of contiguous valley foothill riparian in Placer County today. Other more seasonal streams include patches of fragmented riparian habitat. With the continued levels of current

urban/suburban development, which result in increases in annual urban runoff, opportunities are created for valley foothill riparian habitat creation and restoration.

Conservation/Restoration Objectives

The first priority for valley foothill riparian is to avoid generating direct or indirect impacts on the resource. Where impacts cannot be avoided and habitat is degraded or lost by road crossings, infrastructure extensions or flood control, onsite, in-kind replacement of habitat is to be encouraged including the reestablishment of a viable multi-story community structure. Typically, mitigation should occur at the location of the impact. When reviewing valley foothill riparian mitigation plans, staff should evaluate whether offsite mitigation may result in greater ecological benefits than onsite mitigation. Offsite mitigation should be considered if the offsite location could improve corridor connectivity, increase habitat value, or restore a significantly diminished resource.

3. Blue Oak Woodland

This natural community is generally dominated by blue oaks (*Quercus douglasii*). It is associated with the blue oak-foothill pine community as well. (WHR types – Blue oak woodland and blue oak-foothill pine)

Vegetation Composition and Structure

Blue oak woodlands are highly variable. Typically blue oak comprises 80-100 percent of the trees present. Foothill pine (*Pinus sabiniana*), California buckeye, valley oak, interior live oak, canyon live oak (*Quercus chrysolepsis*), and California black oak (*Quercus kelloggii*) are common associates of blue oak throughout its elevational distribution. Non-native annual grasses, similar to those found in valley oak woodlands, form most of the understory in open woodlands. Characteristic shrub species in this community include poison oak, California coffeeberry, and several species of ceanothus (*Ceanothus* spp.) and manzanita (*Arctostaphylos* spp).

Blue oak-foothill pine woodlands support a diverse mix of hardwoods, conifers, and shrubs. Blue oak interspersed with scattered foothill pine typically forms most of the canopy of this highly variable habitat type. In the Sierra Nevada foothills, interior live oak and California buckeye are often associated with this community. Interior live oak becomes more abundant on steeper slopes, shallower soils, and at higher elevations. Characteristic shrub associates include several ceanothus and manzanita species, poison oak, and western redbud (*Cercis occidentalis*).

Blue oaks are relatively slow-growing, long-lived trees. Most blue oak stands exist as groups of medium to large trees with few or no young oaks. In Placer County it is common to find even-aged stands due to the cessation of clearing activities that followed the decline in fruit orchard production in the mid-20th century. Acorns provide a food source for insects, livestock, and wildlife; however, increased consumption or damage of acorns may be a contributing factor to lower levels of successful oak regeneration. In heavily grazed areas, regeneration is rare due to the consumption of seedlings by cattle.

General Locational Characteristics

Blue oak woodlands form a nearly continuous band along the Sierra Nevada-Cascade foothills of the Sacramento-San Joaquin Valley. As a natural community, the blue oak woodland is not broadly distributed throughout the state but it is prevalent throughout the Sierra Nevada foothills. Because of existing and projected growth and development in the foothill region, ongoing fragmentation and direct loss is anticipated to significantly impact this resource.

Physical Characteristics

Blue oak woodlands occur on a wide range of soils that are often shallow, rocky, infertile, but well drained. Blue oak woodlands occur in dry, hilly terrain where the water table is usually unavailable to trees. Over the range of blue oaks, there is considerable climatic variation. Climates are typically Mediterranean, with mild wet winters and hot dry summers. Average annual precipitation ranges from 20 to 60 inches annually.

Distribution in Placer County

In Placer County, blue oak woodlands cover broad areas of the lower western slope foothills of the Sierra Nevada. Typically, blue oak woodlands are found below 3,000 to 4,000 feet. At lower elevations on gentle slopes, blue oak woodlands occur as large blocks with highly variable canopy cover. On steeper ground, blue oak woodlands occur in small patches interspersed with other habitats such as annual grasslands, chaparral, riparian forests, and other types of oak woodlands. When found with extensive stands of foothill pine, blue oaks are associated with steeper, dryer slopes with shallower soils than blue oak woodlands. At lower elevations on gentle slopes, these two communities intermix with grasslands and valley oak woodlands. At higher elevations on steeper slopes, the communities are mixed with grasses and shrubs. Riparian woodlands may bisect these natural communities along permanent and intermittent watercourses.

In addition to continued fragmentation, there is a concern over blue oak recruitment. Poor blue oak recruitment from acorns may be occurring for several reasons. Introduced annual grasses out-compete blue oak seedlings for soil moisture. In addition, acorns and seedlings are eaten or damaged by insects, domestic livestock, and wildlife. Blue oak is also somewhat intolerant of shady conditions, and is unable to survive under a dense canopy. Disturbances creating small openings in the canopy may be needed for seedlings to survive and grow sufficiently to promote a broader age class distribution. Furthermore, reduction in annual grass biomass through fire, limited grazing, or weeding may increase seedling growth and survival.

Conservation/Restoration Objectives

Conservation of large blocks of unfragmented habitat is a high priority for this natural community. The greatest percentage of historic blue oak woodland habitat in Placer County was first eliminated for firewood, fuel wood and agricultural clearing. Regeneration has occurred but largely in a fragmented rural residential setting where habitat values are severely diminished. Active management of blue oak woodlands has increased regeneration in some areas. Recruitment enhancement techniques include reducing the intensity and duration of browsing pressure on woody vegetation, using fire

to manipulate the understory, creating gaps in the canopy, and minimizing livestock use until regenerating blue oak saplings are taller than the browse level. For maintaining biodiversity in oak woodlands it is also necessary to conserve important habitat elements such as snags and downed wood.

There are extensive areas of unfragmented blue oak woodland remaining in the unincorporated area of Placer County, mostly near the Bear River between Meadow Vista and Camp Far West Reservoir. These areas are contiguous to other similar large unfragmented habitat patch segments in Nevada and Yuba Counties near the Spenceville Wildlife Area. Where possible efforts should be made to protect these and other large unfragmented communities, particularly where such areas also include valley foothill riparian habitat. Project sites supporting blue oak woodland should be evaluated to determine whether project-related impacts would result in fragmentation of a contiguous stand either on the site or in adjacent parcels. The conservation of this community should be a priority.

4. Montane Hardwood

This natural community is dominated by a variety of hardwood species with black oak and canyon live oak being the dominant oak species. The hardwood forest will mosaic with forests typical of the Sierran mixed conifer. (WHR types – Montane hardwood, montane hardwood-conifer and aspen)

Vegetation Composition and Structure

The montane hardwood forests of the Sierra Nevada are one of the most variable of any California hardwood type. The dominant species vary by topography, soils, and elevation. The canopy is often dense and bi-layered with a limited understory. One notable characteristic of montane hardwood forests is the lack of blue oaks and valley oaks. The characteristic oaks are canyon live oak, interior live oak, and California black oak.

Canyon live oak often forms almost pure stands on steep canyon slopes and rocky ridge tops throughout the Sierra Nevada. Such stands are prevalent in Placer County as well as along the many steep canyon lands of the west slope. These habitats are characteristic of steep, rocky, south-facing slopes of major river canyons and interface with mixed hardwood-conifer, ponderosa pine, and Sierran mixed-conifer habitats. Canyon live oak trees have tremendously variable growth forms, ranging from shrubs with multiple trunks on rocky, steep slopes, to 60 to 70 foot tall trees on deeper soils in moister areas.

Interior live oak occurs with canyon live oak or alone on steep canyon slopes and rocky, steep slopes throughout the Sierra Nevada. Its growth form varies much like canyon live oak. Both of these evergreen oaks have dense canopies.

Throughout the same range, California black oak tends to dominate on gentle topography at higher elevations. It grows to heights of 70 to 80 feet at maturity, with long, straight trunks in closed canopy situations. In open forests, California black oak has larger, spreading branches.

Bigleaf maple (*Acer macrophyllum*) also occurs in this community in cool areas, near low mountain streams and in alluvial river bottoms. Bigleaf maple generally prefers moist, gravelly and rich soils. It is also found on sites that have been disturbed due to fires or logging.

Associates of montane hardwood communities at higher elevations include ponderosa pine (*Pinus ponderosa*), Douglas fir (*Pseudotsuga menziesii*), Pacific madrone, Jeffrey pine (*Pinus jeffreyi*), sugar pine (*Pinus lambertiana*), incense cedar (*Calocedrus decurrens*), white fir (*Abies concolor*) and quaking aspen (*Populus tremuloides*). At lower elevations and poor soils with steep slopes, associates include foothill pine, knobcone pine (*Pinus attenuata*), tan oak (*Lithocarpus densiflorus*), and Pacific madrone (*Arbutus menziesii*). Understory shrub species include poison oak, ceanothus, manzanita, mountain mahogany (*Cercocarpus* sp.), coffeeberry, wild currant (*Ribes* spp.), and mountain misery (*Chamaebatia foliolosa*). Forbs and grasses are not as prevalent as on lower elevation hardwood rangeland types. Montane hardwood forests have a pronounced hardwood tree layer with poorly developed shrub and herbaceous layers.

General Locational Characteristics

Montane hardwoods range throughout California from 300 feet near the coast to almost 9,000 ft in southern California. Surrounding habitats include conifer-dominated types, chaparral types, blue oak and valley oak woodlands, and exotic annual grasslands.

Physical Characteristics

Wide ranges of physical characteristics affect montane hardwood forests. Slopes range from gentle to steep. Soils are mostly rocky, coarse, and poorly developed. However, relatively large California black oak stands occur in mountain valleys on alluvial soils. Exposures tend to be south, west, and east, while conifers tend to dominate on northern exposures. Climates are typically Mediterranean but extremely variable given the wide distribution of this type. Average summer temperatures are moderate, while average winter temperatures range from near freezing to the mid-40's. Snow occurs in the winter at higher elevations, but does not remain as long as on adjacent conifer-dominated habitats.

Distribution in Placer County

Montane hardwood forests cover a wide area of Placer County on the westerns slopes of the Sierra Nevada. Because it intermixes with coniferous forests and the blue oak woodland communities, at times it can be hard to distinguish as a separate community. It is most prevalent as a distinct community in the steep canyon lands of the river systems of the western slope (e.g., Bear River, Rubicon River and North/Middle Fork American River).

Conservation/Restoration Objectives

The large number of hardwood and conifer species allows this type to occupy many environments and locations. The general inaccessibility of these habitats has protected them from many of the human-induced disturbances such as intensive agricultural,

residential and commercial development, grazing, and woodcutting. However, impacts are still anticipated largely from rural residential development, and some clearing for road building and logging. Other impacts can be anticipated with catastrophic loss due to fire. Between fuel load accumulations and the increasing amount of wildland/rural residential interfaces, the likelihood of catastrophic fires increases each year.

CONSERVATION GOALS & POLICIES

An implementation strategy for the Placer County Oak Woodland Management Plan is in development. It will include the engagement of local, bioregional conservation efforts to better define bioregional priorities for acquisition, restoration, and focused conservation efforts. The implementation process will eventually include a series of local workshops and public outreach to:

- Familiarize local organizations with the Management Plan and the implementation ideas.
- Identify local initiatives, projects, and organizations capable of working as local partners to achieve habitat conservation and restoration targets.
- Develop conservation and restoration acreage objectives based on inventory, assessment and biological need.

Specific policy goals for conservation action are offered here as a point of discussion. Each goal is accompanied by a brief discussion of the scientific evidence that supports it. These goals cover actions in several areas:

- Habitat protection and restoration
- Land management
- Monitoring and research
- Policy

Many of these goals follow those made by other organizations, or complement them. The objective of these goals is to facilitate the protection and restoration of oak woodland habitat, including the successful recruitment of new oaks for future generations of the wildlife that depend on them. Only by restoring the processes involved in oak regeneration can oak woodland dependent species be secured a future, and thus avoid their listing as threatened or endangered species. Likewise, restoring oak regeneration will contribute to preserving sustainable working landscapes.

These goals are to serve as a guide, which can be evaluated through biological research, monitoring, and adaptive management. This process will allow the continuing refinement of these policy goals and the development of more effective management and restoration strategies. It is our hope that these policy goals will help galvanize and guide Placer County's oak woodland management program, provide funding to support habitat restoration and land acquisition, and support the conservation actions of private and public land managers.

Working Cooperatively with Private Landowners

GOAL 1: In private commercially managed oak woodland habitats (i.e. vineyards, agricultural fields, and housing developments), maintain habitat characteristics sufficient to support native flora and fauna populations.

Policy

1(a) ***Inform private landowners of the imminent decline of oak woodlands due to habitat loss and lack of regeneration, and of the subsequent effect on wildlife populations.***

Support active outreach to private landowners through established programs such as local Resource Conservation Districts, the Natural Resources Conservation Service, UC Cooperative Extension, and Placer County Legacy.

1(b) ***Retain connected oak patches within managed landscapes.***

Developed or agricultural areas may still provide habitat for some oak woodland species if oak patches are retained.

1(c) ***Retain oak trees in addition to herbaceous, grass or scrub understory.***

Oak removal has historically been recommended to increase forage production for livestock. However, research suggests that removing blue oaks results in little or no improvement in forage production in areas receiving less than 20 inches of rain per year Rangeland experts also recommend that areas where oaks are thinned should retain oak canopies of at least 25-35% to help maintain soil fertility, minimize soil erosion, and provide wildlife habitat.

1(d) ***Maintain oaks around residences and other landscaped areas by avoiding soil compaction and over-watering.***

Native oaks are valued parts of many yards and parks, and may be harmed by soil compaction or inappropriate irrigation.

1(e) ***Retain patches of chaparral, riparian or grassland habitats adjacent to patches of retained oaks.***

The presence of these habitats adjacent to oak patches may improve conditions for native fauna.

1(f) ***Seek opportunities to work with landowners.***

Work cooperatively with agricultural researchers to encourage farm operations and vineyard operations adjacent to existing oak woodlands to be more "native flora and fauna friendly". In addition, influence the layout of new vineyards and farm operations located in oak woodlands, to ensure that oak harvest or reduction conforms as much as possible to the above polices.

Habitat Conservation

GOAL 2: Prioritize oak woodland sites for protection.

Policy

2(a) ***Prioritize sites with intact oak regeneration and decay processes.***
One of the greatest threats to oak woodland habitat in California is the lack of oak regeneration, specifically in blue, interior live, and valley oak communities. Prioritizing sites that are presently demonstrating healthy oak regeneration constitutes a step towards insuring viable habitat. Conservation efforts should use the most recent information regarding the present quality of habitat and wildlife populations to prioritize the acquisition and protection of sites. Moreover, protecting sites with a diverse age structure of oak trees will provide a continuum of seeding phenologies, preventing synchronous or wide-scale acorn crop failures. Maintaining large old oaks within a diverse age structure will provide decaying limbs necessary for bird nesting sites in addition to high output acorn production.

2(b) **Prioritize** ***sites to represent a diversity of oak woodland types.***
The full range of variation in oak woodland habitat types (and associated animal species) can be protected by: 1) protecting a diverse portfolio of sites located in different parts of the geographic and elevation range of oak woodlands, and 2) protecting individual sites that contain a variety of oak woodland types. Protecting the variety of oak woodland types may help protect the various species that are associated with different types of oak woodland habitats.

2(c) ***Prioritize sites according to surrounding land use.***
Certain uses of land adjacent to oak woodland habitat may negatively impact the quality of that habitat for wildlife.

2(d) ***Prioritize oak woodland sites adjacent to intact chaparral, grassland, pine or and riparian habitats.***
Diversity of habitat communities in proximity to oak woodlands will greatly benefit species diversity and survivability. Edge habitat connectivity is critical to most wildlife species.

2(e) ***Prioritize sites according to landscape variables (patch size, shape, and connectivity) that adequately support the desired populations of oak woodland-dependent species.***
Large, unfragmented, and connected areas of oak woodland should have high priority for protection, for a number of reasons including species composition and breeding success, both of which can be altered by habitat fragmentation.

2(f) ***Prioritize sites according to management options.***
Sites in which management can be used to restore natural ecosystem processes should be given a high priority for protection. For example, sites in which a natural fire

regime can be re-established might be assigned a higher priority than sites in which there is a need for strong fire suppression. Sites in which the impacts of grazing can be strictly managed may also be priorities for protection.

2(g) ***Prioritize sites based on conservation threats and opportunities for protection.***

The above guidelines are useful for identifying the highest quality oak woodland sites in the state, however, not all of these sites will be equally threatened by imminent habitat loss and degradation, nor will they be available for preservation. Therefore, an analysis of impending threats and conservation funding potential should be included in the prioritization process. Habitat quality, vulnerability, and conservation potential all must be considered in designing the best conservation strategies.

Planning & Conservation Tools

GOAL 3: Increase acreage of protected oak woodland.

Policy

3(a) ***Using the guidelines described in Policies 1(a) – 1(g), a variety of planning & conservation tools should be applied to increase the acreage of oak woodland in Placer County that is managed for birds and other wildlife.***

These tools include: in perpetuity and term conservation easements, stewardship payments, tree ordinance, zoning and land use planning, fee ownership of preserves, Williamson Act, partnerships between government agencies and nonprofits, sustainable forestry and ranching, and woodland grass banking. Future versions of this plan will contain quantitative goals for oak woodland protection.

Ecological Restoration Priorities

GOAL 4: Prioritize oak woodland sites for restoration.

Policy

4(a) ***Prioritize restoration sites according to their proximity to existing high quality sites.***

Restoration sites may be more likely to be colonized by wildlife, in particularly birds, if they are close to areas of high quality habitat that can serve as sources of immigrants.

4(b) ***Prioritize restoration sites according to likely success of regeneration and transplanted oak viability.***

Restoration sites should be prioritized according to their regenerative potential. This includes not only sites with adequate acorn production and dispersal capabilities, but also with adequate biophysical (conditions e.g., soil, water table, etc.) to support seedling growth and cultivated transplants. A GIS-based system for evaluating site suitability would aid this process.

Ecological Restoration

GOAL 5: Restore protected oak woodland systems to benefit wildlife populations.

Policy

5(a) ***Restore oak woodlands to promote oak regeneration.***

Regeneration is a problem in oak woodlands with a large amount of oak mortality and not enough growth of seedlings and saplings to replace dying trees. In these areas, Placer County will encourage landowners to promote regeneration by protecting young trees from grazing and browsing animals or by planting acorns or seedlings. Because planting oaks requires intensive effort, it may be more efficient in some sites to protect seedlings and saplings where they are already present. Small oak trees may need protection from grazing animals until they have grown taller than the browse line.

5(b) ***Restore understory components of oak woodland systems.***

Many oak woodland wildlife species are associated with grassland and shrub components of oak woodlands. Oak woodlands with a shrubby understory and downed woody material support greater numbers of small vertebrates and the presence of shrubs and brush piles in the understory of oak woodlands may also help promote the survival of oak seedlings.

5(c) ***Replace non-native annual grasses with native perennial grasses in oak woodland systems.***

Re-establishing or conserving native perennial grasses in oak woodlands will benefit oak regeneration, because non-native annual grasses tend to out compete young oak seedlings for soil moisture. Also, some birds, such as the Lark Sparrow, will benefit from the presence of native grasses

5(d) ***Restore upland oak woodland habitats in conjunction with adjacent riparian restoration.***

Many wildlife species use both riparian and upland oak habitats for different parts of their life cycle. For example, birds that breed in oak woodland habitat may use

riparian habitat as corridors for the dispersal of juveniles and non-breeding adults. Riparian habitat may also be used for foraging and as migratory stopover grounds.

5(e) ***Restore natural fire regimes in oak woodlands whenever possible.***
Higher fire frequencies in the era before widespread fire suppression (before the 1950's) may have created conditions that favored oak regeneration. Thus, restoring natural fire frequencies may contribute to improved oak recruitment. Also, low-intensity prescribed burns may help reduce fuel levels and prevent large, higher intensity fires that destroy oak stands. However, oak woodlands may also be damaged when fire frequency is too high. Therefore, our plan recommends an adaptive management approach for oak woodlands, which requires monitoring of the effects of different prescribed burning regimes on oak woodland plants, birds, and other wildlife.

5(f) ***Restore a mosaic configuration of a diversity of oak woodland types.***
The full range of variation in oak woodland habitat types (and associated animal species) can be protected by: 1) protecting a diverse portfolio of sites located in different parts of the geographic and elevation range of oak woodlands, and 2) protecting individual sites that contain a variety of oak woodland types. Protecting the variety of oak woodland types may help protect wildlife species that are associated with different types of oak woodland habitats.

5(g) ***Restore oak woodlands to meet the requirements of cavity-nesting birds.***
Cavity-nesting birds make up a large proportion of the bird species and a majority of the individual birds breeding in oak woodlands (Wilson et al. 1991). Therefore restoration programs should give special consideration to meeting the habitat requirements of this guild, including both primary and secondary cavity nesters.

5(h) ***Plant multiple species of oak tree when restoring oak woodlands.***
Sites with more than one species of oak present are more likely to support stable populations of acorn-consuming species, because high oak species diversity helps to ensure that acorns will be available from at least one type of oak in a given year.

Land Management Policies

GOAL 6: Protect, enhance or recreate natural oak woodland processes and characteristics.

Policy

6(a) ***Maintain diverse age structure of oak trees.***
Protecting sites with a diverse age structure of oak trees will provide a continuum of seeding phenologies, preventing synchronous or wide-scale acorn crop failures. Maintaining large old oaks within a diverse age structure will provide decaying limbs

necessary for bird nesting sites in addition to high output acorn production. McDonald (1990) demonstrated that Black Oaks must reach 30 years before producing viable acorns and seldom produce large quantities of acorns until they reach 80-100 years. Good acorn producing trees can continue abundant production up to 200 years.

6(b) ***Protect seedling and sapling trees to enhance oak recruitment.***
Oak seedlings and saplings remain vulnerable to damage by herbivorous animals, including grazers, browsers, and small mammals, until they have grown taller than the grazing line (usually about 5 feet). Mangers may want to consider placing protective structures around these young trees.

6(c) ***Retain decaying or dead oak trees, limbs, snags and mistletoe.***
Some cavity nesting birds nest primarily in natural cavities. Therefore, the injured and decaying trees in which these cavities often form are an important habitat element for these species. An analysis using the California Wildlife Habitat relationships System (CWHR) estimated that over 50 species of birds use snags for breeding, feeding and/or cover (Guisti et al. 1996). Mistletoe is known to be an important winter food for Western Bluebirds.

6(d) ***Retain large oak trees whenever possible.***
Large oak trees also produce more acorns than smaller trees, providing both a source of oak recruitment and food for wildlife. Therefore, in the absence of any data on actual acorn production, the largest trees should be retained. Also, certain individual trees may produce more acorns, have more large branches and produce larger snags and logs for wildlife use than other trees. Therefore, these especially valuable individual trees can be identified and retained to benefit birds and other wildlife. The acorn production of individual trees can be visually estimated in early fall. It would still be beneficial to retain those trees that produce the most acorns in any given year, because the same individual trees tend to be good producer from year to year.

6(e) ***Utilize thinning of oak woodlands as a replacement for complete oak removal in rangelands.***
Work with landowners to adopt thinning or controlled burns as methods of fuel load reduction as opposed to the complete removal of oak stands in rangelands

6(f) ***Manage or influence management at the landscape level.***
Managing at the landscape level means taking into account interactions among the different habitat patches and ecosystems that make up a region. The presence and abundance of fauna in a patch of oak woodland can be influenced by characteristics of the habitat mosaic surrounding the patch, as well as by characteristics of the individual patch. Linking and buffering large sections of oak woodland and associated habitats may for instance restore top predators, such as coyotes or bobcats, to the oak woodland system. These predators may, in turn, reduce populations of avian nest predators such as skunks, raccoons, and snakes. Implementing landscape level management often will require cooperation with regional organizations such as

regional fire councils, weed abatement districts, watershed conservancies, and Resource Conservation Districts.

Monitoring

GOAL 7: Establish a monitoring program to evaluate the success of Placer County's Oak Woodland Management Plan.

Policy

7(a) ***Study edge effects in oak woodland habitats.***

Research into how oak woodland habitat edges relate to bird use, nest predation and cowbird parasitism is needed. There is some evidence suggesting that nest predation rates are lower at "soft" habitat edges than at abrupt, "hard" edges. However, no research on this subject has been conducted in western oak woodlands. Given that many of our protected oak woodlands may border unprotected or developed lands, it is important to know if edges can be managed or restored so as to minimize negative edge effects.

7(b) ***Compare areas heavily affected by Sudden Oak Death with those that are not, with attention to effects on acorn production, and how that affects the food chain.***

Though Sudden Oak Death is not yet a problem in Placer County, we believe our management plan needs to address the potential impacts of this disease. Sudden Oak Death might affect fauna populations through changes in forest structure and resulting changes in acorn supply and invertebrate numbers, which could potentially spread throughout the food web. Because the effects of SOD on bird populations will probably develop over a long time period, long-term, large-scale monitoring as well as shorter-term, intensive research efforts are needed. Bird monitoring projects in oak woodlands should routinely include the standardized collection of data on stand structure, including numbers of dead or dying trees, along with other habitat data.

7(c) ***Monitor the effectiveness of progressive grazing regimes for increasing the rate of successful oak tree regeneration.***

It has been suggested that rotational grazing on subdivided pastures can increase the vigor of native grass species, reduce weeds, and promote oak regeneration, but little research has yet been done to evaluate this management technique in oak rangelands. The effects of specific grazing management strategies on oak regeneration and wildlife should be studied in an adaptive management framework.

7(d) ***Study the effectiveness of prescribed fire to reduce non-native annual grasses and facilitate germination and growth of oak seedlings.***
As outlined in above, fire is a natural process that influences oak recruitment and oak woodland structure. More research on issues such as fire timing and frequency is needed to understand how prescribed fire can best be used to promote oak regeneration, while also benefiting oak woodland dependent wildlife.

GOAL 8: Maximize the effectiveness of ongoing monitoring and management efforts.

Policy

8(a) ***Increase communication and coordination between land managers and specialists hired to implement specific projects or conduct monitoring.***
Adaptive management is given much attention and is widely discussed, but land managers rarely have adequate time to evaluate the effects of their projects. When managers work with specialized experts, they have an excellent opportunity to conduct "adaptive management" on an informal basis. Experts, such as those conducting endangered species or biodiversity inventories, should be consulted and included as part of project implementation teams. By doing so, managers can quickly and easily access a wealth of detailed information about local birds, other wildlife, and their responses to management activities.

8(b) ***Use standardized monitoring protocol.***
By standardizing monitoring techniques, researchers ensure that results can be compared across space and time. Standardized methods for measuring habitat variables, such as vegetation structure and composition also should be developed and adopted. Oak woodland databases should also be standardized to facilitate the sharing of Geographic Information System (GIS) datasets.

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3. VOLUNTARY OAK WOODLAND MANAGEMENT PLANS

A) TEHAMA COUNTY

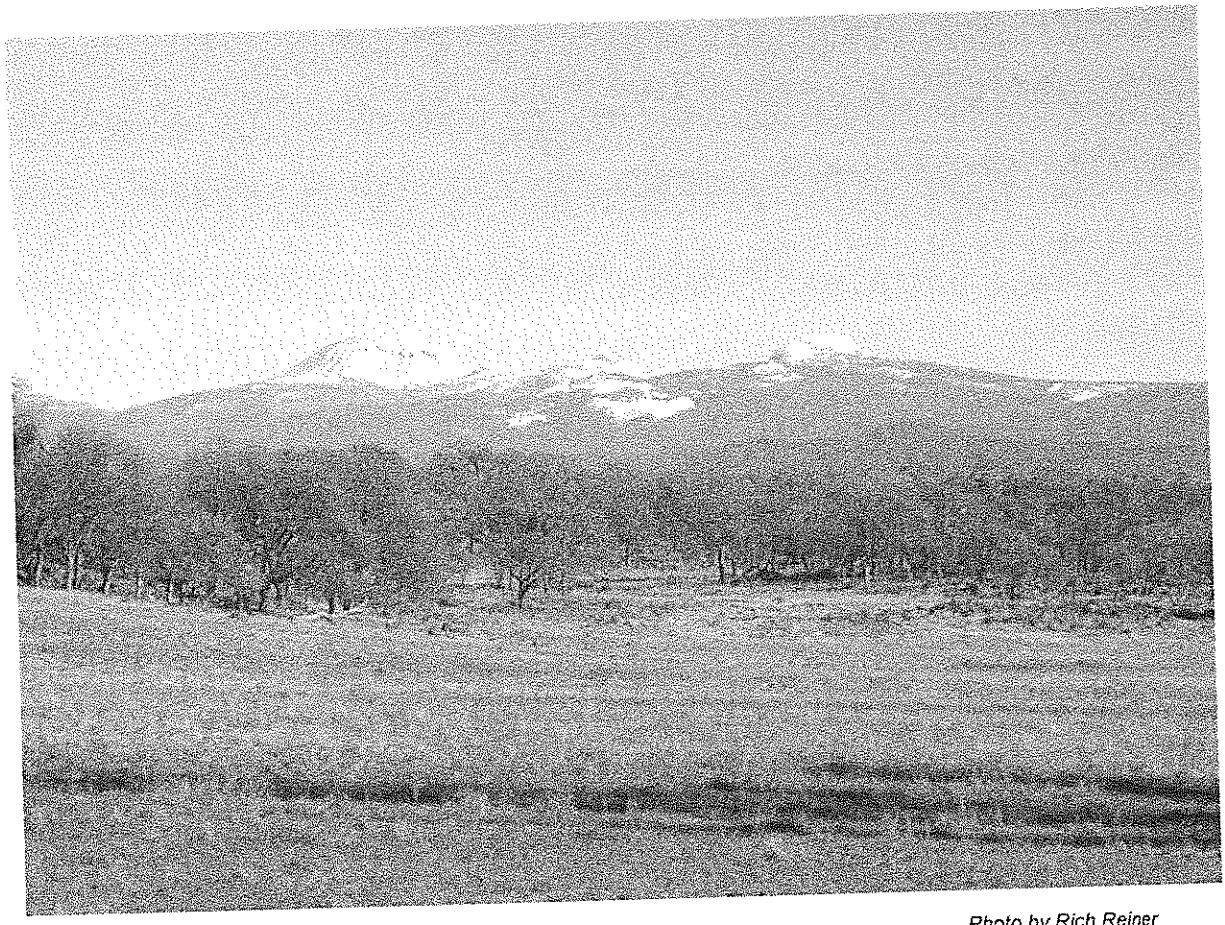
B) CALAVERAS COUNTY

C) MONTEREY COUNTY

D) YOLO COUNTY

A) TEHAMA COUNTY

TEHAMA COUNTY
VOLUNTARY OAK WOODLAND MANAGEMENT PLAN



East Tehama County Blue Oak Woodlands

Photo by Rich Reiner

January 2005

PROBLEM STATEMENT

Oak woodlands are one of California's most treasured and iconic landscapes. To many, the sight of majestic oaks rising from the state's rolling foothills forms the core of California's natural persona. Oak woodlands are also rich in wildlife and are a favored place for people to recreate, build their homes, and pursue their livelihoods. Unfortunately, oak woodlands are disappearing throughout the state. Millions of acres of California's oak woodlands have been lost since 1950 along with nearly 90 percent of riparian woodlands statewide. Only about one-third of the 10-12 million acres of oak woodlands that once graced our valleys and hills remain. Vast acres have been lost to intensive agriculture, woodcutting, housing and other urban development (Garrison et al. 2000). Statewide, over 30,000 acres of oak woodlands are converted to residential and commercial uses each year and only about 4 percent of the remaining woodlands are protected (California Oak Foundation Statistics). Eighty-percent of the state's hardwood rangelands are privately held (Standiford 1999).

It is estimated that California's population will grow from its current level of 31 million to over 63 million in the next 50 years. Tehama County is projected to grow from its current population of roughly 56,000, to over 88,000 during that same time period (California Department of Finance 2004). As the county's population grows, there will be continuing pressure to convert oak woodlands to more intensive uses such as housing and ranchettes. The problems associated with development in woodlands, including fire safety, can clearly be viewed in Placer County and other places where woodlands have been highly fragmented by development (Wacker 2002).

At 633,000 acres, Tehama County contains the third largest acreage of resource rich hardwood rangelands in California, just behind Monterey and San Luis Obispo Counties. The county's unique geography creates a diversity of oak habitats including shady riparian woodland along the Sacramento River and extensive oak savannas in the foothills. The oak woodlands of eastern Tehama County provide the primary winter range for California's largest migratory deer herd (Leopold and Dasmann 1952, Garrison et al. 2000). To conserve this valuable natural heritage, planning processes must identify and address the various land use practices that impact oak woodlands and develop appropriate mechanisms to achieve lasting conservation. Without policies to protect and conserve its existing oak woodlands, Tehama County will have to assume the following risks.

- Negative impacts to family ranches
- Degradation of wildlife habitat and loss of biodiversity
- The possibility of increased regulatory oversight
- Loss of scenic resources

PURPOSE

The purpose of Tehama County's Oak Woodland Management Plan is to expand upon, refine, and improve voluntary oak protection guidelines established by the County in 1994 and to provide a consistent policy for conservation and use of oak woodland habitats throughout the County. The document is also expected to provide direction to landowners, the Tehama County Planning Department, and developers. The adoption of this plan by a resolution of the County Board of Supervisors will also give the County the opportunity to obtain funding through the California Oak Woodlands Conservation Act of 2001. The Act provides funding for projects designed to conserve and restore oak woodlands, oak education, and landowner assistance. It will also provide an important pathway that brings together ranchers, conservationists and educators who share similar values regarding oak woodlands.

The goals of this plan are to:

- Encourage the stewardship and conservation of Tehama County's oak woodlands by informing landowners of its value and voluntary incentives to protect them.
- Encourage sustainable ranching practices that maintain wildlife habitat, clean water and air, and provide a high quality of life.
- Encourage planning that is consistent with oak woodland conservation.
- Encourage public education and outreach regarding oak woodlands.

EXISTING POLICIES AND PROGRAMS

Since 1983, Tehama County's General Plan has included provisions for oak woodland management and protection (Appendix 1). In 1993, the California Board of Forestry mandated that the 41 counties with significant hardwood resources develop and maintain programs for the protection of this resource. At that time, and continuing today, the potential exists for the California Department of Forestry and Fire Protection to classify oaks as a commercial timber species, resulting in their harvest falling under the requirements of the California Forest Practices Rules. In response to potential onerous regulation that this classification could have

placed on Tehama County landowners, the Board of Supervisors passed Resolution # 57-1994 (Appendix 2) which formally established a Hardwood Advisory Committee to study the situation and make recommendations that would steer the county towards sound oak woodland management. The resolution also calls for the adoption of a preliminary set of voluntary oak woodland management guidelines (Appendix 3). The committee was then asked to continue their involvement by assessing the effectiveness of the guidelines in sustaining oak woodland habitat in Tehama County.

Senate Bill 1334, (The Oak Woodlands Conservation Act) was passed by the California Legislature in 2004. This legislation adds Section 21083.4 to the Public Resources Code related to oak woodland conservation. The Act requires the consideration of oak woodland conversion as part of the California Environmental Quality Act (CEQA). Specifically, SB 1334 requires that a county, in determining whether an environmental impact report, negative declaration, or mitigated negative declaration is prepared; specifically determine whether a project may result in a conversion of oak woodlands that will have a significant effect on the environment. If such a determination of significance is made, the county is required to implement one or more specified alternatives to mitigate the effect of woodland conversion. Mitigation options include the protection of existing oak woodland or the planting of trees.

THE IMPORTANCE OF OAK WOODLANDS

Grazing

Large private ranches make up the bulk of the oak woodlands in the foothills located on the east and west sides of the County. Within these oak-covered landscapes, cattle production has become the primary economic activity. With a yearly production value of 17.9 million dollars, the County's cattle industry is the third largest contributor to its economy, behind almonds and prunes (2002 statistics). Tehama County residents value the ranching culture that provides much of the County's ambiance and identity. The Red Bluff Roundup and the Bull and Gelding Sale are ranching events which attract national attention. In addition, productive ranches provide many benefits to all county residents including; wildlife habitat, open-space, recreation lands, fire control, weed management, and watersheds that produce abundant clean water.

Wildlife

Oak woodlands harbor a rich diversity of native plant and wildlife species. The mild Mediterranean climate and abundant food provided by acorns allow many animal species to

remain year-round. The relationship between some bird species and oaks is complimentary: species such as Western Scrub-Jays and Yellow-billed Magpies do not completely retrieve cached acorns and thus disperse oak seedlings across the landscape (CalPIF 2002). Oak woodlands also provide critical wintertime habitat to migratory species that spend their summers at higher elevations. Because of these qualities, oak woodlands are thought to have the richest wildlife species abundance of any habitat in California (331 species, DFG statistics).

Tehama Deer Herd

The Eastern Tehama Deer Herd is the largest migratory herd in California. The herd's annual migration takes over 20,000 animals from the high elevation pine and fir forests around Lassen National Park to their winter habitat in the open oak woodland savannas of eastern Tehama County (Dave Walker, CDFG personal communication). Some animals travel over 100 miles and come from five California counties to complete their journey. As browsers, and as prey for mountain lions, black bear and coyotes, deer are an integral component of the food web (Longhurst 1952) (Leopold and Dasmann 1952). In addition, recreational hunting is an important component of the rural economy and the proceeds from hunting leases help keep ranches in the region viable.

Endangered Species

Numerous endangered species live or migrate into Tehama County's oak woodlands. Because oak woodlands are so widespread, they often form the "background" natural community in which less common habitats occur. For this reason it is not surprising that they support many species that are declining in other parts of California. For example, oak woodlands in Tehama County border important riparian corridors that are breeding habitat for declining bird species such as yellow-breasted chat and yellow warbler. Also embedded in the oak woodlands are aquatic habitats. Springs and seeps provide habitat for threatened species such as red legged frogs. Oak woodlands also encompass the principal watersheds supporting critical habitat for endangered fish. For example, Mill, Deer, Battle, and Cottonwood Creeks support much of California's best remaining habitat for Federally threatened spring run Chinook salmon.

Wildlife habitats, particularly those of endangered and threatened species, are severely altered when oak woodlands are developed. A study in the developing woodlands of Placer County showed some breeding bird populations decreased in developed areas. Other bird species seemed to be less sensitive if blocks of oaks remained (Stralberg and Williams 2002). Aquatic

habitats are also degraded when development in woodlands requires the diversion of water, more septic systems, and roads.

It is likely that the protection of oak habitats will reduce the chance that woodland species will be listed as Threatened or Endangered and lessen the need for regulatory action by state and federal authorities. Appendix IV lists some important endangered, threatened and declining animal species in Tehama County.

ECONOMIC VALUE OF OAK WOODLANDS AND OPENSPACE

Land Values

Landowners often weigh the value of their undeveloped property with the opportunity cost of competing land uses such as development, intensive agriculture and rural ranchettes. The value of land for development is a function of location, housing characteristics, improvements, and local amenities. Nearby woodlands can increase the quality of life for residents and contribute to a community's economic and fiscal well being. Woodlands contribute to both an increase in land values and a subsequent increase in property tax revenues. One study in Southern California showed that a 10% decrease in the distance to an open space preserve increased the value of 4,800 surrounding lots by over 20 million dollars, significantly increasing tax revenue to the county. In addition, lots containing native oaks have been found to be valued at a 27% premium over properties having no trees. Individual trees of large size and landmark status within a community were found to yield an additional $18,000 to $50,000 each (Standiford 1999). Finally, studies comparing tree populations and property values indicate that approximately 40 trees per acre generally provides optimal lot coverage and yields the highest market value premium (roughly 22% to 27%) over bare land (Standiford 1999).

Broadened Market for Rangeland Products

California livestock prices as well as forage yields can experience significant yearly fluctuations. As a result, ranching operations often experience large variations in total yearly returns and profitability (Standiford 1999) (Harper et al. 1989). However, many Tehama County ranches contain the aesthetic and habitat values desired by hunters, fishers, campers and equestrians who have significant disposable incomes. Ranchers can soften the impact of unstable cattle markets by incorporating these "paying" non-traditional ranch uses in their ranch operations.

Fee hunting, for example, can increase the value of a ranching operation up to 183% (Standiford and Tinnin 1996).

Wood harvesting in oak woodlands has the potential to provide additional ranch income. Approximately 70,000 cords of firewood are harvested annually throughout the state. Historically, over 50% of this volume has been removed in Shasta and Tehama Counties which together contain roughly 10% of the state's hardwood acreage (Standiford et al. 1996). Through careful woodcutting practices, a balance can be maintained between sustainable woodland management, livestock production, and habitat for game and non-game species. Of importance is an understanding of a property's habitats and how various economic activities will impact them. It must be considered that the removal of oak trees may decrease the habitat potential for game species. In some cases the resulting decrease in potential hunting revenues may be greater than the revenues generated by firewood (Harper et al. 1989) (Tietje 1996).

MECHANISMS TO CONSERVE OAK WOODLAND VALUES

Williamson Act

The California Land Conservation Act of 1965, also known as the Williamson Act, is an agricultural land protection program established to preserve agricultural and open space lands. The act allows private landowners to establish a contract between counties or cities to voluntarily restrict their land to agricultural and compatible open-space uses. These agreements are established for a rolling term of 10 years. In return for the agreement to put off development, parcels are assessed at a rate which reflects their agricultural, rather than their potential market value as fully developed property (SCAPOSD 1998) (SCAPOSD 2004). If a contract is not renewed, it terminates in nine years unless the appropriate governing body within the county approves a formal cancellation. The landowner must then pay a cancellation fee equal to 12 1/2 percent of the property's unrestricted fair market value (CDC 2004).

Conservation Easements

A conservation easement is a legal agreement between a landowner and a non-profit organization or government agency that limits certain uses of the land in order to protect its conservation values. It allows the landowner to continue to own and use the land and to sell it or pass it on to heirs. Each easement is individually negotiated and only certain rights to the land

are purchased or donated. For example, the landowner might give up the right to build additional structures, while retaining the right to ranch or grow crops. Future owners are also bound by the easement's terms. An easement may apply to just a portion of the property, and need not require public access. If an easement is donated and it benefits the public by permanently protecting important conservation resources it may qualify as a tax-deductible charitable donation. Conservation easements can be useful for passing land on to the next generation. By removing the land's development potential, the easement lowers its market value, which in turn lowers estate tax. The landowner continues to pay property taxes that are usually assessed at a similar rate to properties protected under the Williamson Act.

California Oak Woodland Conservation Program

In 2001, the California Legislature passed the California Oak Woodland Conservation Act (COWCA). The Act acknowledged the positive impact that oak woodlands have on the monetary and ecological values of property within these environments. As a result of the COWCA, the Oak Woodland Conservation Program was established within the Wildlife Conservation Board (WCB). The program is designed to provide $10 million to help local jurisdictions protect and enhance their oak woodland resources. It offers landowners, conservation organizations, cities, and counties an opportunity to obtain funding for projects designed to conserve and restore California's oak woodlands. It authorizes the WCB to fund land protection, land improvements, oak education, and restoration. The Act required that at least 80 percent of program dollars be used for grants that fund land protection, restoration or enhancement projects within oak woodlands. The remaining 20 percent of the funds could be used for public education and outreach efforts by local governments, park and open space districts, resource conservation districts, and nonprofit organizations. Within the 20 percent category, funds could also be used for grants designed to provide technical assistance and to develop and implement oak conservation elements in local general plans (McCreary 2004) (CWCB 2001).

A requirement for program funding under The Oak Woodlands Conservation Act is the preparation of an oak management plan. With WCB's approval and a Tehama County resolution to endorse the plan, this document should satisfy the Acts requirement.

WOODLAND RESOURCES CLSSSIFICATION

Oak Species in Tehama County

True oaks are those species included in the taxonomic genus *Quercus*. They include both evergreen and deciduous species. Tan oak, not being a true oak, is included in the Genus *Lithocarpus*. The major oak species represented in Tehama County are:

- Interior Live Oak (*Q. wislizeni*)
- Canyon Live Oak (*Q. chrysolepis*)
- Black Oak (*Q. kelloggii*)
- Scrub Oak (*Q. berberidifolia*)
- Valley Oak (*Q. lobata*)
- Oregon White Oak (*Q. garryana*)
- Blue Oak (*Q. douglasii*)
- Tan Oak (*L. densiflorus*)

Types of Oak Woodlands In Tehama County and their Distribution

Oak Woodlands as described in this plan are defined by the California Department of Fish and Game's Wildlife Habitat Relations Classification System (WHR). Tehama County has the following oak natural communities:

- Valley Oak Woodland
- Valley Foothill Riparian
- Blue Oak Woodland
- Blue Oak / Foothill Pine Woodland

A map of the distribution of oak communities is attached as Appendix 5. A general review of these habitats follows.

Valley Oak Woodland

Valley oaks are endemic to California. At the present time, there are approximately 122,000 acres of these woodlands remaining within the state of which 7% (8,000 acres) is found within Tehama County (CDF 04). They are generally associated with the deep alluvial soils of the Central Valley. This habitat varies from savanna-like to forest-like stands with partially closed canopies, comprised mostly of winter-deciduous, broad-leaved species. Denser stands typically grow in valley soils along natural drainages. Tree density decreases with the transition from lowlands to the less fertile soils of drier uplands. Most large, healthy valley oaks are probably

rooted down to permanent water supplies (Griffin 1973). Their primary natural distribution in Tehama County is along the Sacramento River and the lower portions of the River's tributaries. Along the Sacramento River pure stands of valley oaks are most often found growing in groves on the upper river terraces (older deposits). Closer to the River, they are often mixed in with other riparian tree species such as Fremont's cottonwood, black walnut and sycamore. Scattered groves of valley oaks as well as individual trees can be found up to elevations of 2500 feet on both sides of the Valley in places where deep soils can be found including lands converted to agricultural uses. These scattered groves form a well-recognized landscape throughout the lowlands of Tehama County.

Of all the oak woodland communities found in Tehama County, valley oak woodland has experienced the most change. It is estimated that over 90% of the original Valley oak woodlands in the Central Valley have been removed, primarily due to conversion to farmlands and orchards (COF 2004). In places where valley oaks occur, there is also concern that they are not regenerating at a rate to ensure long term populations.

Valley Foothill Riparian

Valley Foothill riparian habitats occur in the Central Valley and the lower foothills of Tehama County where deep alluvial soils and a high water table can be found. They are often found on sloping alluvial fans, and are generally associated with low velocity flows, flood plains, and gentle topography. The substrate is often coarse, gravelly or rocky soils that are close to ground water, and well aerated. Valley oaks, Fremont's cottonwood, Sycamore, often dominate this community,

Valley Foothill riparian habitats provide food, water, migration and dispersal corridors, escape, nesting, and thermal cover for an abundance of wildlife. At least 50 amphibians and reptiles occur in lowland riparian systems. Many are permanent residents and others are transient or temporal visitors (Brode and Bury 1985). In one study conducted on the Sacramento River, 147 bird species were recorded as nesters or winter visitants (Laymon 1985). Additionally, 55 species of mammals are known to use California's Central Valley riparian communities (Trapp et al. 1985).

Valley Foothill riparian communities need active floodplains to regenerate. On regulated streams and rivers where peak winter flood flows are removed regeneration is often lacking.

Extensive studies are being conducted on the Sacramento River by CALFED and other agencies to determine the winter pulse flows and the spring draw down timing needed for regeneration of this community. These oak stands can provide an environmental corridor linking the riparian habitats along the Sacramento River with upland ecosystems for miles thus allowing species to efficiently move between habitat types.

Blue Oak Woodland

The Blue Oak Woodland natural community is the most abundant oak woodland in Tehama County and presently totals about 269,000 acres (CDF 2004). These woodlands occur along the western foothills of the Sierra Nevada-Cascade Ranges, the Tehachapi Mountains, and in the eastern foothills of the Coast Range, forming a nearly continuous ring around the Central Valley. Blue oak woodlands occur in the lower foothill belt of both east and western Tehama County. They are usually associated with shallow, rocky, infertile, well-drained soils from a variety of parent materials. Blue oaks are well adapted to dry hilly terrain where the water table is usually unavailable (Griffin 1973). Blue oaks have an unusual tolerance of severe drought, even shedding their leaves during periods of extreme moisture stress. This survival trait contributes to its pattern of distribution, as it competes most successfully with other tree species on drier sites. When they occur on gentle slopes they are often in large blocks with highly variable canopy coverage. On steeper ground they occur in smaller patches interspersed with other habitats such as annual grasslands and chaparral.

Blue oaks are relatively slow-growing, long-lived trees. Large blue oaks range in age from 150 to 400 years; however, age studies in the Coast Range indicate that most blue oak stands are currently 80 to 120 years in age (Pillsbury and De Lasaux 1983). Research shows that estimation of tree age based on diameter measurements is risky because the relationship varies tremendously depending on site quality. Moreover, growth is extremely slow or even ceases after trees reach 65 cm (26 in).

Verner and Boss (1980) give data on wildlife use in blue oak savannahs of the western Sierra Nevada. They indicate that 29 species of amphibians and reptiles, 57 species of birds, and 10 species of mammals find mature blue oak woodland suitable or optimum for breeding, assuming that other special habitat requirements are met.

At the present time, there is concern about regeneration of blue oaks across their range. Regeneration tends to be better in areas of higher rainfall, on north slopes and in areas where competition with introduced grasses is low. (Standiford 1999) found that regeneration of blue oaks from stump sprouts after woodcutting was higher in Tehama County than counties to the south.

Blue Oak / Foothill Pine Woodland

Blue Oak / Foothill Pine Woodland generally forms the upper boundary of blue oak woodlands in Tehama County and currently totals approximately 92,000 acres (CDF 04). This woodland type rings the Central Valley, between 150 and 915 m (500 and 3000 ft) in elevation (Neal 1980). Blue oak and foothill pine typically comprise the overstory of this habitat, with blue oak usually most abundant. Stands dominated by foothill pine tend to lose their blue oak, which is intolerant of shade. Associated species are the coast live oak, valley oak, and California buckeye (Griffin 1977). Interior live oak sometimes dominates the overstory, especially in rocky areas and on north-facing slopes at higher elevations (Neal 1980). At lower elevations, where blue oaks make up most of the canopy, the understory tends to be primarily annual grasses and forbs. At higher elevations where foothill pines sometimes comprise the canopy, the understory usually includes patches of shrubs in addition to the annual grasses and forbs. Shrub species include *Ceanothus spp.*, *Manzanita spp.*, California coffeeberry, poison oak, and California redbud. Regeneration of this community has similar concerns as blue oak woodland.

CONSERVATION GOALS & POLICIES

WORK COOPERATIVELY WITH PRIVATE LAND OWNERS

GOAL: Encourage voluntary education and protection programs that assist private landowners in the management of their productive oak woodlands.

Policy:

A. Promote economic studies on the value of alternative and sustainable rangeland products such as fee hunting, eco-tourism, wild herb production, and firewood production.

B. Utilize the resources and expertise of the Tri County Economic Development Corporation and the Tehama Local Development Corporation in order to promote non-traditional low intensity business ventures within the oak woodlands of Tehama County.

C. Educate county landowners on the economic benefits of maintaining and restoring oak woodlands.

- When harvesting oaks for fuel or range improvement, encourage land owners to maintain an average leaf canopy of at least 30 percent (Standiford and Tinnin 1996).
- Retain trees of all sizes and species represented at the site.
- When safety permits, leave old hollow trees and those actively being used for nesting, roosting and feeding.
- Where low fire risk and aesthetics allow, pile limbs and brush to provide wildlife cover.
- Where commercial or extensive harvest is being contemplated, seek professional advice from such resources as UC Cooperative Extension (Farm Advisor), USDA Natural Resource Conservation Service (NRCS), California Department of Forestry and Fire Protection (CDF) and private consultants.

D. When building within oak woodland encourage land owners to:

- Consider the impact of construction practices on the long-term management of oaks found on their property.
- Cluster houses to preserve wildlife corridors and habitats.
- Protect existing oaks during construction.
- Avoid root compaction by limiting heavy equipment in the root zone.

- Carefully plan roads, cuts and fills, building foundation and septic systems to avoid damage to tree roots.
- Design roads to minimize erosion and sedimentation to downstream resources.
- Avoid landscaping which requires or allows irrigation and runoff within the drip line of oak trees.
- Consider replacing trees, whose removal during construction is unavoidable, with native tree species.
- Remove dead and rotting trees from areas immediately adjacent to homes and other structures.

E. Inform private landowners regarding the value of well-managed oak woodlands.

- Educate landowners about potential threats to this resource.
- Seek funding that supports outreach to private landowners through the Tehama County RCD, the NRCS, UC Cooperative Extension, Wildlife Conservation Board as well as others.

ENCOURAGE HABITAT CONSERVATION

GOAL: Encourage landowners to protect oak woodlands for future generations.

Policy:

A. Conserve large working ranches with significant oak woodlands

- Recognize sites according to landscape variables (size, shape, and connectivity to other habitats such as riparian) that support rich sustainable wildlife populations
- Recognize sites where prescribed fire can be safely used as a management tool
- Recognize sites that warrant voluntary protection according to threat and funding potential

B. Encourage the voluntary protection of woodlands through these and other voluntary options:

- Development of sustainable ranching and farming operations
- Partnerships between government and non-profits
- Establishing Williamson Act contracts
- Conservation easements and other forms of real estate transactions

RESTORE DEGRADED OAK WOODLANDS

GOAL: Encourage the restoration of oak woodlands that suffer from lack of regeneration and exotic species invasions.

Policy

A. Restore oak woodlands that lack regeneration.

- In areas where oaks have been removed and are not regenerating, promote voluntary tree planting programs and measures that provide protection of oak seedlings from browsing and weeds.
- Participate in state and federal cost share programs and grants.
- Explore the possibility of enhancing natural regeneration by identifying and protecting natural or volunteer seedlings to enhance their growth to the sapling stage.

B. Control invasive weed species in oak woodlands.

- In coordination with the Colusa-Glenn-Tehama Weed Management Area seek funding to map the location and abundance of target weeds in woodlands.
- Where possible introduce prescribed fire and other methods to help control the spread of medusahead grass, yellow starthistle, giant reed, and other invasive wildland weed species.

C. Reestablish native understory species.

- Encourage restoration of native plants as an alternative to exotic grasses. (Native plants will reduce weeds and may provide a longer grazing season for livestock.)
- Encourage diverse understory vegetation including shrubs. (Habitat with multiple layers of vegetation provide habitat for many bird species)

MONITOR TEHAMA COUNTY'S OAK WOODLANDS

GOAL: Establish a monitoring program to evaluate the success of this plan.

Policy

A. Request that the Tehama County Hardwood Advisory Committee periodically evaluates the state of oak woodlands using available data sources such as the California Department of Forestry and Fire Protection's FRAP (Fire and Resource Assessment Program) data.

B. Increase communication between land managers, ranchers, and scientists regarding the protection and management of oak woodlands.

- Encourage workshops, symposiums, field trips and other methods of outreach regarding oak woodlands.

C. Encourage research on oak woodland habitats
    - Encourage studies which evaluate oak regeneration in Tehama County
    - Encourage studies that evaluate the effects of changing land uses on oak woodland's current values (wildlife, ranching, water, economics, etc.)
    - Encourage studies that provide Tehama County ranchers with better and more specific information about sustainable management of oak woodlands.

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APPENDIX I

Table 1

Resources Element, **1983**	The Resources Element articulates goals of preserving environmentally sensitive and significant lands for their plant and wildlife habitat and affording protection to critical riparian zones (WR1/ 2). **RIPARIAN CORRIDORS**: Significant Creek Corridor land use subcategories should be used to afford protection to riparian corridors on 50 feet on either side of a stream. Significant creek side corridors shall be designated on zoning maps (WR- c). **WILDLIFE HABITAT**: Significant wildlife habitats shall be protected through designations under the Natural Resource Conservation Land Use Classifications. Future land division applications within this classification or within 1 mile of a rare or endangered plant or wildlife habitat shall be referred to the DFG for review and comment. Natural habitat resources shall be designated on General Plan Maps. Other significant plant communities, including rare or endangered species, shall be protected through designation under the "Habitat Resource" subcategory. Development siting conditions may also be required to maintain plant habitat integrity. Deer migration corridors located in the Eastern and Western Planning Areas will have residential development limited to avoid significant environmental impacts. Resource

	lands policy shall be implemented by the revised General Plan and Zoning Code.
Zoning Ordinance, 1983	Natural Resource Lands classification is applied to properties to be preserved in a natural state and/ or to provide open space buffer areas in which uses are restricted. Uses permitted include measures to promote conservation of soil, water and vegetation and reduce fire and erosion hazards and one- family dwelling among others. Minimum parcel size is forty acres.
Voluntary Oak Woodland Management Guidelines, 1994	Land owners are encouraged to maintain a canopy of 30%, retain trees of all sizes and species, leave wildlife trees, limbs and brush when harvesting oaks for fuel or range improvement, and seek professional advise when contemplating extensive harvesting. When building within oak woodlands, landowners should cluster houses, protect existing oaks during construction, avoid root compacting by limiting heavy equipment, and planning roads, cuts, fills, foundations and septic systems. Landscaping that requires irrigation should be avoided within 10' of the trunk of an oak. Trees damaged during construction should be replaced. All landowners with 40 acres or more will receive a copy of the guidelines and those who want to harvest should develop a management plan. The Hardwood Advisory Committee will meet semiannually.

APPENDIX II

County of Tehama Board of Supervisors Resolution No. 57-1994. Adopted by majority vote, May 10 1994.

WHEREAS, the California State Board of Forestry has taken action to support woodland protection through local efforts; and,

WHEREAS, those lands described as oak woodlands within Tehama County provide multiple benefits, including commercial livestock production, wildlife habitat, fuelwood harvesting and land development; and,

WHEREAS, the County of Tehama recognizes the importance of private property rights and endorses the concept that landowners be provided the maximum right of self-determination; and,

WHEREAS, the economic viability of agricultural enterprises operating with these oak woodlands must be protected; and,

WHEREAS, the County of Tehama recognizes responsible stewardship by landowners is necessary to sustain oak woodland resources;

NOW, THEREFORE, BE IT RESOLVED, that the Tehama County Board of Supervisors does hereby adopt the following recommendation for the sustained management of oak woodland resources.

1. All landowners with 40 acres or more, located in oak woodland habitat, shall be provided with a copy of the Tehama County Oak Woodland Management Guidelines adopted by the Board of Supervisors.

2. All landowners who wish to harvest oaks are hereby encouraged to develop their own management plan for properties in Tehama County. Landowners are encouraged to contact private and public sources for expert assistance and to use the Tehama County Oak Hardwood Management Program guidelines and

information provided by the Integrated Hardwood Guidelines in the development of their plans.

3. The Tehama County Hardwood Advisory Committee shall meet semiannually. The committee shall meet to evaluate and substantiate the progress of educational programs on hardwood management and the effectiveness of the Tehama County Oak Woodland Management Guidelines in sustaining oak woodland habitat in Tehama County.

BE IT FURTHER RESOLVED, that the Tehama County Board of Supervisors does hereby direct that the University of California Cooperative Extension, Tehama County to coordinate with local government agencies and/or private organizations to offer workshops on oak woodland management and conservation to landowners, realtors, developers, and community organizations.

APPENDIX III

TEHAMA COUNTY OAK WOODLAND MANGEMENT GUIDELINES
Adopted 1994

1. **When Harvesting Oaks for Fuel or Range Improvement, Plan Your Harvest to:**

- Maintain an average leaf canopy of 30 percent.
- Retain trees of all sizes and species represented at the site.
- When safety permits, leave old hollow trees and those actively being used for nesting, roosting of feeding.
- Where low fire risk and aesthetics allow, pile limbs and brush to provide wildlife cover.
- Where commercial or extensive harvest is being contemplated, seek professional advice for such resources as UC Cooperative Extension (Farm Advisor), USDA Soil Conservation Service (SCS), California Department of Forestry and Fire Protection (CDF) and private consultants.

2. **When Building Within Oak Woodland:**

- Cluster houses to preserve wildlife corridors and habitats.
- Protect existing oaks during construction.
- Avoid root compaction by limiting heavy equipment in the root zone.
- Carefully plan roads, cuts and fills, building foundation and septic systems to avoid damage to tree roots.
- Design roads to minimize erosion and sedimentation to downstream resources.
- Avoid landscaping which requires or allows irrigation within (10) feet of the trunk of an oak tree.
- Consider replacing trees whose removal during construction was unavoidable.

APPENDIX IV

Example Endangered or Declining Animal Species within Tehama Co. Oak Woodlands.

FISH	FEDERAL	STATE
Northern California Steelhead Trout *Oncorhynchus mykiss*	FT	ST
Spring-Run Chinook Salmon *Oncorhynchus tshawytscha*	FT	ST
Winter-Run Salmon *Oncorhynchus tshawytscha*	FE	SE
NON-RAPTOR BIRDS		CSC
California Horned Lark *Eremophila alpestris actia*	FSC	
Grasshopper Sparrow *Amodramus savannarum*	FSC	
Logerhead Shrike *Lanius ludvicianus*	FSC	
Oak Titmouse *Baeolophus inornatus*	FSC	
Yellow Breasted Chat *Icteria virens*		CSC
Yellow Warbler *Dendroica petechia brewsteri*		CSC
RAPTORS		
American Peregrine Falcon *Falco peregrinus anatum*		SE
Bald Eagle *Haliaeetus leucocephalis*	FT	SE
Burrowing Owl *Athene cuniculata*	FSC	CSC
Coopers Hawk *Buteo regalis*	FSC	CSC
Prairie Falcon		CSC

Falco mexicanus		
Sharp-Shinned Hawk *Accipiter striatus*		CSC
White-Tailed Kite *Elanus leucurus*		CSC
MAMMALS		
Pallid Bat *Antrozous pallidus*		CSC
Pale Big-Eared Bat *Corynorhinus townsendii pallescens*	FSC	CSC
Ring-Tail *Bassariscus astutus*		FP
Small-Footed Myotis *Myotis ciliolabrum*	FSC	
Yuma Myotis *Myotis yumanensis*	FSC	
AMPHIBIANS, REPTILES, INSECTS		
Foothill Yellow-Legged Frog *Rana boylii*	FSC	
Giant Garter Snake *Thamnophis gigas*	FT	CT
Western Pond Turtle *Clemmys marmorata*	FSC	CSC
Western Skink *Eumeces skiltonianus*	Cand.	
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus*	FT	
Red-legged Frog *Rana aurora*	FT	

FSC – Federal Species of Concern

CSC – California Species of Concern

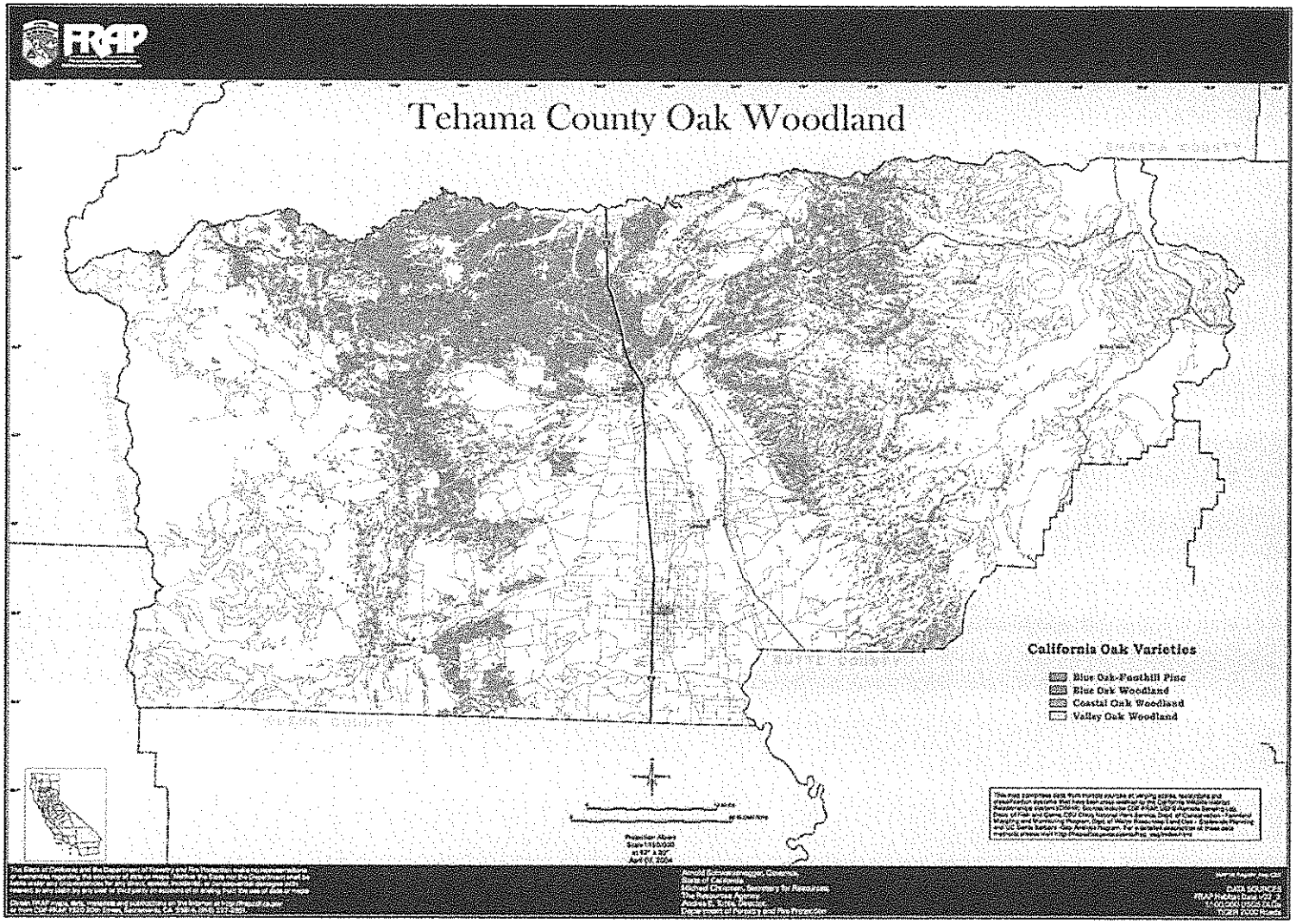
ST- State Threatened

FT – Federal Threatened

FE – Federal Endangered

APPENDIX 5

MAP OF THE OAK WOOLAND COMMUNITIES OF TEHAMA COUNTY



B) CALAVERAS COUNTY

Calaveras County
Voluntary Oak Woodland Management Plan

INTRODUCTION

Oak woodlands are an integral part of the Calaveras County landscape. The oak covered rolling hills are valued for their beauty and function. Oak woodlands are rich in wildlife and are a favored place for people to recreate, build their homes, and pursue their livelihoods.

In Calaveras County, approximately 89 percent of the county's hardwood rangelands are privately held (CDF FRAP 2003a). Data summarized by the University of California Cooperative Extension for the period from 1991-2001 shows that there was a net loss in acres of Hardwood Canopy Cover in Calaveras County (Frost and Churches, 2004). Much of this loss can be attributed to wildfire or thinning projects. The percentage of oak woodland with a decrease in oak canopy cover from 1996-2001 was 0.72% of the total oak woodland area (Frost and Churches, 2004).

It is estimated that Calaveras County's population will grow from its current level of approximately 44,000 residents to over 92,000 by 2050 (Department of Finance 2004). Based on U.S. Census Bureau figures and current development trends, Calaveras County was the sixth fastest growing county in California, with more than 9% growth from 2001 through 2003. At the current rate of growth, the county could reach the 92,000 population threshold on or before January 2024.

As the county's population grows, there is increasing pressure to construct homes and businesses in areas that currently support oak woodlands. The problems associated with development in woodlands, including fire safety and loss of functional wildlife habitat, are clearly demonstrated in Sierra foothill counties and other places where woodlands have been highly fragmented by development (Wacker 2002).

With approximately 159,000 acres of hardwood habitat, including 2,000 acres of Blue Oak-Foothill Pine, 55,000 acres of Blue Oak Woodland, 102,000 acres of Montane Hardwood, and a small amount of Montane Riparian habitat, Calaveras County contains approximately 1.6% of California's nearly 10 million acres of hardwood rangeland and forests (CDF FRAP 2003a). It leads all other counties in the percentage of county land area in oak woodland within the state.

The county's unique geography and topography create a diversity of oak habitats, including shady riparian woodland along the Mokelumne and Calaveras Rivers, extensive blue oak savannas and woodlands in the lower foothills, and significant black oak habitats in the mid and higher elevations. Calaveras County contains four of the state's five identified hardwood rangeland habitat types: valley oak woodlands, blue oak/foothill pine woodlands, blue oak woodlands, and montane hardwood forests. The oak woodlands of eastern and central Calaveras County provide the primary winter range for the migratory Rail Road Flat deer herd.

To successfully manage this valuable natural resource, planning processes must identify and address the various land use practices that adversely impact oak woodlands, as well as those land uses that promote the conservation of oak woodlands and develop appropriate mechanisms to achieve effective conservation. Without policies to manage, protect, and conserve its existing oak woodlands, Calaveras County will be subject to:

Degradation of wildlife habitat and loss of biodiversity.
Increased potential for extensive wild land fires.
Increased oversight by resource conservation and regulatory agencies.
Loss of scenic resources.

PURPOSE

The purpose of Calaveras County's Oak Woodland Management Plan is to develop a set of voluntary oak protection guidelines for oak conservation planning and use of oak woodland habitats throughout the County. The document is also expected to provide direction to landowners, the Calaveras County Planning Department, and developers regarding activities that have the potential to adversely impact oaks and oak woodland habitat. The adoption of this plan by a resolution of the County Board of Supervisors will also give the County the opportunity to obtain funding through the California Oak Woodlands Conservation Program (California Oak Woodlands Conservation Act - Fish and Game Code, Division 2, Chapter 4, Article 3.5, Section 1360-1372). This program provides funding for oak education, landowner assistance, and projects designed to conserve and restore oak woodlands. In addition, adoption of this plan will allow the county to create a local oak mitigation fund reserve with the purpose of providing monetary support for oak conservation activities specific to Calaveras County. Activities supported by the program also encourage interaction among ranchers, conservationists, educators, and others who share similar values regarding oak woodlands.

The goals of the Calaveras County Oak Woodland Management Plan are to:

Support and encourage voluntary, long-term private stewardship and conservation of Calaveras' oak woodlands

Develop a plan that would provide incentives to encourage farming and ranching operations that are operated in a manner that protect and promote healthy oak woodlands and provide wildlife value.

Provide support to protect and encourage farming and ranching operations that are operated in a manner that promotes healthy oak woodlands.

Encourage local land use planning that is consistent with the preservation of oak woodlands, particularly special oak woodlands habitat elements.

Provide educational and resource support programs that assist private landowners in the management and protection of their oak woodlands and associated wildlife habitat.

Maintain information on the status of oaks and oak woodland within Calaveras County.

EXISTING POLICIES AND LAWS

In 1993, the California Board of Forestry mandated that the 41 counties with significant hardwood resources develop and maintain programs for the protection of this resource. At that time, and continuing today, the potential exists for the California Department of Forestry and Fire Protection to classify some or all species of oaks as a commercial timber species, resulting in their harvest and management activities falling under the requirements of the California Forest Practices Rules. In response to potential onerous regulation that this classification could place on Calaveras County landowners, the Board of Supervisors passed Resolution #96-284 (Appendix A-1) which formally established a Hardwood Advisory Committee to study the extent of oak woodlands in the county and make recommendations that would steer the county towards sound oak woodland management. A set of Voluntary Oak Woodland Management Guidelines (Guidelines) was also adopted as part of this Resolution. The Hardwood Advisory Committee was, and is, tasked with evaluating the effectiveness and progress of the educational programs on hardwood management and the effectiveness of the Guidelines in sustaining oak woodlands within Calaveras County. The Oak Woodland Management Plan proposed in this document, if adopted, would supplement the existing Guidelines.

In 2001, the California Legislature passed the California Oak Woodland Conservation Act (COWCA), which acknowledged the positive impact that oak woodlands have on the monetary and ecological values of property. Requirements associated with COWCA were added as §§1360-1372 to Division 2, Chapter 4, Article 3.5 of the California Fish and Game Code (Appendix A-2), and included the following:

(a) Support and encourage voluntary, long-term private stewardship and conservation of California's oak woodlands by offering landowners financial incentives to protect and promote biologically functional oak woodlands over time.

(b) Provide incentives to protect and encourage farming and ranching operations that are operated in a manner that protects and promotes healthy oak woodlands.

(c) Provide incentives for the protection of oak trees providing superior wildlife values on private lands.

(d) Encourage local land use planning that is consistent with the preservation of oak woodlands, particularly special oak woodlands habitat elements.

(e) Provide guidelines for spending the funds allocated for oak woodlands pursuant to the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act of 2000 (the Villaraigosa-Keeley Act (Chapter 1.692 (commencing with Section 5096.300) of Division 5 of the Public Resources Code).

(f) Establish the Oak Woodlands Conservation Fund to support and implement the oak woodland conservation elements of COWCA.

Senate Bill 1334, the Oak Woodlands Conservation Act (Act) was passed by the California Legislature in 2004 and was added as Section 21083.4 of the Public Resources Code (PRC) when the bill became law in January 2005 (Appendix A-3). The Act requires the consideration of oak woodland conversion as part of the California Environmental Quality Act (CEQA). Specifically, PRC §21083.4 requires that a county determine whether the conversion of oak woodlands proposed by a project would have

a significant adverse effect on oaks, oak woodland, and/or associated wildlife and habitats. If the impact is considered potentially significant, the county must require one or more specified alternatives to reduce the impacts from the proposed project. Mitigation options include the conservation of existing oak woodlands, planting of replacement trees, and/or the combination of a number of additional options aimed at long-term oak woodlands and related habitat protection. The Act exempts agricultural operations.

THE IMPORTANCE OF OAK WOODLANDS

The value of land and its resources is definitely in the eye of the beholder and can be evaluated from four perspectives: (1) the monetary value of the land if sold on the open market; (2) the value of the land as wildlife habitat; (3) the historic and personal value to the individual; and (4) the aesthetic, economic, and environmental contributions associated with open space, clean air and water, sense of community, and the rural quality of life. These values are not mutually exclusive. With effective oak woodland management, we can protect the natural, cultural, and aesthetic resources of the land without jeopardizing its contribution to the county's economic future.

Quality of Life

Foothill communities in Calaveras and surrounding counties have seen a rapid rise in suburban-style developments as more and more people seek to escape the crowded cities of the Sacramento, San Joaquin Valleys and Bay Area or retire in a more rural setting. Landowners often weigh the value of their undeveloped property or grazing lands, as working landscapes, against the increased monetary return from its sale for residential or commercial development. Land situated within oak woodland and savanna habitats are often considered prime development property. However, as the oaks are lost and rolling hills graded to accommodate the developments, the qualities that draw people to the area is often destroyed.

The recreational opportunities, aesthetics, and tranquility of open land greatly add to our quality of life. Open space, working landscapes, or areas that buffer individuals from the trappings of commerce and daily activities are considered a strong incentive for people to move to an area or identify with a community. The loss of agriculturally productive lands contributes to community degradation. The consequences of failing to preserve these working landscapes are often cited as a "loss of quality of life for future generations" and a major contributor to urban sprawl; increased pollution; erosion of beauty, personal space, and community connection; and lower property values. The resulting dissatisfaction can also contribute to a loss of jobs and business diversity, and a long-term erosion of the community's economic sustainability.

Wildlife Conservation

Oak woodlands harbor a rich diversity of native plant and wildlife species. The richness of species found in oak woodlands is due primarily to the diversity of available habitats. In addition, the mild Mediterranean climate and abundant food provided by acorns allow many animal species to remain year-round. The relationship between some wildlife species and oaks is complementary: species such as acorn woodpeckers and western

scrub jays do not completely retrieve cached acorns and thus disperse oak seedlings across the landscape. Oak woodlands also provide critical wintertime habitat to migratory species that spend their summers at higher elevations or northern latitudes. Because of these qualities, oak woodlands are thought to have the richest wildlife species abundance of any habitat in California. According to the California Wildlife Habitat Relationships Model (CWHR), a database maintained by the Department of Fish and Game, Calaveras' oak woodlands provide suitable habitat for many species of vertebrate species. These include amphibians, reptiles, birds, and mammals.

Appendix B is an inclusive list of wildlife species found in the various Calaveras County oak woodlands. The list also identifies the status of protection if applicable under federal or state laws. The appendix includes approximately 221 species of amphibians, reptiles, birds, and mammals that are predicted to use Calaveras County's oak habitats. The appendix has been modified from information developed by the Integrated Hardwoods Range Management Program (IHRMP) and the California Reptiles and Amphibians website. The wildlife species lists developed by the IHRMP were derived from Version 5.0 of the California Wildlife Habitat Relationship System (CWHR) and includes those species that are predicted to use one or more hardwood rangeland canopy cover classes for breeding, feeding, and/or cover. Most waterfowl like ducks, geese, gulls, and shorebirds were not included in the CWHR predictions because they are mostly associated with lakes, ponds, and rivers.

Additional information in the tables indicates several important habitat elements of the California hardwood rangeland habitats. The habitat elements listed include: acorns; riparian habitat; logs, slash, and brush piles; snags; burrows, rocks, talus, caves and cliffs; and vernal pools and wetlands.

Protected Species

The federal Endangered Species Act establishes protection for federally listed species of plants and animals throughout California. Numerous protected species live or migrate into Calaveras County's oak woodlands (Appendix B). Oak woodlands are widespread, as a result they often form the setting for natural communities in which less common habitats occur. For this reason it is not surprising that they support many species that are declining in other parts of California. For example, oak woodlands in Calaveras County border important riparian corridors that are breeding habitat for declining bird species such as yellow-breasted chat and yellow warbler. Also embedded in the oak woodland are aquatic habitats. Streams, springs and seeps provide habitat for threatened species such as California red-legged frogs and foothill yellow-legged frogs. Oak woodlands also encompass the principal watersheds supporting critical habitat for protected fish species. For example, the lower portion of the Calaveras River supports federally protected steelhead trout.

Wildlife habitats, particularly those of endangered and threatened species, can be severely altered when oak woodlands are impacted by development. A study in the developing woodlands of Placer County showed some breeding bird populations decreased in developed areas. Other bird species seemed to be less sensitive if blocks of oaks remained (Stralberg and Williams 2002). Aquatic habitats are also degraded when development in woodlands requires the diversion of water, more septic systems,

and roads. It is likely that the protection of oak woodland habitats will help reduce the chance that woodland species will be listed as threatened or endangered and reduce the need for regulatory action by state and federal authorities.

"Sensitive" plants are those species that are considered rare, threatened, or endangered within California, whether or not they are state or federally listed. The IHRMP states that 8 of the 42 plant species listed for protection in California occur in oak woodlands. Plants that are state-listed as rare, threatened, or endangered are protected under the Native Plant Protection Act or the California Endangered Species Act. California Native Plant Society (CNPS) maintains an inventory that evaluates native plants on their rarity, endangerment, and distribution.

Four common oak woodland plant species are found in Calaveras County (Appendix C). All four species occur in low elevation blue oak woodland habitats in western Calaveras County. A complete list of all plant species found in oak woodlands throughout Calaveras County would be too exhaustive for inclusion in this plan.

Railroad Flat Deer Herd

The Railroad Flat Deer Herd is a well studied migratory herd of predominately California mule deer (*Odocoileus hemionus californicus*) that travel across approximately 550 square miles of land in the central Sierras annually. The herd's annual migratory route takes thousands of animals from the high elevation pine and fir forests of their summer range in Alpine County to the winter range, spring and fall holding areas, and fawning areas in the open oak woodland and oak savanna of the lower foothills and higher elevation timberlands of central and eastern Calaveras County. Portions of these areas have been designated as Critical Winter Range Habitat by the California Department of Fish and Game (CDFG). Nearly 80% of the critical winter range is on privately held land. There are at least 6,700 acres in Fish and Game Conservation Easements in Calaveras County that protect the winter range of the herd.

The herd can adapt to most habitat types, but optimum habitat has food and canopy cover types arranged in close proximity. Open oak woodlands near water generally support the highest deer population. As browsers, and as prey for mountain lions, black bear, and coyotes, deer are an integral component of the food web (Longhurst 1952, Leopold and Dasmann 1952). From an economic perspective, recreational hunting is an important component of the rural lifestyle and a seasonal visitor attraction that helps support the local economy.

Declines in the Railroad Flat Deer Herd since the 1960s are generally attributed to reduced quality and fragmentation of habitat. Overuse of available forage, predation, fire suppression, human encroachment, highway fatalities, wildfires, and drought are all factors contributing to this decline.

RESOURCE FOR ECONOMIC SUSTAINABILITY

Outdoor Recreation

Oak woodland habitats are the primary feature of many state and local parks, enhancing the experiences of hikers, bicyclists, picnickers, and wildlife enthusiasts throughout the year. Seasonal changes draw locals and visitors to enjoy the wildflowers, dappled shade, or autumn color on the trails and roadways throughout the county and greatly enhance the quality of life for those living within view of these areas. Game animals, including deer, wild turkey, duck, and bandtailed pigeon, thrive in these woodland areas, providing excellent opportunities for hunters of all ages.

Woodland Products

Sustainable wood harvesting in oak woodlands provides a reliable heating source and ambiance for many homeowners in Calaveras County and has the potential to provide an important source of income for rural property owners and communities. Although the removal of oak trees may decrease the habitat potential for game species, careful woodcutting practices can balance sustainable woodland management, livestock production, and habitat protection for game and non-game species.

Ranching Operations as Working Landscapes

Ranches are located throughout Calaveras County and contain a broad diversity of habitats. Much of the grazing land in the county contains mature oak woodland and savanna and is managed to protect both the agricultural production and wildlife habitat. Because livestock prices and forage yields can change significantly from year to year, ranching operations often experience large fluctuations in income and profit (Standiford 1999, Harper et al. 1989). However, some Calaveras County ranches have been able to use the aesthetic and habitat qualities of their property to attract hunters, fishers, campers, and equestrians who have significant disposable incomes. Income from these non-traditional ranch uses can soften the impact of unstable cattle markets. Fee hunting and other forms of agritourism can increase the value of a ranching operation (Standiford and Tinnin 1996). Sustainable harvesting of firewood may also provide an additional source of income. With an estimated yearly production value of $8,627,000 in 2004, ranching has consistently been the county's leading farm commodity providing 26.1% of the total value of agriculture production (Calaveras County Department of Agriculture and Weights and Measures 2004). Calaveras County residents value the ranching culture, which provides much of the County's ambiance and identity. Productive ranches provide many benefits to all county residents including; wildlife habitat, open-space, recreation lands, view sheds, fire control, weed management, and watersheds that produce abundant clean water. It is vital to the conservation of oak woodlands that the County's ranching operations and the working landscapes they provide remain viable.

Property Values

The retention of oak woodlands within a community can contribute to a community's economic well being. Woodlands contribute to increased property values and a subsequent increase in property tax revenues. One study in Southern California showed that a 10% decrease in the distance to an open space preserve increased the value of

4,800 surrounding lots by over $20 million dollars, significantly increasing tax revenue to the county. In addition, lots containing native oaks have been found to be valued at a 27% premium over properties having no trees. Individual trees of large size or landmark status within a community were found to increase property values by an additional $18,000 to $50,000 each (Standiford 1999a). Studies comparing tree populations and property values also indicate that retaining approximately 40 trees per acre generally provides optimal lot coverage and yields the highest market value premium, roughly 22% to 27%, over bare land (Standiford 1999a).

POTENTIAL THREATS TO OAKS AND OAK WOODLAND HABITAT

Table 1 summarizes decreases and increases in hardwood canopy cover from 1991-2001 for three counties. Information for Calaveras County is highlighted.

Table 1: El Dorado, Amador, and Calaveras Counties Acres With Changes in Hardwood Canopy Cover

1991 - 1996

		Large Decrease	Moderate Decrease	Small Decrease	No Change	Small Increase	Moderate Increase	Large Increase
Acres	El Dorado	178	818	3,427	248,857	890	92	4
	Amador	9	243	1,418	133,839	224	17	0
	Calaveras	2,642	6,519	4,521	195,593	10,494	4,189	245
Percent of Total Area	El Dorado	0.10	0.30	1.30	97.90	0.40	0.04	<0.01
	Amador	<.01	0.18	1.00	98.60	0.02	0.01	0
	Calaveras	1.20	2.90	2.00	87.20	4.70	1.90	0.11

1996-2001 (Bill Frost)

		71% to 100% Decrease	41% to 70% Decrease	16% to 40% Decrease	Little / No change	16% to 40% Increase	41% to 100% Increase
Acres	El Dorado	723	342	195	204,675	25	383
	Amador	412	170	36	108,264	4	55
	Calaveras	473	351	265	149,098	2	64
Percent of Total Area	El Dorado	0.35	0.17	0.09	99.20	0.01	0.19
	Amador	0.38	0.16	0.03	99.40	<0.01	0.05
	Calaveras	0.31	0.23	0.18	99.20	<0.01	0.04

Information summarized from:
California Land Cover Mapping and Monitoring Program, 2002. Monitoring land cover changes in California: Northeastern California Project Area. USDA Forest Service and California Department of Forestry and Fire Protection Cooperating Monitoring Program. 171 p.

California Land Cover Mapping and Monitoring Program. 2004. Monitoring land cover changes in California: Northern Sierra Project Area - Cycle II. USDA Forest Service and California Department of Forestry and Fire Protection Cooperating Monitoring Program. 226 p.
Table Source: Frost and Churches 2004.

The following potential threats could be responsible for these changes in land cover.

Wildfire

As noted above, commercial and residential development has been identified as the major cause of encroachment into oak woodlands (Light & Pedroni 2002). However, the California Department of Forestry and Fire Protection (CDF) has indicated that, although loss of oak tree habitat to building development is often more visible and more likely to occur in locations critical to habitat sustainability, wildfire is usually the most immediate cause of major extensive oak woodland conversion. Wildfires can result in 14-90% of the annual change in a region (CDF FRAP 2003b). Although periodic, low-intense fires can be beneficial to many oak woodland habitats, uncontrolled wildfires, often the result of extended fire suppression, usually result in significant, widespread loss of individual oaks, supporting plant communities, and wildlife habitat. Erosion resulting from the loss of vegetative cover can also contribute to additional loss of trees and habitat. Habitat loss due to wildfire is often permanent.

Residential Development

Substantial fragmentation and conversion of oak woodlands for residential and commercial uses is occurring with increased frequency in Calaveras County. Actions to reduce the potential impacts of these projects have generally been confined to removal of trees and associated native plant communities on the project site and replanting of seedlings and/or acorns in common areas and off-site mitigation banks, with little regard for habitat sustainability, retention of mature oak communities, or the continuity of existing wildlife corridors on the original site. Additionally, because a majority of the intense development is occurring on the margins of existing communities and along primary transportation corridors, a substantial amount of the oak woodland being lost is in local, concentrated, highly visible areas. The intense projected growth in both the community centers and rural suburbs of the county increases the potential for significant habitat loss within and adjacent to our communities.

Woodcutting

Woodcutting can be an integral part of a sustainable woodcutting management plan that balances harvesting with habitat protection and agricultural use. However, indiscriminate cutting without regard for habitat continuity, lack of replanting or protection of saplings, removal of nest or wildlife trees, and thinning within a woodland to produce a monoculture will all contribute to reduction of overall quality of the woodland habitat and eventual loss of the woodland resources.

From an economic perspective, removal of oak trees or damage to the stability of the woodland may also decrease the habitat potential for game species. In some cases, the resulting decrease in potential hunting revenues may be greater than the revenues generated by firewood (Harper et at 1989, Tietje1996).

Agriculture and Rangeland Improvement

Established oak woodland and oak savanna have proven tolerant to grazing and other agricultural activities. However, inappropriate grazing management practices, improper cultivation, and excessive irrigation can be factors in the loss of oak woodlands by

eroding the ecosystem, destroying seedlings and encouraging the growth of invasive species.

Non-Native Species

The introduction of non-native species of plants and animals over time has had an adverse effect on oak woodland habitat. Examples of invasive non-native plant and animal species prevalent in Calaveras County include yellow starthistle, Himalayan blackberries, wild turkeys and feral pigs.

Sudden Oak Death

Sudden Oak Death (SOD), a disease caused by a fungus-like parasite, *Phytophthora ramorum*, has attacked oaks and other woodland plants in 14 California counties. The impacts from SOD are potentially grave: massive die-off of oak trees over thousands of acres; permanent change in forest cover and ecosystems; and a serious increase in fire threat. Since the mid-1990s, SOD has caused substantial mortality in tanoak trees and several oak tree species (coast live oak, California black oak, Shreve oak, and canyon live oak). Twig and foliar diseases, attributed to the parasite, have also been found in numerous other plant species, including California bay laurel, Douglas-fir, and coast redwood. As of June 2004, 32 genera are known to be susceptible to *P. ramorum*. To date, SOD has not established itself in Calaveras or other foothill communities, but future migration of the parasite to foothill areas could further exacerbate the loss of oak woodland habitat in the Sierra foothills.

MECHANISMS TO CONSERVE OAK WOODLAND VALUES

Williamson Act

The California Land Conservation Act of 1965, also known as the Williamson Act, is a land protection program established to preserve agricultural and open space lands. By participating in the Williamson Act (Act), landowners are able to protect large tracts of farmland and open space from development and reserve it for agricultural use. Much of this land, especially in Calaveras County, contains large contiguous areas of oak woodland and savanna habitat. Williamson Act contracts are established for a rolling term of 10 years. In return, parcels are assessed at a rate which reflects their agricultural and open space uses rather than their full market value. If a contract is not renewed, it normally terminates nine years after non-renewal. Early cancellation of a contract can result in substantial penalties. Currently, there are approximately 135,000 acres restricted by Williamson Act Contracts in the County.

Oak Woodland Conservation Easements

A conservation easement is a legal agreement between a landowner and a non-profit organization or government agency that restricts the type of uses allowed on the property in order to protect its conservation values. It allows the landowner to continue to own and use the land, within the constraints of the contract, and to sell it or pass it on to heirs. Each easement is individually negotiated and only certain rights to the land are purchased or donated. For example, the landowner might give up the right to build

additional structures, while retaining the right to ranch or grow crops. The easement runs with the land and future owners are also bound by the terms of the agreement. An easement may apply to just a portion of a parcel and usually does not need to allow public access. Conservation easements are generally permanent. Currently, there are at least 6,700 acres under conservation easements in Calaveras County.

If an easement is donated and benefits the public by permanently protecting important resources, it may qualify as a tax-deductible charitable donation. Conservation easements may also lower the estate tax when passing land on to the next generation. Lands under a conservation easement are usually assessed at a similar rate to properties protected under the Williamson Act.

California Oak Woodland Conservation Program

As a result of the California Oak Woodland Conservation Act (COWCA), the Oak Woodland Conservation Program was established within the Wildlife Conservation Board (WCB). The program is designed to provide $10 million to help local jurisdictions protect and enhance their oak woodland resources. It offers landowners, conservation organizations, cities, and counties an opportunity to obtain funding for projects designed to conserve and restore California's oak woodlands. It authorizes the WCB to fund land protection, land improvements, oak education, and restoration. The Act required that at least 80 percent of program dollars be used for grants that fund land protection, restoration or enhancement projects within oak woodlands. The remaining 20 percent of the funds could be used for public education and outreach efforts by local governments, park and open space districts, resource conservation districts, and nonprofit organizations. Within the 20 percent category, funds could also be used for grants designed to provide technical assistance to develop and implement oak conservation elements in local general plans (McCreary 2004, CWCB 2001).

Long-term Leasing Agreements

Long-Term leases are designed to protect oak woodlands for purposes of open space, viewshed, wildlife habitat or alternative grazing opportunities. Such leases are managed according to a management plan prepared to meet the goals as stated in the long-term lease agreement.

Cost-sharing Incentive Payments

According to information provided by the Wildlife Conservation Board in the Oak Woodlands Conservation Program, agreements for cost-sharing incentive payments can include management practices that benefit the goals of the landowner and the oak woodlands. The length of the long-term agreement is dependent upon the nature of the project, the goals of the landowner and benefits to the oak woodlands. Typical long-term agreements could run 15 to 45 years. Cost-share incentive payments could include, but are not necessarily limited to: compensation for not cutting trees for firewood; long-term payment to keep the land in open space, managed according to a plan designed to benefit the landowner and the oak woodlands; reimbursements for conservation improvements; and compensation for alternative grazing practices.

WOODLAND RESOURCES CLASSIFICATION

Oak Species in Calaveras County

True oaks are those species included in the taxonomic genus *Quercus.* They include both evergreen and deciduous species. Oak species represented in Calaveras County are:

Interior Live Oak *(Q. wislizeni)*
Canyon live Oak *(Q. chrysolepis)*
Black Oak *(Q. kelloggii)*
Valley Oak *(Q. lobata)*
Blue Oak *(Q. douglasi)*
Scrub Oak (Q. *dumosa)*

Types of Oak Woodlands in Calaveras County and their Distribution

Oak Woodlands as described in this plan are defined by the California Department of Fish and Game's Wildlife Habitat Relations Classification System (WHR). Calaveras County has the following oak natural communities:

Valley Foothill Riparian Forest
Valley Oak Woodland
Blue Oak Woodland
Blue Oak / Foothill Pine Woodland
Oak Savanna
Oak Montane Woodland

A map of the distribution of oak woodlands is attached as Appendix D. A general review of these habitats follows.

Valley Foothill Riparian Forest

Valley Foothill riparian forest habitats occur in the Central Valley and the lower foothills of Calaveras County where deeper alluvial soils and a high water table exist. Foothill Riparian forest habitat ranges from sea level to 1000 m (3000 ft), fingering upward to 1550 m (5000 ft) on south-facing slopes (CWHR). They are often found on sloping alluvial fans, and are generally associated with low velocity flows, flood plains, and gentle topography. The substrate is often coarse, gravelly or rocky soils that are close to ground water, and well aerated. Dominant species in the canopy layer are cottonwood, California sycamore and valley oak. Subcanopy trees are white alder, boxelder and Oregon ash. Typical understory shrub layer plants include wild grape, wild rose, California blackberry, blue elderberry, poison oak, buttonbrush, and willows.

Valley foothill riparian habitats provide food, water, migration and dispersal corridors, escape, nesting, and thermal cover for an abundance of wildlife. At least 50 amphibians and reptiles occur in lowland riparian systems. Many are permanent residents and others are transient or temporal visitors (Brode and Bury 1984). In one study conducted on the Sacramento River, 147 bird species were recorded as nesters or winter visitors (Laymon 1985). Additionally, 55 species of mammals are known to use California's Central Valley riparian communities (Trapp et at. 1984).

Valley Foothill riparian communities need active floodplains to regenerate. On regulated streams and rivers where peak winter flood flows are removed regeneration is often lacking. Extensive studies are being conducted on the Sacramento River by CALFED and other agencies to determine the winter pulse flows and the spring draw down timing needed for regeneration of this community. These oak stands can provide an environmental corridor linking the riparian habitats along the Calaveras River with upland ecosystems for miles thus allowing species to efficiently move between habitat types.

Valley Oak Woodland

Valley oaks are endemic to California. At the present time, there are approximately 122,000 acres of these woodlands remaining within the state. They are generally associated with the deep alluvial soils of the Central Valley. This habitat varies from savanna-like to forest-like stands with partially closed canopies, comprised mostly of winter-deciduous, broad-leaved species. Denser stands typically grow in foothill soils along natural drainages. Valley oak woodlands at low elevations usually merge with annual grasslands or border agricultural land. Where these woodlands extend to the foothills surrounding the valley, they intergrade with Blue Oak Woodlands or Blue Oak-Foothill Pine habitats.

Near major stream courses this community intergrades with Valley-Foothill Riparian vegetation. Tree density decreases with the transition from lowlands to the less fertile soils of drier uplands. Most large, healthy valley oaks are likely rooted down to permanent water supplies.

The natural distribution of valley oak woodlands in Calaveras County is along the various rivers and creeks including the lower portions of the river's tributaries. Along the lower Calaveras River pure stands of valley oaks are most often found growing in groves on the upper river terraces (older deposits). Closer to the River, they are often mixed in with other riparian tree species such as Fremont's cottonwood, willow, and black walnut. Mature valley oaks have well-developed crowns and reach maximum heights of 15-37 m (50 to 120 ft). The massive trunks (often up to 6 feet DBH) and branches of mature trees dominate valley oak woodlands. Scattered groves of valley oaks as well as individual trees can be found up to elevations of approximately 762 m (2500 ft) in places where deeper soils can be found including lands converted to agricultural uses although generally the valley oak community occurs below 610 m (2000 ft). These scattered groves form a well-recognized landscape throughout the lowlands of Calaveras County.

Of all the oak woodland communities found in Calaveras County, valley oak woodland has likely experienced the most change primarily due to conversion to farmlands, orchards, and vineyards. In places where valley oaks occur, there is also concern that they are not regenerating at a rate to ensure long-term populations. Throughout California, most remaining valley oak woodlands exhibit little recruitment of young oaks to replace the veteran oaks dying of natural causes or being destroyed by urban and agricultural development (Griffin 1977). The lack of oak recruitment is reported to be related to animal damage of acorns and seedlings (Griffin 1980a).

Blue Oak Woodland

The Blue Oak Woodland natural community is the most abundant oak woodland in Calaveras County and presently totals about 55,000 acres (CDF FRAP 2003a). These woodlands occur along the western foothills of the Sierra Nevada-Cascade Ranges, the Tehachapi Mountains, and in the eastern foothills of the Coast Range, forming a nearly continuous ring around the Central Valley. Blue oak woodlands occur in the lower foothill belt of western Calaveras County at elevations from 152 to 610 m (500 to 2000 ft). They are usually associated with shallow, rocky, infertile, well-drained soils from a variety of parent materials. Blue oaks are well adapted to dry hilly terrain where the water table is usually unavailable (Griffin 1973). Blue oaks have an unusual tolerance of severe drought, even shedding their leaves during periods of extreme moisture stress. This survival trait contributes to its pattern of distribution as it competes most successfully with other tree species on drier sites (McDonald 1981). When they occur on gentle slopes they are often in large blocks with highly variable canopy coverage. On steeper ground they occur in smaller patches interspersed with other habitats such as annual grasslands and chaparral. Associated shrub species typical of blue oak woodlands in Calaveras County include poison-oak, California coffeeberry, buckbrush, California buckeye, and manzanita spp.

Blue oaks are relatively slow-growing, long-lived trees. Large blue oaks range in age from 153 to 390 years; however, age studies in the Coast Range indicate that most blue oak stands are currently 80 to 120 years in age (Pillsbury and De Lasaux 1983). Research shows that estimation of tree age based on diameter measurements is risky because the relationship varies tremendously depending on site quality. Moreover, growth is extremely slow or even ceases after trees reach 65 cm (26 in).

Verner and Boss (1980) give data on wildlife use in blue oak savannahs of the western Sierra Nevada. They indicate that 29 species of amphibians and reptiles, 57 species of birds, and 10 species of mammals find mature blue oak woodland suitable or optimum for breeding, assuming that other special habitat requirements are met. At the present time, there is concern about regeneration of blue oaks across their range. Few areas can be found in California where successful recruitment of blue oaks has occurred since the turn of the century (Holland 1976). This may be due to changes in land use; increased consumption or damage of acorns and seedlings by insects, non-native species, livestock, and native animals; competition between seedlings and introduced annuals for available soil nutrients and moisture; and the absence of appropriate climatic conditions. Where germination of acorns occurs, survival and growth of the seedlings typically fail. Where regeneration is succeeding, greater success tends to be better in areas of higher rainfall, on north slopes and in areas where competition with introduced grasses is low. Standiford (1999b) found that regeneration of blue oaks from stump sprouts after woodcutting was lower in Calaveras County than counties to the north. Probably in the drier savanna-like stands, the grassland openings will simply become larger as older trees die. Griffin (1977) suggests that live oaks may replace deciduous oaks in some areas, because their seedlings are more browse resistant. Many authorities question whether conditions will ever again support the recruitment of blue oaks needed to maintain these important woodlands.

Blue Oak - Foothill Pine Woodland

Blue Oak-Foothill Pine woodlands have a diverse mix of hardwoods, conifers, and shrubs, and widely variable overstories. Foothill pine and blue oak typically form most of the overstory of this highly variable habitat type. Blue oak is usually the most abundant tree species, although foothill pine is taller and dominates the overstory. Stands dominated by foothill pine have low blue oak density because of its shade intolerance. Blue Oak - Foothill Pine Woodland generally forms the upper boundary of blue oak woodlands in Calaveras County, although blue oak do extend into the low elevation California black oak/Ponderosa pine forest. Blue oak/foothill pine woodlands currently total approximately 979,000 acres in California (CDF FRAP 2003). This woodland type rings the Central Valley, between 150 and 915 m (500 and 3000 ft) in elevation (Neal 1980).

In Calaveras County, interior live oak and California buckeye are often associated with this type. At lower elevations, where blue oaks makeup most of the canopy, the understory tends to be primarily annual grasses and forbs. Interior live oak becomes more abundant on steeper slopes, shallower soils, and at higher elevations. Shrub associates include several *Ceanothus spp.* and manzanita *spp.*, California coffee berry, poison-oak, and California redbud and are usually clumped in areas of full sunlight. Associated species are the interior live oak, valley oak, and California buckeye (Griffin 1977). Interior live oak sometimes dominates the overstory, especially in rocky areas and on north-facing slopes at higher elevations (Neal 1980).

Concern has been expressed for the long-term existence of this habitat (Holland 1976), because "little regeneration has occurred since the late 1800s, as livestock, deer, birds, insects, and rodents consume nearly the entire acorn crop each year." Of the few seedlings that become established a large proportion are eaten by deer (Neal 1980). Furthermore, the absence of grazing livestock does not generally result in regeneration (White 1966), because many other animals eat acorns and seedling oaks.

Oak Savanna

Relatively little information is available on Sierra foothill oak savannah biological communities. Oak savanna habitat is typically composed of grasslands and wildflowers with few or no shrubs growing in between. The low density of trees in savanna habitat is few enough in numbers not to affect light penetration to the ground. The savanna is a transition ecosystem between the grasslands and woodland environments, so it is an important habitat for both woodland and grassland species providing extremely high diversity in flora and fauna.

Blue oak savannah habitat is most common on low hills and exposed south facing slopes ranging in elevation below 731 m (2400 ft) in Calaveras County. The soil is typically shallow and punctured by bedrock outcrops, an occasional California buckeye or interior live oak is interspersed with blue oaks.

Blue oak savanna is probably the driest and hottest of all tree-dominated communities in California. Oak savanna is differentiated from oak woodlands by a variety of authors and agencies. For our purpose, the project has adopted the National Resource

Conservation Service (NRCS) and US Department of Agriculture (USDA) standard of twenty percent canopy coverage with a minimum of one acre in size. Savanna habitat relies on periodic disturbances such as fire, grazing and drought to flourish. Such disturbances prevent other trees from establishing themselves and succeeding into a woodland community.

Oak Montane Woodland

Montane hardwoods range throughout Calaveras County above the blue oak and valley oak woodlands, and surrounded by conifer dominated plant types extending to approximately 2286 m (7500 ft) in elevation. Montane hardwood forests are perhaps the most variable of any California hardwood type. The dominant oak species vary by topography, soils, and elevation. Montane hardwood forests typically lack blue oaks and valley oaks. The characteristic oaks in Calaveras County are canyon live oak, interior live oak, and California black oak. Many montane hardwood forests are located on fairly productive forest soils, and are not truly "hardwood rangelands", but commercial hardwood forests under the jurisdiction of the California Forest Practices Act (FPA).

A wide range of physical characteristics affect montane hardwood forests. Slopes range from gentle to steep. Soils are mostly rocky, coarse, and poorly developed. However, relatively large California black oak stands occur in mountain valleys on alluvial soils. Exposures tend to be south, west, and east, while conifers tend to dominate on northern exposures. Climates are typically Mediterranean but extremely variable given the wide distribution of this type. Average summer temperatures are moderate, while average winter temperatures range from near freezing to the mid-40's. Snow occurs in the winter at higher elevations, but does not remain as long as on adjacent conifer-dominated habitats.

Since oaks of montane hardwood communities are long-lived, the community is rather stable and persistent without stand replacing disturbances. Trees are initially established by acorns, and dispersal by animals plays a major role in planting and survival. Once established, the dominant oaks can sprout vigorously from stumps, allowing rapid re-establishment after a fire. Frequent fires over relatively small areas result in a variety of age classes across the landscape. The large number of hardwood and conifer species allows this type to occupy many environments and locations. The general inaccessibility of these habitats has protected them from many of the human-induced disturbances such as residential and commercial development, wood cutting, and intensive agricultural.

CONSERVATION GOAL, STRATEGIES & IMPLEMENTATION MEASURES

Goal

Encourage and support voluntary, long-term stewardship and conservation practices in the management of oak woodlands and their habitat within Calaveras County.

Strategy #1 Develop county-wide programs that will provide incentives and support to private landowners, including, but not limited to farming, ranching and grazing operations, that are compatible with oak woodland conservation and habitat protection.

Implementation 1A – Develop and/or streamline mechanisms that provide incentives to private landowners. (e.g. Williamson Act contracts, purchase of conservation easements, long-term leases, cost-sharing)

Implementation 1B – Identify and/or develop funding mechanisms to provide financial incentives to private landowners. Target multiple funding sources to support projects or programs.

Implementation 1C – Participate in governmental or non-profit cost-share programs through local, state and federal conservation programs.

Implementation 1D– Develop and distribute guidelines for best management practices for protecting oak woodlands on farming and ranching operations.

Strategy #2 Encourage local land use planning that is consistent with the stewardship and conservation of oak woodlands.

Implementation 2A – Develop and distribute guidelines that assist landowners and developers in identifying alternatives to oak tree removal, root system compaction, placement of fill around trees, landscape irrigation, road construction, and other issues that may arise during construction, utilizing best management practices.

Implementation 2B – Encourage clustering of houses to avoid fragmenting habitat and wildlife corridors.

Implementation 2C – Allow for density bonuses and transfer of development rights as a means to achieve oak woodland conservation and preservation.

Implementation 2D – Utilize local resources and expertise to promote non-traditional or low impact business ventures within oak woodlands.

Implementation 2E – Recognize and avoid implementing policies, taxes or fees that threaten the sustainability of farming and ranching (working landscapes) within Calaveras County.

Strategy #3 Provide educational and resource support programs that assist the private landowners in the management and stewardship of their oak woodlands and associated wildlife habitats.

Implementation 3A – Make available various UC Extension support documents for Oak Woodlands Management to private landowners. Examples include *Guidelines for Oak Woodlands Management* and *Regenerating Rangeland Oaks in California*.

Implementation 3B - Conduct workshops, seminars, field trips, and other outreach activities for the general public, ranchers, farmers and developers. Utilize resources from UC Extension, NRCS, Wildlife Conservation Board, Watershed Councils, Resource Professionals, and others.

Implementation 3C – Provide oak woodland conservation information to various County departments and Special Districts, such as Planning, Building, Public Works, CCWD, CPUD and Department of Agriculture.

Strategy #4 Maintain information on the status of woodlands within Calaveras County.

Implementation 4A – Continue to assess and report the status of Calaveras' oak woodland canopy cover by examination of aerial photos and satellite imagery and record changes and the known causal effects of changes to the oak woodlands. Utilize the Hardwood Advisory Committee to periodically evaluate the state of oak woodlands, using available data sources.

Implementation 4B – Evaluate existing oak woodlands and establish baseline information on the locations and types of the oak woodlands within Calaveras County.

Implementation 4C - Evaluate the effects of changing land uses in oak woodlands on wildlife, ranching, water quality and economics.

Implementation 4D – Identify those areas in Calaveras County where threats to oak woodlands are most pressing, as well as those areas where oak woodland preservation would serve the greatest public good.

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Appendix A

Appendix A-1.
Calaveras County Resolution #96-284

BOARD OF SUPERVISORS, COUNTY OF CALAVERAS
STATE OF CALIFORNIA
August 26, 1996

RESOLUTION NO. 96-284

A RESOLUTION ADOPTING OAK WOODLAND VOLUNTARY MANAGEMENT GUIDELINES AND ESTABLISHING A HARDWOOD ADVISORY COMMITTEE FOR CALAVERAS COUNTY.

WHEREAS, the California Board of Forestry has taken action to support oak woodland protection through local efforts; and

WHEREAS, those lands described as oak woodlands within Calaveras County provide multiple benefits, including commercial livestock production, wildlife habitat, land development and fuelwood harvesting; and

WHEREAS, a majority of the oak woodlands within Calaveras County are under private ownership; and

WHEREAS, the County of Calaveras recognizes and respects the importance of private property rights and endorses the concept that landowners be provided the maximum right of self determination; and

WHEREAS, the economic viability of agricultural enterprises operating within these oak woodlands must be protected; and

WHEREAS, the County of Calaveras recognizes responsible stewardship by landowners is necessary to sustain these oak woodland resources;

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of the County of Calaveras, State of California, does hereby adopt the following for the sustained management of oak woodlands:

1. All landowners with 40 acres or more of land, located in oak woodland areas of the County, shall be provided with a copy of the Calaveras County Oak Woodland Voluntary Management Guidelines which are hereby adopted and identified as Exhibit A of this

resolution.

2. All landowners who wish to harvest oak are hereby encouraged to develop their own management plan for properties within Calaveras County.

3. All such landowners are further encouraged to contact private or public sources for expert assistance and to use the Calaveras County Oak Woodland Management Guidelines and the information provided by the Integrated Hardwood Range Management Program in the development of their harvest plans.

4. The Calaveras County Hardwood Advisory Committee is hereby established and shall be comprised of stakeholders as defined in Exhibit B of this resolution. The Hardwood Advisory Committee shall meet as often as necessary, but no less than annually. The Committee shall evaluate the effectiveness and progress of the educational programs on hardwood management and the effectiveness of the Calaveras County Oak Woodland Management Guidelines in sustaining oak woodlands within Calaveras County. The Committee shall make periodic reports and recommendations to the Board of Supervisors with regards to local oak woodlands management.

BE IT FURTHER RESOLVED that the Calaveras County Board of Supervisors hereby encourages the University of California Cooperative Extension, Calaveras County, to coordinate with local government agencies and/or private organizations to offer workshops on oak woodland management and conservation to landowners, realtors, developers and community organizations.

BE IT FURTHER RESOLVED that nothing herein may be interpreted or applied to modify or cancel any provision of any regulation, ordinance or condition of development governed by the County.

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ON A MOTION by Supervisor Dell'Orto, seconded by Supervisor Taylor, the foregoing Resolution was duly passed and adopted by the Board of Supervisors, County of Calaveras, August 26, 1996, by the following vote:

AYES: Supervisors Dell'Orto, Taylor, Bailey and Tryon

NOES: Supervisor Callaway

ABSENT: None

Thomas M. Tryon
Chairman, Board of Supervisors

ATTEST:

County Clerk and Ex-Officio Clerk
to the Board of Supervisors,
Calaveras County, State of California

EXHIBIT A - RESOLUTION NO. 96-284

CALAVERAS COUNTY
VOLUNTARY OAK WOODLAND MANAGEMENT GUIDELINES

The following guidelines have been developed and are being provided to private landowners to assist in determining how to best manage their existing oak woodlands. We emphasize that these guidelines are voluntary and general in nature. The guidelines are not in any particular order of importance and should all be considered when evaluating a specific parcel of land. Landowners are encouraged to plan their oak harvest using the Integrated Hardwood Range Management Program information and the other listed resources for specific assistance.

I. WHEN HARVESTING OAKS FOR FUEL OR RANGELAND IMPROVEMENT PLAN YOUR HARVEST TO:

- maintain an average leaf canopy of 30% or more of single stemmed oaks and 15% or more of multi-stemmed oaks.

  AVERAGE LEAF CANOPY PERCENTAGE - DEFINITION:
  The percent of an acre covered by the shadow of standing oak trees, in leaf, when the sun is directly overhead. Each acre is to be evaluated and measured separately and solely on its own growth without regard to other surrounding acres. Only acres with oak tree growth are to be considered in the equation.

- retain trees of all sizes and species represented at the site that are compatible with the intended land use.
- when safety permits, leave old hollow trees and those actively being used for nesting, roosting or feeding.
- where low fire risk and aesthetics allow, pile limbs and brush to provide wildlife cover.
- where commercial or extensive harvest is being contemplated, seek professional advice from such resources as U.C. Cooperative Extension California Department of Forestry and/or private consultants.

II. WHEN BUILDING WITHIN OAK WOODLANDS:

- cluster houses to preserve wildlife corridors and habitats.
- protect existing oaks during construction.
- avoid root compaction by limiting heavy equipment in the root zone.
- carefully plan roads, cuts and fills, building foundations and septic systems to avoid damage to tree roots.
- design roads to minimize excessive erosion and sedimentation to down stream resources. Consider re-seeding of disturbed ground.
- avoid landscaping which requires or allows irrigation within ten feet of the trunk of an oak tree.
- consider replacing trees whose removal during construction was unavoidable.

III. FIRE PROTECTION PURPOSES:

- prune branches and limbs of single stemmed oaks to 10' above groundline, near structures and fuel breaks.
- prune lower limbs and remove dead limbs on desired brush species to reduce the *firelaedder effect*.
- on multi-stemmed oaks, reduce the number of stems to 2-4 per clump and prune to 10'.
- emphasize single stemmed oak species.
- remove brush from under the dripline of desired and residual trees.
- remove debris from the base of the residual trees.
- remove from desired species any unwanted plants on the fuelbreak.
- control unwanted sprouts by manual, biological, mechanical, chemical means or burning (for further information see publication *A Property Owners Guide to Reducing Wildfire Threat*).

IV. DISPOSAL OF UNWANTED VEGETATION:

- utilize unwanted vegetation if at all possible for mulch, co-generation, fuelwood, etc.
- unutilized material should be piled and burned.
- burn dry material, with good ventilation, to reduce the smoke production.
- burn on Burn Days only in compliance with Air Pollution Control District Guidelines.
- use prescribed burning when possible.

Oak Woodland Management Publications Available

University of California Cooperative Extension, Calaveras County, in person 476 E. St. Charles Street, San Andreas, (by mail Government Center, 891 Mountain Ranch Rd., San Andreas CA 95249-9709, (209)754-647

Guidelines for Managing California's Hardwood Rangelands
Management recommendations for landowners and resource managers, PUB#3368, 96pp. $15.00.

Harvesting Firewood for Sustained Yield on Oak Rangelands
Assessment methods and harvesting recommendations, PUB#21487, 32pp. $3.50

University of California Cooperative Extension, Natural Resources Program, 163 Mulford Hall, Berkeley CA 9472(
(510)643-5428

A Planner's Guide to Oak Woodlands
Includes planning guidelines and alternatives, with sections on oak ecology, 94pp. $10.00

Living Among the Oaks
An oak management guide for homeowners, 8pp. Free.

Wildlife Among the Oaks
Recommendations for managing oak woodland wild fire, 165pp. Free.

How to Grow California Oaks
Includes detailed information relevant to restoration, 4pp. Free.

Integrated Hardwood Range Management Program Cooperative Extension, University of California, 160 Mulford Hall, Berkeley CA 94720

Oaks 'n' Folks
An Integrated Hardwood Range Management Program newsletter with articles on scientific, social and economic issues. Free.

Quercus
An Integrated Hardwood Range Management Program newsletter on planning for oak woodlands. Free.

California Oak Foundation, 1212 Broadway - Suite 810, Oakland CA 94612, (510)763-0282

Oaks of California
A broad overview of the ecology and natural history of California's oaks, 184 pp. Hardcover $28.95, Softcover $19.95.

Compatible Plants Under and Around Oaks
Landscaping information and plant checklist, 69pp. $10.00

California Oaks
The newsletter of the California Oak Foundation, Free to members (membership $25.00 per year).

California Native Plant Society, 909 12th St #116, Sacramento CA 95814, (916)447-2677

Oak Action Kit
A selection of publications and resource lists on preservation and conservation of Oak Habitats, 3- ring binder $13.00

HARDWOOD HARVEST PLAN ADVISORY COMMITTEE MEMBERS

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SUPPORTING AGENCIES

Calaveras County
Air Pollution Control District

Calaveras County
Agricultural Commissioner

Calaveras County
Board of Supervisors

Calaveras County
Building Department

Calaveras County Farm Bureau

Calaveras County
Fire Department

Calaveras County
Planning Department

Calaveras/Tuolumne
Cattlemen's Association

U.C. Cooperative Extension,
Calaveras County

OAK WOODLANDS MANAGEMENT RESOURCES - LOCAL AGENCIES

California Dept. of Forestry
785 Mountain Ranch Rd
San Andreas CA 95249
209/754-3831

California Dept. of Fish and Game
Region 2 Headquarters
1701 Nimbus Rd
Rancho Cordova CA 95670
916/355-0978

University of California
Cooperative Extension
Calaveras County
Located at:
478 E. St. Charles Street
San Andreas, California
Mail to:
Government Center
891 Mountain Ranch Rd
San Andreas CA 95249-9709
209/754-6477

Calaveras County Hardwood Advisory Committee

Dear Oak Woodland Landowner:

In May of 1993, the State of California Board of Forestry reviewed impacts to oak woodlands due to over harvest or development losses. Of concern to the Board of Forestry were suggestions by various interest groups to regulate these impacts. The Board reviewed the need for statewide regulation of oak woodland resources and decided that such controls were not yet warranted. Rather, the Board opted for a renewed effort to encourage local government and citizens to design strategies that will address local hardwood management and conservation. The Calaveras County Hardwood Advisory Committee, Board Resolution, and following Guidelines were the result of the Board of Forestry's suggestion promoting local action.

On behalf of the Calaveras County Board of Supervisors, the Hardwood Advisory Committee provides you with the following information regarding management of oak woodlands. The Committee has volunteered many hours to develop practical and reasonable suggestions that all oak woodland owners should consider for proper management of their resources. We strongly encourage you voluntarily develop a management plan to help protect and wisely use our remaining oak woodlands. In addition to the enclosed Guidelines and sources of assistance, we encourage you to attend one of the local workshops to be offered.

Should you have any questions or concerns regarding this program, please feel free to write to us or contact your Supervisor. Thank you for your consideration towards the stewardship of our oak woodlands.

Sincerely,

SIGNATURE HERE

Committee Chair

Calaveras County Hardwood Advisory Committee
San Andreas CA 95249

ADDRESS LABEL
HERE

EXHIBIT B - RESOLUTION NO. 96-284

CALAVERAS COUNTY HARDWOOD ADVISORY COMMITTEE

The Calaveras County Hardwood Advisory Committee shall consist of ten (10) stakeholder members who shall own land within Calaveras County upon which oak trees are growing. Membership on the Hardwood Advisory Committee shall be for four (4) year terms, except that five (5) of the initial members shall be appointed to two (2) year terms and five (5) members shall be appointed to four (4) year terms. All terms shall expire on January 1 of the designated year.

Members of the Hardwood Advisory Committee shall be appointed by the Board of Supervisors and shall consist of stakeholders from the following sectors:

1. A member of the Agricultural Advisory Committee
2. A member of the local Fish and Game Commission
3. A land developer/realtor
4. A woodcutter
5. A registered professional forester
6. A member of the Calaveras County Farm Bureau
7. A member of the Calaveras/Tuolumne Cattlemen's Association
8. A graduate of the Calaveras County Master Gardeners Program
9. A member of the Calaveras County Board of Supervisors
10. A member at large

In addition to the foregoing, the Director of Cooperative Extension, Calaveras County and the County Agricultural Commissioner shall serve as Ex-Officio members of the Committee to provide support. The Committee may request participation in an Ex-Officio capacity of such other public agency representatives as it deems appropriate.

At the first meeting of the Hardwood Advisory Committee, the appointed representatives shall select a chairperson, vice chairperson and secretary. Election of officers shall occur at the first meeting of the calendar year every year thereafter. The Committee shall establish operating rules at its initial meeting which may be amended from time to time to facilitate conducting business.

Appendix A-2. FISH AND GAME CODE SECTION 1360-1372

1360. This article shall be known, and may be cited, as the Oak Woodlands Conservation Act.

1361. For purposes of this article, the following terms have the following meanings:

(a) "Board" means the Wildlife Conservation Board established pursuant to Section 1320.

(b) "Conservation easement" means a conservation easement, as defined in Section 815.1 of the Civil Code.

(c) "Fund" means the Oak Woodlands Conservation Fund.

(d) "Land improvement" means restoration or enhancement of biologically functional oak woodlands habitat.

(e) "Local government entity" means any city, county, city and county, district, or other local government entity, if the entity is otherwise authorized to acquire and hold title to real property.

(f) "Nonprofit organization" means a tax-exempt nonprofit organization that meets the requirements of subdivision (a) of Section 815.3 of the Civil Code.

(g) "Oak" means any species in the genus Quercus.

(h) "Oak woodlands" means an oak stand with a greater than 10 percent canopy cover or that may have historically supported greater than 10 percent canopy cover.

(i) "Oak woodlands management plan" means a plan that provides protection for oak woodlands over time and compensates private landowners for conserving oak woodlands.

(j) "Special oak woodlands habitat elements" means multi-and single-layered canopy, riparian zones, cavity trees, snags, and downed woody debris.

1362. It is the intent of the Legislature that this article accomplish all of the following:

(a) Support and encourage voluntary, long-term private stewardship and conservation of California's oak woodlands by offering landowners financial incentives to protect and promote biologically functional oak woodlands over time.

(b) Provide incentives to protect and encourage farming and ranching operations that are operated in a manner that protects and promotes healthy oak woodlands.

(c) Provide incentives for the protection of oak trees providing superior wildlife values on private lands.

(d) Encourage local land use planning that is consistent with the preservation of oak woodlands, particularly special oak woodlands habitat elements.

(e) Provide guidelines for spending the funds allocated for oak woodlands pursuant to the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act of 2000 (the Villaraigosa-Keeley Act (Chapter 1.692 (commencing with Section 5096.300) of Division 5 of the Public Resources Code).

(f) Establish a fund for oak woodlands conservation, to which future appropriations for oak woodlands protection may be made, and specify grant making guidelines.

1363. (a) The Oak Woodlands Conservation Fund is hereby created in the State Treasury. The fund shall be administered by the board. Moneys in the fund may be expended, upon appropriation by the Legislature, for the purposes of this article.

(b) Money may be deposited into the fund from gifts, donations, funds appropriated by the Legislature for the purposes of this article, or from federal grants or loans or other sources, and shall be used for the purpose of implementing this article, including administrative costs. Funds from the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act of 2000 (the Villaraigosa-Keeley Act (Chapter 1.692 (commencing with Section 5096.300) of Division 5 of the Public Resources Code)), but not including funds dedicated as matching funds for the federal Forest Legacy Program, shall be deposited in the fund.

(c) To the extent consistent with the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act of 2000 (the Villaraigosa-Keeley Act (Chapter 1.692 (commencing with Section 5096.300) of Division 5 of the Public Resources Code)), the board may use money designated for the preservation and restoration of oak woodlands in the Oak Woodlands Conservation Fund for projects in conjunction with the California Forest Legacy Program (Div. 10.5 (commencing with Sec. 12200) of the P.R.C.)), but only for the purposes specified in this article and only if the following requirements are met:

(1) The Department of Forestry and Fire Protection shall make an initial recommendation to the board.

(2) The board may deny any initial recommendation to the Department of Forestry and Fire Protection. Subsequently, if the department alters an initial proposal, in a manner that the board determines to be significant, the board may withdraw its initial approval of the recommendation at any time during the process.

(d) The purposes for which moneys in the fund may be used include all of the following:

(1) Grants for the purchase of oak woodlands conservation easements. Any entity authorized to hold a conservation easement under Section 815.3 of the Civil Code may hold a conservation easement pursuant to this article. The holder of the conservation easement shall ensure, on an annual basis, that the conservation easement conditions have been met for that year.
(2) Grants for land improvement.
(3) Cost-sharing incentive payments to private landowners who enter into long-term conservation agreements. An agreement shall include management practices that benefit oak woodlands and promote the economic sustainability of farming and ranching operations.
(4) Public education and outreach by local government entities, park and open-space districts, resource conservation districts, and nonprofit organizations. The public education and outreach shall identify and communicate the social, economic, agricultural, and biological benefits of strategies to conserve oak woodlands habitat values, including watershed protection benefits that reduce soil erosion, increase streamflows, and increase water retention and sustainable agricultural operations.
(5) Assistance to local government entities, park and open-space districts, resource conservation districts, and nonprofit organizations for the development and implementation of oak conservation elements in local general plans.
(6) Technical assistance consistent with the purpose of preserving oak woodlands.

(e) Not more than 20 percent of all grants made by the board pursuant to this article may be used for the purposes described in paragraphs (4), (5), and (6) of subdivision (d). Not less than 80 percent of funds available for grants pursuant to this article shall be expended for the purposes described in paragraphs (1), (2), and (3) of subdivision (d).

(f) Notwithstanding any other provision of law, this article governs the expenditure of funds for the preservation of oak woodlands pursuant to paragraph (4) of subdivision (a) of Section 5096.350 of the Public Resources Code.

1363.5. (a) Commencing on June 30, 2003, and every two years thereafter, the board shall report to the Legislature and the Governor concerning the activities and expenditures of the fund.

(b) (1) In the first report to the Legislature, the board shall provide its best estimate of the total amount, in terms of acreage, species, and coverage, of oak woodlands habitat purchased with funds from the Habitat Conservation Fund and other funds pursuant to the California Wildlife Protection Act of 1990 (Chapter 9 (commencing with Section 2780) of Division 3.
(2) In each subsequent report, the board shall update the information required by paragraph (1) to reflect additional oak woodlands habitat purchased with funds from the Habitat Conservation Fund pursuant to Chapter 9 (commencing with Section 2780) of Division 3, and any purchases made with moneys deposited in the Oak Woodlands Conservation Fund.

(c) The board shall provide its best estimate in each report, the acreage, cover, and species of oak woodlands habitat purchased with all moneys from the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Fund.

(d) The board shall make all information available online at its Web site.

(e) This section shall become inoperative on July 1, 2020, and, as of January 1, 2021, is repealed, unless a later enacted statute that is enacted before January 1, 2021, deletes or extends the dates on which it becomes inoperative and is repealed.

1364. Moneys in the fund shall be available to local government entities, park and open-space districts, resource conservation districts, private landowners, and nonprofit organizations for the purposes set forth in subdivision (d) of Section 1363.

1365. The board shall develop and adopt guidelines and criteria for awarding grants that achieve the greatest lasting conservation of oak woodlands. The board shall develop these guidelines in consultation with the Department of Forestry and Fire Protection, the Department of Food and Agriculture, the University of California's Integrated Hardwood Range Management Program, conservation groups, and farming and ranching associations. As it applies to the award of grants for the implementation of this article, the board criteria shall specify that easement acquisitions that are the most cost-effective in comparison to the actual resource value of the easement shall be given priority.

1366. (a) To qualify for a grant pursuant to this article, the county or city in which the grant money would be spent shall prepare, or demonstrate that it has already prepared, an oak woodlands management plan that includes a description of all native oak species located within the county's or city's jurisdiction.

(b) To qualify for a grant pursuant to this article, the board shall certify that any proposed easement was not, and is not, required to satisfy a condition imposed upon the landowner by any lease, permit, license, certificate, or other entitlement for use issued by one or more public agencies, including, but not limited to, the mitigation of significant effects on the environment of a project pursuant to an approved environmental impact report or to mitigate a negative declaration required pursuant to the California Environmental Quality Act (Division 13 (commencing with Section 21000)) of the Public Resources Code.

(c) To qualify for a grant under this article, the applicant shall demonstrate that its proposal provides protection of oak woodlands that is more protective than the applicable provisions of law in existence on the date of the proposal.

(d) A county or city may develop an oak woodlands management plan. A nonprofit corporation, park and open-space district, resource conservation district, or other local government entity may apply to the board for funds to develop an oak woodlands management plan for a county or city, but the county or city shall maintain ultimate authority to approve the oak woodlands management plan.

(e) The process for developing an initial oak woodlands management plan, and the adoption of significant amendments to a plan, as determined by the county or city, are subject to the Ralph M. Brown Act (Chapter 9 (commencing with Section 54950) of Part 1 of Division 2 of Title 5 of the Government Code).

(f) A proposal by a local government entity, nonprofit corporation, park and open-space district, private landowner, or resource conservation district for a grant to be expended for the purposes of this article shall be certified by the county or city as being consistent with the oak woodlands management plan of the county or city. If the land covered by the proposal is in the jurisdiction of more than one county or city, each county or city shall certify that the proposal is consistent with the oak woodlands management plan of each county or city.

(g) If two or more entities seek grant funding from the board pursuant to this article for the same jurisdiction, the county or city shall designate which entity shall lead the efforts to manage oak woodlands habitat in the area.

1367. On or before April 1, 2002, the board and the Department of Forestry and Fire Protection shall develop a memorandum of understanding regarding the protection of oak woodlands that does all of the following:

(a) If necessary, creates a specific process for working together to use money from the fund in conjunction with the California Forest Legacy Program Act of 2000 (Division 10.5 (commencing with Section 12200) of the Public Resources Code).

(b) Lists elements a county or city shall include in its oak woodlands management plan. Items included in the plan shall assist a county or a city to specify conservation priorities and prevent oak woodlands habitat fragmentation while minimizing the cost and administrative burden associated with developing the plan. The elements may include any or all of the following:
   (1) Tree inventory mapping.
   (2) Oak canopy retention standards.
   (3) Oak habitat mitigation measures.
   (4) A procedure to monitor the effectiveness of the plan and to modify the plan as necessary.

(c) Designates an online repository for oak woodlands management plans that will be easily accessible to the public and any other state agency involved in oak woodlands conservation efforts.

(d) Discusses the relationship between oak woodlands conservation efforts under this article and efforts by other state agencies to protect oak woodlands, including efforts to combat sudden oak death, and outlines a plan, as necessary, for coordinating with these agencies.

1368. The board may not approve a grant to a local government entity, park and open-space district, resource conservation district, or nonprofit organization if the entity requesting the grant has acquired, or proposes to acquire, an oak woodlands conservation easement through the use of eminent domain, unless the owner of the affected lands requests the owner to do so.

1369. A city or county planning department may utilize a grant awarded for the purposes of this article to consult with a citizen advisory committee and appropriate natural resource specialists in order to report publicly to the city council or the board of supervisors on the status of the city's or county's oak woodlands. Each city or county planning department that receives a grant for the purposes of this article shall report to the city council or to the board of supervisors of the county, as appropriate, on the use of those grant funds within one year from the date the grant is received.

1370. No money may be expended from the fund to adopt guidelines or to administer the fund until at least one million dollars ($1,000,000) is deposited in the fund.

1372. Nothing in this article grants any new authority to the board or any other agency, office, or department to affect local policy or land use decisionmaking.

APPENDIX A-3. OAK WOODLANDS CONSERVATION ACT (SB 1334)

21083.4. (a) For purposes of this section, "oak" means a native tree species in the genus Quercus, not designated as Group A or Group B commercial species pursuant to regulations adopted by the State Board of Forestry and Fire Protection pursuant to Section 4526, and that is 5 inches or more in diameter at breast height.

(b) As part of the determination made pursuant to Section 21080.1, a county shall determine whether a project within its jurisdiction may result in a conversion of oak woodlands that will have a significant effect on the environment. If a county determines that there may be a significant effect to oak woodlands, the county shall require one or more of the following oak woodlands mitigation alternatives to mitigate the significant effect of the conversion of oak woodlands:

(1) Conserve oak woodlands, through the use of conservation easements.

(2) (A) Plant an appropriate number of trees, including maintaining plantings and replacing dead or diseased trees.

(B) The requirement to maintain trees pursuant to this paragraph terminates seven years after the trees are planted.

(C) Mitigation pursuant to this paragraph shall not fulfill more than one-half of the mitigation requirement for the project.

(D) The requirements imposed pursuant to this paragraph also may be used to restore former oak woodlands.

(3) Contribute funds to the Oak Woodlands Conservation Fund, as established under subdivision (a) of Section 1363 of the Fish and Game Code, for the purpose of purchasing oak woodlands conservation easements, as specified under paragraph (1) of subdivision (d) of that section and the guidelines and criteria of the Wildlife Conservation Board. A project applicant that contributes funds under this paragraph shall not receive a grant from the Oak Woodlands Conservation Fund as part of the mitigation for the project.

(4) Other mitigation measures developed by the county.

(c) Notwithstanding subdivision (d) of Section 1363 of the Fish and Game Code, a county may use a grant awarded pursuant to the Oak Woodlands Conservation Act (Article 3.5 (commencing with Section 1360) of Chapter 4 of Division 2 of the Fish and Game Code) to prepare an oak conservation element for a general plan, an oak protection ordinance, or an oak woodlands management plan, or amendments thereto, that meets the requirements of this section.

(d) The following are exempt from this section:

(1) Projects undertaken pursuant to an approved Natural Community Conservation Plan or approved subarea plan within an approved Natural Community Conservation Plan that includes oaks as a covered species or that conserves oak habitat through natural community conservation preserve designation and implementation and mitigation measures that are consistent with this section.

(2) Affordable housing projects for lower income households, as defined pursuant to Section 50079.5 of the Health and Safety Code, that are located within an urbanized area, or within a sphere of influence as defined pursuant to Section 56076 of the Government Code.

(3) Conversion of oak woodlands on agricultural land that includes land that is used to produce or process plant and animal products for commercial purposes.

(4) Projects undertaken pursuant to Section 21080.5 of the Public Resources Code.

(e) (1) A lead agency that adopts, and a project that incorporates, one or more of the measures specified in this section to mitigate the significant effects to oaks and oak woodlands shall be deemed to be in compliance with this division only as it applies to effects on oaks and oak woodlands.

(2) The Legislature does not intend this section to modify requirements of this division, other than with regard to effects on oaks and oak woodlands.

(f) This section does not preclude the application of Section 21081 to a project.

(g) This section, and the regulations adopted pursuant to this section, shall not be construed as a limitation on the power of a public agency to comply with this division or any other provision of law.

Appendix B

Appendix B-1. Potential Calaveras County Oak Woodland Amphibian Species

Common Name	Scientific Name	Habitat Elements						Special Status		
		Acorns	Riparian	Logs, Slash, brush piles	Snags	Burrow, rocks, talus, cliffs, caves	Vernal pool, wetland	Federal status	State status	Harvest Species
Arboreal Salamander	*Aneides lugubris*	.	X	X	X	X	.	.	.	.
Bullfrog	*Rana catesbeiana*	.	X	.	.	.	X	.	.	X
California Newt	*Taricha torosa*	.	X	.	.	X	X	.	Spec. conc.	.
Ensatina	*Ensatina eschscholtzi*	.	X	X	.	X	.	Cand.	Spec. conc.	.
Foothill Yellow-Legged Frog	*Rana boyleii*	.	X	.	.	X	.	.	.	.
Pacific Treefrog	*Pseudacris regilla*	.	X	.	.	X	X	.	.	.
California Red-Legged Frog	*Rana aurora draytoni*	.	X	.	.	X	X	Prop.	Spec. conc., Prot.	.
Tiger Salamander	*Ambystoma tigrinum*	.	X	X	.	X	X	Cand.	Spec. conc., prot.	.
Hell Hollow Slender Salamander	*Batrachoseps diabolicus*									
California Slender Salamander	*Batrachoseps attenuatus*	.	X	X	.	X	.	.	.	.
Western Toad	*Bufo boreas*	.	X	X	.	X	X	.	.	.

Special Status Codes
Cand. = candidate species
Spec. conc. = species of special concern
Prot. = protected species
End. = endangered species
Threat = threatened species
(a) = Species or subspecies with special status primarily associated with wetlands, marshes, and riparian areas
(b) = Species or subspecies with special status occurs on the Channel Islands
(c) = Species or subspecies with special status primarily associated with shrub, sandy, scrub, and desert habitats

Appendix B-2. Potential Calaveras County Oak Woodland Reptile Species

Common Name	Scientific Name	Habitat Elements						Special Status		
		Acorns	Riparian	Logs, slash, brush piles	Snags	Burrows, rocks, talus, cliffs, caves	Vernal pool, wetland	Federal status	State status	Harvest species
California Mountain Kingsnake	*Lampropeltis zonata*	.	x	x	.	x	.	Cand.	Spec. conc., Prot.	.
California Nightsnake	*Hypsiglena torquata nuchalata*	.	x	x	.	x	.	.	.	.
California Striped Racer	*Masticophis lateralis lateralis*	.	x	x	.	x	x	.	.	.
California Whipsnake	*Masticophis lateralis*	.	x	x	.	x	.	Cand.	Threat Prot.	.
California Whiptail	*Aspidoscelis tigris munda*	.	x	x	.	x	.	Cand.	.	.
Coast Horned Lizard	*Phrynosoma coronatum*	.	x	x	.	x	.	Cand.	Spec. conc., Prot.	.
Common Garter Snake	*Thamnophis sirtalis*	.	x	x	.	x	x	End., Cand.	End., Prot. (a)	.
Common Kingsnake	*Lampropeltis getulus*	.	x	x	.	x	.	.	.	.
Gilbert's Skink	*Eumeces gilberti*	.	x	x	.	x	.	.	.	.

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Appendix B-2. Potential Calaveras County Oak Woodland Reptile Species

Common Name	Scientific Name	Habitat Elements						Special Status		
		Acorns	Riparian	Logs, slash, brush piles	Snags	Burrows, rocks, talus, cliffs, caves	Vernal pool, wetland	Federal status	State status	Harvest species
Gopher Snake	*Pituophis melanoleucus*	.	x	x	.	x	.	Cand.	Spec. conc.(b)	.
California Alligator Lizard	*Elgaria multicarinata multicarinata*	.	x	x	.	x	.	.	.	.
Racer	*Coluber constrictor*	.	x	x	.	x	x	.	.	.
Ringneck Snake	*Diadophis punctatus*	.	x	x	.	x	.	Cand.	.	.
Rubber Boa	*Charina bottae*	.	x	x	.	x	.	.	.	.
Sharp-Tailed Snake	*Contia tenuis*	.	x	x	.	x	.	.	.	.
Western Aquatic Garter Snake	*Thamnophis couchi*	.	x	x	.	x	x	.	.	.
Western Fence Lizard	*Sceloporus occidentalis*	.	x	x	x	x	.	.	.	.
Western Pond Turtle	*Clemmys marmorata*	.	x	x	.	.	x	Cand.	Spec. conc., Prot. (a)	.
Western Rattlesnake	*Crotalus viridis*	.	x	x	.	x	x	.	.	.
Western Skink	*Eumeces skiltonianus*	.	x	x	.	x	.	Cand.	Spec. conc. (c)	.
Western Terrestrial Garter Snake	*Thamnophis elegans*	.	x	.	.	x	x	.	.	.

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Appendix B-3. Potential Calaveras County Oak Woodland Bird Species

Common Name	Scientific Name	Habitat Elements						Special Status		
		Acorns	Riparian	Logs, slash, brush piles	Snags	Burrows, rocks, talus, cliffs, caves	Vernal pool, wetland	Federal status	State status	Harvest species
Acorn Woodpecker	*Melanerpes formicivorus*	x	x	.	x	.	.	.	.	.
Allen's Hummingbird	*Selasphorus sasin*	.	x	.	.	.	.	.	.	.
American Crow	*Corvus brachy-rhynchos*	.	x	.	.	.	x	.	.	.
American Goldfinch	*Carduelis tristis*	.	x	.	.	.	.	.	.	.
American Kestrel	*Falco sparverius*	.	x	.	x	x	x	.	.	.
American Robin	*Turdus migratorius*	.	x	.	.	.	.	.	.	.
Anna's Hummingbird	*Calypte anna*	.	x	.	.	.	.	.	.	.
Ash-Throated Flycatcher	*Myiarchus cinerascens*	.	x	.	.	.	.	.	.	.
Bald Eagle	*Haliaeetus leucocephalus*	.	x	.	x	x	x	Threat	End., Prot.	.
Band-Tailed Pigeon	*Columba fasciata*	x	x	.	x	.	.	.	.	x
Barn Owl	*Tyto alba*	.	x	.	x	x	x	.	.	.
Barn Swallow	*Hirundo rustica*	.	x	.	.	x	x	.	.	.
Bewick's Wren	*Thryomanes bewickii*	.	x	x	.	x	.	.	.	.
Black-Crowned Night Heron	*Nycticorax nycticorax*	.	x	.	.	.	x	.	.	.

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Appendix B-3. Potential Calaveras County Oak Woodland Bird Species

Common Name	Scientific Name	Habitat Elements						Special Status		
		Acorns	Riparian	Logs, slash, brush piles	Snags	Burrows, rocks, talus, cliffs, caves	Vernal pool, wetland	Federal status	State status	Harvest species
Black-Headed Grosbeak	*Pheucticus melano-cephalus*	.	x	.	.	.	.	.	.	.
Black-Throated Gray Warbler	*Dendroica nigrescens*	.	x	.	.	.	.	.	.	.
Blue-Gray Gnatcatcher	*Polioptila caerulea*	.	x	.	.	.	.	.	.	.
Brewer's Blackbird	*Euphagus cyanocephalus*	.	x	.	.	.	x	.	.	.
Brown Creeper	*Certhia americana*	.	x	.	x	.	.	.	.	.
Brown-Headed Cowbird	*Molothrus ater*	.	x	.	.	.	x	.	.	.
Bushtit	*Psaltriparus minimus*	.	x	.	.	.	.	.	.	.
California Quail	*Callipepla californica*	x	x	x	.	.	.	.	.	x
California Thrasher	*Toxostoma redivivum*	.	x	.	.	.	.	.	.	.
California Towhee	*Pipilo crissalis*	.	x	x	.	.	.	Threat	End. (c)	.
Calliope Hummingbird	*Stellula calliope*	.	x	.	.	.	.	.	.	.
Cassin's Kingbird	*Tyrannus vociferans*	.	x	.	.	.	.	.	.	.
Cattle Egret	*Bubulcus ibis*	.	x	.	.	.	x	.	.	.
Cedar Waxwing	*Bombycilla cedrorum*	.	x	.	.	.	.	.	.	.
Chestnut-Backed Chickadee	*Parus rufescens*	.	x	.	x	.	.	.	.	.

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Appendix B-3. Potential Calaveras County Oak Woodland Bird Species

Common Name	Scientific Name	Habitat Elements						Special Status.		
		Acorns	Riparian	Logs, slash, brush piles	Snags	Burrows, rocks, talus, cliffs, caves	Vernal pool, wetland	Federal status	State status	Harvest species
Cliff Swallow	*Hirundo pyrrhonota*	.	x	.	.	x	x	.	.	.
Common Raven	*Corvus Corax*	.	x	.	.	x	x	.	.	.
Cooper's Hawk	*Accipiter cooperii*	.	x	.	x	.	.	.	Spec. conc.	.
Dark-Eyed Junco	*Junco hyemalis*	.	x	x	.	.	.	.	Spec. conc. (c)	.
Downy Woodpecker	*Picoides pubescens*	.	x	.	x	.	.	.	.	.
Dusky Flycatcher	*Empidonax oberholseri*	.	x	.	.	.	.	.	.	.
European Starling	*Sturnus vulgaris*	.	x	.	x	.	x	.	.	.
Evening Grosbeak	*Coccothraustes vespertinus*	.	x	.	.	.	.	.	.	.
Ferruginous Hawk	*Buteo regalis*	.	x	.	x	x	x	Cand.	.	.
Fox Sparrow	*Passerella iliaca*	.	x	.	.	.	.	.	.	.
Golden-Crowned Kinglet	*Regulus satrapa*	.	x	.	.	.	.	.	.	.
Golden-Crowned Sparrow	*Zonotrichia atricapilla*	.	x	x	.	.	.	.	.	.
Great Blue Heron	*Ardea herodias*	.	x	.	.	.	x	.	.	.
Great Egret	*Casmerodius albus*	.	x	.	.	.	x	.	.	.
Great Horned Owl	*Bubo virginianus*	.	x	.	x	x	x	.	.	.

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Appendix B-3. Potential Calaveras County Oak Woodland Bird Species

Common Name	Scientific Name	Habitat Elements						Special Status.		
		Acorns	Riparian	Logs, slash, brush piles	Snags	Burrows, rocks, talus, cliffs, caves	Vernal pool, wetland	Federal status	State status	Harvest species
Green Heron	*Butorides virescens*	.	x	.	.	.	x	.	.	.
Hairy Woodpecker	*Picoides villosus*	x	x	x	x	.	.	.	.	.
Hammond's Flycatcher	*Empidonax hammondii*	.	x	.	.	.	.	.	.	.
Hermit Thrush	*Catharus guttatus*	.	x	.	.	.	.	.	.	.
Hermit Warbler	*Dendroica occidentalis*	.	x	.	.	.	.	.	.	.
Horned Lark	*Eremophila alpestris*	.		.	.	.	.	.	Spec. conc.	.
House Finch	*Carpodacus mexicanus*	.	x	.	.	x	.	.	.	.
House Sparrow	*Passer domesticus*	.	x	.	x	.	.	.	.	.
House Wren	*Troglodytes aedon*	.	x	x	x	.	.	.	.	.
Hutton's Vireo	*Vireo huttoni*	.	x	.	.	.	.	.	.	.
Lark Sparrow	*Chondestes grammacus*	.	x	.	.	.	.	.	.	.
Lawrence's Goldfinch	*Carduelis lawrencei*	.	x	.	.	.	.	.	.	.
Lesser Goldfinch	*Carduelis psaltria*	.	x	.	.	.	.	.	.	.
Lesser Nighthawk	*Chordeiles acutipennis*	.	x	.	.	.	x	.	.	.
Lewis Woodpecker	*Melanerpes lewis*	x	x	.	x	.	.	.	.	.
Lincoln's Sparrow	*Melospiza lincolnii*	.	x	.	.	.	x	.	.	.
Loggerhead Shrike	*Lanius ludovicianus*	.	x	.	x	.	.	End.	Spec. conc. (b)	.

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Common Name	Scientific Name	Habitat Elements						Special Status.		
		Acorns	Riparian	Logs, slash, brush piles	Snags	Burrows, rocks, talus, cliffs, caves	Vernal pool, wetland	Federal status	State status	Harvest species
Long-eared Owl	*Asio otus*	.	x	x	x	x	.	.	Spec. conc.	.
Mallard	*Anas platyrhynchos*	.	x	.	.	.	x	.	.	x
Merlin	*Falco columbarius*	.	x	.	x	.	x	.	Spec. conc.	.
Mountain Bluebird	*Sialia currucoides*	.	x	.	x	x	.	.	.	.
Mountain Chickadee	*Parus gambeli*	.	x	.	x	.	.	.	.	.
Mountain Quail	*Oreortyx pictus*	x	x	.	x	.	.	.	.	x
Mourning Dove	*Zenaida macroura*	.	x	.	.	.	.	.	.	x
Nashville Warbler	*Vermivora ruficapilla*	.	x	.	.	.	.	.	.	.
Northern Flicker	*Colaptes auratus*	x	x	x	x	.	.	.	.	.
Northern Goshawk	*Accipiter gentilis*	.	x	.	x	.	.	Cand.	Spec. conc.	.
Northern Harrier	*Circus cyaneus*	.	x	.	.	.	x	.	Spec. conc.	.
Northern Mockingbird	*Mimus polyglottos*	.	x	.	.	.	.	.	.	.
Northern Oriole	*Icterus galbula*	.	x	.	.	.	.	.	.	.
Northern Pygmy-Owl	*Glaucidium gnoma*	.	x	.	x	.	.	.	.	.
Northern Saw-Whet Owl	*Aegolius acadicus*	.	x	.	x	.	.	.	.	.

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Common Name	Scientific Name	Habitat Elements						Special Status.		
		Acorns	Riparian	Logs, slash, brush piles	Snags	Burrows, rocks, talus, cliffs, caves	Vernal pool, wetland	Federal status	State status	Harvest species
Nuttall's Woodpecker	*Picoides nuttallii*	.	x	.	x	.	.	.	.	.
Oak Titmouse	*Baeolophus inornatus*	.	x	.	x	.	.	.	.	.
Orange-Crowned Warbler	*Vermivora celata*	.	x	.	.	.	.	.	.	.
Osprey	*Pandion haliaetus*	.	x	.	x	.	x	.	Spec. conc.	.
Pacific-Slope Flycatcher	*Empidonax difficilis*	.	x	.	.	x	.	.	.	.
Peregrine Falcon	*Falco peregrinus*	.	x	.	.	x	x	End., Threat	End., Prot.	.
Phainopepla	*Phainopepla nitens*	.	x	.	.	.	.	.	.	.
Pine Siskin	*Carduelis pinus*	.	x	.	.	.	.	.	.	.
Prairie Falcon	*Falco mexicanus*	.	x	.	.	x	x	.	Spec. conc.	.
Red-Breasted Nuthatch	*Sitta canadensis*	.	x	.	x	.	.	.	.	.
Red-Breasted Sapsucker	*Sphyrapicus ruber*	.	x	.	x	.	.	.	.	.
Red-Shouldered Hawk	*Buteo lineatus*	.	x	.	x	.	x	.	.	.
Red-Tailed Hawk	*Buteo jamaicensis*	.	x	.	x	x	x	.	.	.
Rock Dove	*Columba livia*	x	x	.	.	x	.	.	.	x

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Appendix B-3. Potential Calaveras County Oak Woodland Bird Species

Common Name	Scientific Name	Habitat Elements						Special Status.		
		Acorns	Riparian	Logs, slash, brush piles	Snags	Burrows, rocks, talus, cliffs, caves	Vernal pool, wetland	Federal status	State status	Harvest species
Rock Wren	*Salpinctes obsoletus*	.	.	.	.	x	.	.	.	.
Rough-Legged Hawk	*Buteo lagopus*	.	x	.	x	x	x	.	.	.
Ruby-Crowned Kinglet	*Regulus calendula*	.	x	.	.	.	.	.	.	.
Rufous Hummingbird	*Selasphorus rufus*	.	x	.	.	.	.	.	.	.
Rufous-Sided Towhee	*Pipilo erythro-phthalmus*	x	x	x	.	.	.	Cand.	Spec. conc. (b)	.
Savannah Sparrow	*Passerculus sandwichensis*	.	x	.	.	.	.	Cand. (c)	End. (a), Spec. conc. (c)	.
Say's Phoebe	*Sayornis saya*	.	.	.	.	x	.	.	.	.
Scott's Oriole	*Icterus parisorum*	.	.	.	.	.	.	.	.	.
Scrub Jay	*Aphelocoma coerulescens*	x	x	.	.	.	x	Cand.	Spec. conc.	.
Sharp-Shinned Hawk	*Accipiter striatus*	.	x	.	x	.	.	.	Spec. conc.	.
Short-eared Owl	*Asio flammeus*	.	x	.	.	.	x	.	Spec. conc.	.
Solitary Vireo	*Vireo solitarius*	.	x	.	.	.	.	.	.	.
Song Sparrow	*Melospiza melodia*	.	x	x	.	.	x	Cand.	Spec. conc. (a)	.

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Common Name	Scientific Name	Habitat Elements						Special Status		
		Acorns	Riparian	Logs, slash, brush piles	Snags	Burrows, rocks, talus, cliffs, caves	Vernal pool, wetland	Federal status	State status	Harvest species
Steller's Jay	*Cyanocitta stelleri*	x	x	.	.	.	.	.	.	.
Swainson's Hawk	*Buteo swainsoni*	.	x	.	.	.	x	.	Threat	.
Swainson's Thrush	*Catharus ustulatus*	.	x	.	.	.	.	.	.	.
Townsend's Warbler	*Dendroica townsendi*	.	x	.	.	.	.	.	.	.
Tree Swallow	*Tachycineta bicolor*	.	x	.	x	.	x	.	.	.
Turkey Vulture	*Cathartes aura*	.	x	.	x	x	.	.	.	.
Varied Thrush	*Ixoreus naevius*	x	x	.	.	.	.	.	.	.
Vesper Sparrow	*Pooecetes gramineus*	.	.	.	.	.	.	.	.	.
Violet-Green Swallow	*Tachycineta thalassina*	.	x	.	x	x	x	.	.	.
Warbling Vireo	*Vireo gilvus*	.	x	.	.	.	.	.	.	.
Western Bluebird	*Sialia mexicana*	.	x	.	x	.	.	.	.	.
Western Kingbird	*Tyrannus verticalis*	.	x	.	x	.	x	.	.	.
Western Meadowlark	*Sturnella neglecta*	.	.	x	.	.	.	.	.	.
Western Screech-Owl	*Otus kennicottii*	.	x	.	x	.	.	.	.	.
Western Tanager	*Piranga ludoviciana*	.	x	.	.	.	.	.	.	.
Western Wood-Pewee	*Contopus sordidulus*	.	x	.	x	.	.	.	.	.

Special Status Codes
Cand. = candidate species
Spec. conc. = species of special concern
Prot. = protected species
End. = endangered species
Threat = threatened species
(a) = Species or subspecies with special status primarily associated with wetlands, marshes, and riparian areas
(b) = Species or subspecies with special status occurs on the Channel Islands
(c) = Species or subspecies with special status primarily associated with shrub, sandy, scrub, and desert habitats

Appendix B-3. Potential Calaveras County Oak Woodland Bird Species

Common Name	Scientific Name	Habitat Elements						Special Status.		
		Acorns	Riparian	Logs, slash, brush piles	Snags	Burrows, rocks, talus, cliffs, caves	Vernal pool, wetland	Federal status	State status	Harvest species
White-Breasted Nuthatch	*Sitta carolinensis*	x	x	.	x	.	.	.	.	.
White-Crowned Sparrow	*Zonotrichia leucophrys*	.	x	x	.	.	.	.	.	.
White-Tailed Kite	*Elanus leucurus*	.	x	.	x	.	x	.	Prot.	.
White-Throated Swift	*Aeronautes saxatalis*	.	x	.	.	x	.	.	.	.
Wild Turkey	*Meleagris gallopavo*	x	x	.	.	.	.	.	.	x
Wilson's Warbler	*Wilsonia pusilla*	.	x	.	.	.	.	.	.	.
Wood Duck	*Aix sponsa*	x	x	.	x	.	x	.	.	x
Wrentit	*Chamaea fasciata*	.	x	.	.	.	.	.	.	.
Yellow Warbler	*Dendroica petechia*	.	x	.	.	.	x	.	Spec. conc.	.
Yellow-Billed Magpie	*Pica nuttalli*	x	x	.	.	.	.	.	.	.
Yellow-Rumped Warbler	*Dendroica coronata*	.	x	.	.	.	.	.	.	.

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(a) = Species or subspecies with special status primarily associated with wetlands, marshes, and riparian areas
(b) = Species or subspecies with special status occurs on the Channel Islands
(c) = Species or subspecies with special status primarily associated with shrub, sandy, scrub, and desert habitats

Appendix B-4. Potential Calaveras County Oak Woodland Mammal Species

Common Name	Scientific Name	Habitat Elements						Special Status		
		Acorns	Riparian	Logs, slash, brush piles	Snags	Burrows, rocks, talus, cliffs, caves	Vernal pool, wetland	Federal status	State status	Harvest species
American Badger	*Taxidea taxus*	.	x	.	.	x	x	.	.	x
Beaver	*Castor canadensis*	.	x	x	.	x	x	.	.	x
Big Brown Bat	*Eptesicus fuscus*	.	x	.	x	x	x	.	.	.
Black Rat	*Rattus rattus*	.	x	.	.	x	.	.	.	.
Black-Tailed Hare	*Lepus californicus*	.	x	.	.	.	.	.	Spec. conc.	x
Bobcat	*Felis rufus*	.	x	x	.	x	x	.	.	x
Botta's Pocket Gopher	*Thomomys bottae*	.	x	.	.	x	.	Cand. (c)	.	.
Brazillian Free-Tailed Bat	*Tadarida brasiliensis*	.	x	.	.	x	x	.	.	.
Broad-Footed Mole	*Scapanus latimanus*	.	x	.	.	.	.	Cand.	Spec. conc. (a)	.
Brush Mouse	*Peromyscus boylii*	x	x	x	x	x	.	.	.	.
Brush Rabbit	*Sylvilagus bachmani*	.	x	x	.	x	.	Cand.	End. (a)	.
California Ground Squirrel	*Spermophilus beecheyi*	x	x	x	.	x	.	.	.	.
California Kangaroo Rat	*Dipodomys californicus*	.	.	.	.	x	.	Cand.	Spec. conc. (c)	.

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Threat = threatened species
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(c) = Species or subspecies with special status primarily associated with shrub, sandy, scrub, and desert habitats

Appendix B-4. Potential Calaveras County Oak Woodland Mammal Species											
Common Name	**Scientific Name**	**Habitat Elements**						**Special Status**			
		Acorns	**Riparian**	**Logs, slash, brush piles**	**Snags**	**Burrows, rocks, talus, cliffs, caves**	**Vernal pool, wetland**	**Federal status**	**State status**	**Harvest species**	
California Mouse	*Peromyscus californicus*	x	x	x	x	x	.	.	.	.	
California Myotis	*Myotis californicus*	.	x	.	x	x	x	.	.	.	
California Pocket Mouse	*Chaetodipus californicus*	.	.	.	.	x	.	Cand.	Spec. conc. (c)	.	
California Vole	*Microtus californicus*	.	x	.	.	x	.	End., cand.	End., Spec conc. (a)	.	
Coyote	*Canis latrans*	.	x	x	x	x	x	.	.	x	
Deer Mouse	*Peromyscus maniculatus*	x	x	x	.	x	x	Cand.	Spec. conc. (b)	.	
Desert Cottontail	*Sylvilagus audubonii*	x	x	.	.	.	.	.	.	.	
Dusky-Footed Woodrat	*Neotoma fuscipes*	x	x	x	.	.	.	Cand.	Spec. conc.	.	
Fringed Myotis	*Myotis thysanodes*	.	x	.	.	x	x	.	.	.	
Gray Fox	*Urocyon cinereo-argenteus*	.	x	x	x	x	x	.	.	x	
Heermann's Kangaroo Rat	*Dipodomys heermanni*	.	x	.	.	x	.	End.	End., Prot. (c)	.	
Hoary Bat	*Lasiurus cinereus*	.	x	.	x	.	x	.	.	.	

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Appendix B-4. Potential Calaveras County Oak Woodland Mammal Species											
Common Name	**Scientific Name**	**Habitat Elements**						**Special Status**			
		Acorns	**Riparian**	**Logs, slash, brush piles**	**Snags**	**Burrows, rocks, talus, cliffs, caves**	**Vernal pool, wetland**	**Federal status**	**State status**	**Harvest species**	
House Mouse	*Mus musculus*	.	x	x	.	x	x	.	.	.	
Little Brown Myotis	*Myotis lucifugus*	.	x	.	x	x	x	Cand.	Spec. conc. (c)	.	
Long-eared Myotis	*Myotis evotis*	.	x	.	x	x	x	.	.	.	
Long-Legged Myotis	*Myotis volans*	.	x	.	x	x	x	.	.	.	
Long-Tailed Weasel	*Mustela frenata*	.	x	x	x	x	x	.	.	x	
Mountain Lion	*Felis concolor*	.	x	.	x	x	x	Cand.	Spec. conc., Prot.	.	
Mule Deer	*Odocoileus hemionus*	x	x	.	.	.	x	.	.	x	
Narrow-Faced Kangaroo Rat	*Dipodomys venustus*	.	.	.	.	x	.	.	.	.	
Northern Flying Squirrel	*Glaucomys sabrinus*	x	x	x	x	.	.	Cand.	.	.	
Norway Rat	*Rattus norvegicus*	.	x	.	.	x	.	.	.	.	
Ornate Shrew	*Sorex ornatus*	.	x	x	.	x	x	Cand.	Spec. conc. (a)	.	
Pacific Kangaroo Rat	*Dipodomys agilis*	.	x	.	.	x	.	.	.	.	

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Appendix B-4. Potential Calaveras County Oak Woodland Mammal Species

Common Name	Scientific Name	Habitat Elements						Special Status		
		Acorns	Riparian	Logs, slash, brush piles	Snags	Burrows, rocks, talus, cliffs, caves	Vernal pool, wetland	Federal status	State status	Harvest species
Pallid Bat	*Antrozous pallidus*	.	x	.	.	x	x	.	Spec. conc.	.
Porcupine	*Erethizon dorsatum*	.	x	x	x	x	x	.	.	.
Racoon	*Procyon lotor*	x	x	x	x	x	x	.	.	x
Ringtail	*Bassariscus astutus*	.	x	x	x	x	x	.	Prot.	.
River Otter	*Lutra canadensis*	.	x	x	x	x	x	Cand.	Spec. conc. (a)	.
San Joaquin Kangaroo Rat	*Dipodomys nitratoides*	.	.	.	.	x	.	End., Cand.	Spec. conc. (c)	.
San Joaquin Pocket Mouse	*Perognathus inornatus*	.	.	.	.	x	.	Cand.	Spec. conc. (c)	.
Silver-Haired Bat	*Lasionycteris noctivagans*	.	x	.	x	x	x	.	.	.
Spotted Bat	*Euderma maculatum*	.	x	.	.	x	x	Cand.	Spec. conc.	.
Striped Skunk	*Mephitis mephitis*	.	x	x	.	x	x	.	.	x
Townsend's Big-Eared Bat	*Plecotus townsendii*	.	x	.	.	x	x	Cand.	Spec. conc.	.
Trowbridge's Shrew	*Sorex trowbridgii*	.	x	x	.	.	.	.	.	.

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Appendix B-4. Potential Calaveras County Oak Woodland Mammal Species

Common Name	Scientific Name	Habitat Elements						Special Status		
		Acorns	Riparian	Logs, slash, brush piles	Snags	Burrows, rocks, talus, cliffs, caves	Vernal pool, wetland	Federal status	State status	Harvest species
Vagrant Shrew	*Sorex vagrans*	.	x	x	.	.	x	Cand.	Spec. conc. (a)	.
Virginia Opossum	*Didelphis virginiana*	x	x	x	x	x	x	.	.	x
Western Gray Squirrel	*Sciurus griseus*	x	x	x	x	.	.	.	.	x
Western Harvest Mouse	*Reithrodon-tomys megalotis*	.	x	.	.	.	x	.	.	.
Western Mastiff Bat	*Eumops perotis*	.	x	.	.	x	x	Cand.	Spec. conc.	.
Western Pipistrelle	*Pipistrellus hesperus*	.	x	.	.	x	x	.	.	.
Western Red Bat	*Lasiurus blossevillii*	.	x	.	x	x	x	.	.	.
Western Small-Footed Myotis	*Myotis ciliolabrum*	.	x	.	x	x	x	.	.	.
Western Spotted Skunk	*Spilogale gracilis*	.	x	x	x	x	x	Cand.	Spec. conc. (b)	x
Yuma Myotis	*Myotis yumanensis*	.	x	.	x	x	x	.	.	.

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Appendix C

List of Special Status Plants that Occur in Calaveras County Oak Woodlands.

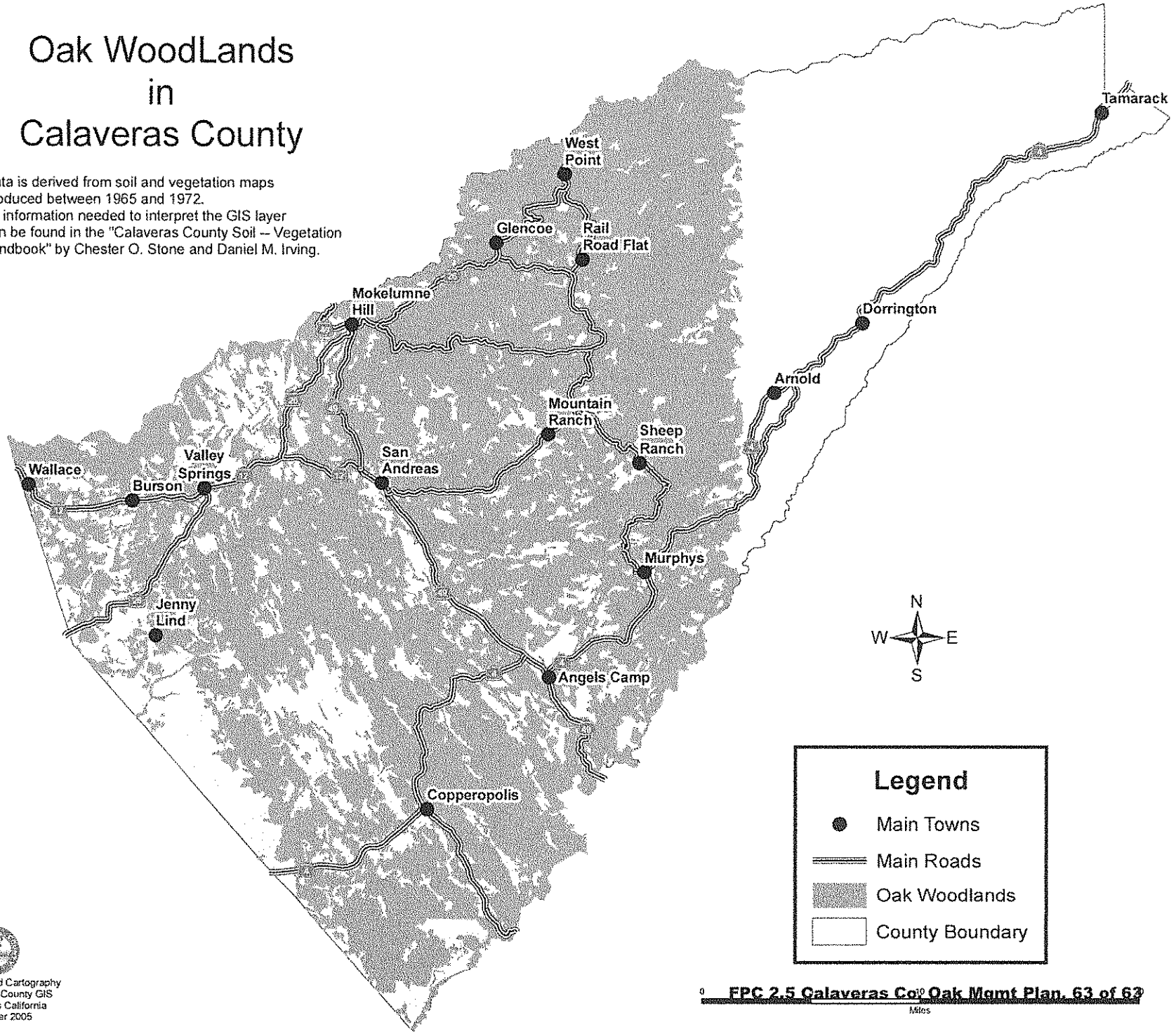
Scientific Name	Common Name	Unique Ecological Traits			Special Status		
		Blooming Period	Life Form	Special Habitat or Soil	State Listed	Federally listed	CNPS List
Calycadenia hooveri	Hoover's calycadenia	July to September	annual herb	Rocky	.	.	1B
Henderson's bent grass	Agrostis hendersonii	April to May	annual herb	Vernal pools and grasslands	.	.	3
Arctostaphylos myrtifolia	Ione manzanita	November to February	evergreen shrub	Ione clay or sandy	.	.	1B
Horkelia parryi	Parry's horkelia	April to June	perennial herb	Ione formation	.	.	1B

3 = CNPS Category to describe plants about which more information is needed.
1B = CNPS Category for Rare or Endangered in California and elsewhere.

Appendix D

Oak WoodLands in Calaveras County

Data is derived from soil and vegetation maps produced between 1965 and 1972.
All information needed to interpret the GIS layer can be found in the "Calaveras County Soil – Vegetation handbook" by Chester O. Stone and Daniel M. Irving.



Map Design and Cartography
By Calaveras County GIS
San Andreas California
Novembter 2005

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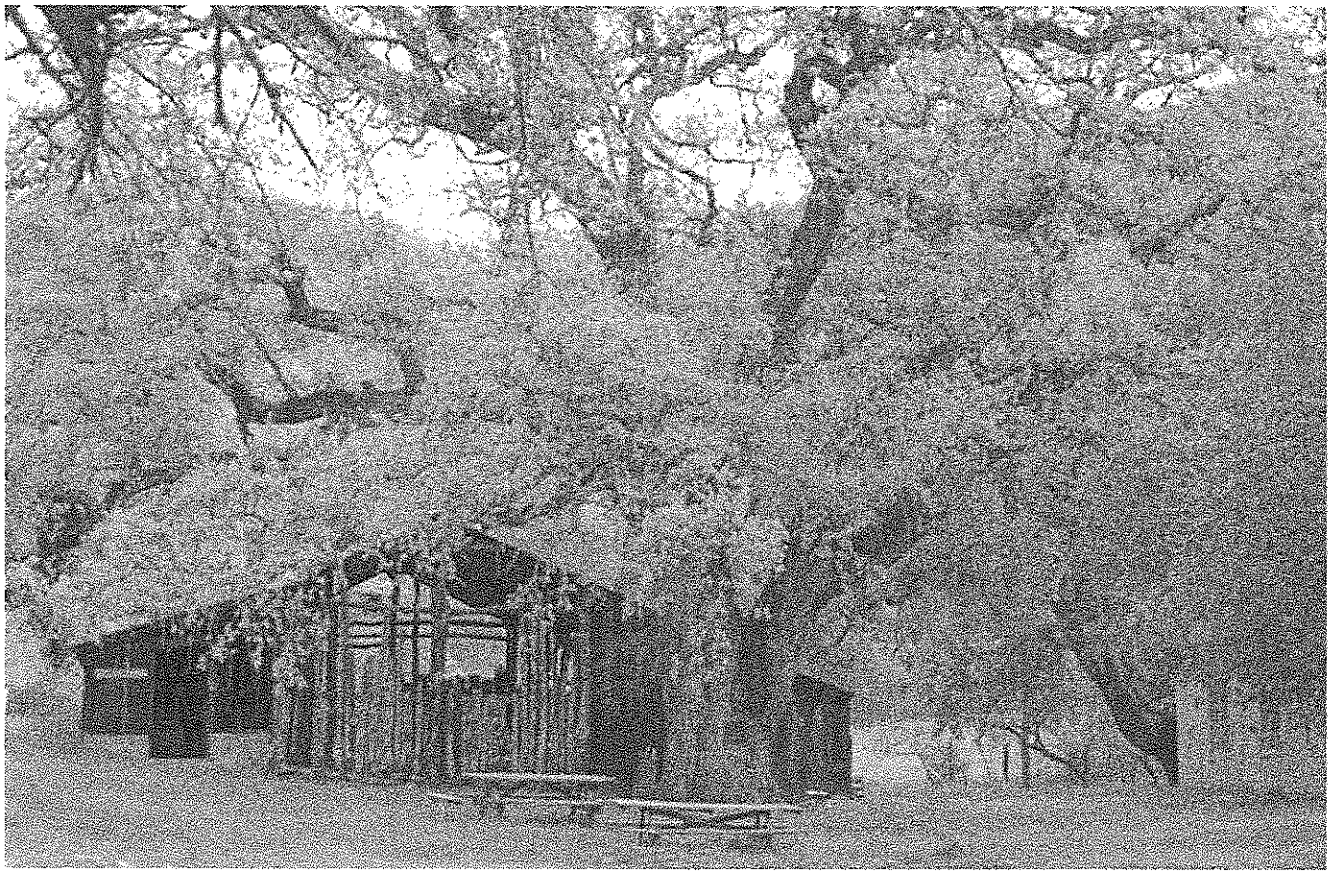
Monterey County

Voluntary Oak Woodland Stewardship Guidelines



Monterey County

September 2009

Monterey County

Voluntary Oak Woodland Stewardship Guidelines

Adopted by the Board of Supervisors September 22, 2009

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Executive Summary

This document is designed to promote the voluntary long-term conservation of Monterey County's oak woodlands. It provides information on the cultural, economic and ecological values of Monterey County's oak woodlands and encourages their conservation through voluntary stewardship, habitat protection, education, and outreach.

1. Conservation Opportunity

The California Oak Woodlands Conservation Program (OWCP) is a voluntary program implemented by the State Wildlife Conservation Board (WCB) designed to conserve the integrity and diversity of oak woodlands across California's working landscapes through incentives and education. Specifically, the WCB funds projects conducted by landowners, public agencies and nonprofit organizations to conserve and restore oak woodlands, educate county residents about the values of oaks, and provide landowners with assistance in voluntary oak conservation.

To participate in the OWCP, each county in which the project occurs must first develop and adopt by resolution by the board of supervisors an Oak Woodlands Management Plan to promote oak woodland conservation and education. When adopted by a resolution by the Monterey County Board of Supervisors, the *Voluntary Oak Woodland Stewardship Guidelines* is intended to serve as to the County's Oak Woodlands Management Plan so that the citizens of Monterey County can participate in the OWCP.

2. Status of Oak Woodlands in Monterey County

Monterey County supports 11 species of oak trees and an estimated 538,000 acres of oak woodlands which span the county. Coast live oak woodlands and tanoak woodlands dominate the coastal watersheds, while blue oak woodlands cover a broad expanse of hills and valleys that are sheltered from the coast. Patches of valley oak woodlands line reaches of Monterey County's rivers, and also dot rounded mountain peaks.

Oaks and oak woodlands are threatened by a variety of factors including: 1) conversion of oak woodlands for other uses, 2) fragmentation and isolation, 3) lack of recruitment necessary to maintain the stands, 4) sudden oak death, a new disease that causes rapid oak mortality, 5) woodcutting for firewood or other uses, and 6) climate change, which threatens to reduce the availability of habitat for oaks within Monterey County.

3. Values of Oak Woodlands to Community

Oak woodlands play an important role in Monterey County communities. They provide valuable rangelands essential to Monterey County's ranching operations, which produced $20 million in income in 2006. Through their scenic qualities, oaks increase quality of life as well as real estate values.

4. Oak Woodland Natural Resource Values

Oak woodlands have exceptional natural resource value and provide a host of ecosystem services. Much of Monterey County's high level of biodiversity (i.e., number of species) is due to the various oak woodlands, which provide year-round habitat for native species. Oak woodlands are complex ecosystems that provide an array of additional benefits and services,

including: 1) protecting water quality and quantity by filtering runoff during winter rains and increasing infiltration and ground water storage, 2) enhancing soil quality by preventing erosion and increasing soil productivity, and 3) sequestering carbon—a leading greenhouse gas contributing to climate change. Changes in the historic natural fire frequency and unmanaged vegetation areas can also contribute to the loss of oak woodlands and associated habitat and ecosystem functions.

5. Impacts of Oak Woodland Loss

Given the benefits of oaks and oak woodlands for Monterey County's communities and natural resources, oak woodland conversion, fragmentation, and degradation can impact:

- important wildlife habitat and native biodiversity
- rangelands essential for livestock grazing and the local economy
- soil, water, and air resources, including greenhouse gases
- scenery, real estate values, and quality of life.

Planning decisions for oak woodlands should take into account these potential effects on oak woodlands.

6. Participation in the California Oak Woodland Conservation Program

In recognition of the social, economic, agricultural, and biological benefits of conserving oak woodlands, Monterey County residents are encouraged to participate in the California Oak Woodland Conservation Program (OWCP)—a voluntary program designed to protect and enhance oak woodland resources by providing grants in support of:

1. Easements: Grants to purchase oak woodland conservation easements
2. Restoration: Grants to fund restoration and enhancement of oak woodlands
3. Long-Term Landowner Agreements: Grants to fund long-term leases or other landowner agreements such as cost-sharing incentive payments that promote oak woodland conservation
4. Education, Outreach, and Technical Assistance: Grants to fund public education, outreach and technical assistance projects that promote oak woodland conservation

The *Voluntary Oak Woodland Stewardship Guidelines* provides criteria for education and conservation projects that Monterey County will use to certify that proposals to the OWCP are consistent with the guidelines. These criteria mirror those established by the Wildlife Conservation Board for the OWCP.

7. Education and Outreach for Oak Woodland Conservation

Oak woodland conservation in Monterey County can be promoted by education and outreach programs that provide information about the values of oak woodlands and assist landowners seeking to conserve and restore oak woodlands on their properties. This document outlines aspects of outreach and education programs designed to accomplish these goals.

8. Oak Woodland Stewardship Guidelines Update

As new research increases understanding of aspects of oak woodlands necessary to promote their conservation, this document will be updated periodically to incorporate new information that would influence the guidelines.

Section 1: Conservation Opportunity

Enacted in 2001, the California Oak Woodlands Conservation Act (OWCA) established a bond fund and mandated the State Wildlife Conservation Board (WCB) to implement a voluntary grant program to fund oak woodland conservation. Developed as that program, the State Oak Woodlands Conservation Program (OWCP) is a voluntary program designed to conserve the integrity and diversity of oak woodlands across California's working landscapes through incentives and education. It enables landowners, public agencies and nonprofit organizations to seek grant funding for voluntary projects designed to conserve and restore oak woodlands, educate county residents about the values of oaks, and provide landowners with assistance in voluntary oak conservation.

To be eligible to participate in the OWCP, each county in which a project occurs must develop an Oak Woodlands Management Plan adopted by a resolution by the County Board of Supervisors. The OWCA requires the plan to include a description of all native oak species location within the county's jurisdiction. Such resolutions, which have been adopted by many California counties, do not establish any policies, ordinances, or other regulations.

Native wildflowers within a Monterey County Oak Woodland.

The *Voluntary Oak Woodland Stewardship Guidelines* were prepared to promote the appreciation and conservation of Monterey County's oak woodlands, and to encourage the voluntary stewardship of oak woodlands by farmers, ranchers, developers, as well as planners, conservationists, educators and others interested in oak woodland conservation. The adoption of these guidelines by a resolution of the County Board of Supervisors will enable partnerships of landowners and qualified non-profits, local governments and resource districts, to conserve oak woodlands through projects eligible for grant funding through the OWCP. The California Oak Woodlands Conservation Program provides funding for voluntary projects designed to

conserve and restore oak woodlands, educate county residents about the values of oaks, and provide landowners with assistance in voluntary long-term oak conservation. It offers pathways and incentives to help address oak woodland conservation at the county-wide level and to help support farming, ranching and grazing operations on lands that support oak woodlands.

Conservation of oak woodlands requires an understanding of the relevant science including the structure and function of the ecosystems. *Oak Woodlands in Monterey County* (Stromberg 2009) provides background information, a summary of current scientific studies regarding oak woodlands of California and Monterey County, and the references used to inform development of these guidelines.

Section 2: Status of Oak Woodlands in Monterey County

Oak Woodlands are a major component of Monterey County's rural landscape. As of 2000, oak woodlands covered more than 22 percent (537,600 acres) of the total land area of the County and is one of the top three largest acreage of all California counties. Although much of Monterey County's oak woodlands are on federal lands, including the Los Padres National Forest and in Fort Hunter Liggett, extensive oak woodlands occur on privately owned lands, which are primarily used as rangeland (1,038,000 acres). To conserve this valuable natural heritage and resource, Monterey County residents can cooperate to conserve and manage oak woodlands and protect their natural, cultural, and economic values including the ranches, scenic landscapes, ecosystem services, and important wildlife habitats they provide.

2.1 Oak Species in Monterey County

Monterey County supports 10 species of "true oaks": plant species that are included in the genus *Quercus*. It also supports tanoaks, which are closely related to true oaks, but are not a true oak and are not included in this program (Table 1).

Table 1: Species of oaks that occur within Monterey County, noting whether they are evergreen or deciduous.

Common Name	Scientific Name	Leaves
Dominant oak species in Monterey County:		
Coast Live Oak	*Quercus agrifolia*	Evergreen
Blue Oak	*Quercus douglasii*	Deciduous
Valley oak	*Quercus lobata*	Deciduous
Less common or scattered oak species:		
Oracle Oak	*Quercus parvula*	Evergreen
Canyon Live Oak	*Quercus chrysolepis*	Evergreen
Leather Oak	*Quercus durata*	Evergreen
Oregon Oak	*Quercus garryana*	Deciduous
Black Oak	*Quercus kelloggii*	Deciduous
Interior Live Oak	*Quercus wislizenii*	Evergreen
Scrub Oak	*Quercus berberidifolia*	Evergreen

2.2 Oak Woodlands in Monterey County

Four of the oak species occur as the dominant tree within a vegetation type that has been named after them. Table 2 identifies their approximate current acreage while Figure 1 illustrates their distribution in Monterey County. There are no known available estimates of their historical acreage. The following sections describe each of the four common oak woodlands and their threats. Representative photographs of select oak woodlands are provided in Figure 2.

Table 2: Oak Woodland communities within Monterey County, noting their estimated acreage, percent of the total Monterey County oak woodland acreage, and percent of the total acreage of Monterey County (CalVeg 2000).

Oak Woodland Type	Acres in Monterey County	Percent of Total Oak Woodland Acres in Monterey County	Percent of Monterey County
Coast Live Oak Woodland	252,500	47%	10%
Blue Oak Woodland	249,200	46%	10%
Valley oak Woodland	6,600	1%	0%
Mixed Black Oak Woodlands	6,000	1%	0%
Total	**537,600**	**100%**	**22%**

2.2.1 Coast Live Oak Woodlands

Dominated by the evergreen coast live oak, this woodland is widespread in places with moderate climates and thrives in Monterey's cool, foggy coastal areas. In moist areas, associated species are pacific madrone, California bay, poison oak, tanoak, and canyon live oak. In dryer areas, coast live oak woodlands include valley oak, blue oak, and foothill pine.

Coast live oaks grow rapidly and produce many seedlings that rapidly become saplings and large trees. A large mature coast live oak may be 200 years old. They are susceptible to a uncontrolled plant disease that has been aptly named "sudden oak death" (SOD; Section 2.3.3). The loss of these large, majestic oaks would dramatically change the look of the Monterey County landscape.

2.2.2 Blue Oak Woodlands

Blue oak is often the dominant tree in the woodlands where they occur, and can be the only tree in large areas of these woodlands. Patches of blue oak can extend from a few trees to several miles in extent and often include very old trees (300-800 years old). Blue oak woodlands are generally associated with steep, hot, dry, often west-facing or south-facing hillsides. The understory vegetation is comprised of wildflowers, non-native annual grassland, and patches of native perennial grasses such as needle grass, California melic, and June grass (Figure 1b). Blue oaks grow slowly and even knee-high saplings can be 50 years old. In Monterey County, blue oak woodlands with enough saplings currently thought necessary to replace the mature trees and maintain the stands through time are uncommon.

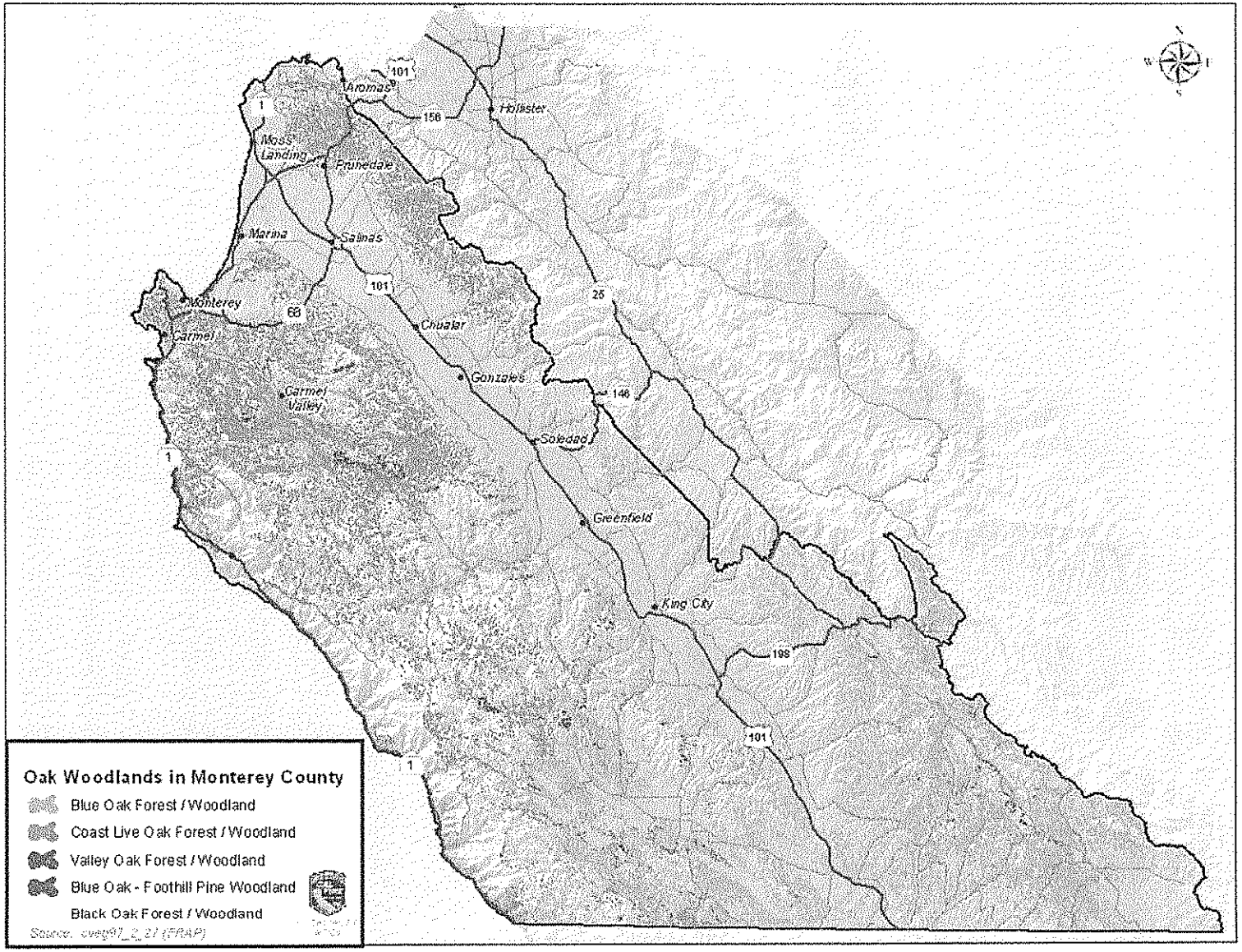

Figure 1: Map of the oak woodlands in Monterey County (cveg 97_2_27_(FRAP).

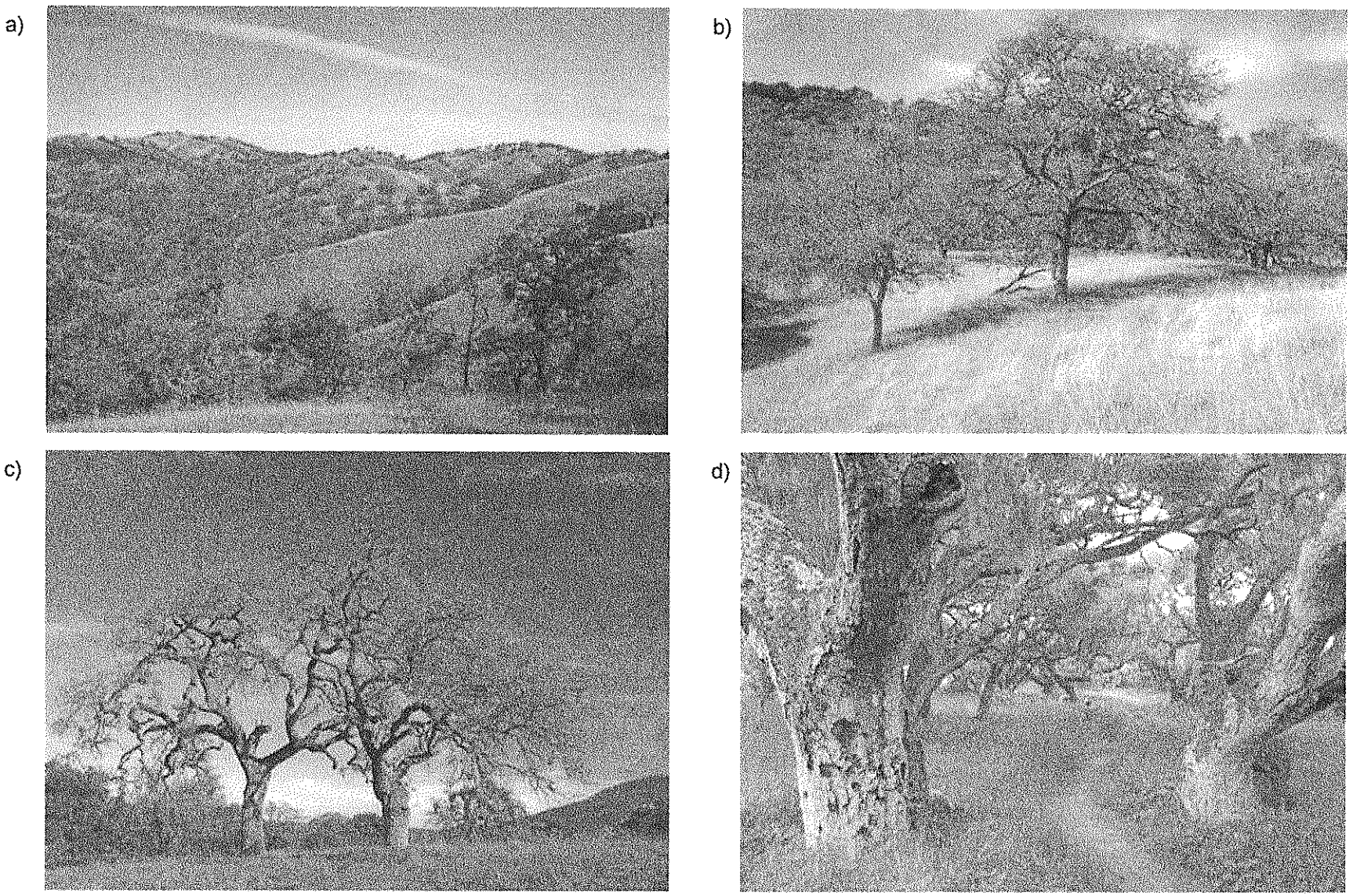

Figure 2: Monterey County oak woodlands, showing: a) an expanse of blue oak and valley oak woodlands atop the rounded hills in the Sierra de Salinas Range, b) a stand of blue oaks with an understory of native perennial needle grasses, c) two mature valley oaks on a river bench above the Arroyo Seco, and d) coast live oak woodland on ancient dunes in Fort Ord.

2.2.3 Valley Oak Woodlands

Valley oaks occur in small pockets, relatively undisturbed valley floor habitat, and also high on ridges above the valleys. They typically have a grassy understory and vary from open savannas to forest-like stands with partially closed canopies.

Valley oaks, which can live as long as 800 years and reach over 100 feet in height, are slow growing. Like the blue oaks, valley oaks are rarely found in populations featuring enough saplings to replace the mature trees. There are no detailed accounts of the current or past extent of the valley oak woodland in Monterey County, though exemplary stands occur near Fort Hunter Liggett and in Carmel Valley.

2.3 Threats to Oak Woodlands

Oak species and oak woodland communities in Monterey County are threatened by a variety of factors.

2.3.1 Habitat Conversion

Oak woodlands are threatened by conversion of the land for other uses, including development and agriculture. Though there are no data available for the amount of oak woodland conversion that has occurred to date in Monterey County, more than 50% of the original oak woodlands (10-12 million acres) has been removed in California. A better understanding of the current status and trends in conversion of oak woodlands in Monterey County could help focus conservation work.

Disruption of the natural fire regime may be contributing to loss of oak woodland habitat, by facilitating succession of oak woodlands to other types of vegetation. More information is needed to understand this trend, as well as other factors that threaten to convert oak woodlands including: groundwater pumping, the invasion and spread of non-native plant species, compaction of soil by humans and animals, and loss of riparian corridors.

2.3.2 Habitat Fragmentation and Isolation

As human development continues in Monterey County, intact oak woodlands and habitat will become more fragmented and degraded. Smaller oak woodlands that are isolated from other habitats are less able to support certain plants and animal species, which can become extirpated (i.e. locally extinct). For example, many birds and mammals need oak woodland and will not venture out to open areas, or even cross open areas. Thus some oak woodlands become critical corridors for dispersal of young and movement of wide-ranging adults. As an ecosystem is simplified (i.e. has fewer species), it becomes weakened and less resilient.

The system further erodes as individual trees become isolated. Oak trees can only cross-pollinate if they are within approximately 1,000 yards of another oak. Declines in acorn production amongst isolated oaks not only reduce oak establishment, thus potentially reducing the oak population, but also decrease food availability for the numerous animal species that forage on acorns.

2.3.3 Low Recruitment

Throughout much of Monterey County, populations of certain oak species are not regenerating: that is, young trees are not replacing older trees that are removed or die of natural causes. Oak species that are particularly impacted by the lack of regeneration include the valley oak and blue oak, though coast live oak and California black oak recruitment are also low in some areas.

The factors affecting regeneration are varied and complex, and may include fire suppression, competition from non-native annual grasses, herbivory by wildlife and livestock, and climate, among others.

Where oak regeneration is limited, it can be facilitated by installing shelters to protect seedlings and saplings from excessive herbivory, controlling non-native plant species, and adjusting the intensity and seasonality of livestock grazing. A common concern in all of California's oak woodlands is reproduction of the oaks, particularly the valley oak and blue oak. Further science-based information and long-term monitoring is needed to understand the causes and consequences of low oak recruitment.

2.3.4 Sudden Oak Death

In 1995, scientists discovered a plant pathogen, *Phytophthora ramorum*, which causes rapid death of infected oaks and was thus named sudden oak death (SOD). Dispersed through water and able to persist for years in the soil, the disease spores are readily moved by wildlife, humans, and other vectors. Presently, there is no treatment to stop its spread or cure infected trees.

In Monterey County, sudden oak death (SOD) has caused extensive mortality in coast live oaks and tanoaks in coastal areas. Drier conditions within the interior of the county may be slowing spread of the disease. However, this disease is new and its ecology and potential impacts remain poorly understood.

2.3.5 Woodcutting/Energy

Oaks are desirable for firewood, and as prices for fossil fuels rise, oak woodlands may face increased use for fuel wood. Because oak recruitment is low, even selective harvest can reduce populations of oaks and alter the structure of oak woodlands.

2.3.6 Climate Change

California's endemic oak species are sensitive to climate and are distributed in relatively narrow, species-specific 'climatic envelopes'—unique combinations of temperature and precipitation. As California's climate becomes warmer and possibly drier, as predicted by current climate change models, oak distributions are anticipated to shift. In Monterey County, valley oak and blue oak ranges are expected to contract overall, though the scale, specific location, and magnitude of these shifts cannot be predicted with certainty.

Section 3: Values of Oak Woodlands to Community

As throughout much of California, oak woodlands play an important role in Monterey County communities. In addition to providing wonderful recreational opportunities, oak woodlands on private land also benefit landowners and the broader community.

3.1 Livestock Grazing

In Monterey County, oak woodlands through much of the Santa Lucia, Sierra de Salinas and Gabilan mountain ranges are predominantly used to graze cattle. Oak woodlands are valuable to ranching operations because the amount and quality of forage tend to be higher than in rangelands without oaks. Oak trees act as water pumps, bringing up deep water and making it available to forage plants. These patches of green around oak trees increase soil fertility under oak canopy and produce better forage. Countywide, ranching in oak woodlands produced an income of over $20 million in 2006.

Well-managed ranches provide many benefits including wildlife habitat, open-space, fire control, weed management, recreational opportunities, and watersheds that produce abundant clean water. Ranching is a vital and integral part of the economy and culture of Monterey County, and oak woodlands are an essential part of the cattle industry.

3.2 Real Estate and Scenery

Whether in woodlands or as majestic individual trees, oaks are highly regarded and valued for their scenic qualities. Oak woodlands can increase the quality of life for residents and contribute to a community's economic well-being. In Monterey County, "oak" is a frequent component of street, business and place names—a testament to their important role Monterey County's landscape and communities.

Oak woodlands and oak trees can directly enhance the value of real estate. In one study, land with 40 trees per acre appraised at 22-28% more than bare lots, while homes having mature oak trees typically sell for up to 30% more than homes without them. For example, individual oak trees of large size or landmark status within a community can have exceptional value: $18,000 - $50,000 in 1999. In an urban setting, a single mature tree provides measurable economic benefit each year related to storm water runoff control, increased groundwater infiltration, temperature moderation, air pollution reduction and carbon sequestration.

Section 4: Oak Woodland Natural Resource Values

Oak woodlands have exceptional natural resource value and provide a host of ecosystem services.

4.1 Wildlife Habitat and Species Diversity

Monterey County is unusual in that it harbors more native plant and animal species than comparably sized areas elsewhere in the United States. Much of this biodiversity lives in and around the oak woodlands, where the mild Mediterranean climate combines with the abundant

acorn crop to create suitable year-round habitat for many animal species. Over 1,600 plant and animal species live in and among Monterey County's oaks (Table 3). At least fifteen of these species are rare.

Many readily recognized and appreciated wildlife, including deer, band-tailed pigeons, and squirrels, depend on acorns and oaks for much of their food. Most of the small mammals including mice and woodrats also depend on acorns and, in turn, provide abundant food for predators like bobcat, mountain lions, hawks, owls and eagles. As a result, oak woodlands also have the greatest wildlife species abundance of any terrestrial habitat in California.

This diversity of animals can have surprising benefits to people. For example, in California the western fence lizard is the preferred host in the early life of the tick that carries Lyme disease. A protein in the lizard's blood kills the microbe that causes Lyme disease and thus reduces the probability that a tick bite in Monterey County will transmit the disease to humans. This may explain why the risk of contracting Lyme disease in Monterey County is small while the disease is epidemic in some northeastern states where lizards are rare.

Table 3. Approximate number of species of various life forms in Monterey County Oak Woodlands (Stromberg 2009).

Life Form	Estimated Number of Species
Vascular Plants	600
Mosses, Liverworts, and Lichens	175
Invertebrates (insects, etc.)	580
Birds	200
Mammals	50
Amphibians and Reptiles	30
Total	**1,635**

4.2 Carbon Sequestration

Carbon dioxide is a greenhouse gas that is increasing in the Earth's atmosphere as a result of human activities. Through photosynthesis, oaks convert carbon dioxide into leaves, roots, and wood, which sequesters the carbon dioxide and keeps it from entering the atmosphere.

In Monterey County, oak woodlands sequester an estimated 5,300,000 metric tons of carbon dioxide each year. Oak woodlands may therefore have new value in the emerging market of carbon credits. Land owners with oak woodlands may be able to sell carbon credits to those wishing to purchase credits to offset the production of carbon dioxide elsewhere.

4.3 Additional Resource Values

Oak woodlands are complex ecosystems that provide an array of additional benefits and services. For example, oaks protect water quality and quantity by filtering and slowing runoff during winter rains and increasing infiltration and ground water storage. Oaks protect soil by decreasing erosion. They also improve soil quality by adding organic matter (e.g. leaves) and

releasing groundwater pumped from depth near the soil surface, where it enriches the surface soil and promotes plant growth. Compared to annual grasslands, the soil under oaks is less dense, has higher pH and greater concentrations of organic carbon, phosphorus, nitrogen and other soil nutrients.

Oak woodlands enhance our quality of life by providing open space, scenic landscapes, areas for recreation such as hiking, hunting, fishing, and nature photography; and providing habitat that supports hundreds of life forms, plants and wildlife in fascinating and complex natural communities.

Fire is a natural part of oak woodland life history. A change in the historic natural fire frequency and unmanaged conservation areas could be reasons that oak woodlands convert to other vegetation and habitat types. Fire suppression has led to the build-up of woody vegetation in the under story, increasing "ladder" fuels connecting ground vegetation to tree canopies. This has resulted in oak woodlands that are more susceptible to catastrophic crown-consuming fires where more frequent low-intensity fires could reduce fire fuel buildup. Severe fires can also have negative consequences to other ecosystem functions such as regeneration, erosion and impacts to water quality when fires are followed by severe rain events and sediment from burned slopes clog streams. Conservation-based, fire-wise, vegetation management in woodlands, as has been promoted by the local fire authorities and the Fire Safe Council, should be encouraged in areas of Monterey County at the wildland-urban interface. For example wildfire management methods such as "shaded fire breaks", where instead of clear-cutting vegetation, trees can be thinned and limbed up from the ground to reduce wildfire hazards while preserving the tree canopy.

Section 5: Impacts of Oak Woodland Loss

Given the benefits of oaks and oak woodlands for Monterey County's communities (Section 3) and natural resources (Section 4), oak woodland conversion, fragmentation, and degradation can impact:

- important wildlife habitat and native biodiversity
- rangelands essential for livestock grazing and the local economy
- soil, water, and air resources, including greenhouse gases
- scenery, real estate values, and quality of life.

Planning decisions for oak woodlands should take into account these potential effects on oak woodlands.

Section 6: Participation in the California Oak Woodland Conservation Program

Because of the social, economic, agricultural, and biological benefits of conserving oak woodlands, Monterey County residents are encouraged to participate in the California Oak Woodland Conservation Program (OWCP)—a voluntary program designed to protect and enhance oak woodland resources by providing grants in support of:

1. Easements: Grants to purchase oak woodland conservation easements

2. Restoration: Grants to fund restoration and enhancement of oak woodlands
3. Long-Term Landowner Agreements: Grants to fund long-term leases or other landowner agreements such as cost-sharing incentive payments that promote oak woodland conservation.
4. Education, Outreach, and Technical Assistance: Grants to fund public education, outreach and technical assistance projects that promote oak woodland conservation

The Act requires that 80% of funds be used for the purchase of conservation easements, restoration and long-term landowner agreements. Twenty percent of the funds can be used for public education, outreach and technical assistance projects. The Oak Woodlands Conservation program promotes the conservation of privately owned oak woodlands; however, the easement acquisition part of the program is not designed to accept applications directly from private landowners. Conservation easements must be held by entities authorized under California Civil Code section 815.3, which includes governmental entities or nonprofit land conservation organizations such a land trust.

Conservation easements are legal agreements, entered into voluntarily, between a landowner and a non-profit organization or government agency that limits certain uses of the land in order to protect specific conservation values. Each conservation easement is individually tailored to the site and is negotiated with the owner and private nonprofit organization or public agency that will hold and monitor the easement. The terms, allowed uses, maintenance, and specific conservation values to be protected will be determined in collaboration with the landowner, partner organizations and resource specialists, including State Fish and Game biologists, Federal Fish and Wildlife Service in order to protect conservation values in perpetuity.

Before the WCB can evaluate a project for funding under the OWCP, the city or county in which the project occurs must prepare an oak woodlands management plan, pursuant Section 1366 of the California Fish and Game Code. The Board of Supervisors of the County must adopt the plan by resolution.

After the *Voluntary Oak Woodland Stewardship Guidelines* are adopted by the Monterey County Board of Supervisors, grant proposals submitted to the Wildlife Conservation Board for funding under the OWCP must be certified by the County to be consistent with the criteria below. These criteria mirror those established by the Wildlife Conservation Board for the OWCP designed to encourage the long-term conservation of oak woodlands. To qualify for a grant, the applicant must certify that the proposed project is not required to satisfy a condition imposed upon the landowner by any lease, permit, or other entitlement issued by a public agency, including a mitigation under the California Environmental Quality Act. The OWCP application packet is available on the WCB website: www.wcb.ca.gov. See Exhibit B outlining the OWCP application process.

6.1 Criteria for Projects

6.1.1 Criteria for Easement Acquisition, Restoration or Long-Term Agreement Projects

To qualify for funding consideration for restoration, enhancement, purchase of an oak conservation easement, or long-term agreement, projects must meet one or more of the following criteria, must contain an appropriate management plan to assure project goals are maintained, and the oak stand that is the subject of the proposal must have greater than 10

percent canopy.

- The project is of sufficient size to promote biological integrity and provide superior wildlife values.
- The project area contains a diverse size-class structure of oak woodlands and/or a diversity of oak species that will promote the sustainability and perpetuation of oak woodlands.
- The property is adjacent to other protected areas or will contribute toward ease of wildlife movement across ownerships (wildlife corridors).
- The project contributes to regional and/or or community goals, provides scenic open-space, protects historic or archeological values, or contains unique geologic features.
- The property is a working landscape. The landowners have implemented or agree to implement stewardship practices that recognize and incorporate the ecological requirements of oak woodlands and associated habitats, thus promoting economic and resource sustainability of the farming and ranching operation.
- The property removes or reduces the threat of habitat conversion from oak woodlands to some other use.
- The project has the potential to serve as a stewardship model for other landowners.

6.1.2 Criteria for Outreach and Education Projects and Technical Assistance Projects

To qualify for funding consideration for a public education and outreach and technical assistance proposal, the project must satisfy the following criteria:

- The project shall be designed to identify and communicate the social, economic, agricultural and biological benefits of conserving oak woodlands.
- The project shall be designed and targeted to reach the maximum number of local landowners that could benefit from public education and outreach efforts.
- The project shall be designed and implemented as a collective effort or partnership that, where appropriate, includes local entities such as: landowners, the Resource Conservation District, the California Fish and Game biologist, University of California Cooperative Extension (UCCE) Farm Advisor, representatives from farming or ranching organizations; California Department of Forestry and Fire Protection (Cal Fire) or local fire authority; and the county or city planning department.
- The project shall be designed to promote and encourage oak woodland conservation through voluntary approaches.
- The project shall provide sources of available financial and/or technical information to assist landowners conserve their oak woodlands.
- The project will identify measurable goals and objectives to evaluate the success of the project. For projects not completed within one year of the approval date, the proposal shall include specific interim deliverables or benchmarks and a timeline for completion.
- If requested by the WCB, project sponsors must be willing to make project information available online so that other project proponents may benefit from the education and outreach effort. Such information should not include private or proprietary information

about private landowners or their operations.

6.2 Voluntary Program

The conservation of oak woodlands in Monterey County is dependent on the voluntary actions of residents and landowners who value the scenic, ecological, and economic benefits of these unique trees and habitats. Landowner participation in the OWCP is entirely voluntary and neither the program nor this document outlining guidelines for participation has a regulatory component or role.

As part of a separate process, Monterey County will address the requirements of Senate Bill 1334 (Kuehl) passed by the California Legislature in 2004, which adds Section 21083.4 to the Public Resources Code related to oak woodland conversion. Section 21083.4 requires consideration of the conversion of oak woodlands as part of review under the California Environmental Quality Act (CEQA). Specifically, it requires that the County determine whether a project may result in a potentially significant effect on the environment by conversion of oak woodlands, as part of environmental review of projects under CEQA. If the County determines that a project may have a significant effect on oak woodlands, the County must require one or more specified measures to mitigate the effect of woodland conversion. As noted above, the Monterey County Voluntary Oak Woodland Conservation Guidelines are not part of this regulatory requirement.

Section 7: Education and Outreach for Oak Woodland Conservation

Conservation of oak woodlands within Monterey County can be promoted by education and outreach programs that provide information about the values of oak woodlands. The following are some specific objectives or actions for education and outreach programs that would accomplish this goal.

- Educate county landowners on the long-term economic benefits of maintaining and restoring oak woodlands.
- Refer to resources such as University of California Cooperative Extension practices regarding harvesting, which currently include: maintaining an average leaf canopy of at least 30%, retaining trees of all sizes and species at the site, maintaining old hollow trees for nesting, roosting, and feeding wildlife, piling brush to provide wildlife cover, and seeking professional advice before conducting harvesting. Hundreds of publications have been produced aimed at helping individual homeowners, ranching families and large agricultural operations to conserve and steward their oak woodlands, including conservation-based fire-wise vegetation management practices.
- Articulate the importance of landscape variables (size, shape, connectivity to other woodlands and important habitats, etc.) that support rich, sustainable wildlife populations associated with oak woodlands.
- Encourage landscape design and development that can enhance property values and retain intact oak woodlands
- Provide technical assistance to reduce impacts of construction practices, roads, hard surface run-off, and utilities on the long-term survivorship of oaks.

- Describe how homes can be clustered to help protect wildlife corridors and maintain more wildlife habitat.
- Assist private landowners with information on the values of using oaks in the urban landscapes and at the urban-wildland interface.
- Promote conservation-based, fire-wise, vegetation management in woodlands in consultation with fire control agencies and other resource specialists to avoid conversion to other vegetation and habitat types, reduced regeneration, and susceptibility to severe fires that can also have negative consequences to other ecosystem functions.
- Promote the important role of land management programs using low intensity fires to manage and maintain oak woodlands, particular on federal lands.
- Restore areas where oaks have been removed and/or are not regenerating, particularly for valley oak woodlands on deep, level soils.
- Promote voluntary tree planting programs that provide protection of oak seedlings from rodents, browsing by deer and domestic animals, and weeds, and incorporate long-term monitoring.

A second main goal of the education and outreach for oak woodlands is to assist landowners seeking to conserve and restore oak woodlands on their properties. The following are actions for specific outreach and education programs that would accomplish this goal.

- Identify programs available to assist landowners seeking to voluntarily protect and manage oak woodlands.
- Describe techniques to restore degraded oak woodlands, including tree planting programs or mechanisms to protect oak seedlings from herbivory by deer, rodents, and domestic animals, and from competition from non-native plants or other weeds.
- Identify state and federal cost share programs and grants for restoration projects.
- Describe planting guidelines for oak woodland restoration, which include planting the appropriate species of oak and using native plants in the understory. In general, the species of oak to be replaced should be the same species as was removed.
- Describe methods to control invasive, non-native weeds in oak woodlands, particularly along county road rights-of-way that link agricultural lands to oak woodlands and provide a corridor for weed movement.
- Promote control of invasive, non-native weeds in oak woodlands. This can be particularly effective along county rights-of-way on roads that go from agricultural lands where invasive weeds are largely controlled to sites along roads where the weeds are establishing pioneer populations.
- Study and educate how prescribed fire can be safely used as a management tool for invasive species and potentially to promote oak regeneration.
- Promote and encourage conservation-based, fire-wise, vegetation management in woodlands in consultation with fire control agencies and other resources specialists, in areas of Monterey County at the wildland-urban interface.
- Encourage County ranching and farming operations that support large stands of oak woodlands.
- Encourage continuation and initiation of Williamson Act contracts to maintain large

parcels in agricultural and grazing uses.

- Build partnerships between local government, the development community and non-profits for targeted and meaningful conservation efforts.
- Encourage conservation easements and other forms of land conservation action.
- Assess and track progress of voluntary conservation and stewardship programs.
- Study and document the rate of loss/gain of woodlands in Monterey County. Modern remote sensing could be used to assess the areas of various categories of oak woodlands. These need to be backed up with ground surveys. Consider repeated surveys, at perhaps 5-10 year intervals to provide the information on the certainty and urgency of the problem.

Section 8: Oak Woodland Stewardship Guidelines Update

Research and other studies will increase understanding of oak woodlands, including their ecology, value to the community, threats, and factors necessary to promote their conservation. Accordingly, this document should be periodically updated as needed to incorporate new information that would influence the guidelines. The RMA - Planning Department shall review the Guidelines every five years and present a status report to the Planning Commission every five years to determine if an update is warranted.

Conclusion

Since 80% of the state's oak hardwood rangelands are in private ownership, voluntary efforts by landowners can be the most effective conservation measures. Residents, landowners and decision makers can work together cooperatively to conserve and manage oak woodlands and protect their natural, scenic, cultural and economic, ecosystems and habitats values they provide. Education, outreach and encouraging conservation and promoting programs will serve to achieve the County's diverse and often mutual goals.

More science-based information about the relationships among oak regeneration, fire, wildlife, grazing practices, agricultural and other land uses, and any other factors affecting the oaks can help inform conservation and education programs.

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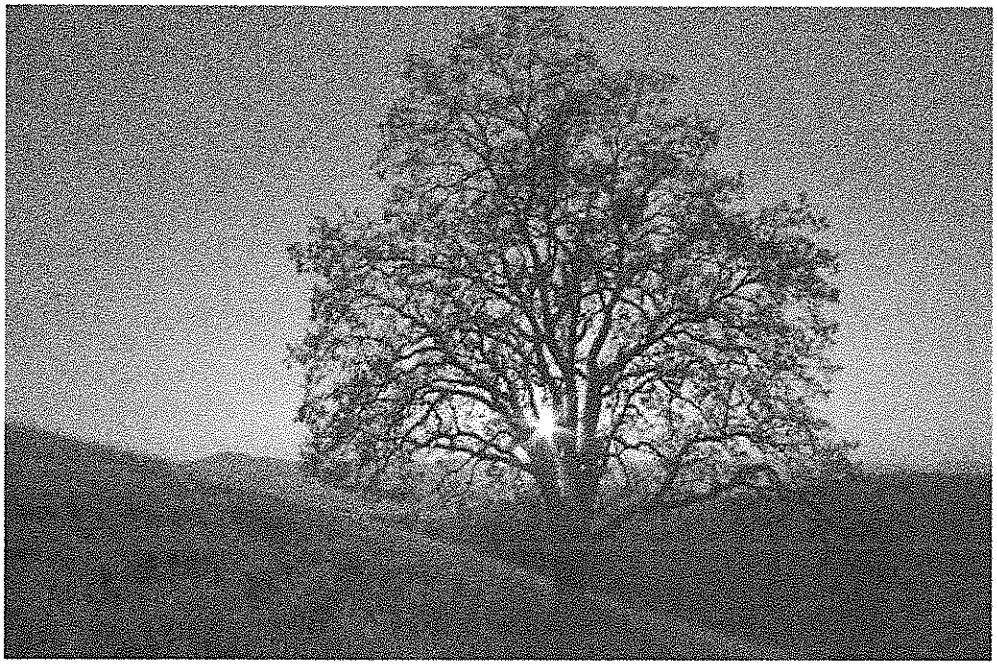

Valley oak at sunset, Sierra de Salinas, Monterey County, California.

EXHIBIT B: Oak Woodland Conservation Program Submittals

The Oak Woodlands Conservation Program, implemented by the Wildlife Conservation Board (WCB) offers landowners, conservation organizations, cities and counties, an opportunity to obtain funding for projects designed to conserve and restore California's oak woodlands. While the Program is statewide in nature, it provides opportunities to address oak woodland issues on a regional priority basis.

This voluntary State Program is designed to provide incentives for local efforts to achieve oak woodland protection. More importantly, this Program provides a mechanism to bring farmers,ranchers and conservationists together in a manner that allows both to achieve that which is so valued — sustainable ranch and farming operations and healthy oak woodlands.

The program is not designed to accept applications directly from private property owners. Proposals developed in partnership with landowners, nonprofit organizations, and local, regional and state resource specialists bring a diversity of skills, expertise, ideas, and often the ability to leverage funds not otherwise available for a project. Please refer to the References and Resources section of the Voluntary Oak Woodlands Stewardship Guidelines for additional information on oak woodlands.

STEP 1: Contact the WCB for an Oak Woodlands Conservation Program application package: www.dfg.ca.gov/wcb or call (916) 445-8448.

STEP 2: Applications for public education and outreach and technical assistance should be designed and implemented as a partnership with local entities such as: landowners, Resource Conservation District, California Fish and Game Department, University of California Cooperative Extension Farm Advisor, representatives from farming and ranching organizations, the County Planning Department, and others.

Contact information for these agencies:

State Department of Fish and Game
www.dfg.ca.gov
Central Region (559)-243-4005

State Department of Forestry and Fire Protection
www.fire.ca.gov
Cal Fire San Benito-Monterey Unit (831) 333-2600 (ask for the unit forester)

University of California Cooperative Extension http://danr.ucop.edu
and **Integrated Hardwoods Management Program**
http://danr.ucop.edu/ihrmp
UCCE San Luis Obispo County) (805) 781-5938

Natural Resources Conservation District (NRCS) and **Resource Conservation District** www.ca.nrcs.usda.gov
Salinas office (831) 424-1036

Applications for conservation easements, restoration or other long-term land conservation methods, also contact an eligible participant such as a nonprofit land trust to discuss your goals. A number of nonprofit land trusts are actively conserving land with conservation easements and other methods in Monterey County. Currently the land trusts listed below have the expertise to work with homeowners to develop customized land conservation easements, the legal authority to acquire and manage conservation easements (deed of conservation easement), and the capacity to perform the required monitoring.

Big Sur Land Trust www.bigsurlandtrust.org
(831) 625-5523

California Rangeland Trust www.rangelandtrust.org
(805) 688-8466

Ag Land Trust www.aglandconservancy.org
(831) 422-5868

Elkhorn Slough Foundation and Elkhorn Slough National Estuarine Research Reserve www.elkhornslough.org
(83)1 728-5939

The Nature Conservancy www.nature.org
(831) 333-2047

Land Trust Alliance www.lta.org for more information on land trusts and conservation easements

STEP 3: County Certification
Contact the Monterey County Resource Management Agency - Planning Department for certification that the grant proposal is consistent with the Monterey County Voluntary Oak Woodland Stewardship Guidelines. The appropriate authority to review and certify grant proposals consistency is the RMA - Planning Director. A fee will be charged for the review and certification process. The applicant is also required to certify that the proposal is not required to satisfy a condition imposed on the landowner by any lease, permit, license, certificate or other entitlement, or mitigation of significant effects on the environment.

County of Monterey Resource Management Agency – Planning Department
www.co.monterey.ca.us (831) 755-5025

STEP 4: Once an application proposal is completed and certified by the County RMA-Planning Director, submit it to the WCB for review and consideration for funding. Applications are accepted year round; however WCB Board meetings are held quarterly.

D) YOLO COUNTY

Yolo County
Oak Woodland
Conservation and Enhancement Plan

Parks and Natural Resources Management Division

January 2007

Yolo County
Oak Woodland Conservation and Enhancement Plan

Prepared by:

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EXECUTIVE SUMMARY

The Yolo County Oak Woodland Conservation and Enhancement Plan promotes voluntary efforts to conserve and enhance the county's existing oak woodlands, which provide significant aesthetic, ecological, and economic benefits. Voluntary conservation and enhancement efforts will help to minimize the effects of land conversion and other factors that disturb the health and longevity of existing oak woodlands. Although partnerships with neighboring counties may be necessary to implement some conservation and enhancement activities, the plan covers only Yolo County. Furthermore, Yolo County will work with existing organizations involved with oak woodlands conservation and enhancement efforts to implement the plan, some of which already have valuable relationships with private landowners interested in oak woodland conservation.

GOALS

The plan will help coordinate voluntary oak woodland conservation and enhancement efforts, guide oak woodland mitigation, provide access to state funding, and assist with state efforts to conserve and enhance oak woodlands in California (See Appendix G for information on additional sources available for funding oak woodland conservation).

OAK WOODLAND RESOURCE VALUES

Oak woodlands are important to Yolo County because they provide a number of aesthetic, ecological, and economic benefits, including plant and wildlife habitat, erosion control, and water quality, flood, and air quality protection. They are enjoyed by regional residents simply for their beauty when viewed through a car window. They further are enjoyed through hiking, equestrian, hunting, or other recreational opportunities, thus supporting the county's economy. Finally, oak woodlands are valued for their historic and cultural significance. Native Americans once relied on oaks for food and shelter. The earliest European settlers sought refuge from the hot valley sun for themselves and their livestock under oaks and benefited economically from the use of oaks for building material and firewood.

EXISTING OAK WOODLANDS

Oak woodlands are one of most familiar landscapes in Yolo County, a prominent piece of a rural mosaic of agricultural land and open space dotted with small cities and towns. Oak woodlands spread over 107,000 acres of the county's 650,000 acres of land, primarily in the western portion of the county in the foothills of the Coast Range. Blue oak-foothill pine woodlands are the dominant community type, consisting of almost 78,000 acres or 74 percent of all oak woodland acreage. Approximately 87 percent of the county's oak woodlands are privately owned. Yolo County, the U.S. Bureau of Land Management, and other public entities own approximately 13 percent of the oak woodlands.

HISTORICAL EXTENT OF OAK WOODLANDS

Anecdotal evidence from local and state archives suggests that prior to the Gold Rush of 1849, oak woodlands stretched throughout Yolo County's foothills and valleys, including the Capay Valley and Yolo County's portion of the Sacramento Valley. Evidence also suggests that riparian forests, dominated by valley oaks, cottonwoods, and willows lined

Cache Creek, Putah Creek, and the Sacramento River as well as the Babel, Elk, Sutter, and Willow Sloughs. While a comprehensive evaluation of oak woodlands in the pre-settlement era is not a part of this planning effort, the plan includes some historical maps, aerial photos, anecdotal accounts, and other historical research to provide a glimpse of what Yolo County's oak woodlands may have looked like over 150 years ago.

Factors Affecting Oak Woodlands

While oak woodlands may seem abundant in Yolo County, conservation of existing oak woodlands is a challenge because of a number of factors that threaten their continued health and longevity. These factors include, but are not limited to, land conversion to intensive urban and rural uses and road or other infrastructure expansion; few young oak saplings to replace existing old oaks (also known as a lack of regeneration); increasingly limited access to groundwater in some areas that increases the mortality of both young and old oaks; and clearing for fire protection around developed areas.

System for Establishing Oak Woodlands Priorities

The plan presents a system to help identify high-priority, voluntary oak woodlands conservation and enhancement opportunities. Assuming that willing landowners are interested in participating in the program, the system can help identify areas with the highest oak woodlands resource values, as well as those that would benefit from enhancement efforts. The system uses criteria that reflect values such as stand size, composition and distribution, tree cover and density, plant and wildlife habitat (including special status species), invasive species presence and abundance, erosion control, contribution to air quality, water quality, and flood protection, historical and cultural significance, and recreational opportunities. In addition, the system factors in threat of loss and potential management constraints.

Conservation and Enhancement Recommendations

Implementation recommendations are included, based on the research and public outreach conducted during development of the plan. These recommendations include: proposed voluntary oak woodlands conservation goals and policies for inclusion in the Yolo County General Plan, provision of staff resources to help implement the plan, assistance with high-priority oak woodlands conservation and enhancement projects, development of landowner incentives to encourage conservation, establishment of a public outreach and education program, and working with the University of California, Davis and other institutions to encourage oak woodlands-related research in the county.

Implementation Strategy

The success of the plan is dependent on voluntary participation by landowners and public agencies that own oak woodlands. Plan implementation therefore relies heavily on a public outreach and education strategy to encourage willing landowners and public agencies to participate in the program. Yolo County will support the work of organizations and agencies currently involved with oak woodland conservation activities. Yolo County also can help solicit funding for oak woodland conservation efforts, since the state's oak woodland grant program requires Yolo County to certify that a project is consistent with the plan. The certification process is described in the plan.

INTRODUCTION

The Yolo County Oak Woodland Conservation and Enhancement Plan promotes voluntary efforts to conserve and enhance the county's existing oak woodlands. Oak woodlands provide significant aesthetic, ecological, and economic benefits. Voluntary conservation and enhancement efforts will help to minimize the impacts from land conversion and other factors that affect the health and longevity of existing oak woodlands. Although partnerships with neighboring counties (Colusa, Lake, Napa, Sacramento, Solano and Sutter) may be necessary to implement some conservation and enhancement activities, the plan covers only Yolo County. Furthermore, Yolo County will work with existing organizations involved with oak woodlands conservation and enhancement efforts to implement the plan, some of which already have valuable relationships with private landowners interested in oak woodland conservation.

Oak woodlands are one of most familiar landscapes to residents of Yolo County, completing a rural mosaic of agricultural land and open space dotted with small cities and towns. Defined by state law as "an oak stand with a greater than 10 percent canopy cover or that may have historically supported a greater than 10 percent canopy cover[1]," oak woodlands spread over 107,000 acres of Yolo County's 650,000 acres of land. These oak woodlands are found primarily in the foothills of the Coast Range located in the western portion of the county. While the plan emphasizes the conservation of existing oak woodland ecosystems, it also supports the enhancement of former oak woodlands that consist now of only a few remaining trees. These lone oaks are primarily valley oaks that were once a part of valley oak woodlands and savannahs.

Yolo County will focus on supporting the existing efforts of willing landowners, non-profit organizations, and government agencies to enhance and conserve oak woodlands. In addition, Yolo County will help these individuals and organizations access funds for voluntary oak woodlands conservation and enhancement activities (See Appendix G for information on additional sources available for funding oak woodland conservation). Voluntary conservation efforts may include oak woodlands conservation easements,[2] the

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[1] California Fish and Game Code §1361(h). State law does not define "stand," but this plan focuses on existing and former oak woodlands that cover one acre or more. The resource values of contiguous, larger tracts of oak woodlands are typically greater than the resource values of isolated stands of oak trees. In addition, larger stands generally have more resource management options than smaller stands. Nonetheless, because some isolated stands of oak trees, especially those found on Yolo County's Sacramento River Valley floor, contain valley oaks or other oak species of limited distribution, these trees may be the focus of some voluntary conservation efforts covered under this plan. See Section on Conservation and Restoration Program and Policy Recommendations.

[2] An oak woodland conservation easement is a voluntary tool used to help landowners to protect their land while retaining ownership. A conservation easement is a legal restriction that a landowner places on his or her property to define and limit the type of development that may take place there. When land is protected by an easement, the landowner continues to own and use the land within the uses set forth in the easement. The entity that holds the easement ensures that the resource values are protected over time as specified in the easement. Generally, conservation easements are purchased by or donated to a nonprofit conservation organization, such as the Yolo Land Trust, which carries the responsibility to enforce the restrictions in perpetuity. See Appendix H for more information about the tax advantages of conservation easements.

development of landowner incentives to encourage conservation, and land use planning strategies that are consistent with the conservation of oak woodlands. Oak woodland enhancement efforts will focus on providing financial incentives and educational resources to encourage landowners to voluntarily enhance healthy oak woodlands through changes in management practices or oak woodlands restoration. Oak woodlands that provide the best available combination of ecological, aesthetic, cultural, and economic benefits will have the highest priority for available funding. Conservation activities to be funded through this plan include:

- Grants for oak woodlands enhancement activities, such as development of site-specific management plans, planting of oak seedlings and associated native species, control of competing native plants, and fencing and other rangeland improvements to better manage livestock.
- Cost-sharing incentive payments to private landowners who enter into long-term conservation agreements. These agreements could include management practices that benefit oak woodlands while promoting the economic sustainability of farming and ranching operations;
- Public education and outreach by non-profit organizations, local governments, and other qualified entities related to oak woodlands conservation and enhancement.

This document presents the following information:

- the goals of Yolo County's Oak Woodland Conservation and Enhancement program;
- descriptions of resource values that oak woodlands provide;
- information on the current and historical extent and types of oak woodlands in Yolo County;
- a system that will be used to establish priorities for voluntary oak woodlands conservation and enhancement[3];
- conservation and enhancement program recommendations; and
- an implementation strategy.

There are many public agencies and other organizations that are currently working to conserve and enhance oak woodlands in Yolo County. (See Appendix D and E for a description of these organizations and agencies and their oak woodlands-related efforts.) Yolo County will work with these organizations and agencies to further their efforts through implementation of the plan.

[3] This process is intended to complement, but not duplicate, conservation planning related to oak woodlands in the Yolo County Habitat Conservation Plan/Natural Communities Conservation Plan.

I. GOALS

The plan is designed to achieve the following goals:

1. Protect existing oak woodlands by creating a voluntary system, including landowner incentives, for conservation and enhancement of oak woodlands.

2. Encourage the development of land use and infrastructure planning strategies that are consistent with oak woodlands conservation efforts.

3. Direct conservation and enhancement funding and effort to areas that have the highest oak woodland resource values.

4. Direct mitigation for oak woodland impacts to areas that have the highest oak woodland resource values and are in need of protection.

5. Encourage the long-term stewardship of existing oak woodlands to maintain or improve oak woodland resource values.

6. Provide funding and technical assistance for oak woodland enhancement efforts that help achieve multiple benefits.

7. Increase the area covered by valley oak and other oak species that are now uncommon in Yolo County because they have been cleared from much of their historical range in the county.

8. Maximize the total amount of oak woodland canopy cover to achieve erosion, flood, and air quality protection benefits, while recognizing the importance of including a variety of canopy cover levels within conserved and restored woodlands to provide habitat diversity.

9. Coordinate oak woodland conservation and enhancement efforts with the Yolo County Habitat Conservation Plan/Natural Community Conservation Plan, the Yolo County General Plan, the Parks and Open Space Master Plan, the Cache Creek Resources Management Plan, and other local and state applicable conservation plans.

II. OAK WOODLAND RESOURCE VALUES

Oak woodlands are important to Yolo County because they provide a number of ecological, aesthetic, and economic benefits, including plant and wildlife habitat, erosion control, and water quality, flood, and air quality protection. They also are enjoyed by Yolo County residents simply for their beauty, as viewed through a car window or enjoyed through hiking, equestrian, hunting, or other recreational opportunities. Finally, oak woodlands are valued for their historic and cultural significance. Native Americans

once relied on oaks for food and shelter. The earliest European settlers sought refuge from the hot valley sun for themselves and their livestock under oaks and benefited economically from the use of oaks for building material and firewood. This section provides a brief description of these resource values.

Plant and Wildlife Habitat

Oak woodlands are the most diverse terrestrial ecosystems in California, supporting at least 300 vertebrate species (including at least 120 mammal, 147 bird, 60 reptile and amphibian species), 1,100 plant species, 370 fungal species, and 5,000 arthropods species (insects and mites). In Yolo County, oak woodlands provide habitats for a wide range of flora and fauna, many of which are threatened or endangered at the state and federal level. (See Appendix B and C for lists of species in the oak woodland communities found in Yolo County.) Each type of oak woodland found in Yolo County provides unique habitat structure for the plants, invertebrates, fish, and wildlife that inhabit them. Some oak woodland types provide a greater diversity of ecological benefits than other types, depending on the complexity of the vegetation structure, oak density (trees per acre), the level of canopy cover, the distribution of tree sizes and ages, and other factors. The habitat value of any oak woodland type may also vary according to its health, location in the landscape, extent, and current management strategies. Valley Foothill Riparian, for example, is an oak woodland-dominated plant community that provides one of the most diverse habitat types in California. It provides habitat for a broad range of plant and animal species, some of which are threatened or endangered.

Erosion Control

Oaks help control soil erosion in three ways: a) Tree canopies intercept raindrops and dissipate their energy, reducing their potential to erode soil; b) Dead leaves and twigs that accumulate on the soil surface under oaks provide further protection against the erosive action of rainfall; and c) Tree roots and their associated mycorrhizal fungi also help to reinforce and stabilize soil, reducing both the risk of landslides and erosion caused by running surface water (gully erosion and scour along creeks)[4]. Oak woodlands located in areas prone to erosion help prevent degradation in water quality and overall land resource value that are associated with erosion. Planting oaks in historically wooded areas showing accelerated erosion from lack of tree cover can help stabilize and prevent further erosion in these areas.

Water Quality Protection

Oak woodlands located on both slopes and level lands near streams play an important role in protecting water quality. By minimizing soil erosion as noted above, oak woodlands can help reduce the amount of sediment washing into local waterways. High levels of sediment in waterways can negatively impact the aquatic food supply by reducing habitat available for fish, aquatic invertebrates and other organisms important to the diets of fish and birds.[5] The contribution of oaks and other vegetation to erosion

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[4] Both fine roots and soil fungi growing in association with roots promote the formation and stability of both fine and coarse soil aggregates. These aggregates resist erosive forces and promote soil cohesion.

[5] Sediment simplifies aquatic ecosystems by filling in and covering up productive rocky or gravelly habitats. The sediment reduces the growth of algae and other plants in these habitats that aquatic invertebrates rely on for food. Heavy sediment loads can also erode the gills of fish and aquatic

prevention near waterways is especially important if soils contain toxic material, such as mercury or other heavy metals. Cache Creek and Putah Creek, for example, both have elevated levels of mercury in the soil of the bed and banks and are the focus of regulatory efforts to reduce mercury levels.[6] Oaks and other vegetation also help reduce soil contamination by absorbing heavy metals, fertilizer nutrients, and pesticides from the soil and intercepting sediments containing these pollutants, thereby preventing these materials from reaching surface waters. Oaks and associated permanent vegetation along waterways also can reduce potential contamination of waterways from airborne pesticide drift, since oak foliage can intercept airborne pesticides.

Flood Protection

Oak and other trees provide protection equivalent to that provided by floodwater detention basins. Trees temporarily hold rainwater on their leaf and stem surfaces during a rainstorm, increasing the amount of time rain takes to reach the ground and contribute to runoff. By detaining peak flows for a period of time, oaks and other trees reduce the amount of water washing into waterways as a result of high rainfall events. Based on computer simulations of deciduous trees in California's Central Valley, researchers estimate that every 1000 trees reduces stormwater runoff by nearly 1 million gallons, about 3 acre ft.[7] The greatest flood protection benefits related to tree canopy cover are in watersheds that quickly concentrate flows and pose a risk of flash flooding and in areas where runoff conveyance is already near capacity. Trees also deplete moisture from the soil during the growing season. Compared to only annual vegetation, oaks can extract water from the soil profile to a greater depth. Consequently, soils under oak woodland canopy are able to absorb and hold greater amounts of rainfall in the soil than are equivalent soils with only annual grassland cover. This extra storage capacity further reduces the potential for flooding during the rainy season.

Air Quality Protection

In urban areas oak trees provide shade to houses and people, lowering the need for air conditioning and aiding in the maintenance of air quality. Shading of vehicles by trees also significantly reduces the amount of volatile organic compounds (VOCs) they release. Because VOCs are precursors to photochemical smog, lower VOC levels result in lower levels of ground-level ozone. Oaks and other plants directly reduce ozone pollution by absorbing and destroying ozone within leaves. Tree leaves also intercept airborne particulate pollutants, helping to lower ground level concentration of these pollutants. Large, long-lived trees such as oaks convert large quantities of carbon dioxide to various organic compounds that make up wood. Oak woodlands therefore provide a means for

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invertebrates, making it more difficult for them to breathe. See Waters, Thomas F. 1995. "Sediment in Streams." *American Fisheries Society Monograph.*

[6] The Central Valley Regional Water Quality Control Board (RWQCB) finalized the Cache Creek Mercury Total Maximum Daily Load (TMDL) in 2005. The RWQCB will enforce its provisions once the State Water Resources Control Board and the U.S. Environmental Protection Agency approve the TMDL, including provisions requiring private landowners to reduce erosion in areas with identified high levels of mercury. The RWQCB also has designated Putah Creek for development of a mercury TMDL, although the RWQCB has not yet started to develop it.

[7] Source: USDA Forest Service, Pacific Southwest Research Station, Center for Urban Forest Research, Davis CA. http://www.fs.fed.us/psw/programs/cufr/

helping to offset the increase in atmospheric carbon dioxide levels related to the use of fossil fuels, thereby helping to reduce the greenhouse effect which contributes to global warming.

Historic and Cultural Significance

Oak stands or individual trees may have historical significance due to past events or structures that were associated with the trees, historical accounts that mention the trees, the use of specific trees as landmarks or as boundary markers, or other factors. Oak woodlands and the acorns they provide also were important cultural resources for Native Americans that lived in what is now Yolo County, including the Rumsey Band of Wintun Indians. The earliest European settlers sought refuge from the hot valley sun for themselves and their livestock under oaks and benefited economically from the use of oaks for building material and firewood. Oak woodlands also created venues for recreation and public events in Yolo County. Nelson Grove near Woodland, for example, was used for a 14-county celebration of 18,000 people in 1919 and is still used today for Girl Scout and other events.

Aesthetics and Public Recreation

Oak woodlands are enjoyed by Yolo County residents simply for their beauty, whether through a car window on Highway 16 or Highway 128 or through hiking, bicycling, equestrian, hunting, or other recreational opportunities. Yolo County, cities, and other entities manage lands and operate parks in the Putah Creek, Cache Creek and Sacramento River watersheds that are located in the middle of some of Yolo County's most scenic oak woodlands landscapes. (See Appendixes D and E for more information about these parks and lands.) Thousands of residents living in Yolo County and visitors to the county enjoy swimming, fishing, hiking, and other activities at these sites every year. These activities contribute significantly to the quality of life in the county as well as providing economic benefits generated by visitors enjoying this important resource.

III. Existing Oak Woodlands in Yolo County

Although Yolo County's oak woodlands have been significantly diminished over the last 150 years, oak woodlands still cover more than 100,000 acres of Yolo County's 650,000 acres. Oak woodlands are located primarily in the foothills of the Coast Range in the western portion of the county. At least six native oak species and five oak-dominated plant communities are found in Yolo County. Blue oak – foothill pine woodlands are the most common type of oak-dominated plant community.[8] The following section provides a brief description of individual oak species and oak-dominated plant communities found in Yolo County.

Individual Oak Species

Valley Oak *(Quercus lobata)* - Valley oaks are large, deciduous trees that may live as long as 500 years and reach a height of 100 feet of more. Open grown trees develop a round

[8] Yolo County Habitat Conservation Plan/Natural Community Conservation Plan Joint Powers Agency (HCP/NCCP JPA) data on existing oak woodlands. See Appendix A for a detailed description of the HCP/NCCP data.

spreading canopy with drooping younger branches that may touch the ground. Trees in dense riparian stands are commonly taller with more narrow crowns and may have few or no low branches. Valley oaks prefer deep, rich bottomland soils, but are also found on slopes and ridges in areas with deep soils, mostly at elevations below 2,000 feet. They are unique to California yet widely distributed throughout the Central Valley and inner Coast Range south of the Eel River in Mendocino County. The range of valley oaks extends to the Santa Monica Mountains in southern California.

Blue Oak ***(Quercus douglasii)*** - Blue oaks are typically small to medium sized trees that can reach 60 feet in height. Under excellent growing conditions blue oaks have been known to attain a stature comparable to valley oaks, although this size class is now uncommon. Their leaves are bluish green on the upper surface. They are commonly found on steep, poorly developed soils found on the foothills bordering hot interior valleys. Blue oaks are unique to California but occur in 39 of the 58 California Counties.

Interior Live Oak ***(Quercus wislizeni)*** – Interior live oak is a medium-sized evergreen oak that commonly has a full, rounded canopy that is often broader than it is tall. They are widespread on upland slopes below 5,000 feet but may also be found on valley floors and along riparian areas. Interior live oaks often grow in association with blue oak, but tend to be somewhat less drought tolerant. Interior live oak sometimes hybridizes with California black oak to produce a semi-deciduous tree with leaves that are intermediate in shape and size between the two species. This natural hybrid is known as oracle oak (*Quercus* X *morehus*).

California Black Oak ***(Quercus kelloggii)*** - Black oaks are a tall, deciduous tree with ascending limbs and an open rounded crown. They reach a height of 70 to 80 feet with trunks 2 to 4 feet in diameter. They are found predominately in mountainous areas away from the immediate coast at elevations between 2,000 and 6,000 feet on coarse, well-drained soils that common to mountain slopes and ridges. During the winter months the gray bark of these trees appears to be black from moisture. The name black oak was first given to this oak by Dr. Albert Kellogg because of this characteristic. They were extensively used for lumber in California.

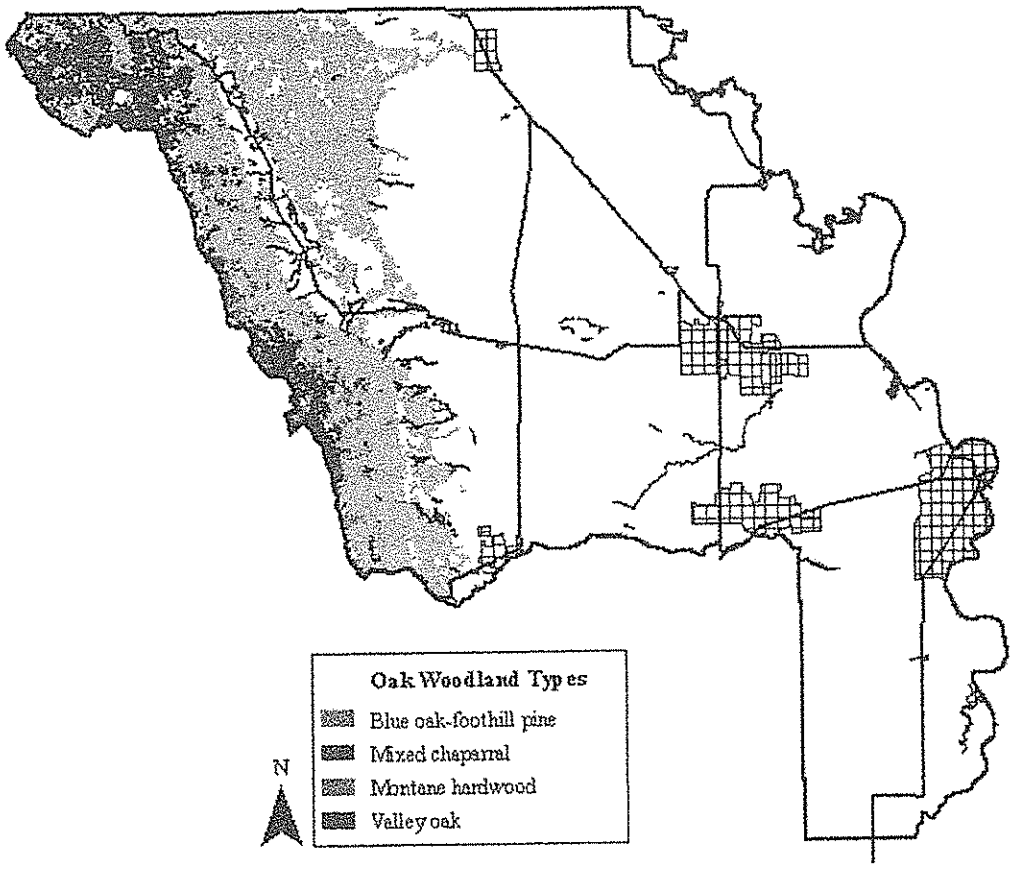
Scrub Oak ***(Quercus berberidifolia)*** – Scrub oaks are an important member of California's chaparral community. These small, shrubby oaks grow to between 6 and 15 feet in height. They often establish dense thickets that effectively exclude other understory plants. The leaves of the scrub oak are quite variable ranging from smooth to sharply toothed.

Leather Oak ***(Quercus durata)*** – Leather oaks are shrub like, densely branched and form an intricate rounded canopy usually between 3-5 feet above the ground. Leather oaks are typically confined to soils derived from serpentine substrate that are characteristically nutrient poor and somewhat toxic to many other plants. The leaves are convex, pale green and have smooth to sharply toothed leaf margins.

Oak-Dominated Plant Communities

Individual oak species are found either in relatively pure stands or in association with other tree and/or shrub species. The following oak-dominated plant communities are all found in Yolo County. (See Figure 1 for the distribution of these woodlands.) These oak woodland communities are organized according to the community types identified in the HCP/NCCP oak woodlands data in order to promote consistency between planning efforts (See Appendix A).

Figure 1. Oak woodland community types found in Yolo County



Blue Oak Woodlands – Foothill Pine

Throughout the Coast Range foothills in western Yolo County, oak woodlands are found in mixed species stands known as blue oak – foothill pine. This community type is by far the most extensive of the oak woodland types found in Yolo County, consisting of 79,712 acres or 12.2 percent of the county's land area (Table 1, Figure 1). Blue oak and foothill pine are the most common species in this community type. Blue oak is more common and exists in nearly pure stands in portions of this vegetation type. This woodland type also commonly includes interior live oak and may include valley oak on lower elevation sites characterized by well-drained soils. Tree density can range from open savanna with

scattered trees to a closed canopy forest. The understory consists primarily of annual grasses and forbs with a scattered shrub layer composed of buckbrush, whiteleaf manzanita, redberry, poison oak, silver bush lupine, blue elderberry, and California yerba santa.

Mixed Chaparral

Mixed chaparral is characterized by shrub or scrub oaks found growing in association with a diverse group of sclerophyllous (hard-leaved) shrubs on the dry exposed ridges of the Blue Ridge and Capay Hills. Mixed chaparral represents 14,557 acres, or 2.2 percent of the county's land area (Table 1, Figure 1). The most common type of mixed chaparral consists of an association of scrub oak, a scrub form of interior live oak (*Q. wislizeni* var. *frutescens*), toyon and birch-leaf mountain mahogany. Mixed chaparral is found scattered among purer stands of interior live oak near the crest of the Blue Ridge. Leather oak is also found in this community growing in patches on serpentine soils found along the western portion of the county in the Blue Ridge area.

Valley Foothill Riparian Forest

Valley foothill riparian forests occur in areas where relatively shallow water tables are accessible to tree roots, primarily along the principal watercourses of Yolo County. Valley oaks in these forests grow in relatively dense stands in direct association with sycamores, forming a dramatic overstory canopy. The valley foothill riparian forest occupies approximately 5,000 acres or 1 percent of the county. The valley oak riparian forest has one of the most complex forest structures of any forest type in California. Valley oaks grow in a complex association of deciduous trees such as box elder, Oregon ash, and black walnut. A dense shrub layer of California blackberry, willow, and wild rose forms the lowest canopy level. Lianas (climbing vines) of wild grape climb throughout the forest across all of the canopy layers. Where water tables are very shallow directly adjacent to surface water, cottonwoods and alders replace valley oaks and sycamores as the dominant canopy trees.

Valley Oak Woodlands

Valley oak woodlands are found in a few places just beyond the riparian forests, growing in pure stands of widely spaced trees on rich floodplains and foothill alluvial soils. Valley oaks are typically the sole canopy tree in these woodlands. Valley oak woodlands are much less common in Yolo County than they were 150 years ago, and currently cover approximately 5,208 acres or 1 percent of the county. In these woodlands, at least some valley oak roots may extend to the water table. With access to groundwater, valley oaks can grow fairly rapidly and may eventually attain enormous sizes, often reaching 6 to 7 feet in diameter. The understory is almost completely devoid of other woody vegetation and is composed primarily of a dense thicket of non-native annual grasses that have replaced the native grasses and forbs historically found in these woodlands.

Montane Hardwood Forest

This forest type is characterized by a mixture of different hardwoods that are dominated by distinct oak community types including mixed oak, black oak, and canyon live oak. Montane hardwood forests represent 3,060 acres or less than 1 percent of the county.

California bay laurel is also a dominant member of the overstory in this forest type. These forests exhibit a poorly developed shrub understory and little herbaceous cover.

Table 1. Oak Woodlands Community Types and Associated Acreage

Vegetation Name	Area (Acres)	% Total Land
Blue oak woodland – foothill pine	79,712	12.2
Mixed chaparral	14,557	2.2
Valley foothill riparian	5,029	1
Valley oak woodlands	5,208	1
Montane hardwood forest	3,060	>1
Total	**107,566**	

Oak Woodlands Ownership Patterns

Yolo County is a rural, agricultural county. The total area of the county is approximately 650,000 acres, of which 4 percent is the four incorporated cities Davis, Woodland, West Sacramento, and Winters. The current population is approximately 184,348 with a population density of 182 persons per square mile.[9] Much of the county's land is dedicated to farming and ranching. These farms and ranches produce renowned crops, including some fruits, nuts, and vegetables that are grown nowhere else in the United States. Cultivated agriculture accounts for approximately 346,400 acres or 54 percent of the county while ranching and livestock occupies 143,504 acres or 22 percent of the county.

Approximately 90,000 acres or 84 percent of the county's oak woodlands are found primarily along the western Blue Ridge and Capay Hills.[10] Approximately 77,000 acres of oak woodlands (72 percent of the total oak woodlands) in the western Blue Ridge and Capay Hills are found on private lands used primarily for cattle production. The remainder of the oak woodland is owned by public agencies such as the federal Bureau of Land Management and Yolo County.

The portion of the Sacramento Valley within Yolo County supports approximately 2,000 acres of valley oak riparian woodlands found in a patchy distribution along the major drainages: Cache Creek, Putah Creek, the Sacramento River, Willow Slough, the Tule Canal, the Yolo Bypass, and other small tributaries and waterways. These valley oaks are found almost entirely on private lands.

[9] Population statistics referenced here were found in the Yolo County General Plan Update Background Report, created by Jones and Stokes in 2005 to support Yolo County's General Plan Update.

[10] The Yolo County Parks and Resources Management Division estimated oak woodlands in private ownership using Geographic Information System parcel data and the oak woodlands data developed by HT Harvey and Associates for the HCP/NCCP (See Appendix A).

IV. Historical Extent of Oak Woodlands

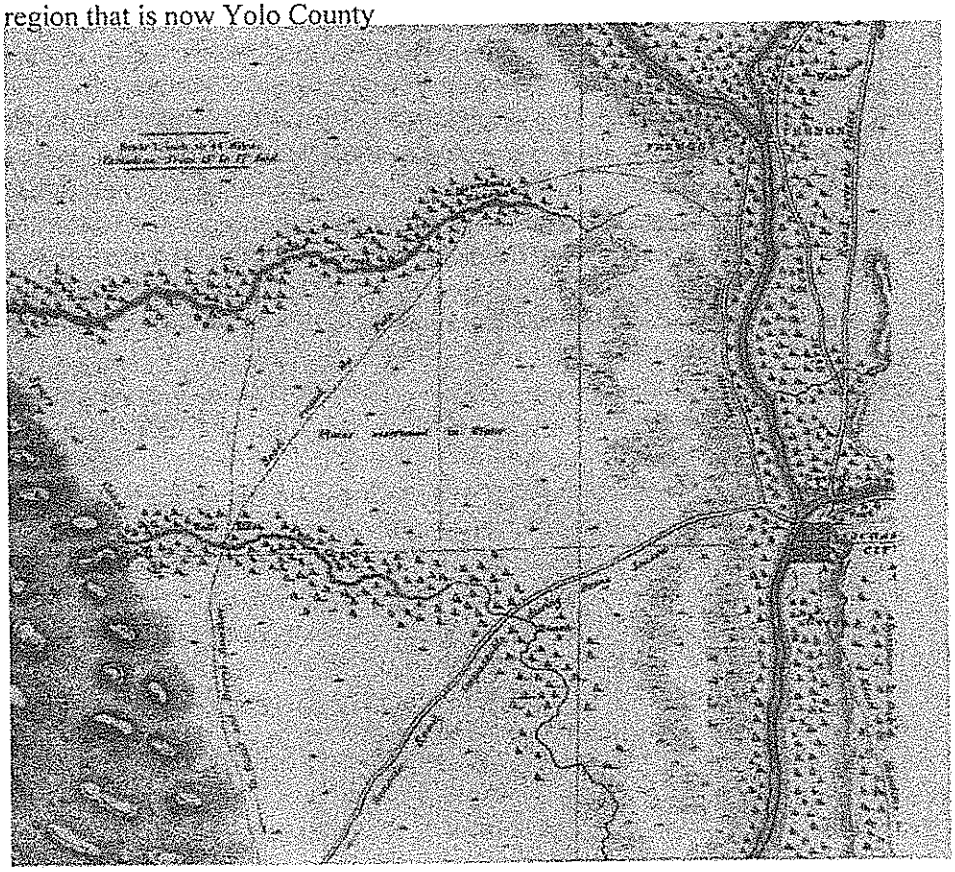
While a comprehensive evaluation of oak woodlands in the pre-settlement area is not a part of this planning effort, this section provides historical maps, aerial photos, anecdotal accounts, and other historical research to provide a glimpse of what Yolo County's oak woodlands may have looked like 150 years ago. Evidence suggests that prior to 1849, in the area that is now Yolo County, oak woodlands composed one of the most significant habitat types. Historical evidence suggests that riparian forests dominated by valley oaks, cottonwoods, and willows formed a wide band of forest along the county's primary waterways including Cache Creek, Putah Creek, Sacramento River, and Babel, Elk, Sutter, and Willow Sloughs. This is in stark contrast to the scattered remnant patches of valley oak woodlands and valley foothill riparian forest found today. Evidence also suggests that although the western portion of the county, including the Blue Ridge, and Capay Hills still supports a considerable extent of oak woodlands, this region once supported far more woodlands than we see today.

In a 1979 Master's thesis from the University of California, Davis, Elizabeth Dutzi provided one of the most thorough reviews of written accounts from the first modern explorers and surveyors to set eyes on the land that now is Yolo County. From this review she reached the following conclusion:

> "Valley oaks, either as homogenous woodlands or as a major constituent of riparian forests, lined the principal rivers of the Central Valley. Farther away from the stream banks, a very open valley oak woodland or savanna predominated, with single oaks or groves of oaks interspersed with large grassland areas. Between these forests large areas of grasslands between the riparian areas were common, especially along the western side of the Valley."

Early survey maps of the region provide more specific information about the original distribution of oak woodlands. One of the most valuable is the map created by General George W. Derby, a U.S. Army topographical engineer who was ordered to the Central Valley to examine the potential for military bases in the region in 1849. His map, although not completely accurate, provides some information about the early conditions of riparian forests and oak woodlands in the northern portion of the Central Valley, including Yolo County. The entire map and a highlighted section that constitutes Yolo County are shown below, including a dramatic band of forest along Putah Creek, Cache Creek, and the Sacramento River. These findings directly match Dutzi's conclusions cited above.

Figure 2. Map created by General George W. Derby in 1849 highlighting the region that is now Yolo County



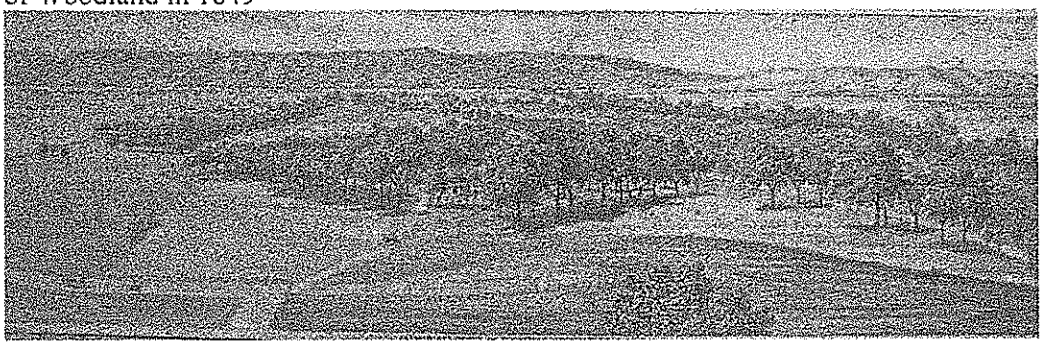
In 1856, a "Botanical Report" was issued by the United States Senate that describes the original conditions of valley oaks along Cache Creek resulting from a railroad survey:

> "The timber belt is composed of the most significant oaks I have ever seen. They are not crowded as in our forests, but grow scattered about in groups or singly, with open grass-covered glades between them; the trunks often seven feet in diameter, soon divide into branches, which spread over an area of which the diameter is considerably greater than the tree. There is no undergrowth beneath them; an unending series of great trunks is seen arising from the lawn like surface."

Evidence suggests that oak woodlands were once common in the area now occupied by the city of Woodland. In 1909 the Whitney and Party soil survey conducted by the U.S Bureau of Soils classified soils series and noted associated vegetation communities. This survey noted large expanses of valley oak woodlands at the terminus of Cache Creek near the modern-day City of Woodland now sits. This evidence is corroborated by a lithography created by a local artist in order to capture the history of Yolo County in

1849 found in an *Illustrated History of Yolo County*, figure 5. Today only remnant single oaks remain in and around the city of Woodland.

Figure 3. A lithograph showing the condition of oak woodlands in and around the City of Woodland in 1849



The Capay Valley, Blue Ridge and Capay Hills still support the largest extent of oak woodlands in the county, but evidence suggests that these woodlands have also been severely altered. Comparative studies of historic photos and current conditions suggest that large areas of oak woodlands were harvested in the 1800s. Much of the current oak woodland in these areas is the result of regeneration that occurred after partial or complete clearing (HT Harvey 1998). The primary impacts to oak woodlands in this region, which include land conversion, lack of regeneration, low groundwater levels and fire, are apparent in the Capay Valley. Evidence suggests that oak woodlands composed of scattered stands and individual trees originally grew throughout the Capay Valley. Much of the native vegetation, including oak woodlands, was removed to make way for the production of almond, peach, and walnut orchards.

V. Factors Affecting Oak Woodlands

While oak woodlands may seem abundant in Yolo County, conservation of the existing oak woodlands is a challenge due to a number of factors that threaten their continued health and longevity. These factors include land conversion resulting from urban, rural, or intensive agricultural development; road and infrastructure expansion; few young oak saplings to replace the existing old oaks (also known as a lack of regeneration); increasingly limited access to groundwater in some areas that increases the mortality of both young and old oaks; and clearing for fire protection around developed areas. A monitoring program of oak woodlands in Yolo County would detail the specific regional threats to these habitats.

Land Conversion

Rural residential and urban development. Rural residential and urban development may result in the conversion of oak woodlands to other uses. Yolo County has historically directed growth to incorporated cities and continues to maintain strict policies regulating the subdivision of private parcels in the unincorporated area, thereby

protecting both oak woodlands and important agricultural land. Development pressure in the unincorporated areas of the county has increased in response to three recent changes: 1) the value of land in other areas attractive for development is rapidly increasing relative to Yolo County; 2) the revenue Yolo County receives to provide services is diminishing in relation to costs; and 3) farmers and ranchers find it increasingly difficult to compete in a global marketplace, therefore making more land potentially available for sale. The Yolo County Board of Supervisors will decide whether to allow additional rural residential development and growth in existing unincorporated cities (such as Knights Landing and Esparto). The Supervisors will make these decisions during the update of the General Plan, expected to finish in 2008.

Agriculture. Approximately 82 percent of the land area in Yolo County is committed to livestock production and cultivated agriculture, including row and field crops, orchards and vineyards (Jones and Stokes 1998). While the extent of cultivated acreage has remained relatively stable since the early 1900s, the mix of crops and land management techniques have fluctuated consistently based on economics and landowner values. Changing market conditions have the potential to increase the conversion of oak woodlands to intensive agriculture, as has been seen in other northern California counties. Oaks woodlands found on these lands are potentially at risk from changes in land use and land management techniques.

Infrastructure. Local and regional housing growth increases demand for new infrastructure, including highway and road expansion. The result of this demand is epitomized by the recent Caltrans proposed a project to expand Highway 16 in the Capay Valley. This project resulted from safety concerns and increased traffic to and from the Cache Creek Casino. Depending on the alternative that Caltrans chooses, the project will remove between 339 and 374 valley oak trees, 17 and 19 interior live oak trees, and 12 blue oak trees.[11] Road expansion projects located in regions where oak woodlands are found will continue to threaten these resources.

Lack of Regeneration

Throughout California, the lack of regeneration in various native oaks has raised serious concern for landowners, policy makers and the public. Several statewide surveys have shown that some native oak species, including blue and valley oak, have inadequate levels of regeneration to sustain their populations over the long term. Oak woodlands need to produce enough new trees to offset the loss of mature trees due to natural mortality factors. This process relies on the successful establishment and growth of new seedlings and eventual recruitment of these seedlings to the sapling and tree stages. Without adequate regeneration, oak stands thin out over time and eventually disappear as the last oaks die.

Acorn production varies widely from year to year. Also, acorns of the oak species found in Yolo County germinate in the winter after they have dropped and do not persist as a seed bank in the soil from year to year. Most oaks regenerate from a bank of persistent

[11] Environmental Impact Report for the Yolo-16 Safety Improvement Project, 2006.

seedlings beneath the canopy, or a "seedling bank."[12] Since most acorns land under or near the canopy of the parent tree, most of the seedling bank is in this area. The shading and buildup of organic mulch beneath oak canopies favors acorn germination and early seedling growth.

Although oak canopy enhances seedling establishment, it suppresses the transition of seedlings to saplings. Persistent oak seedlings, which may be no taller than 6 inches in species such as blue oak, may survive for years in the understory. These seedlings can produce a strong root system but show little shoot growth. In fact, shoots of persistent seedlings may periodically die back to the ground, and resprout from the seedling base in the following growing season.

Understory seedlings typically remain suppressed until competition is removed or eliminated by the decline, death, or removal of overstory trees. Seedlings released from overstory suppression can respond with relatively rapid shoot growth and can grow into saplings that eventually refill the canopy gap. Although a lack of sapling-sized oaks has been used to suggest that oak regeneration is inadequate, oak saplings are not likely to be found in well-stocked woodlands. A lack of saplings in and near recent canopy gaps, however, is clear evidence of inadequate regeneration. In woodlands with stable canopy cover, low populations of persistent seedlings in the understory are the primary indicators of inadequate regeneration.

Although most oak regeneration occurs through this pattern, some acorns are planted beyond the oak canopy by seed-eating animals, especially scrub jays. If these acorns are placed in a favorable seedbed in areas that have good levels of soil moisture, minimal amounts of plant competition, and little or no impact from herbivores, the acorns can produce vigorous seedlings. Pioneer colonization of this type is seen in gardens, landscape beds, and sometimes along roadsides beyond pasture fences where browsing is minimal and road runoff provides additional soil moisture. Artificial methods for establishing oaks from seed are based on creating such favorable conditions through weed control and protective enclosures. These conditions are uncommon in open grasslands used for livestock range, however, so oaks do not typically colonize these areas even if they have historically supported oak woodlands.

Various factors can contribute to poor seedling establishment, short seedling persistence, and lack of recruitment from the seedling to the sapling stage. Some or all of the following factors may constrain regeneration at a given site— alleviating only one constraint may not be adequate to ensure regeneration.

Low acorn production. Most California oaks that have been studied appear to require cross pollination to produce adequate acorn crops. Because oak pollen is dispersed by wind, adequate pollination will not occur in oaks that are far from others of the same species. Hence, isolated trees may produce few if any acorns.

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[12] These seedlings are also known as advance regeneration; that is, regeneration that is in place prior to the time it is actually needed.

Poor seedbed conditions. Healthy mature acorns normally fall from trees between September and October, often well before the soil has been wetted by fall rains. Natural mulch composed of leaf litter provides protection for acorns. Mulch prevents acorns from being overheated and desiccated and also protects at least some from being eaten. In areas that lack natural mulch and have been compacted by livestock, few acorns may be able to survive and germinate.

Herbivory. Animals that eat acorns and seedlings can substantially impact the growth and survival of oak seedlings and saplings. Rodents, deer, and livestock all have the potential to limit or eliminate oak reproduction, but the relative importance of each herbivore varies by location. Gophers, ground squirrels, and voles can kill juvenile oaks by chewing and girdling stems. Livestock eat and trample understory seedlings, depleting or eliminating understory advance regeneration. Heavy browsing of released seedlings by livestock or deer can indefinitely suppress their growth and inhibit recruitment to sapling and tree size classes. Interior live oak is less palatable to livestock than valley and blue oak, so grazing impacts these species differently.

Water stress. Due to California's Mediterranean climate, water stress associated with summer drought is an important factor limiting oak seedling survival and growth. Water stress is increased by the presence of non-native annual grasses and forbs in the understory that deplete soil moisture rapidly in the late spring. Shading provided by the oak canopy reduces impacts from temperature and wind speed, thereby reducing water stress. However, overstory oaks ultimately compete with seedlings for soil moisture, suppressing their growth. In riparian areas where soil moisture is less limited, valley oak regeneration can advance to the sapling size class even in the presence of overstory canopy.

Fire. Most of the tree oak species in California are adapted to tolerate fire in varying degrees, but none has been shown to require fire for regeneration. In contrast, studies have shown that even though oak seedlings and saplings resprout readily after topkill, many juvenile oaks are killed by fire. After topkill, resprouting oak saplings require several to many years to recover their aboveground biomass. Repeated destruction of oak shoots in successive years depletes seedling energy reserves and increases the likelihood of mortality. The combination of repeated fire and grazing is especially damaging to oak regeneration, and was historically used to convert woodlands to grasslands.

At a given site, one or more of the factors listed above may be constraining seedling establishment and growth. Restoring regeneration potential may require changes in management practices to alleviate those factors that completely inhibit oak seedling establishment and sapling recruitment. Management changes can have both positive and negative impacts, however. In some areas, complete cessation of grazing can lead to greater competition from non-native grasses and increased vole populations, leading to more seedling damage and reduced oak seedling establishment. Site-specific assessments are generally needed to assess the status of oak regeneration, identify factors that may be limiting regeneration, and develop management strategies that can promote natural regeneration. These same principles apply in areas where attempts are being made to restore oak woodlands.

Low Groundwater Levels

Sinking groundwater tables resulting from groundwater overdraft can be particularly problematic for valley oak survivorship. Valley oaks often produce deep sinker roots that can reach the ground water. This allows the tree to access a constant supply of moisture throughout the summer and permits fast growth of the canopy. Because the tree canopy is dependent on this permanent source of water, a substantial drop in the depth of the water table puts the tree under severe water stress. Although root growth can keep pace with minor fluctuations in the groundwater table, roots cannot grow fast enough to compensate for a rapid drop of several feet or more. Furthermore, once the tree becomes severely water stressed, root growth is adversely affected, which can cause a spiraling cycle of increasing water stress that can severely debilitate or kill mature trees.

Large, mature valley oaks are more susceptible to rapid reductions in water table depth than are younger trees that may be able to adapt more rapidly to changing conditions. In addition, effects of lowered water table depth are more severe in sandier soils that store relatively low amounts of moisture in the soil profile than loam or clay loam soils.

VI. Establishing Priorities for Oak Woodland Conservation and Enhancement Projects

This section presents a system to help identify high-priority, voluntary oak woodlands conservation and enhancement opportunities. The system for establishing priorities can help willing landowners, public agencies, nonprofit organizations and other project partners identify areas with the highest oak woodland resource values (See Section II). The system uses criteria that reflect these resource values, such as stand composition and distribution, tree cover and density, plant and wildlife habitat availability (including special status species), historical and cultural significance, and recreational opportunities. In addition, the system factors in the threat of loss and potential management constraints. The system will complement the countywide conservation planning effort eventually developed in the Yolo County HCP/NCCP. The HCP/NCCP will provide the overall conservation planning framework for the County, including oak woodlands and other natural communities.

Yolo County encourages organizations and agencies working on oak woodland conservation activities to use the system for establishing priorities described in this section. Yolo County also will use the system as part of the process to certify that projects are consistent with the plan, as required by the Wildlife Conservation Board's oak woodland grant program. Yolo County, with input from the public, a consulting oak woodland ecologist, and the Yolo County Parks, Resources, and Wildlife Advisory Committee (PRWAC), will assign a higher priority for conservation or enhancement projects on oak woodland parcels that provide a greater overall level of benefits.

Yolo County staff will initially solicit information from the project proponent regarding the oak woodland resource values associated with the project. County staff also will use a publicly available Geographic Information System (GIS) data to gather more

information, although available GIS data are limited in scope and resolution. The data do not generally provide sufficient detail on stand composition, stand condition, or other factors to fully assess oak woodland resource values. Information provided by interested landowners or other project proponents will help supplement the GIS data, but some information may be unobtainable due to cost or other factors.

The system to establish priorities uses a layered approach to assign an overall priority to a parcel that can be tailored to the specific requirements of a funding source. The three layers considered are: resource value, risk category, and management constraints. The **resource value** is an aggregate assessment of the natural resource values associated with a given oak woodland and is the most important layer in the prioritization system. The **risk category** is an assessment of the likelihood that the resource will be lost or seriously degraded over various time horizons if no conservation actions are instituted. **Management constraints** reflect the level of land management inputs (for example: to control invasive weeds or promote oak regeneration) needed to maintain the resource value.[13]

The system is designed to provide flexibility and the County can readily modify it by adding additional criteria or adjusting thresholds for priority rankings as needed. In addition, the County has not assigned specific weighting to the various criteria listed below. The relative importance various criteria may change over time, based on the locations and types of conservation projects that have already been completed and the specific requirements associated with available funding sources. These changes can be accommodated by adjusting the importance attributed to any given criterion.

Oak Woodland Resource Values

In this section, the ranking for conservation criteria is based on maintaining the high oak woodland resource values that are already present. The ranking for enhancement criteria is based on a combination of both current resource values and the potential resource values in the enhanced state. The criteria are grouped into four categories:

- Stand Composition, Integrity and Functionality
- Habitat for Plant and Wildlife Species
- Landscape Function
- Human Interactions

A checklist of the 21 criteria used to measure resource value is provided at the end of this section. The County will use separate copies of the checklist to summarize the priority ranking. Since the information available for assessing the various criteria may vary in

[13] Depending on the amount of funding available in any given year and the number of potential projects to be funded, specific threshold levels could be set to simplify evaluation. For example, a minimum risk level might be established as a floor for qualifying projects.

type and quality, the sources of data used and their overall data quality should be noted in conjunction with the priority ranking. Uncertainty associated with the data should be considered in the overall effort to establish priorities and in comparisons between ranked projects.

Stand Composition, Integrity, and Functionality

Criterion 1: Stand Composition. Individual oak species vary somewhat with respect to the type of habitat they provide, the wildlife species they support, and their functions in the landscape. Conservation and enhancement efforts should seek to conserve and maintain the full diversity of oak species present in the county. In considering the oak species present at a site, both the overall rarity of the species within the county and the degree to which the species is protected or threatened will contribute to its overall species ranking. As levels of protection or threat change over time, Yolo County may adjust the relative priority of a given species. The priority ranking based on species in the table below should be considered as a general guide rather than an absolute order.

Priority for Conservation and Enhancement	Stand Composition (Oak Species Present)
High	**Valley oak** – This species may have experienced the greatest loss in its historical range within the county, especially on the valley floor. It has also been eliminated from much of its historic range statewide. Valley floor and riparian valley oak stands have especially high priority. **California black oak** – This species is very uncommon in the county, in part because it is near the limits of its natural range. Populations of black oak in the county have probably been reduced due to historical harvesting. California black oak also appears to be regenerating poorly in at least some counties and may be at risk of attrition due to tree mortality. **Blue oak** – This an important upland species historically diminished by harvesting. It is currently threatened by poor regeneration in many areas. Although fairly common in the Inner Coast Range portion of the county, very little acreage is in public ownership or protected in any way. **Oracle oak** – This natural hybrid of California black oak and interior live oak is likely to be present in very small numbers in various portions of the county where the current or former ranges of the two parental species overlap. Since it is a hybrid, it is primarily a target for conservation rather than regeneration.
Moderate	**Canyon live oak** – This species is relatively uncommon in the county, but a high percentage of the reported acreage is on land owned by the Bureau of Land Management. **Interior live oak** – This is a relatively common species, both in the county and over much of its range in the state. It regenerates reasonably well both by seed and from stump sprouts. It is less favored by browsing animals, so it sustains less browsing damage than valley or blue oak when present in mixed stands. Some interior live oak woodland acreage in the county is on BLM lands.
Low	**Scrub oak** – This species is currently relatively common statewide and in portions of the county. Much of the existing scrub oak habitat in the county is owned by the BLM.

Criterion 2: Distribution of Oak Species. Oak woodlands may contain from one to several oak species. The number of species present typically reflects the variation of environmental and soil conditions at the site. Past management practices, however, can change the composition of the woodlands by selectively removing some species or selectively inhibiting regeneration. Blue oak seedlings, for example, are generally preferred by browsing animals over interior live oak seedlings. As a result, interior live oak may be overrepresented relative to blue oak in areas which were cleared and grazed heavily in the past. A higher conservation priority should be assigned to sites where the current oak distribution is closer to the likely pre-settlement distribution and has not been excessively changed by past management.

Priority for Conservation	Distribution of Oak Species
High	Oak species distribution has not been significantly influenced by past management. Oak species that should be represented on the site are present at levels likely to be representative of historic levels.
Moderate	Oak species distribution moderately influenced by past management. Oak species that should be represented on the site are present but levels appear changed from historic levels.
Low	Oak species distribution heavily influenced by past management. One or more site-appropriate oak species are rare or absent.

Sites with species distributions that have changed as a result of management practices can be appropriate targets for enhancement projects. In general, a higher enhancement rating would apply to sites where an appropriate balance of oak species can be reestablished by encouraging regeneration of species that are poorly represented.

Priority for Enhancement	Distribution of Oak Species
High	A site-appropriate balance of oak species can be reestablished by encouraging regeneration of species that are present, but poorly represented, on a site.
Moderate	A site-appropriate balance of oak species can be reestablished by planting with seeds available from appropriate adjacent remnant trees, but the site currently lacks existing regeneration and trees of some site-appropriate species.
Low	Target species for restoration are lacking on the site and no appropriate local seed source is available.

Criterion 3: Tree Cover and Density. Many of the benefits and services provided by oaks woodlands are directly related to the amount of tree canopy cover on the site. Most of the benefits related to air quality (such as carbon sequestration and particulate

interception), for example, are directly proportional to total canopy cover. The amount of flood protection and erosion protection provided by oak woodlands is also directly related to canopy cover.

The relationship between canopy cover and wildlife habitat is more complex. Some species prefer closed canopy woodlands, whereas others are more apt to utilize openings within the woodlands or edges between woodlands and other habitat types. Hence, sites with less than 100 percent canopy cover may support greater biodiversity overall. One of the goals of the plan is to maximize the total amount of conserved oak woodland canopy cover, while recognizing the importance of including a variety of canopy cover levels within conserved and restored woodlands. Yolo County will consider the level of canopy cover present on adjacent conserved lands when evaluating overall canopy cover.

Tree density (the number of trees per unit area) is related to total canopy cover, but a range of tree densities can give rise to a given level of canopy cover. At excessive tree densities (also known as overstocked stands), trees typically compete with each other for available water and light, so tree growth can be slow and tree condition may be poor. Through attrition of suppressed, the stand may eventually self-thin to a sustainable density, but this process can delay the transition of the woodlands to a desirable density. Also, the presence of numerous dead and declining trees in an overstocked stand may increase the risk of high intensity wildfires. At the opposite extreme, very low density stands, characterized by individual tree canopies separated by large distances (200-300 ft or more) may not be sustainable due to low rates of regeneration, and may be appropriate targets for restoration or enhancement. Apart from these extremes, a relatively wide range of densities may be sustainable, depending on species composition and site characteristics.

For relatively common oak species, such as blue and interior live oak, the following approximate overall ranges of canopy cover can be used: high = 50 percent or more, intermediate = 20 to 50 percent, low = less than 20 percent. For relatively rare species such as valley oak, these cover levels would be inappropriate because canopy cover at most existing sites is relatively low. For species such as valley oak and oak stands that may naturally have densities more typical of oak savannas, canopy cover levels need to be considered on a basis relative to the maximum likely sustainable canopy cover level.

Priority for Conservation	Tree Cover and Density
High	Relatively high levels of tree canopy cover at stand densities that are sustainable for the site.
Moderate	Intermediate levels of tree canopy. Portions of the site may have excessively high or low stand density.
Low	Tree canopy is low or very low. Alternatively, canopy cover levels are higher, but most or all of the stand has unsustainably high tree densities.

Priority for Enhancement	Tree Cover and Density
High	Tree canopy is low or very low, but could be increased through natural or assisted regeneration. Alternatively, canopy cover levels are higher, but portions of the stand have unsustainably high tree densities that could be managed by selective thinning.
Moderate	Intermediate levels of tree canopy. Portions of the site may have low or very low stand density or may show evidence of decline of existing overstory trees.
Low	Moderate to high levels of tree canopy cover at stand densities that are sustainable for the site.

Criterion 4: Stand Size and Connectivity. An overarching goal in conserving and enhancing woodlands is to maintain oak woodlands as functional ecosystems. The functionality of the oak woodland ecosystem is related to its size, its connectivity with other oak woodlands or other native habitats, and its interface with less compatible adjacent land uses.

Larger oak woodland stands are more likely to provide the scale needed to allow for ecosystem processes to function, and therefore generally have greater conservation value than smaller areas (if all other factors are equal). The overall biodiversity of a stand tends to increase with size, since a larger variety of habitat features are more likely to exist in a larger area. Also, some species that require relatively large home ranges are likely to occur only in sufficiently large habitat areas. Small stands with a limited number of trees may not have sufficient genetic variation to provide for long term stability, and are more likely to be threatened by impacts such as fire, disease, or long-term climate variation.

In assessing the overall size of an oak woodland ecosystem, Yolo County will consider the landscape context. Oak woodlands and habitat elements commonly do not end at parcel boundaries, so Yolo County will consider the overall size of the woodland area of which a specific parcel is a part. Hence, a relatively small woodland area can have a high conservation value if it is adjacent to other conserved lands, especially if it forms a linkage between conserved habitats.

Priority for Conservation	Stand Size and Connectivity
High	The oak woodland area is relatively large, constitutes a high percentage of the resource (e.g., for species of limited distribution such as valley oak), and/or is connected with a larger network of oak woodlands and other native habitats which are or have the potential to be conserved as well.
Low	The oak woodland area is too small to ensure a self-sustaining stand and is not connected with other native habitats.

Since most enhancement projects are of limited size, overall size of a project is generally a less important consideration for assigning restoration or enhancement priority. The location of the enhancement project within the landscape and its connectivity to existing stands and habitat is a more important consideration.

Priority for Enhancement	Stand Size and Connectivity
High	Restored area will help reconnect habitat areas or forms an important extension of a larger woodland into a habitat area that is degraded or no longer extant. Projects that connect with past and/or future projects that allow for a larger total restored area also have a high priority.
Low	Small restoration projects that are not connected with other native habitats.

Criterion 5: Stand Geometry. The geometric shape of a parcel is another consideration in assessing its conservation and restoration value, especially if the parcel is adjacent to lands that have been converted from native plant communities to other uses. Land uses such as residential development and intensive agriculture may adversely affect the habitat value of adjacent oak woodlands, and may also limit the options available for woodland management. Impacts generally increase as the amount of interface or edge between the woodlands and developed land uses increases.

Priority for Conservation and Enhancement	Stand or Project Area Geometry
High	Little or no interface between the stand and an incompatible adjacent land use such as urban/residential or intensive agricultural development.
Moderate	Moderate amounts of interface relative to the area of the stand or project area and/or adjacent land uses are only partially incompatible or incompatible uses are buffered at the interface.
Low	High ratio of developed interface length to the overall area of the stand. May be relatively narrow areas with incompatible land uses on both sides or areas with inholdings of incompatible land uses.

Criterion 6: Stand Structure and Sustainability. In the pre-settlement era, most of the oak woodlands in the county probably consisted of mixed age stands. Recruitment of new trees would generally have occurred in relatively small canopy gaps that developed from mortality of individual trees or small clusters of trees. Except in chaparral areas, most fires would not have been stand-replacing events, because most of the oak species present are relatively fire resistant. No other natural phenomena are likely to have caused complete stand replacement in these oak woodlands.

With the onset of widespread clearing for agriculture and fuel, relatively large areas were cleared over short time spans. When regeneration did occur, from seedling advance regeneration and/or stump sprouts, the stands that developed typically were much more even-aged. In some areas, multiple rounds of clearing, especially if only partial, have given rise to multi-aged stands, although these stands probably have less age diversity than in the original stands. Old growth trees (more than about 150 years old) are usually rare or lacking in most second and later growth oak woodland stands.

Stands that are composed primarily of trees regenerated from stump sprouts may have a shorter potential lifespan than stands derived from trees originating from seedlings. Stump sprouts can have poor structure and frequently have decay associated with the old stump. These two factors can cause trees to fail at an earlier age than equivalent trees originating from seedlings.

Stands consisting only of old, decadent trees, especially stump resprouts, may not be sustainable because a high percentage of the trees in the stand could die over a relatively short time period. Furthermore, decadent trees with wood decay and cavities are more likely to be severely damaged or killed by fire. Since most oak seedlings establish best under tree canopy, rapid loss of canopy could impede natural regeneration.

A uniformly young stand has a longer potential lifespan than a decadent stand, but the lack of larger stems and larger dead or dying trees provides lower habitat value for some wildlife species. Also, a young even-aged stand will eventually become an old even-aged stand that could suffer relatively high rates of mortality and canopy loss. For long-term sustainability, a relatively mixed age stand is probably the most sustainable over the long term without requiring management inputs.

For all but very young stands, the presence of advance regeneration in adequate amounts is important for ensuring sustainability. Levels of advance regeneration may be low due to a variety of reasons related to past and current management and other factors.

Priority for Conservation	Stand Structure and Sustainability
High	Multi-aged stands with good levels of seedling advance regeneration.
Moderate	Older even-aged stands with variable levels of advance regeneration or young even-aged stands with little or no advance regeneration.
Low	Declining even-aged stands lacking advance regeneration

Even-aged stands, especially those lacking adequate levels of advance regeneration can be suitable targets for restoration activities aimed at increasing regeneration. By successfully encouraging regeneration to replace dying trees, it may be possible to help reestablish a more mixed-age stand.

Priority for Enhancement	Stand Structure and Sustainability
High	Declining even-aged stands lacking advance regeneration
Moderate	Older even aged stands with variable levels of advance regeneration. Multi-aged stands or young even-aged stands with little or no advance regeneration.
Low	Multi-aged stands with good levels of seedling advance regeneration.

Criterion 7: Contribution to Population Genetics. Individual oak trees can live for hundreds of years, but oak woodlands have occupied most of their current range for many thousands of years. The genetic variation present within a population of oaks is shaped by thousands of years of selection pressures imposed by the underlying soils, varying climate conditions, and other site-specific factors. As a result, most forest trees show some level of adaptation to local conditions. Trees growing in a given area may have survival advantages over trees of the same species that originated in a different area and environment.

Oak pollen is disseminated by wind and oak trees generally need to be pollinated by other individuals (that is, they are primarily cross pollinated rather than self-pollinated). Movement of genetic material via wind-borne pollen tends to ensure that there is genetic variation within stands, but also provides a mechanism for the incremental spread of genetic traits between adjoining stands. The exchange of genetic material between populations arrayed across the landscape allows oak populations to adapt over time to the conditions at a site and to remain viable under changing conditions. Oaks and other native species have already been exposed to very rapid environmental changes initiated by the settlement of California. Furthermore, the loss of oak populations over the past 150 years has already narrowed the genetic diversity in the oak population. In order to maintain oak woodlands as a viable resource in the face of these current pressures and future environmental changes, it is important to maintain the full complement of genetic diversity present within the oaks' range.

To maintain the widest range of genetic diversity within the county's oak population, it is important to maintain oak stands in a variety of oak woodland sites across the range of soil and climate variation found within the county. Populations at the edges of the existing range may be especially critical in that they may represent the greatest level of genetic adaptation to extreme conditions, for example, very dry or wet conditions. In addition, very old trees constitute an important genetic resource in that they may include traits that contribute to longevity, as well as traits that may be less common in the current tree population than they were prior to clearing associated with settlement.

Populations in the main portion of a species' range also need to be conserved to provide a complete complement of genetic resources for the species. Genetic traits found in these main populations, however, are likely to be present in many individuals and may therefore be at low risk of being lost. The conservation priority ranking for this criterion

is therefore lowest for these populations. The highest priority ranking for this criterion are assigned to populations that may contain unique genetic traits that are found in relatively few extant individuals and are therefore at a high risk of being lost.

Priority for Conservation	Contribution to Population Genetics
High	Viable oak populations at the edge of the existing range of the species in the county or on uncommon soil types or environmental situations (slope, aspect, proximity to water, etc.). Stands containing very old oaks.
Moderate	Marginally viable (due to poor condition or low density) populations at or near the edge of the existing range of the species in the county or on somewhat uncommon soil types or environmental situations.
Low	Oak populations within the main portion of the species' range in the county on common soil types / environmental situations.

From the standpoint of enhancement, high priority sites are those that may have unique genetic resources that are likely to be lost without intervention. Such intervention may include operations to salvage and plant seed from particular trees or groups of trees.

Priority for Enhancement	Contribution to Population Genetics
High	Individual very old oaks or unsustainably small oak populations at the edge of the existing range of the species in the county or on uncommon soil types or environmental situations (slope, aspect, proximity to water, etc.).
Moderate	Marginally viable (due to poor condition or low density) populations at or near the edge of the existing range of the species in the county or on somewhat uncommon soil types or environmental situations.
Low	Oak populations within the main portion of the species' range in the county on common soil types / environmental situations.

Habitat for Plant and Wildlife Species

The quality of habitat and the number and types of species present in oak woodlands depend on a variety of factors, including:

Oak species present. The type of habitat provided by evergreen oaks, such as interior live oak or canyon live oak, differs from that provided by deciduous oaks, such as valley, blue or California black oak. Some species, especially insects, may only be associated with a single oak species. Other species may prefer stands with a mix of oak species. Some oak species (valley, blue oak) produce acorns that mature in a single year, whereas others (interior live, California black) produce acorns that mature in the second year after flowers are produced. Since acorn production in oaks varies widely from year to year due to weather conditions that occur during flowering, having both one- and two-year acorn producers in the same stand can provide a more reliable source of food for species that consume acorns.

Oak density (trees per acre) and level of canopy cover. Wildlife species vary in the degree to which they utilize stands with varying amounts of canopy cover: some prefer more open stands, whereas others are more likely to be found in dense stands. The level of shading in the understory, which depends on both stand density and species composition, also affects which native or exotic plant species are likely to be present.

Distribution of tree sizes and ages. Various species that utilize cavities in large stems or prefer tall trees are more likely to occur in stands with larger, older trees. The presence of dead trees (snags) and large downed wood (coarse woody debris) improves habitat value for various wildlife species. This in turn is related to both the stand-age distribution and management of the stand, which affects how long downed wood remains on the ground. The presence of various plant species in the understory or in canopy gaps may be also be related to soil types or features such as vernal pools or riparian areas.

Spatial distribution on the landscape. The distribution of oak woodlands across the landscape has a large influence on habitat quality. The spatial relationship between patches of woodlands and other habitats can influence which species may be found in the oak woodlands and the quality of habitat that the woodlands provide. Oaks along watercourses, for example, provide critical shaded riparian habitat important for fish and other aquatic species. Connectivity between oak woodlands to provide for wildlife movement is also important for many wildlife species. Some species may use oak woodlands for sheltering or nesting but may forage in adjacent habitats, such as agricultural fields, grasslands, or chaparral.

Disturbance. A high level of disturbance within woodlands and the presence of various exotic plant species can reduce the abundance of native species and reduce the overall habitat value of oak woodlands. Habitat quality can also be degraded by the degree to which the habitat is fragmented by residential or agricultural development, particularly if it interrupts movement corridors.

Criterion 8: Native Biodiversity. Settlement of Yolo County resulted in the degradation of natural habitats. In some locations, however, areas exist that still have a relatively diverse array of native species. Even if the native species present are not rare, these areas of high native biodiversity constitute a valuable and relatively rare resource.

Priority for Conservation or Enhancement	Native Biodiversity
High	Oak woodlands include areas with high levels of native biodiversity.
Moderate	Oak woodlands have moderate levels of native biodiversity and/or areas with high native biodiversity are adjacent to the woodland.
Low	Few native species other than oaks are present in or near the woodland.

Criterion 9: Special Status Species. In the broad sense, special status species include species listed by the federal and state government as threatened and endangered species; species that have been proposed for listing but have not yet been officially listed; as well as plant species designated as rare or endangered by the California Native Plant Society (CNPS). Depending on their actual status and other factors, these species may be protected to varying degrees by state and/or federal regulations. Since these species as a group are rare and may be threatened with extinction, conserving their habitat is important for their survival and for maintaining the integrity of the ecosystems in which they are found. Special status species may utilize oak woodlands as an essential part of their habitat, or more commonly, they may utilize oak woodlands habitat in addition to other habitat areas. Furthermore, woodlands adjacent to a given habitat area, such as a stream, may be important for maintaining the integrity of that habitat, for example, by reducing the amount of sediment that would enter the stream via erosion.

Priority for Conservation or Enhancement	Special Status Species
High	One or more special status species utilize a woodland or part of it as essential or preferred habitat.
Moderate	Woodland may be used somewhat by special status species and/or habitat of one or more special status species is adjacent to the woodland.
Low	No special status species utilize the woodland or its adjacent areas.

Criterion 10: Locally Rare or Uncommon Species and Associations. Some species or associations of species (certain plant communities, for example) that are not rare throughout their overall range may be locally uncommon within the county. To maintain the overall biodiversity within the county, it may be important to maintain oak woodlands that are used as habitat for these species.

Priority for Conservation or Enhancement	Locally Rare or Uncommon Species
High	One or more locally rare or uncommon species or associations use the oak woodland or part of it as essential or preferred habitat.
Moderate	The woodland may be used somewhat by locally rare or uncommon species and/or habitat of one or more locally rare or uncommon species or associations is adjacent to the woodland.
Low	No locally rare or uncommon species or associations use the woodland or its adjacent areas.

Criterion 11: Contribution to Maintaining Native Plant and Animal Population. Among areas that serve as habitat for various native species, some areas may be especially critical for various reasons, including:

- Areas that serve as a corridor between different patches of habitat to provide for movement;
- Areas that could serve as important corridors but do not currently serve such a function;
- Habitat patches that are especially large because they benefit species that require a relatively large home range;
- Outlying populations near the edge of the current range that may have unique genetic characteristics because of their importance for the long-term viability of the species;
- Habitat areas that support robust populations of species and are occupied for most of the year, in comparison to areas that only receive occasional use by the species;
- Habitat used for breeding or foraging during certain seasons.

Hence, in addition to considering whether species utilize a given patch of habitat, we also need to consider how that patch of habitat contributes to the overall viability of a species or group of species within the county.

Priority for Conservation and Enhancement	Contribution to Maintaining Native Plant and Animal Populations
High	Oak woodlands include areas that are critical or important for maintaining populations of one or more native plant and animal species of interest.
Low	Oak woodlands do not function significantly in maintaining populations of one or more native plant and animal species of interest.

Criterion 12: Special Habitat Features and Areas. The presence of special habitat features or elements, including those listed below, increases habitat value for various species.

- Vegetation-related features such as old growth trees, dead trees (snags), large downed wood (coarse woody debris), and trees that shade riparian areas
- Aquatic features such as riparian areas, vernal pools, and ponds
- Physical features such as serpentine soils, burrows, high water tables, and caverns

Other features may provide necessary unique substrates for plant growth or contribute to animal diets. In addition, transitional areas between different habitat types, also known as ecotones, may have a greater mix of species present and may include unique species.

Oak woodlands that serve as habitat for various native species noted above will typically contain a variety of these special habitat features. However, even in the absence of detailed information about species presence, an evaluation of the presence and abundance of special habitat features can provide information on habitat quality and the types of species that could potentially be found in oak woodlands.

Priority for Conservation or Enhancement	Special Habitat Features and Areas
High	Woodland includes a wide variety of special habitat features and areas and/or uncommon types of special habitat features/areas.
Moderate	Woodland includes some special habitat features and areas, generally of relatively common types.
Low	Very few or no native species special habitat features and areas are present.

Criterion 13: Invasive Species Presence and Abundance. Invasive exotic species can compete with or displace native species, reducing the overall native species biodiversity. Virtually every oak woodland habitat in Yolo County is likely to contain some exotic species, especially non-native grasses and forbs in the oak understory. Oak woodlands in which exotics make up a low percentage of the overall species mix, however, have a higher conservation value. In addition, some invasive species are especially disruptive

due to their high reproductive potential, competitive abilities, effects on the overall structure of the plant community, and/or tenacity once established. For example, yellow star thistle and Harding grass are especially problematic in relatively open habitats; tamarisk and arundo are especially disruptive in riparian areas.

Exotic wildlife species can also have a detrimental impact on native species. Wild pigs, for example, negatively affect native habitats. Pigs can directly girdle and kill trees. Their rooting disturbs soil, damaging oak regeneration and making areas subject to increased erosion and invasion by exotic plants. They eat large numbers of acorns, competing with native wildlife for this food source. They also eat large numbers of native bulbs, thereby reducing populations of these slow-growing species. Hence, the presence of a single exotic species can have wide ranging effects on oak woodland habitat.

Priority for Conservation	Presence and Abundance of Invasive Species
High	Oak woodland has relatively low amounts of exotic species and especially disruptive exotic species are absent or very rare.
Moderate	Oak woodland has moderate amounts of exotic species and/or may have localized infestations of especially disruptive exotic species.
Low	Oak woodland is dominated by exotic species and/or may have high populations of especially disruptive exotics.

The elimination or reduction of especially disruptive exotic species is an obvious target for habitat enhancement. Given the nature of many exotic species, however, it can be difficult and often expensive to try to reduce well-established populations of exotic species. Especially if funding is limited, it may be more cost-efficient to suppress or eradicate infestations that are limited in area to prevent spread of a target exotic species into a new area.

Priority for Enhancement	Presence and Abundance of Invasive Species
High	Oak woodland has limited amounts of especially disruptive exotic species that could potentially be eradicated or kept at very low levels.
Moderate	Oak woodland has high populations of especially disruptive exotics, but meaningful reductions in these populations are feasible.
Low	Oak woodland is dominated by exotic species and/or has such high populations of especially disruptive exotics that it is not feasible to substantially reduce their populations. Alternatively, woodland lacks especially disruptive exotic species and exotic species present are either not at high densities or are not amenable to management.

Landscape Function

The benefits provided by an oak woodland and its associated resource value can also be influenced by where it is located on the landscape. Functions such as erosion protection, for example, are more important on steep erodible soils and along watercourses than they are on level ground. In addition, the degree to which a patch of woodland functions as habitat for various species may depend on the degree to which it is adjacent to and connected with other habitats.

Since position in the landscape can affect factors such as wildlife habitat, it is already considered in part in other criteria. However, the relationship between an oak woodland and its surroundings is sufficiently important that it warrants specific consideration. Furthermore, some of the benefits that influence overall resource value are not addressed in the criteria described above.

Criterion 14: Erosion protection. Oaks help reduce soil erosion in several ways. Tree canopy intercepts raindrops and dissipates their energy, reducing their potential to erode soil. Dead leaves and twigs that accumulate on the soil surface under oaks provide further protection against the erosive action of rainfall. Tree roots and their associated mycorrhizal fungi also help to reinforce and stabilize the bulk soil, reducing both the risk of landslides and erosion caused by running surface water (gully erosion and scour along creeks).

A number of factors other than vegetative cover also influence the risk of erosion. Erosion of surface soils is influenced by the amount of rainfall an area receives; the relative erodibility of the soil; and slope steepness, shape, and length. These factors, as well as factors related to vegetation and erosion control practices, are components of the revised universal soil loss equation (RUSLE), which is used to predict soil erosion. On uplands within the county, the erosion protection provided by oak woodlands is most critical in areas with long, steep, convex slopes that have relatively erodible soil types. Landslide risk will also be greatest on steep slopes and varies by soil characteristics. Erosion along drainages and watercourses is affected by soil type, but is also related to the amount and velocity of water flow, which in turn is affected by the geometry of the channel. Undercutting of creek banks by flowing water can cause the banks to fail, dumping large amounts of sediment into the creek. Creek bank failures also expose additional areas of soil to erosion and can lead to severe gullying.

Conservation of woodlands located in areas that are prone to erosion helps prevent the degradation in water quality and overall land resource value that would occur if the trees were removed. Restoring oaks in historically wooded areas that show accelerated erosion in the absence of tree cover can help stabilize these areas and prevent further erosion.

Priority for Conservation or Restoration	Erosion Protection
High	Site surface soils and/or creek banks have a high risk of erosion (for example, highly erodible soils, long, steep slopes, high water flows, narrow channels).
Moderate	Site surface soils and/or creek banks have a moderate risk of erosion (for example, moderately erodible soils, slopes of moderate length and/or incline, wider channels with lower water flows).
Low	Site surface soils and/or creek banks have a low to very low risk of erosion (for example, nearly level soils or erosion-resistant soils on mild slopes, broad channels that only intermittently carry water at low flow rates).

Criterion 15: Water Quality Protection. Oak woodlands on slopes and on nearly level lands near streams play an important role in protecting water quality. As described above, oak woodlands can help minimize sediment loading into creeks and streams. This is especially important in areas where soils contain toxic material, such as mercury or other heavy metals. Trees can also help remediate soil contamination by absorbing heavy metals from the soil. Similarly, oaks and other vegetation along riparian areas can absorb fertilizer nutrients or pesticides associated with agricultural or urban runoff, preventing these materials from reaching surface waters. Because oak foliage can also intercept airborne pesticide drift, oaks along creeks can reduce potential contamination of streams via this route.

Priority for Conservation or Restoration	Water Quality Protection
High	Riparian oak woodlands, especially in areas adjacent to agricultural field or adjacent to urban areas. Upland oak woodlands in areas with heavy metal contamination or other materials of concern that have the potential to run off into streams.
Low	Upland oak woodlands in areas lacking toxic soil contaminants and having low risk of erosion into streams.

Criterion 16: Contribution to Flood Protection. Oak and other trees provide protection equivalent to that provided by floodwater detention basins. Trees temporarily hold rainwater on their leaf and stem surfaces during a rainstorm. This increases the amount of time that it takes for the rain to reach the ground and become runoff. By detaining peak flows for a period of time, flooding risk associated with high rainfall

events is mitigated. The greatest flood protection benefits related to tree canopy cover will be in watersheds that quickly concentrate flows and pose a risk of flash flooding and in areas where runoff conveyance is already near capacity.

Trees also deplete moisture from the soil during the growing season. Compared to annual vegetation, oaks can extract water from the soil profile to a greater depth. Consequently, soils under oak woodland canopy are able to absorb and hold greater amounts of rainfall in the soil than are equivalent soils with only annual grassland cover. This extra storage capacity further reduces the potential for flooding during the rainy season.

Priority for Conservation or Enhancement	Contribution to Flood Protection
High	Oak woodlands in watersheds that drain into areas subject to flooding during high rainfall events of relatively short duration.
Low	Oak woodlands in watersheds draining to areas with little or no flooding risk.

Criterion 17: Location Relative to Other Woodlands and Habitats. As discussed under the section on wildlife habitat above, the habitat value of an oak woodland is strongly influenced by the surrounding landscape. Habitat quality will be greater in oak woodlands that are adjacent to other oak woodlands that increase the overall patch size. The presence of other adjacent native habitats, such as chaparral, can also increase habitat value for some species. In contrast, habitat value for many native species is adversely affected if woodlands are adjacent to developed land uses such as intensive agriculture and urban development. The impact is generally increased as the length of the interface between the woodland and the developed land use increased. Habitat value is further decreased if the woodland habitat is broken into fragments separated by developed uses. Conversely, connections or corridors that fill gaps between woodland patches can improve habitat value.

In addition to effects on wildlife and native plant habitat, other benefits provided by oak woodlands may be affected by the type of land cover on adjacent parcels. Erosion protection and stormwater retention will generally be more effective if oak woodlands cover an entire slope or watershed than if a patch of woodland is surrounded by grasslands.

Priority for Conservation or Enhancement	Location Relative to Other Woodlands and Habitats
High	Position of the oak woodland within the larger landscape amplifies beneficial effects such as wildlife habitat by increasing overall woodland area, minimizing fragmentation, or serving as corridors between patches.
Low	Position of the oak woodland within the larger landscape minimizes beneficial effects such as wildlife habitat because of a high amount of edge with developed land uses, high fragmentation, and lack of connection with other larger functional oak woodlands.

Human Interactions

Another basis for assessing woodland value is the relationship between people and oak woodlands. This relationship is implicit in some of the other ratings. For example, the importance of considering wildlife habitat, erosion protection, and other factors is based in large part on the value that people see in maintaining healthy ecosystems. Beyond the ecosystem services that people derive from oak woodlands, these areas may be valued for their aesthetic qualities, as a recreational resource, and for their cultural or historical significance. As with the landscape functions discussed above, these values are typically dependent on where the woodlands are located. In addition, other factors such as historical uses and events and land ownership (public or private) also influence these values.

Criterion 18: Historic and Cultural Significance. Oak stands or individual trees may have historical significance due to past events or structures that were associated with the trees, historical accounts that mention the trees, the use of specific trees as landmarks or as boundary markers, or other factors. In addition, oak trees and the acorns they provide have been and continue to be important cultural resources for many of the Native American tribes that live in California. Individual oaks or stands of oak may have cultural significance to tribes or individual families. Loss of traditionally-used trees or gathering areas may significantly impact the continuation of cultural practices that span many generations.

In general, oaks and woodlands with historical and/or cultural significance are primarily a target for conservation rather than restoration, though restoration activities that help maintain tree health and the ecological integrity of the site may be appropriate in some situations.

Priority for Conservation or Enhancement	Historic and Cultural Significance
High	Woodlands or trees have documented historical significance and/or past or current use as a Native American cultural resource.
Moderate	Woodlands or trees have possible to likely historical significance and/or past use as a Native American cultural resource, but documentary evidence is not conclusive.
Low	Woodlands or trees have no known or suspected historical significance and/or use as a Native American cultural resource.

Criterion 19: Public Recreation. Compared with various other California counties, Yolo County has a relatively small amount of oak woodland acreage that is available for low-impact public recreational activity such as hiking and equestrian use. Oak woodlands that have the potential to be acquired by public agencies or private nonprofit organizations (such as land trusts) and made available for public recreation provide a resource that is currently quite limited within the county. With adequate planning and monitoring, public access can be designed to be compatible with other conservation goals such as providing wildlife habitat. Furthermore, on public access lands using volunteers, it may be feasible to undertake restoration activities that would not be possible on private lands.

To maximize the benefits associated with public access and minimize potential conflicts with adjacent property owners, public-access parcels should be connected to the degree possible with other lands with public access or ownership. Appropriate measures should be provided to buffer public access areas from adjoining private lands.

Priority for Conservation or Enhancement	Public Recreation
High	Oak woodlands that: -provide low-impact public recreational opportunities compatible with conservation objectives, -are connected with other parklands or public-access areas, and - pose a minimum of conflicts with adjoining land uses.
Low	Privately-owned oak woodlands that do not provide opportunities for public access and use.

Criterion 20: Buffering between Incompatible Land Uses. Oak woodlands can be used to provide a buffer between land uses that would otherwise be incompatible. For example, a band of oak woodland that separates intensive agricultural lands from a residential development can serve to provide visual screening, noise reduction, dust

abatement, and protection from pesticide drift that would reduce conflicts between these two land uses. Because uses of woodlands used as buffers would need to be limited to provide buffering capacity, such lands would typically need to either be publicly-owned or covered by a conservation easement.

Although buffers and hedgerows would primarily be targets for conservation, restoration activities, such as oak planting or invasive species management, may also be directed at these areas to enhance their function.

Priority for Conservation or Enhancement	Buffering Between Incompatible Land Uses
High	Oak woodlands that have the potential to buffer between incompatible land uses by providing physical separation, visual screening, noise reduction, air filtration, and/or other benefits.
Low	Oak woodlands located in areas where they do not serve as buffers.

Criterion 21: Visual Impact. Prominent individual oaks and oak woodlands located in areas where they are commonly seen provide a strong positive visual impact and contribute to the "sense of place" associated with an area. Such woodlands typically provide a variety of other benefits as well, but may be more appreciated by the public at large due to their aesthetic qualities. As with buffers, stands with high visual impact are typically targets for conservation, but restoration activities that improve stand sustainability or enhance other functions such as wildlife habitat may also appropriate in these stands.

Priority for Conservation or Restoration	Visual Impact
High	Oak woodlands with high visual impact, located within view of communities and major roadways.
Low	Oak woodlands located in areas where they are unlikely to be seen by most people.

Risk Categories

Risk categories are based on the likelihood of resource loss or degradation, either through alteration (e.g., change in land use, clearing) or management (e.g., lack of natural regeneration resulting in a type change). As illustrated in the matrix below, Yolo County staff will rank risk based on both the likelihood of resource loss (high, medium, low) as well as the expected time frame for the loss (near, mid, long term). A given parcel may be rated in multiple categories, as shown by X's in the matrix below.

Risk Categories

	Likelihood of loss (in absence of intervention)		
Time frame	High	Moderate	Low
Near term (less than 5 years)		X	
Mid term (5-20 years)	X		
Long term (>20 years)	X		

Current zoning, General Plan designations and urban spheres of influence will be used to help assess likelihood of loss due to urban conversion, but losses due to other activities and processes (change to intensive agriculture, alterations in historic water tables, tree mortality without regeneration) will be inferred or estimated from other information.

The highest overall risk is assigned to woodlands that have a high likelihood of being lost in the near term. However, imminent loss may be difficult to forestall and will tend to require higher financial inputs (e.g., fee title acquisition). Hence, woodlands with a relatively high long term risk but low near term risk may be the more cost efficient targets for funding based on risk parameters. Parcels with very low to no intrinsic risk may not be high priority even if they have a high resource value. This category would include lands that are non-developable due to terrain or other factors if these lands are managed in a sustainable fashion. Because risk categories can change over time, woodlands would need to be both fully protected and permanently managed in a sustainable fashion in order to be considered at no significant risk.

Management Constraints

Management of woodlands can be considered as a factor that contributes to the risk of resource loss/degradation as discussed above. In addition, management can be considered as a separate factor that interacts with the cost-effectiveness of conservation and restoration projects.

Woodlands that are conserved need to be managed in a fashion that will retain or improve their resource value if they are to continue to provide benefits and services. If properties are already being managed in a sustainable fashion that protects or enhances resource values, conservation activities such as conservation easements or fee title acquisition would be more cost effective because no major change in management would be necessary. Future management cost savings will be greatest for sites where sustainability is achieved through few or no major management inputs. In contrast, lands that require a major change in management to attain sustainability may be more expensive to maintain over the long term, particularly if the necessary management changes will be expensive or difficult to implement. For example, good quality riparian oak woodlands on favorable soils typically have good rates of natural regeneration when left in a natural state with little or no active management. In contrast, a riparian oak woodland that has been heavily cleared in the past, compacted by livestock grazing, and colonized by invasive species would require significant changes in management, including some intensive inputs (such as eradication of invasives) to attain long-term sustainability.

For lands where restoration is an objective, ease of restoration is rated as a management factor. Sites requiring relatively small inputs to achieve restoration and those having a higher probability of success have higher priority overall.

Current and potential land uses (such as grazing, intensive agriculture, hunting, public access, etc.) need to be evaluated with respect to whether they are compatible with the protection and enhancement of oak woodland resources. It will also be necessary to consider land uses on adjacent properties to determine how these may impinge on the management potential of the target property. For example, the need to clear vegetation for fire protection around residences may affect the management of the adjacent oak woodland. Activities upstream from a conserved riparian woodland, such as dredging or irrigation runoff, could impact the value of aquatic habitat.

Management Constraints

	Ranking		
	High	**Moderate**	**Low**
Current management compatible with sustained resource value	Yes	partially	no
Level of management inputs to attain or maintain sustainability	low		high
Influence of adjacent land uses or other external factors on management practices	little or no significant influence		significantly constrains management options

Oak Woodland Checklist

	Ranking			Data*		Notes
Resource Values	High	Moderate	Low	Source	Quality	
Stand Composition Integrity, and Functionality						
Oak species present						
Representation of oak species at site						
Tree cover and density						
Stand size, shape, and connectivity						
Stand structure and sustainability						
Contribution to population genetics						
Habitat for Plant and Wildlife Species						
Special status species						
Locally rare or uncommon species or associations						
Overall native biodiversity						
Contribution to maintaining native plant and animal populations						
Special habitat features and areas						
Special habitat features						
Invasive species presence and abundance						
Landscape Function						
Erosion protection						
Water quality protection						
Contribution to flood protection						
Location relative to other woodlands and habitats						
Human Interactions						
Historic and cultural significance						
Public recreation						
Buffering between incompatible land uses						
Visual impact						
Risk Factors						
Management Constraints						
Other values not noted above (specify)						

*Indicate the source (aerial photo, GIS layer, site survey, CNDDB, etc) of data used to assign ranking and data quality (good/fair/poor).

VII. Conservation and Enhancement Program Recommendations

Based on the research conducted during the plan development process, as well as public input received during two public workshops and from interested parties, the Parks and Resources Management Division developed the following recommendations related to implementation of the plan.

General Plan Policy Recommendations

Yolo County is currently conducting the first comprehensive update of the Yolo County General Plan in over 20 years. As part of this process, the Division recommends including the following voluntary oak woodland conservation and enhancement goals and policies in the General Plan. (A summary of existing oak woodland policies in the General Plan is provided in Appendix F.) The goals are the same goals listed in Section I of this plan.

Goals

Goal #1: Protect existing oak woodlands by creating a voluntary program, including landowner incentives, for oak woodland conservation and enhancement.

Goal #2: Encourage the use of land use and infrastructure planning strategies that are consistent with oak woodland conservation efforts.

Goal #3: Direct conservation and enhancement funding and effort to areas that have the highest oak woodland resource values.

Goal #4: Direct mitigation for oak woodland impacts to areas that have the highest oak woodland resource values.

Goal #5: Encourage the long-term stewardship of existing oak woodlands to maintain or improve oak woodland resource values.

Goal #6: Provide funding and technical assistance for oak woodland enhancement efforts that achieve multiple benefits.

Goal #7: Increase the area covered by valley oak and other oak species that are now uncommon in Yolo County because they have been cleared from much of their historical range in the county.

Goal #8: Maximize the total amount of oak woodland canopy cover to achieve erosion, flood, and air quality protection benefits, while recognizing the importance of including a

variety of canopy cover levels within conserved and restored woodlands to provide habitat diversity.

Goal #9: Coordinate oak woodland conservation and enhancement efforts with the Yolo County Habitat Conservation Plan/Natural Community Conservation Plan, the Yolo County General Plan, the Parks and Open Space Master Plan, the Cache Creek Resources Management Plan, and other local and state applicable conservation plans.

Policies

Policy #1: Use the 2007 Yolo County Oak Woodland Conservation and Enhancement Plan to evaluate oak woodland mitigation opportunities that arise as a result of land conversion, including infrastructure expansion or urban and rural development.

Policy #2: Train planners, engineers, and other relevant staff to consider the impact on oak woodlands of land conversion, including infrastructure expansion or urban and rural residential development. Such training includes an understanding of SB 1334, a law enacted in 2004 that requires lead agencies to consider the impacts on oak woodlands as part of the California Environmental Quality Act. Seek grant funding to support this training.

Policy #3: In coordination with other organizations working to educate the public about oak woodland conservation, develop a public outreach and education program to educate landowners, public agencies, and other interested entities about oak woodland resource values and opportunities to conserve and enhance existing oak woodlands. Such opportunities include changes in land management or water management practices. Outreach efforts could include printed materials specific to conditions in Yolo County, web information, and feature articles in regional papers.

Policy #4: Encourage oak woodland enhancement or conservation projects that include an educational component for K-12 or university students.

Policy #5: Encourage the use of Best Management Practices (BMPs) to maintain oak resources in a healthy and safe condition in developed areas. BMPs will include practices for ensuring the long-term protection of oak trees in areas potentially impacted by construction and maintenance practices that maximize the longevity and safety of oaks incorporated into developed settings.

Policy #6: Encourage the University of California, Davis and other research institutions to conduct research on oak woodlands in Yolo County. Investigate the needs of researchers and evaluate options for providing necessary research facilities and access to public land for research projects.

Policy #7: Establish an oak woodland mitigation bank to ensure that oak woodlands with high resource value, as evaluated by system to establish priorities in the 2007 Oak

Woodland Conservation and Enhancement Plan, are available in a timely manner for mitigation resulting from infrastructure expansion and urban and rural development.

Policy #8: Require development plans to consider the protection of oak woodlands and other sensitive resources at an early scoping stage and design projects to minimize impacts to these resources starting at the earliest design stages.

Policy #9: Use only oaks of local genetic stock for plantings located in and near native oak stands to conserve the genetic integrity of local oak populations. Local trees are adapted to local conditions, so conserving genetic integrity is an important part of sustaining local oak populations.

Policy #10: Encourage the use of local native oaks in public landscaping projects where appropriate.

Policy #11: Establish guidelines for county government-led public projects to avoid harm to oak woodlands and individual oaks. Explore the feasibility of establishing oak woodland mitigation guidelines for county government-led public projects.

Policy #12: In partnership with the HCP/NCCP and other interested organizations, explore opportunities to raise funds locally for open space conservation.

Other Recommendations

Yolo County may implement some of these recommendations, but will more often encourage other interested organizations or agencies in the county to lead efforts to implement the recommendations.

Recommendation #1: If funds are available, provide Yolo County staff resources to coordinate implementation of the 2007 Yolo County Oak Woodland Conservation and Enhancement Plan. Duties would include establishing a public outreach and education program, working with interested landowners, public agencies, and non-profit organizations to evaluate conservation and enhancement opportunities, evaluating projects for consistency with the plan, and applying for funding for implementation of conservation and enhancement projects.

Recommendation #2: In coordination with other organizations involved in public outreach related to oak woodland conservation, establish a public outreach and education program that would include online informational and educational resources. The program would educate landowners about funding opportunities for oak woodland conservation and enhancement, as well as voluntary changes in land or water management practices that may benefit oak woodlands. Opportunities include photo exhibits of oak woodlands to increase public awareness, landowner workshops, an oak woodland educational event, or a speaker series. The public outreach and education program should also include middle school, high school and university students. Yolo County should encourage projects that include an educational component for students.

Recommendation #3: Work with the University of California, Davis and the UC Integrated Hardwood Range Management Program (IHRMP) to develop research partnerships that encourage oak woodland research in Yolo County. Currently very little oak woodland research is conducted in Yolo County, possibly due to a lack of formal agreements with public agencies to allow access to properties with oak woodlands. Research that increases the understanding of the ecology and management of oak woodlands in Yolo County should be encouraged and may include projects that evaluate stand structure, examine habitat relationships, and address problems related to oak regeneration and invasive species that impact oak woodlands. Part of this effort should include a literature review of all research conducted to date on Yolo County oak woodlands.

Recommendation #4: Seek grant funds to conduct research related to the extent of existing oak woodlands in the Yolo County portion of the Sacramento Valley. It was beyond the scope of the 2007 Oak Woodland Conservation and Enhancement Plan to provide detailed information on the extent of oak woodlands in the Sacramento Valley because existing oak woodlands data for this area is minimal. In addition, most of the oak woodlands in the Yolo County portion of the Sacramento Valley exist in isolated stands, in contrast to the large, contiguous tracts of oak woodlands found in the foothills of the Blue Ridge. Most likely a researcher will analyze aerial photos of the Sacramento Valley and then visit sites in person to determine the extent and type of oak woodlands. Nevertheless, this research is important because of the presence of the valley oak, one of Yolo County's rarest oak species, in this area, as well as the importance of preserving these remnant stands of oak woodlands.

Recommendation #5: Evaluate the success of implementation of the 2007 Oak Woodland Conservation and Enhancement Plan within 3-5 years of finalizing the plan and revise the plan as necessary. Continue to evaluate implementation of the plan every five years and revise the plan as necessary.

Recommendation #6: Work with local partners to establish a standard protocol for monitoring of oak woodland conservation easements.

Recommendation #7: Work with the experts at the University of California, Davis and elsewhere to establish a standard protocol for implementing and evaluating the success of oak woodland enhancement projects, including tree plantings and changes in land and water management practices. Also develop a cost-effective monitoring program to evaluate the short-term and long-term success of oak woodland enhancement and conservation projects.

Recommendation #8: Use the online Natural Resource Projects Inventory (http://www.ice.ucdavis.edu/nrpi/), hosted by the UC Davis Information Center for the Environment (ICE) to track all existing oak woodland conservation and enhancement projects in Yolo County.

Recommendation #9: Develop a program to help conserve local oak genetic resources and to make locally-adapted oak planting materials available for both public and private oak planting projects.

Recommendation #10: Research landowner stewardship incentives, including cost share incentive payments, tax breaks, landowner assurances, and carbon credits etc. that organizations could use in partnership with Yolo County staff to support oak woodland conservation and enhancement.

Recommendation #11: In partnership with the HCP/NCCP and other interested organizations, explore opportunities to raise funds locally for open space conservation.

Recommendation #12: Explore the expansion of the existing Vegetation Management Plan with the California Department of Forestry and with Audubon California to implement prescribed burns on private lands with excessive fuel loads to benefit native habitat and control noxious exotic weeds.

Recommendation #13: Work with Caltrans and the UC Davis Road Ecology Center to understand oak woodland restoration and enhancement opportunities along Highway 16 and other roads, as well as opportunities to engage additional local entities in Caltrans mitigation activities. (See Appendix D for detail on Caltrans Adopt-A-Highway tree-planting guidelines)

Recommendation #14: Support the efforts of organizations, such as the University of California Cooperative Extension (UCCE), to work with private landowners to increase interest in oak woodland conservation. Also support efforts to reach out to private landowners who are concerned about implementation of the plan.

Recommendation #15: Develop site planning guidelines and work with planners and developers on how to best integrate existing oak woodlands into their projects.

Recommendation #16: Develop a cost-effective monitoring program to evaluate the long term and short term success of the oak woodland conservation and enhancement program.

Recommendation #17: Support efforts to protect existing individual oak trees and plant new oak trees in urban areas and in areas where oak woodlands historically existed.

Recommendation #18: Develop policies and procedures to comply with SB 1334, a bill enacted in 2004 to require counties to consider the impact of projects on oak woodlands through the California Environmental Quality Act.

Recommendation #19: Yolo County should establish an oak woodland conservation and enhancement fund into which mitigation funds, grants, donations, or other funds could be deposited to assist with implementation of the Oak Woodland Conservation and Enhancement Plan.

VIII. Implementation Strategy

The success of the 2007 Oak Woodland Conservation and Enhancement Plan is dependent on voluntary participation by landowners and public agencies that own oak woodlands. Implementation of the plan therefore relies heavily on a public outreach and education strategy to encourage willing landowners and public agencies to participate in the program. Implementation will focus on the recommendations outlined in the previous section.

Partners

There are many public agencies and other organizations that are currently working to conserve and enhance oak woodlands in Yolo County. (See Appendix D and E for a description of these organizations and agencies and their oak woodland-related efforts.) Yolo County will work with these agencies to further their efforts through implementation of the plan.

Public Outreach

As described in Recommendation #2, Yolo County will establish a public outreach and education program if funding is available, that is coordinated with education and outreach efforts being conducted through UC IHRMP and other entities. Yolo County also will seek feedback from the general public regarding proposed oak woodland conservation and enhancement projects through presentations to the Parks, Recreation, and Wildlife Advisory Committee and distribution of information through the mailing list of interested individuals created during the plan development process. Upon request, Yolo County staff will brief interested organizations about plan implementation or proposed conservation or enhancement projects. Yolo County staff will make public comments from the initial planning stage, including information from the two oak woodland public workshops, available on the Yolo County website.

Certification Process

The Wildlife Conservation Board (WCB) requires Yolo County to certify that oak woodland projects proposed for WCB funding are consistent with the plan. If an organization or individual proposes a project for WCB funding in the county, Yolo County staff will request that the organization or individual complete a form to provide information about the project. Staff will use this information, as well as other available data, to review the project. Yolo County staff also intends to retain an oak woodland ecologist to review the project, which will include a visit to the site. Staff will use the system to establish priorities described in this plan to evaluate the project and determine its ranking. Staff will present the proposed ranking to the Yolo County Parks, Recreation, and Wildlife Advisory Committee for review before deciding whether the project is consistent with the plan. Yolo County staff will provide information in the future regarding the rank necessary to ensure consistency with the plan.

Schedule

Yolo County will strive to abide by the following schedule for implementation of the plan, but tasks can only be initiated and completed if sufficient funds and staff resources are available.

Year	Task
2007	Use the prioritization system to identify oak woodland conservation and enhancement projects with high resource values eligible for funding from the Wildlife Conservation Board's Oak Woodland Conservation Fund and other sources.
2007	Continue to reach out to private landowners concerned about implementation of the plan, as well as landowners interested in oak woodland conservation on their property.
2007	Work with Yolo County staff and consultants to ensure that voluntary oak woodland conservation and enhancement policies, as well as appropriate implementation measures, are included in the Yolo County General Plan.
2007	Apply for funding from the Wildlife Conservation Board or other sources for high-priority projects. Yolo County, in partnership with interested organizations, will continuously apply for funding in the future as long as there are interested landowners and funding is available.
2007	Work with Caltrans and the UC Davis Road Ecology Center to evaluate mitigation options for the Highway 16 expansion project. At the same time, work to understand oak woodland restoration and enhancement opportunities along highway and roads, as well as opportunities to engage local entities in Caltrans mitigation activities.
2007	Explore the expansion of the existing Vegetation Management Plan with the Wildlife Conservation Board to implement prescribed burns on private lands with excessive fuel loads to benefit native habitat and control native weeds.
2007	Start conversations with UC Davis about establishing research projects in Yolo County.
2007	Research landowner stewardship incentives, including cost share incentive payments, tax breaks, landowner assurances, carbon credits, etc. that Yolo County staff could create in partnership with other entities to support oak woodland conservation and enhancement.
2007	In partnership with the HCP/NCCP and other interested organizations, explore opportunities to raise funds locally for open space conservation.
2008	Work with UC Davis to complete literature review of oak woodland research conducted in Yolo County
2008	If UC Davis can assist, initiate effort to conduct research on remnant oak woodland stands in the Yolo County portion of the Sacramento Valley.
2008	Working with partner organizations, develop draft public outreach and education program.
2008	Finalize public outreach and education program
2008	Create a database of oak woodland conservation and enhancement projects in Yolo County.

2008	Work with the Yolo Land Trust to develop a standard protocol for monitoring oak woodland easements.
2008	Work with experts from UC Davis, UC IHRMP and elsewhere to establish a standard protocol for implementing and evaluating the success of oak woodland enhancement projects. Also develop a standard monitoring protocol for oak woodland conservation easements and oak woodland enhancement projects.
2009	Develop site planning guidelines and work with planners and developers on how to best integrate existing oak woodland into their projects.
2009	Develop a program to help conserve local oak genetic resources and to make locally-adapted oak planting materials available for both public and private oak planting projects.
2010	Evaluate implementation of program and revise plan as necessary.

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APPENDIX A: OVERVIEW OF HCP/NCCP DATA

At the beginning of the planning process, Yolo County conducted an extensive review of existing oak woodlands vegetation data. The goal of this search was to find oak vegetation data that most accurately represented the current extent, diversity, and composition of oak woodlands found in the county. The conclusion of this review was that the best available data was the oak woodland vegetation GIS layer developed by HT Harvey and Associates in 2004, produced as part of an Ecological Baseline Report in support of the Yolo County's joint Habitat Conservation Plan (HCP) and Natural Communities Conservation Plan (NCCP) process. The oak woodland GIS data was developed by synthesizing relevant data from the existing sources outlined below.

1. CALVEG Vegetation Mapping (U.S. Department of Agriculture [USDA]);
2. Countywide aerial photograph (Air Photo USA);
3. California GAP Analysis Vegetation Mapping (California State GAP Program);
4. Napa County Vegetation Mapping (NCVM) (UCD);
5. Yolo County HCP Vegetation Mapping (Yolo County, EIP Associates); and
6. DWR land use data.

The goal of this synthesis was to establish spatially explicit oak woodland polygons with a unified classification scheme for all oak woodland types. The process used Air Photo USA 1 meter aerial imagery to identify vegetation and develop oak vegetation polygons. Oak woodland vegetation was classified based on the hierarchical based classification structure described in the Manual for California Vegetation (MCV). The MVC has been adopted as the standard vegetation classification by state and federal agencies such as the California Department of Fish and Game, the United States Forest Service, National Park Service, and United States Geological Survey. It is also the vegetation classification n system used in the Napa County Vegetation Map (NCVM).

The oak woodland vegetation data relied heavily on the GIS data developed for the NCVM. HT Harvey and Associates extended individual polygons from the NCVM to include those areas with a similar photo signature in Yolo County. New classified polygons were developed in the Capay Hills, Dunnigan Hills, and stream corridors using frequent comparisons of similar polygons previously classified along the Blue Ridge by the NCVM effort. Most of the shrub vegetation was aggregated into a chamise alliance because individual species could not be identified using the Air Photo USA data.

Although these data provide an excellent resource, additional data may be needed. The data fails to capture single oaks and small grouping of oaks that are know to occur as remnant vegetation patches along smaller sloughs, roadsides, and agricultural fields. It also does not capture some oak woodland enhancement projects and horticultural projects, such as those planted along highway interchanges, habitat mitigation, and city-owned parks within the incorporated areas.

APPENDIX B: COMMON WILDLIFE SPECIES FOUND IN OAK WOODLANDS

Common name	*Genus*	*species*	order	Listed?	Woodland type
acorn woodpecker	*Melanerpes*	*formicivorus*	bird		montane (mont)
American crow	*Corvus*	*brachyrhynchos*	bird		valley foothill riparian (v.rip)
American goldfinch	*Carduelis*	*tristis*	bird		v.rip
American kestrel	*Falco*	*sparverius*	bird		mont
Anna's hummingbird	*Calypte*	*anna*	bird		mixed chaparral (m.chap), mont
ash-throated flycatcher	*Myiarchus*	*cinerascens*	bird		mont, valley oak (v.oak)
badger	*Taxidea*	*taxus*	mammal	y	blue oak-foothill pine (b.oak), m.chap
band-tailed pigeon	*Columba*	*fasciata*	bird		b.oak
Bewick's wren	*Thryothorus*	*bewickii*	bird		m.chap, mont
black-chinned hummingingbird	*Archilochus*	*alexandri*	bird		v.rip
blackheaded grosbeak	*Pheucticus*	*melanocephalus*	bird		m.chap, v.rip
blue grosbeak	*Guiraca*	*caerulea*	bird		v.oak
blue-gray gnatcatcher	*Polioptila*	*caerulea*	bird		m.chap, mont
bobcat	*Lynx*	*rufus*	mammal		b.oak
Bullock's oriole	*Icterus*	*bullockii*	bird		v.rip
bushtit	*Psaltriparus*	*minimus*	bird		m.chap, v.rip
California quail	*Callipepla*	*californica*	bird		m.chap, mont
California thrasher	*Toxostoma*	*redivivum*	bird		m.chap
California towhee	*Pipilo*	*crissalis*	bird		m.chap
common kingsnake	*Lampropeltis*	*getula*	reptile		m.chap, mont
Cooper's hawk	*Accipiter*	*cooperi*	bird	y	b.oak, m.chap, mont, v.rip, v.oak
coyote	*Canis*	*latrans*	mammal		m.chap
dark-eyed junco	*Junco*	*hyemalis*	bird		m.chap
downy woodpecker	*Picoides*	*pubescens*	bird		v.rip
elderberry longhorn beetle	*Desmocerus*	*californicus dimorphus*	insect	y	b.oak, m.chap, v.rip, v.oak
foothill yellow-legged frog	*Rana*	*boylii*	amphibian	y	b.oak, m.chap, mont
fox sparrow	*Passerella*	*iliaca*	bird		m.chap
golden eagle	*Awuila*	*chrystaetos*	bird	y	b.oak, mont
golden-crowned sparrow	*Zonotrichia*	*atricapilla*	bird		m.chap
gopher snake	*Pituophis*	*catenifer*	reptile		m.chap, mont
gray fox	*Urocyon*	*cinereoargenteus*	mammal		m.chap
great horned owl	*Bubo*	*virginianus*	bird		mont, v.rip
hairy woodpecker	*Picoides*	*villosus*	bird		b.oak
hermit thrush	*Catharus*	*guttatus*	bird		m.chap
house finch	*Carpodacus*	*mexicanus*	bird		v.rip

Common name	Genus	species	order	Listed?	Woodland type
house wren	*Troglodytes*	*aedon*	bird		mont
Hutton's vireo	*Vireo*	*huttoni*	bird		b.oak, mont
lazuli bunting	*Passerina*	*aemona*	bird		m.chap, v.rip
lesser goldfinch	*Carduelis*	*psaltria*	bird		m.chap
long-eared owl	*Asio*	*otus*	bird	y	b.oak, mont, v.rip
mountain quail	*Oreortyx*	*pictus*	bird		m.chap
mourning dove	*Zenaida*	*macroura*	bird		m.chap, mont
mule deer	*Odocoielus*	*hemionus*	mammal		b.oak, m.chap
northern alligator lizard	*Elgaria*	*coerulea*	reptile		mont
northern pygmy-owl	*Glaucidium*	*gnoma*	bird		mont
northwestern pond turtle	*Clemmys*	*marmorata marmorata*	reptile	y	b.oak, v.oak
Nuttall's woodpecker	*Picoides*	*nuttallii*	bird		mont, v.rip, v.oak
oak titmouse	*Baeolophus*	*inornatus*	bird		b.oak, m.chap, mont, v.rip, v.oak
orange-crowned warbler	*Vermivora*	*celata*	bird		m.chap
pallid bat	*Antrozous*	*pallidus*	mammal	y	b.oak, m.chap, mont, v.oak
pileated woodpecker	*Dryocopus*	*pileatus*	bird		b.oak
raccoon	*Procyon*	*lotor*	mammal		v.rip
red bat	*Lasiurus*	*blossevillii*	mammal	y	v.rip
red-shouldered hawk	*Buteo*	*lineatus*	bird		v.rip
red-tailed hawk	*Buteo*	*jamaicensis*	bird		mont
rufous-crowned sparrow	*Aimophila*	*rufeceps*	bird		m.chap
sage sparrow	*Amphispiza*	*belli*	bird		m.chap
sharp-shinned hawk	*Accipiter*	*striatus*	bird	y	mont
spotted towhee	*Pipilo*	*maculatus*	bird		m.chap
striped skunk	*Mephitis*	*mephitis*	mammal		b.oak, v.rip
Swainson's hawk	*Buteo*	*swainsoni*	bird	y	b.oak, v.rip, v.oak
western bluebird	*Sialia*	*mexicana*	bird		v.oak
western fence lizard	*Sceloporus*	*occidentalis*	reptile		m.chap
western pond turtle	*Clemmys*	*marmorata*	reptile	y	m.chap, mont, v.rip
western rattlesnake	*Crotalus*	*ciridis*	reptile		m.chap, mont
western screech-owl	*Otus*	*kennicottii*	bird		mont
western scrub-jay	*Aphelocoma*	*californica*	bird		b.oak, mont, v.rip, v.oak
western skink	*Eumeces*	*skiltonianus*	reptile		m.chap, mont
white-breasted nuthatch	*Sitta*	*carolinensis*	bird		mont, v.rip, v.oak
white-crowned sparrow	*Zonotrichia*	*leucophrys*	bird		m.chap
white-tailed kite	*Elanus*	*leucurus*	bird	y	v.oak
wild pig	*Sus*	*scrofa*	mammal		b.oak, m.chap, mont, v.rip, v.oak
Wrentit	*Chamaea*	*fasciata*	bird		m.chap
yellow warbler	*Dendroica*	*petechia*	bird	y	v.rip
yellow-billed cuckoo	*Coccyzus*	*americanus*	bird	y	v.rip
yellow-billed magpie	*Pica*	*nuttalli*	bird		v.rip, v.oak

APPENDIX C: COMMON PLANT SPECIES FOUND IN OAK WOODLANDS

Common Name	*Genus*	*Species*
birch-leaf mountain mahogany	*Cercocarpus*	*betuloides*
big-leaf maple	*Acer*	*macrophyllum*
black oak	*Quercus*	*kelloggii*
blue elderberry	*Sambucus*	*mexicana*
blue oak	*Quercus*	*douglasii*
box elder	*Acer*	*negundo*
buckbrush	*Ceanothus*	*cuneatus*
buckeye	*Aesculus*	*californica*
California blackberry	*Rubus*	*ursinus*
California black walnut	*Juglans*	*californica*
California brome	*Bromus*	*carinatus*
California bay laurel	*Umbellularia*	*californica*
California wild grape	*Vitis*	*californica*
California wild rose	*Rosa*	*californica*
California yerba santa	*Eriodictyon*	*californicum*
canyon live oak	*Quercus*	*chrysolepsis*
chamise	*Adenostoma*	*fasciculatum*
cottonwood	*Populus*	*fremontii*
coyote brush	*Baccharis*	*pilularis*
creeping wild-rye	*Leymus*	*triticoides*
foothill pine	*Pinus*	*sabiniana*
Harding grass	*Phalaris*	*aquatica*
interior live oak	*Quercus*	*wislizeni*
leather oak	*Quercus*	*durata*
oracle oak	*Quercus*	*x morehus*
Oregon ash	*Fraxinus*	*latifolia*
poison oak	*Toxicodendron*	*diversilobum*
redberry	*Rhamnus*	*crocea*
redbud	*Cercis*	*occidentalis*
scrub oak	*Quercus*	*berberidifolia*
silver bush lupine	*Lupinus*	*albifrons*
sycamore	*Platantus*	*occidentalis*
toyon	*Heteromeles*	*arbutifolia*
valley oak	*Quercus*	*lobata*
white alder	*Alnus*	*rhombifolia*
whiteleaf manzanita	*Arctostaphylos*	*manzanita*
willow	*Salix*	*sp.*
yellow star thistle	*Centaurea*	*solstitialis*

APPENDIX D: FEDERAL, STATE, AND LOCAL OAK WOODLANDS CONSERVATION PROGRAMS AND POLICIES

This section describes existing government programs and policies related to oak woodland conservation and enhancement in Yolo County. Yolo County hopes that the Oak Woodland Conservation and Enhancement Plan will help to further these existing efforts and will work with these agencies to implement the plan.

I. Federal agencies

Bureau of Land Management (BLM)
The Bureau of Land Management owns and manages 29,692 acres of federal land in the northwestern section of Yolo County. Their oak woodland management and conservation efforts are outlined in the Cache Creek Coordinated Resource Management Plan, found at http://www.blm.gov/ca/ukiah/CRMP_index.htm. The BLM protects oak woodlands on their lands by prohibiting the collection of firewood and the cutting of dead and live trees and by encouraging academic study of oak regeneration. The recently acquired Payne Ranch, which straddles Yolo and Colusa Counties near Highway 16, represents one of the most significant blue oak woodlands found on BLM land in Yolo County. This ranch was purchased in partnership with the Rocky Mountain Elk Foundation (RMEF) to showcase habitat management for Tule Elk. The BLM manages the ranch primarily for preservation or improvement of habitat values, and also for providing opportunities for a compatible level of primitive recreation. The livestock grazing presently in practice is a high intensity-short duration scheme specifically designed for noxious weed reduction, and is not a grazing lease. The BLM has observed extensive blue oak regeneration on this property. The BLM actively seeks to gain new parcels containing oak woodlands and suitable elk habitat from willing landowners. At this time, they are evaluating a number of parcels for potential acquisition.

Farm Services Agency (FSA)
The FSA operates the Conservation Preserve Program (CRP), funded through the Farm Security and Rural Investment Act of 2002 (Farm Bill). The CRP encourages farmers to convert environmentally sensitive areas to vegetation cover (native grasses, wildlife habitat, trees, filterstrips, or riparian buffers) as a means of protection water quality and habitat. Such habitat enhancement could include oak woodlands.

Natural Resources Conservation Service (NRCS)
The NRCS works with private landowners through two incentive programs funded by the Farm Security and Rural Investment Act of 2002 (Farm Bill).

- The Environmental Quality Incentives Program (EQIP) is a voluntary program that provides financial assistance for projects promoting agricultural production and environmental quality. Primary program goals are water quality protection and erosion control. EQIP also emphasizes the protection of at-risk species through habitat conservation.

- The Wildlife Habitat Incentive Program (WHIP) is a similar program that provides financial incentives for projects that have a direct benefit to wildlife. The program has a

general focus on the restoration of declining or important native wildlife habitats and the conservation of at risk species.

Through these programs the NRCS works with farmers throughout Yolo County to improve farm practices. Planting of oaks is a regular component of these programs.

II. State agencies

Wildlife Conservation Board (WCB) Oak Woodland Conservation Program
The California Legislature passed the Oak Woodlands Conservation Act in 2001 to encourage protection of oak woodlands throughout the state. The Oak Woodlands Conservation Program offers landowners, conservation organizations, cities, and counties opportunities to obtain funding for projects designed to conserve and restore California's oak woodlands.

California Department of Forestry and Fire Protection
CDF has several programs in place intended to help protect oak woodlands. The Forest Legacy program is a small conservation easement program intended to protect working forests, including oak woodlands. The program is federally-funded through the Forest Service, but is administered through CDF in California. The California Forest Improvement Program is a cost-share program that can pay for preparation of a management plan, oak planting projects, tree shelters to protect oak seedlings and non-commercial thinning and/or pruning projects. The Vegetation Management Program (VMP) provides planning, staff, fire equipment and assumes liability for prescribed burning. Many VMP projects are located in or serve to protect oak woodlands on privately or non-profit-owned ranches. CDF is currently working with Audubon California and local landowners to update a 45,000 acre Vegetation Management Plan in the Blue Ridge.

Caltrans Adopt-A-Highway Program
The Adopt-A-Highway program provides an avenue for individuals, organizations or businesses to help maintain sections of roadside within California's State Highway System. Participants can remove litter, plant trees or wildflowers, remove graffiti and/or control vegetation. Planting trees, including oaks, along highways requires participants to submit a management plan prior to planting. Caltrans has outlined specific guidelines for planting trees.

University of California Natural Reserve System
The University of California Natural Reserve System manages the 6,940-acre McLaughlin Nature Reserve in partnership with U.S. Bureau of Land Management (BLM), California Department of Fish and Game (DFG), and the Homestake Mining Company. This park stretches into Napa, Lake, and Yolo counties and contains a large section of blue oak woodlands. The Natural Reserve System protects its oak woodlands from destruction by changes in land use, but the oak woodlands are not actively managed.

University of California Cooperative Extension (UCCE), Yolo County
In Yolo County UCCE has a long history of working with farmers, ranchers and rangeland managers in helping them address production and natural resource issues. By combining resources and expertise from University of California campuses and the local county office, UCCE conducts research on local and regional issues and effectively extends research-based information to our clientele through workshops and publications. UCCE has several oak woodland experts and many peer-reviewed publications available to assist Yolo County and local landowners in prioritizing, planning, implementing and monitoring oak conservation and regeneration activities.

University of California, Davis
The UC Davis Office of Resource Management and Planning (ORMP) mitigates for the loss of single oaks and oak woodlands through its existing Putah Creek Management Area. This reserve includes 5.5 miles of creek, 70 acres of upland oak savannah, and 350 acres of open native grasslands. Restoration and management protocols for its oak woodlands are spelled out in the Putah Creek Reserve Management Plan. Students propagate and plant oaks throughout the area. The program is funded through a campus-administered habitat enhancement budget.

University of California Integrated Hardwood Range Management Program (IHRMP)
The mission of the IHRMP, established in 1986, is to maintain and increase (where possible) acreage of California's hardwood range resources to provide wildlife habitat, recreational opportunities, wood and livestock products, high quality water supply, and aesthetic value. Program staff includes regional cooperative extension specialists who develop applied research and outreach programs addressing conservation of oak woodlands with local Cooperative Extension offices and various agencies and interest groups. The Extension program also develops newsletters and educational materials. IHRMP also funds a competitive grants research program, primarily for University of California researchers, to develop multi-year projects addressing ecological processes, management applications, and policy instruments to conserve hardwood rangelands.

III. Local agencies

Yolo County

Yolo County Parks and Natural Resources Management Division
Yolo County is actively engaged in the planning, expansion and management of public lands for recreational and ecological purposes. The 679-acre Cache Creek Canyon Regional Park and the 587-acre Otis Ranch Open Space Park located in the northwest corner of the county have the most significant oak woodland cover. The Yolo County Parks and Natural Resources Management Division operates and maintains these parks. Yolo County's Parks and Open Space Master Plan provides a vision for future habitat and recreation improvements. The division hopes to work through the Oak Woodland Conservation and Enhancement Plan to undertake future projects to restore and enhance oak woodlands on these properties.

Yolo County General Plan
The Yolo County General Plan currently contains a number of policies that are related to oak woodlands or oak tree conservation (See Appendix F). Yolo County is currently undergoing a comprehensive General Plan update. This process will include a review of existing ordinances and policies and will direct land use planning the county for the next 20 years. The planning process will include a discussion of policies and actions related to oak woodland conservation and management. The target date for adoption of the new General Plan is November 2007.

Yolo County Habitat Conservation Plan/ Natural Communities Conservation Plan
Yolo County's joint Habitat Conservation Plan (HCP) and Natural Communities Conservation Plan (NCCP) are concerned with preserving sufficient high quality habitat to support multiple native species. Oak woodlands are one of the primary habitats identified for preservation by the HCP/NCCP. These joint plans will establish reserve design, an acquisition strategy and a funding mechanism to achieve their conservation goals. Upon completion, the HCP/NCCP will be an additional source of funds to support oak woodland conservation and restoration.

Municipalities in Yolo County

Davis
The City of Davis has an active open space acquisition program. The own a 60-acre oak savanna restoration project along Putah Creek. A Landmark Tree program protects noteworthy trees from destruction. Davis' Landmark Tree list includes 94 individual native and non-native trees; nine are valley oaks and one is a California live oak. The city hopes to work through the Yolo County Oak Woodland Conservation and Enhancement Plan to identify additional areas within the Davis Planning Area for oak woodland conservation and enhancement.

West Sacramento
The City of West Sacramento has a significant number of intact oak woodlands, and has a number of programs and policies in place to guide the management, protection, and restoration of oaks. The city has a strong tree ordinance, regulating the removal of oaks larger than 16 inches in diameter. All new developments are required to conserve existing oaks through open space set-asides and/or by paying fees of $3.25 per inch dbh. In recent years, several large oak woodland parks were developed through this program, including Heritage Oak Park. West Sacramento also has a well-funded urban tree program. This program was established through the 19 mile Lower Northwest Interceptor (LNWI) sewer line project that generated a $2 million dollar mitigation settlement. The settlement requires planting 5,000 new oaks within the city and establishes a fund with which the city manages its oak planting efforts.

Winters
The City of Winters maintains a list of historic trees of importance, of which three are large oaks. The city owns and maintains a nature park along Putah Creek, in which several hundred oak seedlings were planted, in partnership with the Putah Creek Council (PCC) and Audubon's Land Owner Stewardship Program. All management activities and future plans for this park are outlined in the Winters Nature Park Master Plan.

Woodland
The City of Woodland has a tree ordinance that protects native and non-native heritage trees from removal, including some oaks. A tree replacement program does not promote planting valley oaks because they can damage sewers systems and do not thrive under the well-irrigated conditions typical of most new development projects.

APPENDIX E: PROGRAMS SUPPORTING VOLUNTARY OAK WOODLANDS CONSERVATION ON PRIVATE LANDS

This section describes programs supporting voluntary oak woodland conservation on private lands. Yolo County hopes that the Oak Woodland Conservation and Enhancement Plan will help to further these existing efforts and will work with these organizations to implement the plan.

Audubon California Landowner Stewardship Program
The Landowner Stewardship Program works with private landowners to conserve and restore wildlife habitat on farms and ranches in a manner compatible with existing agricultural operations. Typical projects include the restoration of riparian areas and swales, erosion control, and hedgerow plantings as well as applied research on various species and habitat related to restoration work. Audubon has been involved with several oak woodland restoration projects on large ranches in the Capay and Blue Ridge area. These projects involve planting oak seedlings, establishing cattle fences around plantings and important riparian areas, planting native perennial grasses and controlling non-native invasive weed species to promote seedling survival. Audubon works with landowners and CDF on a 45,000 acre Vegetation Management Plan in the Blue Ridge for prescribed burns that benefit native habitat and help control invasive weeds.

Yolo Land Trust
From the Blue Ridge to Clarksburg and from Davis to Dunnigan, Yolo Land Trust has a long history of helping landowners preserve the landscape. The Yolo Land Trust is a private, non-profit corporation founded in 1988 by farmers, community leaders and conservationists dedicated to protecting Yolo County's land resources, including oak woodlands. Yolo Land Trust's focus on protecting the farm, open space and habitat lands in Yolo County offers long-term solutions to difficult land preservation issues.

Yolo Land Trust works with landowners interested in preserving the conservation resources of their property, such as:

- soils and farmland
- habitat
- open space

To date, Yolo Land Trust has helped landowners place conservation easements on over 6,300 acres, permanently protecting their land for future generations.

Yolo County Resource Conservation District (RCD)
The Yolo County RCD works extensively with private landowners providing guidance, financial resources, and technical skills to improve private lands throughout the County. Most of the projects conducted by the RCD involve hedgerow planting, sediment catchments basins, small riparian plantings, habitat ponds, etc. These projects often incorporate the planting of oaks. The RCD actively works with landowners to develop on-farm conservation plans that help landowners direct their conservation efforts. They also work with landowners to develop monitoring programs that help evaluate the success of their projects. Through these programs oaks are often planted as a component of larger project restoration projects.

Center for Land-Based Learning
The Center for Land-Based Learning implements land-based learning programs to connect the next generation to their environment. Students learn and practice how to steward healthy ecosystems, and are given tools that encourage careers in sustainable agriculture, ecosystem restoration or environmental sciences. One such program is SLEWS — Student and Landowner Education and Watershed Stewardship – which engages high school students in habitat restoration projects that enhance classroom learning, develop leadership skills and result in real habitat restoration.

Each year, participating SLEWS high schools throughout the Central Valley select restoration projects on farms, ranches or other natural areas to adopt for the school year. Many of these high schools are located in Yolo County, and each year, approximately 10-12 restoration sites are chosen as SLEWS sites. Over multiple visits, students plant oaks, cottonwoods and other native species on their site, collect native seeds, build and install bird boxes, remove invasive plants and install irrigation systems, all to increase biological diversity and improve the health of the land. Because CLBL partners with restoration professionals from public agencies, local watershed groups and nonprofit organizations, SLEWS projects have a real and lasting impact on the land.

In the last six years, the SLEWS Program has worked with over 75 different high school classes throughout Yolo, Sacramento, and Solano Counties, and restored hundreds of acres of land. The majority of these projects included an oak woodland restoration component.

Blue Ridge Berryessa Natural Area Conservation Partnership (BRBNA)
The BRBNA is a partnership of public agencies, landowners, and private conservation groups developing an integrated strategy for long term conservation in the BRBNA natural area. The natural area includes the mountainous western portion of Yolo County. This group is working to preserve, protect, and manage significant portions of the valuable oak resources in the county and will be an important partner for Yolo County staff in the future. Their work includes extensive mapping of BBNRA, developing a management plan, and facilitating coordination and collaboration among public, private, and non-profit partners. Additionally the BBNRA works to provide research, information, and education services to partners and to conduct public outreach.

Putah Creek Council (PCC) and Lower Putah Creek Coordinating Committee (LPCCC)
The Putah Creek Council (PCC) was formed in 1988 as a voluntary partnership of individuals interested in protecting and restoring existing riparian vegetation and associated fish and wildlife habitat.. From 1987 to 1994 there was a protracted drought that provided so little flow in Putah Creek that fish became stranded and riparian vegetation began to die. Putah Creek Council initiated a lawsuit in 1989 to establish minimum flows in Putah Creek that in 2000 gave rise to the Lower Putah Creek Coordinating Committee (LPCCC) of which PCC is a core member. The LPCCC's mission is to monitor the new perennial flows, to monitor fish and wildlife and to raise funds for protection and enhancement of the resources of Putah Creek. PCC continues to lead education and outreach programs such as their Community Stewardship Program that includes oak woodland conservation and enhancement activities based on volunteer stewardship. Examples of these projects include the planting of 180 valley oak trees along the banks of Putah Creek over the past two years in a collaborative effort with the, UCD Riparian Reserve and the Society for Conservation Biology. PCC also helped local classes raise and plant 120 valley oak trees along the banks of Putah Creek at the UC Davis Riparian Reserve in February and March 2005. The LPCCC has focused mainly on promoting cooperation with landowners, bank stabilization, removal of solid wastes and weed control that augment existing opportunities for oak restoration. The LPCCC and PCC also promote oak restoration on Putah Creek's major tributaries including Dry Creek and Pleasants Creek. Through recent stewardship planning efforts

PCC and the LPCCC have identified 62 locations on Putah Creek and tributaries where landowners support creek enhancement projects, most of which could include oak restoration.

Cache Creek Conservancy
The Cache Creek Conservancy is a non-profit organization that was created in 1998 to help manage and enhance Cache Creek. It owns and operates the 130-acre Cache Creek Nature Preserve (CCNP). The Conservancy is currently involved in a tamarisk and giant reed eradication project from Capay Dam to I-5. The Conservancy has had limited involvement with oak woodland restoration and management to date, but could be involved in riparian oak woodland enhancement activities in the future.

Tuleyome
Tuleyome is a non-profit organization working to protect and restore the wild heritage and agricultural heritage of the Putah and Cache Creek watersheds, including oak woodlands. This group develops long-term visions and implementation strategies. Recently Tuleyome purchased the 640-acre Ireland Ranch in the Blue Ridge. They will offer docent lead tours to the ranch itself and the abutting 9,100 acres of the Berryessa Peak unit of the BLM managed public lands that also contain oak woodlands.

California Fire Safe Council
The Fire Safe Council provides resources for establishing and maintaining local Fire Safe Councils, such as the FSC Handbook, nonprofit and funding information.

The California Fire Safe Council's mission is to preserve and enhance California's manmade and natural resources by providing leadership and support that mobilizes all Californians to protect their homes, communities and environment from wildfires.

Since its formation in April 1993, the Council has united its diverse membership to speak with one voice about fire safety. The Council has distributed fire prevention education materials to industry leaders and their constituents, evaluated legislation pertaining to fire safety and empowered grassroots organizations to spearhead fire safety programs.

APPENDIX F: YOLO COUNTY GENERAL PLAN

Yolo County is currently updating the Yolo County General Plan. This process will include a review of existing ordinances and policies and will direct land use planning the county for the next 20 years. The planning process will include a discussion of policies and actions related to oak woodland conservation and management. The target date for adoption of the new General Plan is November 2007.

Language from the existing General Plan relating to oaks trees and oak woodlands is listed below:

SH 7. Yolo County shall require retention, of existing trees and vegetation and natural landforms, and shall require landscaping to enhance scenic qualities and/or screen unsightly views, and shall implement regulations to prohibit removal of trees along public rights-of-way without consideration of their scenic or historic value, and shall implement tree conservation or enhancement in new development, with emphasis on **oak** preservation.

LCCI 35. Standards identifying planting procedures and materials, soil amendments and stabilizers, and appropriate species and planting densities for marshland, **oak woodland**, and riparian woodland restoration efforts should be considered guidelines. Variations from these guidelines shall be acceptable if alternative 68 restoration plans have been prepared by a qualified biologist, consistent with the policies of the CCRMP.

LCCI 36. Avoid disturbance to important wildlife habitat features such as nest trees, colonial breeding locations, elderberry host plants for VELB, and essential cover associated with riparian forest and **oak woodland habitat**. This should include sensitive siting of, maintenance access, and recreational facilities away from these features.

LCCD 19. Oaks and drought-tolerant shrubs should be planted on streambank slopes due to the lack of water on the higher elevations. **Oaks** and shrubs should be especially encouraged on slopes facing north or east.

LCCD 31. The following guidelines shall be followed when developing **oak woodland habitat** areas:

a. Trees and shrubs shall be planted in clusters of six (6) to seven (7) individuals, typically consisting of a single species. Some mixed groupings, such as **valley oak** and elderberry may occur where appropriate. Gray pine, however, shall be planted singly (not in clusters) at the higher elevations of the site. Clusters of trees and shrubs shall be planted from twenty-five (25) to fifty (50) feet apart, with native grasses in between.
b. Appropriate species and densities for oak woodland restoration may include the following:

Species (common name)	Density (number or pounds/acre)
Valley oak	20
Wild rose	15
Blue elderberry	10
Coyote bush	10
Toyon	10
Redbud	10

Coffeeberry	10
Native blackberry	8
Interior live oak	6
California buckeye	5
Gray pine	3
Creeping wildrye	16 pounds
California brome	10 pounds
California barley	5 pounds
Pina bluegrass	5 pounds
Purple needlegrass	5 pounds

DUNP 52. Appropriate trees within the public right-of-way are to be retained and new street trees planted and maintained. **Oak** trees shall be protected from damage or renewal. New development shall be designed to preserve **oak** trees. Only trees which are either badly diseased, disruptive of street improvements because of root growth, result in significant economic damage, or dangerous to the public shall be allowed to be removed. The installation of street trees shall be made a condition of approval of residential, commercial, industrial, and institutional development along such streets.

Adequate setbacks shall be provided around the base of all **oak** trees to be retained, with grading, construction, and creation of impervious surfaces generally restricted within the dripline of individual trees. Any landscape improvements within the dripline of trees to be retained should be designed by a landscape architect familiar with the sensitivity and growing requirements of native **oaks**, and should ensure that drainage modifications or proposed irrigation does not damage the tree root systems.

MHD 101. Due to the irrigation requirements of the golf course and the poor condition of some of the **oak** trees existing on the site, it is doubtful that these trees can be saved. When vegetation must be removed, the method used will be one that will minimize soil disturbance and will be limited to the area required for immediate construction operations. Removed vegetation shall be disposed of at an authorized disposal area. To facilitate re-establishment of vegetation, topsoil shall be conserved or stockpiled during construction and then replaced.

The policies outlined in the following table are not related specifically to oak woodlands, but could apply to oaks.

Summary of tree and habitat-related language in the General Plan

General Plan 1983	TREE RETENTION: › The County should establish design and site development standards and apply them to **prevent unnecessary disruption of vegetation** (CON 7). › The County shall establish a tree-planting program and **require extensive use of trees** on private and public lands (CON 28). › Yolo County shall **adopt a Tree Preservation Ordinance** and a Grading Ordinance with standards to support Scenic Highways, Open Space, and Conservation policies (SH 4). WILDLIFE HABITAT: › The County shall safeguard existing and encourage development **protection of additional wildlife**

Open Space Element, 2002	BIOLOGICAL RESOURCES: • The County should preserve existing biological resources by **restricting urban to areas** defined as such in urban and community plans. • The County should identify and **preserve scenic corridors** and **establish a habitat mitigation banking program** for environmental mitigation fees through an NCCP. RIPARIAN VEGETATION: • The County should allow **no net loss of riparian habitat** (OG-5). • Development should be directed away from **riparian areas** (OP-7).
Zoning Ordinance	CONSERVATION ZONES: • The Zoning Ordinance **establishes open space zones** in part to conserve wildlife and plant habitat, natural areas and riparian areas (8-2.19). TREE RETENTION: • It requires that **existing trees be retained within rights of way** when trees are healthy, of a desirable variety, and do not interfere with proposed grading (8-1.708).

Source: Yolo County Planning, Resources, and Public Works Department (2003)

APPENDIX G: FUNDING SOURCES AVAILABLE FOR OAK WOODLANDS CONSERVATION

Advisory Committee for Tribal Matters (ACTM) Tribal Mitigation Fund
The Rumsey Community Fund is an important potential regional funding source for oak woodland conservation. This fund was established in 2000 by members of the Rumsey Band of Wintun Indians as part of the philanthropic efforts of the tribal government. The fund provides over $1 million annually to non-profit organizations to strengthen regional programs and services, primarily in the Capay Valley. To date, more than $6 million has been given to local organizations supporting education, community health, arts and humanities, environment, community development and social services.

Integrated Regional Water Management Plan (IRWMP)
Yolo County's Integrated Regional Water Management Plan identifies a number of aquatic and riparian enhancement projects that will benefit oak woodland enhancement efforts along Yolo County waterways. These projects involve the passive and active restoration of riparian forests, possible levee setbacks for flood control purposes, as well as park planning and development activities. Projects in the Yolo County Integrated Regional Water Management Plan are eligible for funding from the state's Integrated Regional Water Management Program, which received $1 billion from the passage of Proposition 84 in November 2006.

Private Foundations
Private foundations are excellent sources of funding for conservation practices on private and public lands. Noted foundations that have funded such efforts in the past include the National Fish and Wildlife Foundation, and the Packard Foundation. The plan recommends more thorough research of these opportunities.

Wildlife Conservation Board Oak Woodlands Conservation Program
In 2001 the California State Legislature passed the Oak Woodlands Conservation Act as means of directly supporting the management and conservation of oak woodlands throughout the state. This Act created the Oak Woodlands Conservation Program administered by the State Wildlife Conservation Board (WCB). The program offers landowners, conservation organizations, cities and counties an opportunity to obtain funding for projects designed to conserve and restore California's oak woodlands. The specific legislative intent of this act is outlined below.

1. Support and encourage voluntary, long-term private stewardship and conservation of California oak woodlands by offering landowners financial incentives to protect and promote biologically functional oak woodlands;
2. Provide incentives to protect and encourage farming and ranching operations that are operated in a manner that protect and promote healthy oak woodlands;
3. Provide incentives for the protection of oak trees providing superior wildlife values on private land, and;
4. Encourage planning that is consistent with oak woodland preservation.

To accomplish the legislative intent, the Act identifies the Wildlife Conservation Board as the entity responsible for implementing Oak Woodlands Conservation Program. The Act authorizes the WCB to purchase oak woodland conservation easements and provide grants for land improvements and restoration efforts. In addition, the WCB is authorized to award cost-sharing incentive payments to private landowners who enter into long-term agreements. Such agreements

will be structured to include management practices that benefit oak woodlands and promote the economic sustainability of the farming or ranching operation.

The Act requires that at least 80 percent of the money be used in grants for the purchase of easements, for restoration activities or for enhancement projects. In addition, the funds may be used for grants that provide cost-share incentive payments and long-term agreements. The remaining 20 percent of the money may be used for public education and outreach efforts by local governments, park and open space districts, resource conservation districts and nonprofit organizations. The remaining 20 percent may also be used for grants to provide technical assistance and to develop and implement oak conservation elements in local general plans.

APPENDIX H: TAX ADVANTAGES ASSOCIATED WITH OAK WOODLANDS CONSERVATION EASEMENTS

An oak woodland conservation easement is a voluntary tool for landowners to protect their land while retaining ownership. A conservation easement is a legal restriction that a landowner places on his or her property to define and limit the type of development that may take place there. When land is protected by an easement, the landowner continues to own the land while role of the entity that holds the easements is to ensure that the resource values are protected over time. Generally, conservation easements are purchased by or donated to a nonprofit conservation organization, such as Yolo Land Trust, which carries the responsibility to enforce the restrictions in perpetuity. The following are tax advantages associated with conservation easements:

Federal and state income tax deductions. If you are donating an easement, you may receive a federal and state income tax deduction for the difference in the value of the property before the easement is granted and its after-easement value (often the difference between the current fair market value of the land and the fair market value of the land with fewer allowed home sites).

Estate tax savings. For 2006, estate taxes begin at 45 percent for amounts over $2,000,000. Under present law, however, the effect of the estate tax is being reduced annually until 2010, in which year there is no estate tax. Then in 2011 the old laws again become effective (exclusion of $1,000,000 and tax rates from 37% to 55%). Although the timing may be a factor in the amount of savings, if you place a conservation easement on your land the land value can be reduced and thus your estate taxes can be lower.

A conservation easement can be a powerful tool to enable land to be passed on within a family. With the very high estate tax rates, in many families that have considerable land holdings, some land may need to be sold in order to raise cash to pay the estate taxes. If you place a conservation easement on your land, the value of the land can be reduced for estate tax purposes, perhaps reducing the taxes to zero or to a level at which no land will need to be sold in order to pay the taxes.

Possible reduction in property taxes. It may, depending upon how recently the property was purchased, the purchase price, and the value of the land after the conservation easement is placed. There may be an opportunity, especially for recent buyers, to get a reduced assessment (and reduced taxes) based on the diminished value of the land after the placing of the conservation easement on the land.

4. OAK TREE PRESERVATION ORDINANCES

A) TUOLUMNE COUNTY

B) PLACER COUNTY

A) TUOLUMNE COUNTY

ATTACHMENT 2
TUOLUMNE COUNTY OAK TREE REMOVAL ORDINANCE

Chapter 9.24

PREMATURE REMOVAL OF NATIVE OAK TREES

Sections:

9.24.010 Purpose.
9.24.020 Definitions.
9.24.030 Premature removal.
9.24.040 Exemptions.
9.24.050 Mitigation required.
9.24.060 Financial assurance and security agreement.
9.24.070 Penalties.
9.24.080 Determination of premature removal.
9.24.090 Appeals.
9.24.100 Enforcement responsibility.

9.24.010 Purpose. The board of supervisors finds that native oak trees within Tuolumne County provide multiple benefits, including, but not limited to, wildlife habitat, scenic value, healthier air, and quality of life. The board of supervisors further finds that retention of these resources is essential to retain the beauty and character of the County and that responsible stewardship by landowners is necessary to sustain these resources. This chapter is intended to discourage the premature removal of oak resources by establishing procedures and penalties for such removal. (Ord. 2903 §1 (part), 2008)

9.24.020 Definitions. For the purpose of this chapter, the definitions listed hereunder shall be construed as specified in this section. Any word or term not interpreted or defined by this chapter shall be used within a meaning of common or standard utilization.

A. "dbh" is the acronym for "diameter at breast height" which means the tree stem diameter as measured 4.5 feet above the average ground level.

B. "Oak canopy cover" means the area directly under the branches of the oak trees, defined as a percent of a given unit of land. Oak trees of any size are to be counted in calculating canopy cover.

C. "Oak woodland" is a stand of native vegetation containing predominately California native oak species where the oak woodland canopy cover is 10% or greater in accordance with the California Board of Forestry and Fire Protection's definition that encompasses a minimum area of two (2) acres. To achieve a 10% oak woodland canopy cover, the native vegetation stand must consist of two or more California native oak trees 5" or larger dbh and spaced less than 170' apart. The 10% oak woodland canopy cover applies to the individual stand of vegetation and not to the project site; consequently, the project site may have one or more oak woodlands on it.

D. "Old growth oak" is any native oak tree that is 24" or greater dbh.

E. "Project site" is a parcel or parcels of land on which a land development project is proposed. (Ord. 2903 §1 (part), 2008)

9.24.030 Premature removal. The removal of native oak trees meeting one or more of the criteria listed below from a project site within the five (5) years preceding the submittal of an application for a discretionary entitlement from the County of Tuolumne for a land development project on that site is deemed premature removal of oak trees:

A. Removal of native oak trees resulting in a 10% or more (≥10%) average decrease in native oak canopy cover within an oak woodland;

B. Removal of any old growth oak trees;

C. Removal of any Valley Oak measuring 5" or greater in diameter at breast height (dbh).

(Ord. 2903 §1 (part), 2008)

9.24.040 Exemptions. The following activities are exempt from the provisions of this chapter:

A. Removal of native oak trees as part of a construction project for which a ministerial

permit, such as a building permit, or a discretionary entitlement, such as a tentative parcel map, has been issued or approved by the County of Tuolumne;

B. Removal of native oak trees as part of a construction project for which a permit has been issued by a state agency, such as Caltrans or the Department of Fish and Game;

C. Removal of native oak trees in conjunction with a timber harvest plan or other plan approved by the California Department of Forestry and Fire Protection;

D. Removal of native oak trees for health and safety reasons, including, but not limited to, preventing interference with utility lines or eliminating the risk of a diseased or dying tree falling, subject to approval of the community development department;

E. Removal of native oak trees in conjunction with a fire hazard reduction plan that has been approved by the fire prevention bureau and the community development department or that is consistent with the State of California's standards for fuel reduction around structures;

F. Removal of native oak trees on land within an agricultural zoning district for the purpose of producing or processing plant or animal products for commercial purposes; or

G. Silvicultural treatment to enhance the vitality of the oak woodland in accordance with a plan prepared by a qualified consultant or as otherwise approved by the California Department of Fish and Game.

(Ord. 2903 §1 (part), 2008)

9.24.050 Mitigation required. The loss of native oak trees or oak canopy due to premature removal shall be mitigated. The community development department may require an inventory of prematurely removed stems or canopy cover to determine the extent of the loss. The inventory shall be prepared by a resource professional with expertise in oak woodlands ecology who is on the list of qualified consultants maintained by the community development department. Resource professionals may include botanists, ecologists, wildlife biologists and foresters. The mitigation shall be in accordance with the measures provided in the Tuolumne County Biological Resources Conservation Handbook. The property owner shall be responsible for any maintenance, monitoring, or reporting related to the required mitigation. The property owner shall be prohibited from obtaining any permit or entitlement under any provision of this code for the project site until the required mitigation for the premature removal of native oak trees has been implemented or a security agreement has been executed and a financial assurance submitted in accordance with Section 9.24.060 to guarantee the mitigation will be implemented. (Ord. 2903 §1 (part), 2008)

9.24.060 Financial assurance and security agreement. Where the mitigation required pursuant to Section 9.24.050 has not been implemented, prior to issuance of any permit or approval of any entitlement on the project site, a security agreement shall be signed by the owner of the project site to guarantee implementation, maintenance, monitoring or reporting of the mitigation measures for the premature removal of the oak trees required in accordance with Section 9.24.050 and a financial assurance shall be provided to the community development department to establish a source of funds for the county to abate any breach of the agreement by the property owner. The financial assurance shall be in an amount sufficient to cover the county's cost to fully implement, maintain, monitor and report on the mitigation for the premature removal of the oak trees as determined by the community development director and the financial assurance may be in the form of a letter of credit, certificate of deposit, or other security as approved by the community development director. The community development director shall be authorized to execute the security agreement on behalf of the county. At the end of any required maintenance or monitoring period, any funds remaining in the financial assurance shall be released to the property owner or his/her successors-in-interest as defined in the security agreement. (Ord. 2903 §1 (part), 2008)

9.24.070 Penalties. The premature removal of native oak trees or oak canopy shall be subject to the following penalties:

A. The approval for an application for any discretionary entitlement on the project site may be withheld and deferred for a period of up to five (5) years; and

B. Monetary fines may be imposed as high as three times any in-lieu fee established by the board of supervisors to mitigate impacts to native oaks or oak woodlands in accordance

with the mitigation program established in the Biological Resources Conservation Handbook. Any monetary fines collected shall be deposited in the Tuolumne County Oak Woodland Conservation Fund. The monetary fines shall be paid within sixty days of a determination that premature removal of oak trees has occurred on a project site. Whenever a monetary fine is not paid as required, a lien shall be created against the parcels that comprise the project site and processing of the application for the discretionary entitlement that was the basis for the determination that premature removal of oak trees has occurred on a project site shall be suspended until the fine has been paid in full. The property owner shall be prohibited from obtaining any permit or entitlement under any provision of this code for the project site until the applicable monetary penalty has been paid.

In determining the amount of the penalty, the community development director shall consider the following factors: (1) the seriousness and scope of the premature removal of oak trees; (2) the impact of the premature removal of oak trees on the community; (3) whether the property owner or applicant has previously been found responsible for premature removal of oak trees; and (4) any other factors that justice may require. (Ord. 2903 §1 (part), 2008)

9.24.080 Determination of premature removal. Within sixty days of receipt of an application for a discretionary entitlement, the community development director shall determine if premature removal of oak trees has occurred on a project site for which an application for a discretionary entitlement for a land development project has been submitted. The determination shall be set forth in writing and shall specify the reasons for the determination, the mitigation measures to be required, and the penalties to be imposed. The written determination that premature removal of oak trees has occurred on a project site shall be served on the property owner either in person or by registered mail. (Ord. 2903 §1 (part), 2008)

9.24.090 Appeals. If the applicant or property owner is dissatisfied with the determination of the community development director, he/she may, within fifteen (15) calendar days of the date of the determination, appeal to the board of supervisors. The appeal shall set forth in writing the reasons for the appeal and shall be submitted to the clerk of the board of supervisors. A copy of the appeal shall be submitted to the community development department by the appellant. No fee shall be charged for such an appeal to the board of supervisors. Appeals not submitted in a timely manner will not be considered and will be returned. An appeal on any aspect of the determination of the community development director submits the entire determination to comprehensive (de novo) review by the board of supervisors. The clerk of the board shall schedule the matter for consideration by the board of supervisors within forty-five days of receipt of the appeal and shall mail or deliver notice to the owner of the project site or the owner's duly authorized agent and the applicant at least ten (10) days prior to the board of supervisors meeting at which the appeal will be considered. Within ninety days of receipt of the appeal, the board of supervisors shall determine if premature removal of oak trees has occurred on the site, what mitigation measures will be required and what penalties will be imposed. (Ord. 2903 §1 (part), 2008)

9.24.100 Enforcement responsibility. It shall be the duty of the community development director to enforce the provisions of this chapter. He/she may delegate part or all of such responsibility. (Ord. 2903 §1 (part), 2008)

B) PLACER COUNTY

Placer County Code, Article 12.16

TREE PRESERVATION GENERALLY

Sections:

12.16.010	Purpose and intent.
12.16.020	Definitions.
12.16.030	General county-wide requirements.
12.16.040	Tree preservation zones.
12.16.050	Exemptions.
12.16.060	Tree permit required.
12.16.070	Tree permit applications—Review methodology.
12.16.080	Replacement program and penalties.
12.16.090	Administrative remedies.
12.16.100	Review of ordinance.

12.16.010 Purpose and intent.

For centuries native oak trees have existed as dominant and magnificent features of the landscape of the Sierra Foothill region. Over the years trees have been cleared to accommodate agriculture, burned as firewood and removed to facilitate development. Only a portion of the original oak woodland forest remains today. The removal of oak and other native trees continues to the present time and occurs at a much faster pace than natural revegetation in areas of development.

Trees are key elements in our living system, the boundaries of which do not conform to the arbitrary property lines of individual lots and parcels, and upon which the continued health and welfare of this community depends. It is acknowledged that the preservation of trees enhances the natural scenic beauty, improves air quality, water quality, reduces soil erosion, preserves significant natural heritage values, preserves wildlife habitat, and helps to reduce energy consumption for air cooling by providing shade. Trees in a community or neighborhood also provide a sense of identity and tradition, and they enhance property values which encourages higher quality development.

As development of vacant land occurs, loss of some tree cover may be unavoidable. However, it is the county's intent to reduce the loss of trees to reasonably acceptable levels while at the same time providing for fuel reduction and fire prevention activities to protect the residents of the county from such catastrophic losses than can occur. Therefore, it has become necessary for an ordinance to be established to preserve and protect the remaining native oak and other species of trees within Placer County. The spirit of this article is to encourage an atmosphere of mutual cooperation between members of the development community, private citizens, and county officials in attempting to retain tree cover within the county. Furthermore, the article is to provide for educational programs and materials to promote an awareness of the value of trees, and provide information to the public relating to the care, maintenance, and planting of trees.

Thus, it shall be the policy of this county to preserve trees wherever feasible, through the review of all proposed development activities where trees are present on either public or private property, while at the same time recognizing individual rights to develop private property in a reasonable manner. In the spirit of reasonableness this article does not categorically prohibit tree removal and contains numerous exemptions for specific types of activities. It is also recognized, that due to the extremely diverse terrain and vegetation within the county, different policies may be applicable to specific areas of the county. (Prior code § 36.100)

12.16.020 Definitions.

The following words are defined for purposes of this article as follows:

"Approving body" means one of the following depending on the nature of the application: board of supervisors, planning commission, board of zoning appeals, zoning administrator, design/site review committee, planning director, or county arborist (under the authority of the planning director).

"Arborist" means an individual certified as an arborist by an the International Society of Arboriculture (ISA).

"Arborist report" means a report prepared by an arborist or registered professional forester containing specific information on the location, condition, potential impacts of development, recommended actions and mitigation measures regarding one or more trees on an individual lot or project site.

"Canopy trees" means a group of trees typically found along roadways which form a canopy over the roadway. By adoption of a resolution, the board of supervisors shall have the authority to protect specific canopy tree areas as landmark trees.

"Certification letter" means a concluding statement by an arborist stating that work that was performed was observed by an arborist and complies with the conditions of the discretionary project, the arborist report, the tree permit and this article.

"Commercial wood cutting" means cutting trees for fuelwood purposes producing in excess of two cords (two hundred fifty-six (256) ft.) of wood for sale or profit in any one-year period.

"County arborist" means a person employed by or chosen and retained by the county to review, evaluate and prepare reports and requests to remove and/or relocate protected trees. In performing his or her duties and responsibilities, the county arborist may conduct field inspections independently or in the company of county employees and/or other arborists.

"Cutting" means the detaching or separating of any limb, branch or root from a tree.

"Dead tree" means a tree that does not contain any live tissue, i.e., green leaves or live limbs.

"Deadwood" means limbs or branches that contain no green leaves or live limbs.

"Deadwooding" means the act of removing deadwood.

"Development activity" means any activity within the protected zone of a tree, which could impact the health of a tree or landmark tree, including but not limited to cutting, grading, irrigating and trenching.

"Diameter at breast height" means the diameter of a tree measured at four and one-half feet above ground level on the high side of the tree. The diameter may be calculated by use of the following formula: DBH = circumference at breast height divided by 3.142.

"Discretionary project" means any nonministerial development project that must be approved by either the: board of supervisors, planning commission, board of zoning appeals, parcel review committee, design/site review committee or zoning administrator. Discretionary projects include, but are not limited to: conditional use permits, parcel maps, rezoning, design reviews, subdivision maps, or variances. (Discretionary projects do not include issuance of building permits, business licenses, or similar ministerial actions.)

"Drip line" means the outermost edge of a tree's canopy as measured at the time of application for a tree permit. When depicted on a map, the dripline will appear as an irregular-shaped circle that follows the contour of the tree's branches as seen from overhead.

"Dying/unhealthy tree" means any tree certified by an arborist or registered professional forester as being unhealthy or dying.

"Encroachment" means any development activity conducted within the protected zone of a protected or preserved tree.

"Grading" means the movement of any soil or earth material within the protected zone or protected or preserved trees.

"Irrigation" means transfer of water to a site by artificial means.

"Landmark tree" means a tree or grove of trees designated by resolution of the board of supervisors to be of historical or cultural value, an outstanding specimen, an unusual species and/or of significant community benefit. Notwithstanding any other provision of this section, a tree that is not native to California may be designated as a landmark tree. (Note: A list of culturally significant or landmark trees [i.e., palms, along English Colony Road, oak canopy tree areas, Deodar cedars on Highway 49, major heritage oak trees, etc.] shall be prepared by the county parks division as a beginning list of "Landmark Trees.")

"Minor tree permit" means an authorization by the planning department authorizing specifically identified work or development activities to be performed within the protected zone of a protected tree. (Note: Minor tree permits are only issued for single family residential lots and other specific projects as determined by the planning director. For discretionary projects, approval or denial of tree removal is part of that discretionary action.)

"Native ground surface fabric" means the layer of topsoil, humus, and vegetation that comprises the native ground surface.

"Oak tree information packet" means a package containing certain documents which must be distributed to property owners whose lots contain native oak trees.

"Preserved tree" means a tree that has been established as one to be saved through the tree permit or discretionary project approval process.

"Protected tree" means any tree, including a landmark tree, for which a tree permit is required prior to any removal or development activity being conducted within the protected zone.

"Protected zone" means a circle, the radius of which is equal to the largest radius of a protected tree's dripline plus one foot.

"Public land" means all land owned or controlled by public entity.

"Registered professional forester" means a person who holds a valid license as a professional forester pursuant to Article III, Chapter 2, Division I, of the Public Resources Code.

"Removal" means the physical removal of a tree.

"Riparian zone" means any area within fifty (50) feet from the centerline of a seasonal creek or stream, any area one hundred (100) feet from the centerline of a year round creek, stream, or river, and any area within one hundred (100) feet from the shoreline of a pond, lake or reservoir. At a minimum all streams, creeks, ponds, lakes, and reservoirs as shown on 7.5 minute USGS maps are included in this definition. (A riparian zone established in specific community or general plan may supersede this definition.) (Note: All trees regardless of size within riparian areas within the tree preservation zones and as a part of any discretionary project county-wide are subject to this article.)

"Routine maintenance" means actions taken for the continued health of a protected tree including but not limited to: deadwooding, mowing grass close to a tree, and application of insecticides and pesticides.

"Single-family dwelling" means a building designed for and/or occupied as a residence by one family.

"Site planning meeting" means an on-site meeting with the owners, developer and his or her contractors, and/or engineers; the arborist; and county representatives to delineate special procedures, limits of work, lines of authority and special conditions or procedures not specifically covered by ordinance.

"Tree" means a tall woody plant native to California, with a single main stem or trunk at least six inches dbh, or a multiple trunk with an aggregate of at least ten (10) inches dbh. (Note: Digger pines are exempt from this article. Also, see "riparian zone" definition.) Certain plants which are more commonly found as "brush", such as manzanita, are not considered to be a tree in this article regardless of size. (Ord. 5041-B §§ 1, 2, 2000; prior code §§ 36.210—36.282)

12.16.030 General county-wide requirements.

A. This article is applicable to all native, landmark trees, riparian zone trees, and certain commercial firewood operations, except as exempted.

B. Riparian Zone Requirements.

1. Within any riparian zone, in all areas of the county in conjunction with any discretionary project and in any tree preservation zone for all development activity, compliance with this article for any development activity in the protected zone of a protected tree shall be required.

2. No tree permit or discretionary approval for any development activity within a riparian zone shall be approved until environmental impacts within the riparian zone are identified, an

environmental determination is made and the mitigation measures identified (Chapter 18, Placer County Code). Additionally, no development activity shall be permitted until any stream alteration agreement or mitigation agreements required by the California Department of Fish and Game have been completed.

3. Advisory Comment. This is not a categorical prohibition on any tree removal within a riparian zone but rather a requirement for review of proposed development activity and approval of a tree permit or discretionary project prior to such disturbance occurring.

C. Commercial Firewood Cutting.

1. Licensing Required. Fuel wood production is considered commercial when a party cuts firewood for sale or profit. A commercial operator shall be required to hold a Class A or B timber operator's license pursuant to the laws of the state of California and have attended the training seminar offered by the California Division of Forestry pertaining to proper forest management techniques.

2. Permit Required. A tree permit shall be required for commercial firewood cutting of any size or type of tree in all areas of the county west of the Foresthill general plan area (see map available in the planning office) when the amount of wood taken from any given site exceeds two cords or two hundred fifty-six (256) cubic feet of wood within a one year period. In reviewing a permit application, the planning department will consider the following:

a. Whether the trees to be removed would have a significant negative environmental impact.

b. That the proposed removal will not result in clear-cutting, but will result in thinning or stand improvement.

c. Whether replanting is necessary to insure adequate regeneration.

d. Whether the removal would create the potential for soil erosion.

e. Whether any other limitations or conditions should be imposed in accordance with sound tree management practices.

f. Evaluate the resulting canopy cover.

D. Removal of More Than Fifty Percent of Trees. Except for developed, single-family residential lots that cannot be subdivided, the removal of more than fifty (50) percent of existing native trees, six inches dbh or greater, shall be subject to the issuance of a tree permit. Failure to obtain a permit prior to the removal of more than fifty (50) percent of the existing native trees in these areas may result in the denial or deferral of any application for development of that property for a period of up to ten (10) years.

E. The provisions of this article apply to all projects where discretionary permit approvals are required by the county provided, however, no landmark tree may be removed without obtaining a tree permit pursuant to Section 12.16.060. Except for subsection C, a landmark tree is not subject to the exemptions set forth in Section 12.16.050. (Ord. 5041-B § 3, 2000: prior code § 36.321)

12.16.040 Tree preservation zones.

Except as exempt, and as noted in Section 12.16.030, the provisions of this article are applicable to discretionary projects and to the following areas of the county: Dry Creek-West Placer community plan, Granite Bay community plan, portions of the Loomis Basin general plan, and the Auburn-Bowman community plan (see tree preservation zone map, available in the planning office). Also, see county-wide restrictions for riparian zones, commercial firewood cutting, restrictions for removal of more than fifty (50) percent of trees, and where discretionary permits are required. (Prior code § 36.320)

12.16.050 Exemptions.

A tree permit is not required for the removal of a protected tree under the following circumstances: (Except for subsection C, a landmark tree is not subject to the exemptions set forth below.)

A. Trees damaged and determined to be of immediate danger to either people or site improvements by thunderstorms, windstorms, floods, earthquakes, fires or other natural disasters. Upon discovery of a condition justifying removal, the planning department should be notified as soon as possible of the condition and action taken.

B. Tree removal necessary to comply with CDF fire safety regulations (i.e., clearing around homes) or tree removal undertaken as a part of a fuel reduction/fire safety/fire protection program in conformance with commonly accepted CDF policies.

C. When removal is determined to be necessary by fire department personnel actively engaged in fighting a fire.

D. When compliance would interfere with activities of a public utility necessary to comply with applicable safety regulations and/or necessary to repair or avoid the interruption of services provided by such a utility. Routine repair and maintenance of utilities would be exempt; new construction projects (i.e., the installation of high power, transmission line corridor) are subject to review.

E. Trees (1) that have been identified by an arborist, forester, or county arborist/licensed landscape architect as "dying" or "unhealthy," (2) dead trees or (3) trees that are in a hazardous condition presenting an immediate danger to health and property.

F. Lots designated for commercial tree removal (i.e., Christmas tree farms, approved timber harvest plans, timber preserve zoned lands, approved logging operations, etc. (Note: Does not include commercial firewood cutting unless specifically exempt by state or federal permits and Eucalyptus or Poplar firewood plantations.)

G. Bona fide active agricultural uses as defined by the county agricultural commissioner are exempt, except commercial cutting of firewood, and development activity within a riparian zone are not exempt. (Also, see county-wide requirements, Section 12.16.030.) (Ord. 5041-B § 4, 2000: prior code § 36.330)

12.16.060 Tree permit required.

Except as provided under "exemptions," no person, firm, corporation or county agency shall conduct any development activities within the protected zone of any protected tree on public or private land, or harm, destroy, kill or remove any protected tree unless authorized by a tree permit or as permitted pursuant to approval of a discretionary project. A minor tree permit may also be issued "in the field" by the county arborist, thus eliminating the need for an individual to apply in person at the planning department. Tree removal shall also be reviewed as a part of discretionary project review. This type of review is primarily for commercial projects, industrial projects, major subdivisions, public projects, or other projects that are also associated with a discretionary permit. This type of review is completed concurrently with the discretionary permit and requires more detailed information than a minor tree permit (see below).

A. Minor Tree Permit. (i.e., issued for single-family residential lots and projects where no other discretionary permits are required, etc.) Any person desiring to conduct any development activity or remove one or more protected trees, where such development activity or removal is not associated with a discretionary project, shall make application to the planning department for a minor tree permit not less than ten (10) days prior to the date the applicant wishes to conduct the development activity. Said application shall contain:

1. A brief statement of the reasons for the development activity;
2. Written consent of the owner of record of the land on which the proposed development activity is to occur;
3. If necessary, an arborist's report relating to the tree(s) in question; and
4. Other pertinent information as deemed necessary by the planning department or county arborist;
5. Violations that occur with minor tree permits may be required to submit information equal to that normally required for discretionary projects (as listed in subsection B of this section);
6. The required filing fee of twenty-five dollars ($25.00).

Note: A minor tree permit may be issued for the purpose of maintaining existing trees in a healthy condition on land that may be developed in conjunction with a discretionary project.

B. Tree removal associated with a discretionary project (i.e., permits issued for subdivisions, commercial, and industrial projects, etc.). Any person desiring to conduct a development activity within the protected zone of a protected tree pursuant to a discretionary project shall submit the following information as a part of the application for the discretionary project:

1. Justification Statement. A written statement by the applicant or an arborist stating the justification for the requested development activity. Statements should establish how any remaining protected trees in the vicinity of the project or construction site will be protected and that any construction or use will be done with approved preservation methods.

2. Site Plan Map. A site plan map shall include the following information:

a. Physical Characteristics. The body of the map should accurately portray the following existing and proposed features:

i. Property lines;

ii. Streets, access easements and/or public or private driveways and other paved areas;

iii. Buildings or structures;

iv. Setbacks of all buildings and structures from property lines;

v. Parking and other paved areas;

vi. Land uses on parcel (existing and proposed as applicable);

vii. Proposed grading and construction - including utilities, if available;

viii. Proposed building envelopes.

b. Tree Locations. All protected trees within fifty (50) feet of any development activity, including future homesites in subdivisions located on the property, must be depicted on the site plan map. Additionally, the site plan map shall indicate the exact location of the base and dripline for all protected trees within the project areas. A survey of the exact location(s) of the protected tree(s) shall be conducted by a California professional engineer or California professional land surveyor. The tree number(s) shall be shown on both the site plan and grading plan. The base elevation of each protected tree shall be shown on the grading plan. Certain projects, as required by the approving body, may be required to submit a current aerial photograph of the site (i.e., parcels with high density trees). (Note: Applications with high density of trees or other special circumstance may request a waiver or modification to tree location requirements.)

c. Protected Zone of Protected Tree(s). The exact location of the protected zone of a protected tree is crucial in order to evaluate any impacts resulting from construction. Consequently, rough approximations will not be acceptable. In certain cases, it may be required to physically stake the surveyed corners of building(s) or related improvements in the field in order to assess the potential impacts upon the trees.

3. Arborist Report. See definition in Section 12.16.020.

4. Filing Fee. A surcharge of fifty dollars ($50.00) shall be added to all discretionary permits subject to the requirements of this article. (Prior code § 36.400)

12.16.070 Tree permit applications—Review methodology.

A. General.

1. Evaluation of development activity associated with a discretionary project shall be the sole responsibility of the approving body approving the project. After occupancy has been granted or a notice of completion filed, the planning director shall assume responsibility for ensuring continuing compliance.

2. Exception. Requests for encroachments of up to twenty (20) percent of the protected zone of a protected tree may be processed by the planning director. In cases where requests for encroachments are denied by the planning director, the applicant shall have the right to appeal to the board of zoning appeals. Appeal must be made in writing within ten (10) days and accompanied by the appropriate appeal fee.

3. Tree permits shall not be issued for parking or storing of vehicles, trailers, equipment, construction materials or temporary structures within the protected zone of a protected tree.

B. Application Review. Upon receipt of an application for a tree permit, the planning department shall review the application for accuracy and completeness and make an inspection of the project site. If the application is incomplete, it will be returned to the applicant and no action will be taken until all of the required information has been received by the county.

C. Environmental Determination. An environmental determination may be required pursuant to the California Environmental Quality Act. The issuance of a minor tree permit shall be exempt from environmental review when it is related to an activity listed in Section 18.36.050 of this code.

D. Approval.

1. In passing judgment upon permits or applications required pursuant to the provisions of this chapter, the approving body may impose such reasonable conditions of approval as are necessary to protect the health of the protected tree, the public and the surrounding property or environmental features.

2. An approved minor tree permit shall be valid for a period of six months from the date of issuance. An extension of time may be granted by the planning director for a period of up to an additional six months. Approval of tree removal associated with discretionary projects shall be valid only as long as the approval for the discretionary project is valid.

3. The applicant shall have the minor tree permit and a copy of the conditions of approval imposed by the approving body at the construction site. For discretionary projects, a copy of the conditions of approval shall be kept on-site during the construction phase of the subject.

4. For trees designated to be saved within fifty (50) feet of any development activity, or as recommended by the arborist, or as required by the approving body, a minimum four-foot tall brightly colored synthetic fence shall be installed at the outermost edge of the protected zone of each protected tree or groups of protected trees. The fence shall not be removed until written authorization is received from the planning director. Exceptions to this policy may occur in cases where protected trees are located on slopes that will not be graded. However, approval must be obtained from the planning department to omit fences in any area of the project. The fences must be installed in accordance with the approved fencing plan prior to the commencement of any grading operations or such other time as described by the approving body. The developer shall call the planning department for an inspection of the fencing prior to initiation of grading operations.

For discretionary projects, signs must be installed on the fence in four locations (equidistant) around each individual protected tree. The size of each sign must be a minimum of two feet by two feet and must contain the following language:

"WARNING THIS FENCE SHALL NOT BE REMOVED OR RELOCATED WITHOUT WRITTEN AUTHORIZATION FROM PLACER COUNTY"

On fencing around a grove of protected trees, the signs shall be placed at approximately fifty (50) foot) intervals.

5. For discretionary projects, once approval has been obtained, the fences must remain in place throughout the entire construction period and may not be removed without obtaining written authorization from the planning department.

6. For discretionary projects, (single-family residences exempt) a ten thousand dollar ($10,000.00) deposit (or an amount deemed necessary by the approving body based upon the size and scale of the project in relation to the tree removal/tree protection to be required) may be required to be posted and maintained to insure the preservation of protected trees during construction. The deposit shall be in the form of a certificate of deposit, cash deposit, or letter of credit from a bank, and shall be posted prior to any grading or movement of heavy equipment onto the site or issuance of any permits. Each violation of any tree permit condition regarding tree preservation shall result in forfeiture of a portion or the entirety of the deposit, at the discretion of the approving body in addition to other applicable penalties. Appeals may be made pursuant to the procedure outlined in this article.

7. In cases where a tree permit has been approved for construction of a retaining wall(s) within the protected zone of a protected tree, the applicant will be required to provide for immediate protection of exposed roots from moisture loss during the time prior to completion of the wall. The retaining wall should be constructed within seventy-two (72) hours after completion of grading.

8. If approved, preservation devices such as aeration systems, oak tree walls, drains, special paving and cabling systems must be installed per approved plans and certified by the developer's arborist.

9. For discretionary projects, certification letters are required for all development activity conducted within the protected zone of protected trees. The developer's arborist will be required to submit a certification letter to the planning department within five working days of completion of such development activity attesting that all of the work was conducted in accordance with the appropriate permits and the requirements of this article.

10. The following information, if applicable, must be located on-site:

a. Arborist's report and all future modifications.

b. Tree location map with a copy of the tree fencing plan.

c. Tree permit and inspection card.

d. Approved construction plans.

e. Tree preservation guidelines.

f. Approved planting and irrigation drawings.

E. Denial and Appeal.

1. If an application for a tree permit is denied, the approving body shall provide written notification, including the reasons for denial, to the applicant.

2. Appeal of a decision made by an approving body shall be made as provided in Section 1400 of the Placer County Zoning Ordinance.

3. All appeals must be made in writing within ten (10) calendar days of the denial stating the facts and grounds of appeal and accompanied by the appropriate appeal fee. Denials issued by the arborist may be appealed to the planning director within ten (10) days without paying an appeal fee.

F. Tree Permit Construction Phase.

1. All work conducted within the protected zone of any protected tree shall be performed as required by this article and as required in project approval.

2. For Discretionary Projects, as a part of the application, the developer will be required to submit a utility trenching-pathway plan for approval following approval of the project improvement plans. The trenching-pathway plan shall depict all of the following systems: storm drains, sewers, easements, water mains, area drains, and underground utilities. Except in lot sale subdivisions, the trenching-pathway plan must show all lateral lines serving buildings. To be completely effective, the trenching-pathway plan must include the surveyed locations of all protected trees on the project as well as an accurate plotting of the protected zone of each protected tree.

The trenching-pathway plan shall be developed considering the following general guidelines:

a. The trenching-pathway plan must be developed to avoid going into the protected zone of any protected tree on its path from the street to building.

b. Where it is impossible to avoid encroachment, the design must minimize the extent of such encroachment. Encroachments and mitigation measures must be addressed in a supplemental arborist's report.

3. Certification of Tree Work. All of the tree preservation measures required by the conditions of the discretionary project approval, the arborist's report and the tree permit, as applicable, shall be completed and certified by the developer's arborist prior to issuing an occupancy permit.

G. Information to be Included in Arborist Report.

1. Botanical name of tree(s) by tree number.

2. Common name of tree(s) by tree number.

3. Location of tree(s) by tree number.

4. Diameter at breast height (DBH) by tree number.

5. Height by tree number (optional).

6. Dripline radius by tree number (measure longest radius).

7. Condition by Tree Number. The condition of each tree is to be considered when determining a tree's rating system:

a. Excellent (It is rare that a tree qualifies in this category.)

b. Good.

c. Fair to good.

d. Fair.

e. Fair to poor.

f. Poor.

8. Recommendations by Tree Number. Based upon the conditions and findings, recommendations should be made that logically follow the report conditions. For instance, if weak crotches are reported, cabling would be a logical recommendation to include in the report. These recommended mitigative measures should be spelled out and in some cases may even improve the tree's condition ratings.

9. Specific and general information about preservation measures to be taken for each tree not being removed. (Prior code § 36.500)

12.16.080 Replacement program and penalties.

A. The approving body may condition any tree permit or discretionary approval involving removal of a protected tree upon the replacement of trees in kind. The replacement requirement may be calculated based upon an inch for an inch replacement of the removed tree(s) and may require minimum fifteen (15) gallon size trees. The total of replacement trees may be required to have a combined diameter of the tree(s) removed. A minimum of fifty (50) percent of replacement trees shall be of a similar native tree. Replacement trees may be planted on-site or in other areas to the satisfaction of the planning department. Such replanting must not result in the over-planting of a site such that an unsafe fire condition is created.

B. The approving body may, instead of requiring replacement trees, require implementation of a revegetation plan. The county will require the developer to enter into a written agreement with the county obligating the developer to comply with the requirements of the revegetation program. A security deposit shall be required to insure that the agreement is fulfilled. The revegetation program may include the propagation of native oak trees from seed or saplings using currently accepted methods.

C. The approving body may decide that if the project site is not capable of supporting all of the replacement trees, the applicant shall pay to Placer County the current market value, as established by an arborist, forester, or registered landscape architect, of the replacement trees, including cost of installation, to go into a tree preservation fund (see subsection I of this section).

D. In addition, any protected or preserved tree shall not be damaged during construction. A penalty, payable to the county, in the amount of fifty dollars ($50.00) per scar will be required. If necessary, an arborist report may be required to be filed by the applicant to determine the extent of damage.

E. Any person, firm, or corporation that does not apply for a tree permit prior to removal of protected trees, and where no security deposit has been posted, shall replace trees as noted in subsection A, B, or C of this section, in addition to paying a fine of the current market value of the replacement trees.

F. Any person, firm, or corporation that removes or destroys any tree or trees that have been designated to be saved by an approving body shall be fined up to three times the current market value of the replacement trees and the cost of replacement, and/or replace up to three times the number of trees required by this article.

G. Except as provided in this article, if trees are removed without prior approval of an approving body, the approving body may choose to deny or defer approval of any application for development of that property for a period of up to five years.

H. The Board of Supervisors may consider the rezoning of a parcel or parcels of land on which a violation of this article has occurred.

I. Tree Preservation Fund. A tree preservation fund is established for Placer County. The moneys received in lieu of replacement of illegally removed or damaged trees shall be forwarded to the county treasurer for deposit in the tree preservation fund. Under no circumstances shall the funds collected by the county treasurer for deposit into the tree preservation fund be directed to any other fund to be used for any other purposes other than the planting of or maintenance of trees on publicly owned property, easements of rights-of-way, or used for educational programs or materials. A certain percentage of the fund (as determined by the board of supervisors) may be used for enforcement of the article and/or land acquisition.

J. A violation of this article shall be punishable as a misdemeanor or an infraction at the discretion of the county counsel and/or the district attorney.

K. Survivability.

1. Any person, firm or corporation that is required to replant, relocate or revegetate as a condition of his or her tree permit or discretionary project approval will be required to provide appropriate irrigation and maintenance for the trees. To assure survivability, a maintenance agreement shall be entered into and a deposit established by the approving body, not greater than the replacement costs, shall be posted with the county. The deposit shall be retained until the county arborist certifies the conditions of the tree permit are satisfied. After three years, an arborist or forester employed by the developer will identify to the county the condition of the replanted trees or revegetated area.

2. Any five gallon size tree or greater that was replanted or relocated that is dead after three years, must be replaced in kind with equal sized healthy replacements. Revegetated areas or areas where trees smaller than five gallon size were replanted must have at least seventy-five (75) percent of the trees still alive after three years.

3. Failure to provide adequate irrigation and maintenance for the replanted or relocated trees, or the revegetated areas, or the failure to replace trees which have not survived, will result in forfeiture of all or part of the survivability deposit. (Prior code § 36.600)

12.16.090 Administrative remedies.

A. Suspension, Revocation and Restoration. In addition to any other penalties allowed by this code, the approving body may suspend any tree permit for a discretionary project upon a finding at a public hearing that a violation of conditions of approval has occurred.

B. Appeal. Appeal may be made directly to the planning department, within ten (10) days of imposition of conditions. An appeal shall state the facts and grounds of appeal and shall be accompanied by the appropriate appeal fee. Appeals shall be subject to the provisions set forth in Section 1400 of the Placer County Zoning Ordinance.

C. Stop Work Orders. Whenever any construction or work is being performed contrary to the provisions of this article or conditions of the appropriate discretionary project, the planning director may issue a written notice to the responsible party to stop work on the project on which the violation has occurred or upon which the danger exists. The notice shall state the nature of the violation and the risk to the trees. No work shall be allowed until the violation has been rectified and approved by the planning department or the county's arborist.

D. Public Education. It is recognized that the loss of native oaks is, in part, a result of the lack of public awareness on oak tree preservation. In order to heighten public awareness on this subject, the following programs shall be established as a part of this article.

1. A minimum of ten (10) percent of the funds collected in the tree preservation fund shall be used to promote and establish educational programs, and develop educational materials. Examples would be:

a. Educational materials to be handed out with building permits and to be made available to the general public (i.e., brochures on development near native oak trees).

b. Promoting elementary and secondary school programs on native oak trees (i.e., acorn or tree planting programs).

c. Funding to pay for brochure inserts into local newspapers for general public distribution.

2. Developers or sellers of lots within major subdivisions shall be required to distribute educational material to buyers at the closing of escrow.

3. The county shall, as a condition of all major subdivisions, require that CC & R's have restrictions which protect native oaks that are designated to be saved (i.e., limited watering around oaks, etc.). (Prior code § 36.700)

12.16.100 Review of ordinance.

After one year of implementation of this article the county shall conduct a review to identify areas of concern, deficiencies, administration difficulties, etc., and report to the board of supervisors. The board, at that time, may consider any recommended changes or improvements necessary. (Prior code § 36.800)

Article 12.20

TREE PRESERVATION IN AREA EAST OF SIERRA SUMMIT

Sections:

12.20.010	**Findings.**
12.20.020	**General provisions.**
12.20.030	**Definitions.**
12.20.040	**Permit procedure.**
12.20.050	**Standards for tree cutting and issuance and revocation of permits.**
12.20.060	**Removal of diseased or hazardous trees.**
12.20.070	**Authority to stop work.**
12.20.080	**Variances.**
12.20.090	**Exemptions.**
12.20.100	**Violation constitutes a misdemeanor.**

12.20.010 Findings.

The governing body of the county of Placer finds that in order to prevent the wanton and unnecessary cutting of healthy trees in the developed and developable areas of the area east of the Sierra summit, to provide for the conservation of as many healthy trees in the area east of the Sierra summit as possible consonant with permissible development, to provide for the control of disease and insect infestation in the area east of the Sierra summit, and in order to effectuate the adopted regional plan, it is necessary to adopt the ordinance codified in this article establishing minimum standards and providing regulations governing the preservation of trees on land devoted or to be devoted primarily to uses other than the commercial harvesting of timber in the Tahoe Basin, providing for the issuance of permits, providing for minimum standards and conditions of approval of permits including restrictions on attachment of appurtenances, providing for removal of diseased, infested or hazardous trees, providing for variances, providing for stop orders, providing that violations of the provisions of this ordinance shall constitute a misdemeanor, and providing for other matters properly relating thereto. (Prior code § 20.1)

12.20.020 General provisions.

A. Compliance. The cutting, moving, removing, killing, or materially damaging of live trees six inches d.b.h. or over, the removal of disease-infested and hazardous trees, and the attachment of appurtenances to trees shall be in compliance with the terms of this article, and permits respecting the same shall be granted or denied in conformity with the provisions of this article, provided, however, that

this article shall not apply to lands devoted to the growing and harvesting of timber for commercial purposes for which permits have been granted permitting timber harvesting. All such tree cutting shall also conform to the provisions of all other agency ordinances, rules, regulations, and policies.

B. The provisions of this article establish the minimum standards applicable in Ranges 15, 16, and 17 East.

C. Interpretation and Severability. The provisions of this article shall be liberally construed to effectuate their purposes. If any section, clause, provision, or portion of this article is adjudged unconstitutional or invalid by a court of competent jurisdiction, the remainder of this article shall not be affected thereby.

D. Short Title. This article may be cited and referred to as the tree conservation ordinance. (Prior code § 20.5)

12.20.030 Definitions.

For the purposes of this article, certain terms or words used herein shall be interpreted as follows: words in the present tense include the future; words in the singular number include the plural number, and words in the plural number include the singular number. The word "shall" is mandatory, not permissive, unless the context indicates that a directory meaning is intended.

"Agency" means the county of Placer.

"d.b.h." means diameter at breast height; the diameter of a tree measured at four and one-half feet above the ground on the high side of the tree. Circumference of nineteen (19) inches at dbh may be treated as the equivalent of six inches dbh.

"Grading ordinance" means the county of Placer grading ordinance.

"Lands devoted to the growing and harvesting of timber for commercial purposes" means such lands that are devoted principally to the production of raw material for the forest products industry, or for silvicultural purposes including Christmas tree harvest, but not including lands undergoing land use conversion or lands where timber is cut for fuel purposes.

"Land use conversion" means the conversion to other uses of timberland as defined by statutes and regulations of California and Nevada and for which a timberland conversion certificate or approval is required by such statutes or regulations.

"Land use ordinance" means the Placer county zoning ordinance.

"Permit-issuing authority" means the county of Placer department of public works.

"Person" means an individual, partnership, corporation, business association, or group of individuals, and any governmental entity.

"Subdivision ordinance" means the county of Placer subdivision ordinance. (Prior code § 20.10)

12.20.040 Permit procedure.

A. When Required. No person shall cut down, move, remove, kill, or materially damage any live tree six inches dbh or over, or attach any appurtenance to a tree, without first having obtained a tree cutting permit from the permit-issuing authority, unless such tree is located on lands devoted to the growing and harvesting of timber for commercial purposes for which permits have been granted permitting timber harvesting. Such permit shall be unnecessary for the removal of trees proposed to be removed as approved in connection with the approval by the agency of a tentative map under the subdivision ordinance, except where such subdivision involves a land use conversion, or for the removal of trees as permitted under a permit issued pursuant to the grading ordinance, provided, however, that the standards contained in this article shall also be applicable to the approval of a tentative and final subdivision map and to the issuance of a grading permit.

B. Application Form. Applications required by this article shall be made as provided by the applicable provisions of the rules and regulations of practice and procedure of the agency and rules and procedures of the permit-issuing authority.

C. Information Report.

1. All Applications. All applicants for tree cutting permits shall file a report with the permit-issuing authority that states:

a. The name, address, and the phone number of the applicant, and the owner of record of the land on which the tree cutting is proposed;

b. The consent of the owner of record of such land, if such owner is a person other than such applicant;

c. The location of the land on which the cutting is proposed;

d. The purpose of such tree cutting;

e. The dates on which cutting and removal operations will take place;

f. A drawing acceptable to the permit-issuing authority at a scale adequate to show the height, species, dbh, and location of all trees on the site over six inches dbh proposed to be cut, and a drawing or sketch indicating the general location, characteristics and densities of trees proposed to be left on the site.

2. Applications Involving Land Use Conversions. Applicants for tree cutting permits, where the purpose of such tree cutting is to accomplish a land use conversion, in addition to the information required pursuant to subsection (C)(1) of this section, shall submit:

a. A detailed statement describing how the standards and criteria of Section 12.20.050 shall be satisfied;

b. A copy of the document approving the land use conversion issued by the applicable State Division of Forestry;

c. In lieu of the drawing required by subsection (C)(1)(f) of this section, a map acceptable to the permit-issuing authority at a scale adequate to show the location of proposed and existing buildings and driveways, the location of proposed utility trenches, and the height, species, dbh, and location of all tree over six inches dbh proposed to be cut, and a drawing or sketch indicating the general location, characteristics and densities of trees proposed to be left and planted on the site, provided, however, in the case of a subdivision, such information may be contained in the tentative map and the vegetation preservation and protection plan as required by the subdivision ordinance. (Prior code § 20.15)

12.20.050 Standards for tree cutting and issuance and revocation of permits.

A. Permit Duration. All tree cutting authorized by a tree cutting permit shall be completed within the length of time specified by the permit-issuing authority, not to exceed ninety (90) days.

B. Extension. An extension of the permit may be granted upon a showing by the permittee that the work was delayed by reasons beyond the permitee's control or that an extension will not increase the risk of environmental damage caused by the tree cutting.

C. Permit Conditions. A tree cutting permit may be issued upon any conditions necessary to assure compliance with the standards and criteria of this article and any other agency ordinance, rule, regulation or policy, or any provision of the adopted regional plan.

D. Permit Card. A permit card issued to the permittee by the permit-issuing authority, and stating any conditions of approval, shall be displayed by the permittee in a conspicuous place at the cutting site, provided, however, that the tree cutting permit may be part of a building permit which is displayed at the site.

E. Revocation of Permit. The permit-issuing authority shall revoke any permit whenever there has been a false statement or representation in the application as to any material fact on which the permit was based.

F. Minimum Standards and Conditions of Approval.

1. Existing healthy trees and native vegetation on the site shall be preserved in accordance with standards contained in an agency-approved design manual, if any, and shall be protected by adequate means during any construction.

2. Existing trees shall be preserved within any right-of-way when such trees are suitably located, healthy, and when approved grading allows.

3. Appurtenances, except utility connections, such as television antennas, signs, and outdoor lights shall not be attached to trees.

4. Tree cutting within the one hundred (100) year floodplain of a perennial or intermittent stream shall be limited to cutting diseased or hazardous trees or to thinning needed to protect the health and vigor of remaining trees.

5. Damage to trees not to be cut and to residual vegetation shall be avoided. Damaged trees shall be repaired with tree sealer and any necessary tree surgery.

6. No tree shall be felled into a perennial or intermittent stream without specific approval of the permit-issuing authority.

7. Any stump to be left in the ground shall be treated with approved chemicals or methods to prevent the spread of forest tree diseases.

8. Ground skidding shall not be allowed.

9. Slash, debris, and nonmerchantable timber generated by the operation shall be disposed of in the manner and to a location approved by the permit-issuing authority.

10. All tree removal sites shall be winterized before the end of the construction season, or stabilized before the end of the construction season so as to prevent erosion and soil loss from the site.

11. In the case of land use conversion, approval shall be conditioned on compliance with all requirements of the timberland conversion certificate issued by the appropriate State Division of Forestry. (Prior code § 20.20)

12.20.060 Removal of diseased or hazardous trees.

A. The permit-issuing authority may determine, on the advice of the appropriate State Division of Forestry, or other competent authority, that a tree or trees on private or public land is diseased, insect infested, or hazardous to the public, and may declare such diseased, infested, or hazardous condition to constitute a public nuisance. Upon making such a determination, the permit-issuing authority or the agency shall, by written notice, notify the owner of the land on which the tree or trees is located of the condition and of his duty to abate it within a specified period of time. If the owner refuses or fails to respond within the time specified, the permit-issuing authority shall abate the nuisance and charge the owner the cost, which shall be a lien on the owner's property.

B. In cutting trees for land use conversion, all diseased, infested, or overmature trees shall be removed prior to construction.

C. All diseased and bug-infested trees shall be treated prior to removal by approved methods to prevent the spread of such disease or infestation. (Prior code § 20.25)

12.20.070 Authority to stop work.

A. Whenever any tree cutting or other activity regulated by this article is being done contrary to the provisions of this article, rule, or regulation, or any other law, the permit-issuing authority or the agency by its executive officer or designee may issue a written notice to the responsible party to stop work on such tree cutting or other activity. The notice shall state the nature of the violation.

B. A notice to stop work as provided in subsection A of this section shall stay in effect until revoked by the issuing authority, provided, however, that the party to whom the notice was issued may obtain review of the action. Such review in the case of a notice to stop work issued by the permit-issuing authority shall be as provided by such authority. (Prior code § 20.30)

12.20.080 Variances.

The permit-issuing authority may grant variances from the terms of this article only if it is found that because of special circumstances applicable to the property involved a strict application deprives such property of privileges enjoyed by other similarly situated property and the applicant shows that he cannot make any reasonable use of the property if such regulations are applied. Where such conditions are found, the variance permitted shall be the minimum departure from existing regulations necessary to avoid such

deprivation of privileges enjoyed by such other property and to facilitate a reasonable use, and which will not create significant probabilities of harmful environmental consequences. In no case may a variance be granted that will provide the applicant with any special privileges not enjoyed by other similarly regulated properties. (Prior code § 20.35)

12.20.090 Exemptions.

The provisions of this article shall not be applicable to lands owned by the United States Government, or to trees cut in emergencies involving lives or persons and public safety including the suppression of wild fires. (Prior code § 20.40)

12.20.100 Violation constitutes a misdemeanor.

Violation of any provision of this article is punishable as provided in Article 1.24. (Prior code § 20.45)

5. OAK WOODLAND MANAGEMENT AND TREE CARE GUIDELINES

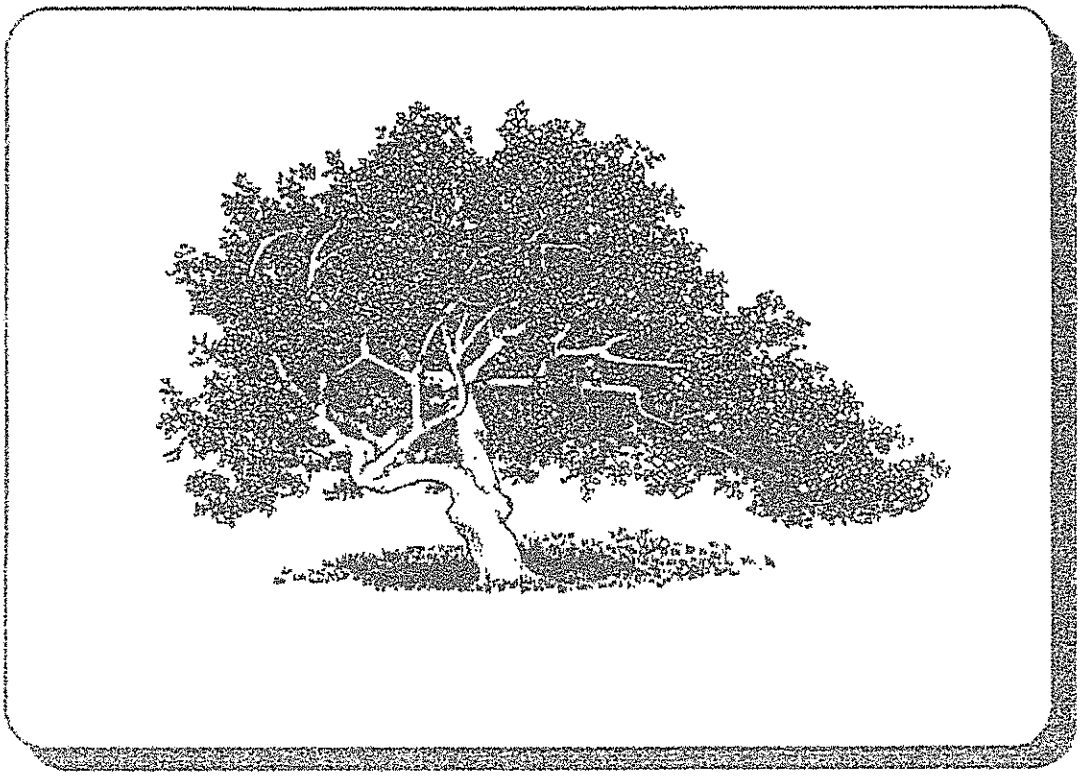
A) FRESNO COUNTY

B) CITY OF VISALIA

A) FRESNO COUNTY

Fresno County

Oak Woodland Management Guidelines



Adopted March 10,1998

Sponsored by

SIERRA RESOURCE CONSERVATION DISTRICT
843 Euclid Avenue Clovis, CA 93612

and

WESTSIDE RESOURCE CONSERVATION DISTRICT
PO Box 205, Five Points, CA 93624

Fresno County Oak Woodland Management Guidelines

The following recommendations are being presented to landowners to assist them in determining how they can best manage their oak woodlands. We emphasize that these guidelines are voluntary. The recommendations are not in any particular order of importance. All recommendations should be considered when reviewing a specific piece of property. Landowners are encouraged to create an Oak Management Plan for their property using the Integrated Hardwood Management Program information and the other listed resources for specific assistance.

1. **When Building Within Oak Woodlands:**

- Develop an Oak Woodland Management Plan to retain existing oaks, preserve agriculture, retain wildlife corridors and enhance soil and water conservation practices.
- Avoid tree root compaction during construction by limiting heavy equipment in root zones.
- Carefully plan roads, cuts and fills, building foundations and septic systems to avoid damage to tree roots. Design roads and consolidate utility services to minimize erosion and sedimentation to downstream sources. Also, consider reseeding any disturbed ground.
- Avoid landscaping which requires irrigation within ten (10) feet of the trunk of an existing oak tree to prevent root rot.
- Consider replacing trees whose removal during construction was unavoidable.
- Use fire-inhibiting and drought tolerant and oak compatible landscaping wherever possible.

2. **Take Steps to Increase Fire Safety on Wooded Parcels:**

- Recognize fire as a natural feature of the oak woodland landscape and plan accordingly.
- Set up a continuous management program as a part of your Oak Woodland Management Plan to maintain a fire-safe property environment.
- Identify and manage trees to be fire-safe.
- Recognize the impact of steep slopes on fire safety.
- Develop a fire-safe and oak-friendly landscape plan for your home or business.
- Create "Defensible Space" around buildings. Defensible space is that area which lies between a structure and an oncoming wildfire where the vegetation has been modified to reduce the wildfire threat and which provides an opportunity for firefighters to safely defend a structure.

3. **When Implementing Range Improvement Practices in Oak Woodlands:**

- When using prescribed fire as a range improvement practice, obtain professional assistance to maximize benefits and minimize risk.
- When converting oak woodlands to other agricultural uses, consider incorporating an oak retention component or a conservation easement in your Oak Woodland Management Plan.
- Develop water sources - ponds, troughs, seeps and springs for livestock and wildlife.

4. **When Harvesting Oaks for Fuel or Range Improvement, Plan Your Harvest to:**

- Maintain an average canopy cover of 10% to 30% depending on site, elevation and precipitation.
- Retain some oak trees of all sizes and species represented at the site, in clusters where possible.
- When safety permits, leave old hollow trees and those actively being used for nesting, roosting or feeding.
- Where low fire risk and aesthetics allow, pile limbs and brush to provide wildlife cover.
- Where commercial or extensive harvest is being contemplated, seek professional advice.

Oak Woodland Resources for the Landowner

Learn About Conservation Districts: California Association of Resource Conservation Districts
http://www.carcd.org/

Sierra Resource Conservation District
843 Euclid Avenue, Clovis, CA 93612 (559) 299-4585

Westside Resource Conservation District
P.O. Box 205, Five Points, CA 93624 (559) 227-2489

University of California Cooperative Extension Farm Advisor
1720 S. Maple Ave., Fresno, CA 93702 (559) 456-7285

Ask the Experts: University of California
Department of Agriculture and Natural Resources
http://news.ucanr.org/

Integrated Hardwood Range Management Program
Neil McDougald, Area IHRMP, (559) 675-7879
Serving Fresno, Madera and Mariposa counties
328 Madera Ave., Madera, CA 93637
http://danr.ucop.edu/ihrmp/

Guidelines for Managing California's Hardwood Rangelands; University of California Division of Agriculture & Natural Resources Publication 3368; Published 1996
Ordering information: 1-800-994-8848
Email to: rippee@nature.berkeley.edu

Oaks 'n Folks - **Integrated** Hardwood Range Management Program Newsletter; Free;
http://danr.ucop.edu/ihrmp/oakfolk.html

California Department of Forestry and Fire Protection
Sierra South Region Headquarters, 1234 E. Shaw Ave. Fresno CA 93710-7899
(559) 222-3714
http://www.fire.ca.gov/

Forestland Steward Quarterly Newsletter, California Forest Stewardship Coordinating Committee, PO Box 944246, Sacramento, CA 94244-2460 916-653-8286
http://ceres.ca.gov/foreststeward/html/newsletter.html

Natural Resources Conservation Service, USDA
4625 W. Jennifer, Suite 125, Fresno CA 93722 (559) 276-7494
http://www.nrcs.usda.gov/

California Department of Fish and Game
1234 E. Shaw Ave., Fresno CA 93710-7899 (559) 222-3761
http://www.dfg.ca.gov/

ADDITIONAL REFERENCE - Other Oak Woodland Management Publications:
Note: Most resource agencies have free literature on oak woodlands.

- *Oaks of California*; soft cover, 184pp. California Oak Foundation, 1212 Broadway, St. 810, Oakland, CA 94612; (510) 763-0282
- *Living among the Oaks*; An oak management guide for homeowners 8pp. Free; University of California Cooperative Extension, 328 Madera Ave., Madera, CA 93637 (559) 675-7879

Federal, State and Fresno County programs are offered on a nondiscriminatory basis, without regard to race, color, national origin, sex, age, marital status, or handicap.

FRESNO COUNTY BOARD OF SUPERVISORS RESOLUTION

WHEREAS, the State of California Board of Forestry has taken action to support oak woodland protection through local efforts; and

Whereas, those lands described as oak woodlands within Fresno County provide multiple benefits, including commercial livestock production, wildlife habitat, fuel wood harvesting, rural residential development, watershed, soil conservation, recreational opportunities and

Whereas, the County of Fresno recognizes the importance of private property rights and endorses the concept that landowners be provided the maximum right of self determination; and

Whereas, the economic viability of agricultural enterprises operating within these oak woodlands must be protected; and

Whereas, the County of Fresno recognizes that responsible stewardship by landowners is necessary to sustain oak woodland resources,

NOW, THEREFORE, BE IT RESOLVED, that the Fresno County Board of Supervisors does hereby adopt the following recommendations for the sustained management of oak woodland resources:

1. The voluntary Oak Woodland Management Guidelines shown in Exhibit 'A' shall be incorporated into the Fresno County General plan;

2. The Guidelines shall be made available to landowners located in oak woodland habitat;

3. All landowners in oak woodlands of Fresno County are encouraged to develop management plans for their property. Landowners are encouraged to contact private and public sources for expert assistance and use the Fresno County Oak Woodland Management Guidelines and information provided by the Integrated Hardwood Management Program to develop their plans;

4. The Fresno County Oak Woodland Management Guidelines Committee is encouraged to meet annually to evaluate and substantiate the progress of educational programs on oak woodland management and the effectiveness of the Fresno County Oak Woodland Management Guidelines in sustaining oak woodlands in Fresno County;

5. Local government agencies and/or private organizations are encouraged to coordinate with the University of California Cooperative Extension, Fresno County, in offering workshops on oak woodland management and conservation to landowners, Realtors, developers, and community organizations.

Respectfully, submitted to the Fresno County Board of Supervisors by Sierra Resource Conservation District and the Oak Guidelines Steering Committee.

Adopted by the Fresno County Board of Supervisors, March 10, 1998.

To: All Landowners with oak woodlands in Fresno County
From: Oak Guidelines Steering Committee for Fresno County

Oak Woodlands are an important resource in Fresno County. To assist you in your land management planning, please review the Oak Woodlands Guidelines for Fresno County and incorporate these guidelines into your land management plans.

Why should you do this?
In May of 1993, the State of California Board of Forestry reviewed impacts to Oak woodlands due to over harvest or development losses. Of concern to the Board of Forestry were suggestions by various interest groups to regulate these impacts.

If oaks were declared a commercial species, then lands with stands of oak would fall under the provisions of California's Timber Harvest Act, one of the toughest in the nation. The Board reviewed the need for statewide regulation of oak woodland resources and decided that such controls were not yet warranted. Rather, the Board opted for a renewed effort to encourage local government and citizens to design strategies that will address local hardwood management and conservation.

Essentially, the State Board of Forestry requested that each county develop an oak woodland management plan. In response to the Board of Forestry's suggestion promoting local action, and since Fresno County has thousands of acres of oak woodlands, the Sierra Resource Conservation District, Westside Resource Conservation District and other interested conservation districts, agencies and citizens of Fresno County formed a steering committee in January of 1997 and developed a set of oak woodland management guidelines, voluntary in nature, for Fresno County.

These guidelines were adopted in 1998 by the Fresno County Board of Supervisors and incorporated into the future Fresno County General Plan, thus meeting the objectives of the state Board of Forestry. By taking the initiative and developing local guidelines we maintain local initiative in hardwood management and conservation.

The essential elements of the guidelines have always been: keep them simple (because Fresno County is so diverse); keep them voluntary; and make them useful enough to encourage all varieties of landowners to recognize the importance of the oak woodlands in their land use plans.

The Guidelines are basic. We encourage everyone to go beyond these simple guidelines and contact a local resource agency to develop serious land management plans. Whether you have 100 acres or 1 acre, consider replanting oaks where harvested or removed, and undertake stewardship and land management practices that enhance regeneration of oaks. Resource agencies have multiple materials available on oak woodlands; you simple have to request them.

Healthy Oak Woodlands will enhance your property value and provide valuable resource benefits for future generations of your family.

Regards,

Jean Saffell, Chairman, Oak Woodland Guidelines Steering Committee, 1997-98

OAK TREE CARE

Care of California's Native Oaks

Young native oaks trees are very tolerant of their environment and make excellent, adaptable, landscape assets. The mature native oak is an invaluable part of our environment but does not tolerate many changes once established.

Architects, builders, homeowners, and others should be very careful in fitting their plans with these magnificent giants. Any substantial change in the mature oak's environment can weaken or kill an oak, even a healthy specimen.

A good rule of thumb is to leave the tree's **root protection zone (RPZ)** undisturbed. This area, which is half again as large as the area from the trunk to the drip line, is the most critical to the oak. Many problems for oaks are initiated by disturbing the roots within this zone.

A Word About Roots

Our native oaks have developed survival adaptations to the long, dry summers of most of California. Primary to this survival is the development and characteristics of its root system. When an acorn first sprouts, there is rapid root development and very little growth above ground.

This initial root is a taproot extending deep underground for dependable moisture. In fact, the tree's first few years are focused on establishing a deep sustaining root system. Once this has happened, greater foliage and aboveground growth takes place.

As the oak grows, the tap root is outgrown by an extensive lateral root system that spreads horizontally out from the trunk to and well beyond the drip line, sometimes as much as 90 feet. For a mature oak, this horizontal root system is the primary supporter of the tree for the rest of its life. It includes the important fine roots, which absorb moisture and nutrients. Most of the root system occurs within the top three feet of soil. In shallower soil, the root system is concentrated in an even shallower zone, typically one to two feet below the surface.

As the oak matures, particularly in areas naturally dry in summer, deep-growing vertical roots form off the laterals, usually within ten feet of the trunk. These sinker roots exploit deeper soil moisture and add stability to an increasingly massive tree.

By the time a mature oak has established its elaborate root system -so well designed for its environment and particular site conditions -it has lost the vigor of youth. It is less tolerant of change and can less easily recover to support a fully developed living structure.

To protect a mature oak, pay particular attention to drainage, and avoid filling, trenching, or paving near its root zone.

Fill Around Oaks

Soil and other materials placed on top of the natural soil level, called fill, are usually compacted. They make the soil less permeable, thereby restricting or prohibiting the exchange of gases and movement of water. Excessive moisture trapped by fill can also cause root and crown rot. Because there is no guarantee that fill can be safely added around an oak tree, it is best to avoid tampering with the natural grade, or to leave the natural grade within the root zone alone and use retaining walls.

Drainage

Poor drainage is a common cause of oak tree deaths, since adequate drainage is critical to ensure a proper balance of moisture, air, and nutrient to grow and survive. Particularly in the warm months when natural conditions are dry, too much moisture can smother the roots and encourage the proliferation of crown and root rot fungi.

Another moisture threat to oak roots is presented by barriers such as concrete foundations and footings, streets, and swimming pools downhill of oaks. These structures can dam underground water, causing water to back up into a tree's root zone and drown it.

Trenching

Trenching is an often-overlooked cause of tree death. Trenching usually occurs when underground utilities are installed. Digging a trench for utilities within the RPZ of an oak can sever a significant portion of a tree's roots.

Often, several trenches are opened by separate utilities. This multitrenching is particularly destructive since it impacts a greater portion of the root system.

If utilities must impinge on the root protection zone of a native oak, the trench should be dug by hand, avoiding roots, or utilities bored through the ground at least three feet below the surface.

Paving

Paving can cause the same problems associated with soil compaction. Paving, such as asphalt and concrete, prevents water from soaking into the soil and impedes the exchange of gases between roots, soil, and the atmosphere. In addition, paving usually requires excavation to create a stable base and to allow for depth of paving material. This process compacts the soil and damages roots.

Decking placed on piers is much more compatible with mature oaks than paving.

Care of Established Oaks on Home Grounds

Oaks on home grounds require certain conditions to survive and prosper. Activities of concern to the homeowner are planting near oaks, irrigation and feeding, pruning, installation of home improvements, and disease and insect infestations.

Most native oaks in California evolved and prospered in an environment typified by a cool, moist winter and a hot, dry summer. Under natural conditions, surface soils are wet during the cooler months and become dry by summer. Natural vegetation growing beneath oaks flourishes during the winter and spring and dies by early summer, creating the well-known golden-brown landscape of California's valleys and foothills.

Native oaks, however, remain green because their thick, leathery leaves and other adaptive features reduce their water use. The homeowner should attempt to approximate the natural environment in which these magnificent trees are originally found.

Planting Near Oaks

Only drought-tolerant plants that require no summer water should be planted around old established oaks, and they should be planted no closer than six feet from the base of the tree. Do *not plant exotic grasses, ivy, azaleas, rhododendrons, or any other vegetation that needs summer irrigation.* Such plants develop thick mats of roots and thus inhibit the exchange of air and water the established oak has grown used to.

There are a number of plants, some of which are native to California that can be grown beneath oaks. For an extensive listing of compatible plants useful for landscaping around oaks, contact the California Oak Foundation.

In place of plants, other types of ground cover can be used to landscape beneath oaks. When installed properly, cobbles, gravel, and wood chips are good examples of ground covers that do not interfere with the roots' ability to obtain oxygen and appropriate moisture.

Irrigating and Fertilizing

Native oaks usually do not require irrigation, as they are well adapted to dry summer conditions. Healthy oaks are even able to survive the excessively dry summers sometimes brought on by California's variable climate. However, if an oak has been compromised, as when impervious surfaces have been placed in the RPZ, occasional water may be helpful if done properly.

Oaks should be irrigated only outside of the RPZ. *Under no circumstances should the ground near the base of a native oak be allowed to become moist during warm weather periods.* Moist, warm soil near the base of a mature oak promotes crown and root rot.

Irrigation, if done, should be by the" deep watering method," which consists of a slow, all-day soaking only once or twice during the summer dry period. Frequent, shallow watering not only encourages crown and root rot, it also results in the growth of ineffective shallow roots near the surface, a needless waste of the tree's energy.

If oaks need supplemental watering, it is best to apply the water at times that lengthen the normal rainy season, so the normal dry period in the middle to the end of summer is preserved. For example, additional irrigation would be appropriate in May and September, while leaving the area under the tree dry in July and August.

Mature oaks usually need little or no supplemental fertilization. Light fertilization may be appropriate in landscaped situations to replace nutrients supplied by leaves and other litter that normally accumulates under an oak in its native environment. If leaves are allowed to remain under trees, they eventually break down and supply nutrients.

Fertilization should only be done if growth is poor. Fertilizers should be applied to the entire RPZ, ideally in late winter or early spring. Trees that have recently undergone severe pruning or root damage should not be fertilized for at least six months.

Often, when an oak tree shows yellowing leaves, one thinks it lacks nutrients. Generally, this is not the case. More likely, the tree is suffering from root or crown rot. When an oak appears unhealthy, consult a certified arborist to determine the cause.

Pruning

Excessive pruning or thinning of limbs may expose interior branches to sun damage, may stimulate the tree to produce succulent new growth that is subject to mildew, and in some cases; may cause a decline in vigor or may kill a tree. *Only dead, weakened, diseased, or dangerous branches should be removed. Necessary pruning should be done during the winter dormant period for deciduous species and during July and August for evergreen species. Recent research has shown that tree paint, wound dressings, and sealing compounds do more harm than good.*

Pruning should be performed by a certified arborist according to the pruning standards of the Western Chapter of the International Society of Arboriculture.

Home Improvement

The installation of home improvements should be done with caution when oaks are located nearby. Trenching severs roots, and impervious surfaces placed over roots may result in the death of the oak. A swimming pool placed downhill of oaks can act as a dam and cause an oak to drown in saturated soil.

Great caution should be taken and a certified arborist consulted before proceeding with improvements that impact on the root protection zone of any valued native oak.

Diseases

When growing under natural conditions, native California oaks are relatively tolerant of most diseases. However, they are subject to several problems when disturbed or hampered by frequent summer watering.

The two oak diseases most often encountered in irrigating settings are crown rot and oak root fungus. Both attack trees weakened by disturbance or improper care.

Crown Rot

This is one of the most common and serious diseases of oaks in home plantings. Infected trees decline slowly over a period of years. The disease caused by a microscopic fungus, is made worse by saturated soil and poor soil aeration.

Symptoms of this disease are a general decrease in tree vigor, twig dieback and wilting, abnormally yellow leaves, and formation of lesions on the bark accompanied by oozing of dark-colored fluid.

In most cases, people notice crown rot too late for successful treatment. However, if the disease is caught in the early stages a tree can be saved. Comprehensive treatment is best left to a qualified expert. The following measures usually benefit the tree:

1) Remove lawn and other plants that require summer irrigation from within the RPZ.

2) Remove soil and all other debris that has accumulated against the trunk.

3) Do not water within the RPZ during the summer except under unusual conditions when advised by a certified arborist.

4) Improve drainage around the tree, and make sure all water drains away from the trunk.

Oak Root Fungus

This oak fungus, also known as *Armillaria* root rot, is found in the root systems of most oaks in California. Our oaks experience little damage from this fungus under natural, dry summer conditions. However, when oaks are watered in the summer or weakened by other impacts, the tree can suffer damage from the fungus.

Symptoms shown by an infected oak include dieback of branches and yellowing and thinning of foliage. The fungus itself may appear as a white, fan-like growth with rhizomorphs and mushrooms.

Prevention of damaging conditions is the only sure action that can be taken against this disease. Avoid summer irrigation near oaks. Prevent mechanical damage to major roots or root crown. As with crown rot and other tree diseases, it is recommended that a certified arborist be consulted.

Mistletoe

This parasitic plant grows on the branches of many oaks and can cause structural weaknesses that make branches more vulnerable to breakage. Its sticky seeds are spread from one tree to another by birds. The seeds germinate under favorable conditions, and root-like structures find their way through the bark; ultimately becoming attached to the oak and tapping into the water-and-mineral- conducting tissues of the tree.

Small infestations can be controlled by removing the mistletoe and cutting back the oak's bark around the spot where the mistletoe stem entered the oak branch. Major infestations are difficult to control, however, and an arborist specializing in oaks should be consulted.

Other diseases

The health and vigor of oaks can also be compromised by a number of other afflictions that are not discussed here. Since 1980, for example, dieback and decline, particularly among the coast live oak *(Quercus agrifoJia)*, has been observed in widespread areas of Califomia. Several fungi may be involved in this condition, and treatments are still experimental. Seek professional advice whenever you notice serious, unexplained decline in your oaks.

INSECTS

Innumerable insects find their livelihoods in the branches and leaves of oaks, usually without much consequence to the healthy tree. The oak gall, for example, is a harmless swelling of leaves and twigs in reaction to enzymes released where a wasp lays its eggs. Some galls are large and round. Others resemble small wads of fuzz, stars, or tops. One type of gall, which looks like a tiny seed, falls from leaves in the late summer and occasionally jumps into the air like a Mexican jumping bean.

Some infestations, however, can cause serious damage. Insects such as pit scales (which appear as pinhead-sized scales on the bark of twigs), oak moth, and other leaf-eaters can weaken oaks, making them susceptible to disease.

Whenever an insect infestation causes substantial leaf loss, changes in leaf color, twig dieback, sticky or sooty foliage, and branches, or other significant changes in appearance, intervention may be required. Consult a certified arborist for assistance.

Edited by Sharon G. Johnson and Sarah S. Gustafson
California Oak Foundation - http://www.californiaoaks.org

The Oak Guidelines Steering Committee

Jean Saffell, Sierra Resource Conservation District
Ray Hedgepeth, Sierra Resource Conservation District
Red Martin, Westside Resource Conservation District
Buster Ford, Rancher
Morgan Blasinghame, Rancher
Dave Durham, Natural Resources Conservation Service
Don Neal, Wildlife Consultant, Sierra Resource Conservation District
Neil McDougald, Integrated Hardwood Range Management Program,
UC Cooperative Extension, Watershed Management Advisor
Peter Peisch, California Department of Forestry and Fire Protection

Review Committee

Dave Witt, Natural Resource Conservation Service
Gary Jones, Mid Mountain Community Council
Nettie Drake, Panoche-Silver Creek Coordinated Resource Management Program
Allan Narbaitz, Rancher
Phil Erdman, Sierra Resource Conservation District
Bill Saffell, State Licensed Forester, Sierra Resource Conservation District
Jeff Halstead, Kings River Conservation District
And Sierra Resource Conservation District
Bud Wolfram, Sierra Resource Conservation District
Dr. Allan Clyde, Sierra Resource Conservation District
John Cunningham, Cunningham Pack Station
Virginia Birdwell, Rancher

B) CITY OF VISALIA

OAK TREE CARE

Care of California's Native Oaks

Young native oaks trees are very tolerant of their environment and make excellent, adaptable, landscape assets. The mature native oak is an invaluable part of our environment but does not tolerate many changes once established.

Architects, builders, homeowners, and others should be very careful in fitting their plans with these magnificent giants. Any substantial change in the mature oak's environment can weaken or kill an oak, even a healthy specimen.

A good rule of thumb is to leave the tree's **root protection zone (RPZ)** undisturbed. This area, which is half again as large as the area from the trunk to the drip line, is the most critical to the oak. Many problems for oaks are initiated by disturbing the roots within this zone.

A Word About Roots

Our native oaks have developed survival adaptations to the long, dry summers of most of California. Primary to this survival is the development and characteristics of its root system. When an acorn first sprouts, there is rapid root development and very little growth above ground.

This initial root is a taproot extending deep underground for dependable moisture. In fact, the tree's first few years are focused on establishing a deep sustaining root system. Once this has happened, greater foliage and aboveground growth takes place.

As the oak grows, the tap root is outgrown by an extensive lateral root system that spreads horizontally out from the trunk to and well beyond the drip line, sometimes as much as 90 feet. For a mature oak, this horizontal root system is the primary supporter of the tree for the rest of its life. It includes the important fine roots, which absorb moisture and nutrients. Most of the root system occurs within the top three feet of soil. In shallower soil, the root system is concentrated in an even shallower zone, typically one to two feet below the surface.

As the oak matures, particularly in areas naturally dry in summer, deep-growing vertical roots form off the laterals, usually within ten feet of the trunk. These sinker roots exploit deeper soil moisture and add stability to an increasingly massive tree.

By the time a mature oak has established its elaborate root system -so well designed for its environment and particular site conditions -it has lost the vigor of youth. It is less tolerant of change and can less easily recover to support a fully developed living structure.

To protect a mature oak, pay particular attention to drainage, and avoid filling, trenching, or paving near its root zone.

Fill Around Oaks

Soil and other materials placed on top of the natural soil level, called fill, are usually compacted. They make the soil less permeable, thereby restricting or prohibiting the exchange of gases and movement of water. Excessive moisture trapped by fill can also cause root and crown rot. Because there is no guarantee that fill can be safely added around an oak tree, it is best to avoid tampering with the natural grade, or to leave the natural grade within the root zone alone and use retaining walls.

Drainage

Poor drainage is a common cause of oak tree deaths, since adequate drainage is critical to ensure a proper balance of moisture, air, and nutrient to grow and survive. Particularly in the warm months when natural conditions are dry, too much moisture can smother the roots and encourage the proliferation of crown and root rot fungi.

Another moisture threat to oak roots is presented by barriers such as concrete foundations and footings, streets, and swimming pools downhill of oaks. These structures can dam underground water, causing water to back up into a tree's root zone and drown it.

Trenching

Trenching is an often-overlooked cause of tree death. Trenching usually occurs when underground utilities are installed. Digging a trench for utilities within the RPZ of an oak can sever a significant portion of a tree's roots.

Often, several trenches are opened by separate utilities. This multitrenching is particularly destructive since it impacts a greater portion of the root system.

If utilities must impinge on the root protection zone of a native oak, the trench should be dug by hand, avoiding roots, or utilities bored through the ground at least three feet below the surface.

Paving

Paving can cause the same problems associated with soil compaction. Paving, such as asphalt and concrete, prevents water from soaking into the soil and impedes the exchange of gases between roots, soil, and the atmosphere. In addition, paving usually requires excavation to create a stable base and to allow for depth of paving material. This process compacts the soil and damages roots.

Decking placed on piers is much more compatible with mature oaks than paving.

Care of Established Oaks on Home Grounds

Oaks on home grounds require certain conditions to survive and prosper. Activities of concern to the homeowner are planting near oaks, irrigation and feeding, pruning, installation of home improvements, and disease and insect infestations.

Most native oaks in California evolved and prospered in an environment typified by a cool, moist winter and a hot, dry summer. Under natural conditions, surface soils are wet during the cooler months and become dry by summer. Natural vegetation growing beneath oaks flourishes during the winter and spring and dies by early summer, creating the well-known golden-brown landscape of California's valleys and foothills.

Native oaks, however, remain green because their thick, leathery leaves and other adaptive features reduce their water use. The homeowner should attempt to approximate the natural environment in which these magnificent trees are originally found.

Planting Near Oaks

Only drought-tolerant plants that require no summer water should be planted around old established oaks, and they should be planted no closer than six feet from the base of the tree. Do *not plant exotic grasses, ivy, azaleas, rhododendrons, or any other vegetation that needs summer irrigation.* Such plants develop thick mats of roots and thus inhibit the exchange of air and water the established oak has grown used to.

There are a number of plants, some of which are native to California that can be grown beneath oaks. For an extensive listing of compatible plants useful for landscaping around oaks, contact the California Oak Foundation.

In place of plants, other types of ground cover can be used to landscape beneath oaks. When installed properly, cobbles, gravel, and wood chips are good examples of ground covers that do not interfere with the roots' ability to obtain oxygen and appropriate moisture.

Irrigating and Fertilizing

Native oaks usually do not require irrigation, as they are well adapted to dry summer conditions. Healthy oaks are even able to survive the excessively dry summers sometimes brought on by California's variable climate. However, if an oak has been compromised, as when impervious surfaces have been placed in the RPZ, occasional water may be helpful if done properly.

Oaks should be irrigated only outside of the RPZ. *Under no circumstances should the ground near the base of a native oak be allowed to become moist during warm weather periods.* Moist, warm soil near the base of a mature oak promotes crown and root rot.

Irrigation, if done, should be by the" deep watering method," which consists of a slow, all-day soaking only once or twice during the summer dry period. Frequent, shallow watering not only encourages crown and root rot, it also results in the growth of ineffective shallow roots near the surface, a needless waste of the tree's energy.

If oaks need supplemental watering, it is best to apply the water at times that lengthen the normal rainy season, so the normal dry period in the middle to the end of summer is preserved. For example, additional irrigation would be appropriate in May and September, while leaving the area under the tree dry in July and August.

Mature oaks usually need little or no supplemental fertilization. Light fertilization may be appropriate in landscaped situations to replace nutrients supplied by leaves and other litter that normally accumulates under an oak in its native environment. If leaves are allowed to remain under trees, they eventually break down and supply nutrients.

Fertilization should only be done if growth is poor. Fertilizers should be applied to the entire RPZ, ideally in late winter or early spring. Trees that have recently undergone severe pruning or root damage should not be fertilized for at least six months.

Often, when an oak tree shows yellowing leaves, one thinks it lacks nutrients. Generally, this is not the case. More likely, the tree is suffering from root or crown rot. When an oak appears unhealthy, consult a certified arborist to determine the cause.

Pruning

Excessive pruning or thinning of limbs may expose interior branches to sun damage, may stimulate the tree to produce succulent new growth that is subject to mildew, and in some cases; may cause a decline in vigor or may kill a tree. *Only dead, weakened, diseased,* or *dangerous branches should be removed. Necessary pruning should be done during the winter dormant period for deciduous species and during July and August for evergreen species. Recent research has shown that tree paint, wound dressings, and sealing compounds do more harm than good.*

Pruning should be performed by a certified arborist according to the pruning standards of the Western Chapter of the International Society of Arboriculture.

Home Improvement

The installation of home improvements should be done with caution when oaks are located nearby. Trenching severs roots, and impervious surfaces placed over roots may result in the death of the oak. A swimming pool placed downhill of oaks can act as a dam and cause an oak to drown in saturated soil.

Great caution should be taken and a certified arborist consulted before proceeding with improvements that impact on the root protection zone of any valued native oak.

Diseases

When growing under natural conditions, native California oaks are relatively tolerant of most diseases. However, they are subject to several problems when disturbed or hampered by frequent summer watering.

The two oak diseases most often encountered in irrigating settings are crown rot and oak root fungus. Both attack trees weakened by disturbance or improper care.

Crown Rot

This is one of the most common and serious diseases of oaks in home plantings. Infected trees decline slowly over a period of years. The disease caused by a microscopic fungus, is made worse by saturated soil and poor soil aeration.

Symptoms of this disease are a general decrease in tree vigor, twig dieback and wilting, abnormally yellow leaves, and formation of lesions on the bark accompanied by oozing of dark-colored fluid.

In most cases, people notice crown rot too late for successful treatment. However, if the disease is caught in the early stages a tree can be saved. Comprehensive treatment is best left to a qualified expert. The following measures usually benefit the tree:

1) Remove lawn and other plants that require summer irrigation from within the RPZ.

2) Remove soil and all other debris that has accumulated against the trunk.

3) Do not water within the RPZ during the summer except under unusual conditions when advised by a certified arborist.

4) Improve drainage around the tree, and make sure all water drains away from the trunk.

Oak Root Fungus

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6. CITY OF VISALIA COMPREHENSIVE PROGRAM

A) CITY OF VISALIA COMPREHENSIVE PROGRAM

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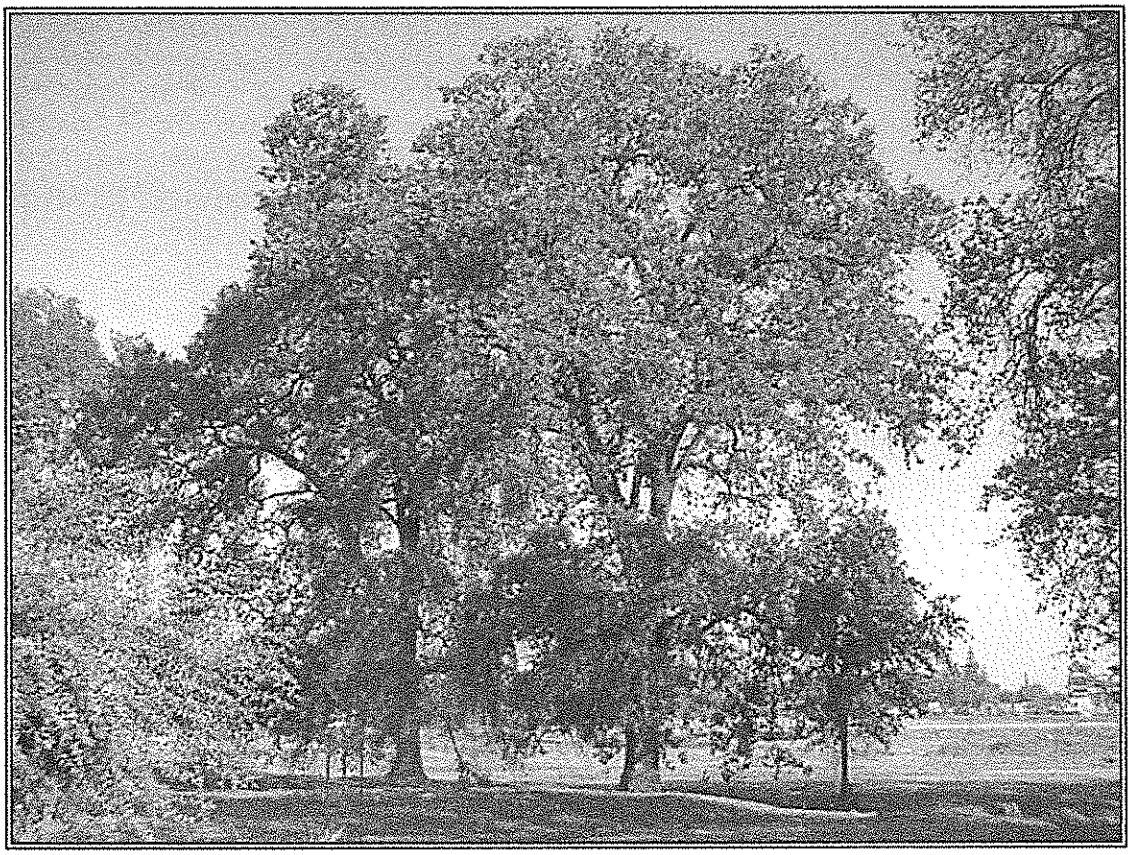
STANDARD SPECIFICATIONS FOR BUILDING AROUND VALLEY OAKS



CITY OF VISALIA
Parks & Recreation Department
Urban Forestry Division

August 3, 2007

The citizens of Visalia are fortunate to live among the largest remaining stand of native Valley Oaks in the Central Valley. These magnificent trees need to be protected during development, so that they will survive for the next generation. By following these standard specifications we can ensure that all will enjoy the beauty of the Valley Oaks for generations to come.

1. The developer shall submit a Valley Oak management plan to the City of Visalia at the entitlement phase of a project. The management plan shall contain a protective fencing detail including the date to be installed, a watering schedule including frequency and volume of water applied at each application, and the name of the contractor who will be watering the Valley Oak tree(s) through the construction process.

2. The protection zone of all Valley Oaks shall be drawn to scale on plans; this includes accurately locating the trunk and depicting the crown drip-line. There shall be no earthwork around the crown drip-line without the consent of the City Arborist.

3. All utility locations shall be included in all development plans involving Valley Oak(s).

4. Protective tree fencing shall be added prior to any earthwork, at least 3 ft. minimum in height, installed at outer most end of the drip-line surrounding the trunk of a Valley Oak. The temporary fencing shall be: safety orange color, plastic webbing, temporary construction type fencing. (Snow fencing) Fencing shall be supported by steel T-bar stakes. This fence is to remain until construction is complete and the City Arborist approves its removal. Nothing may be stored inside the protective fence. See detail 1.

5. There shall be no back filling within 10 ft. of the trunk of a Valley Oak and a maximum of 6 inches of backfill within the crown drip-line. Any deviation from this requires City Arborist approval. Backfill will be of a high quality soil and clean of any debris.

6. There shall be no trenching within the crown drip-line of the Valley Oak, or at a distance to be determined by the City Arborist. Utilities to be installed within the crown drip-line shall be bored at a minimum depth of 36". See detail 4

7. There shall be no soil compaction, paving or structures placed within the crown of a Valley Oaks without the written consent of the City Arborist.

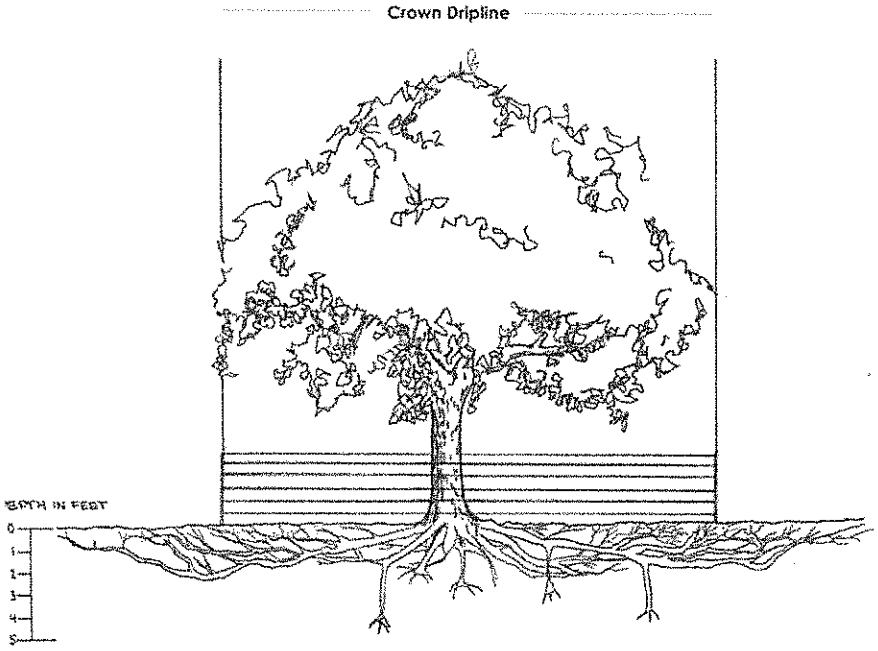
8. Valley Oak trees shall be irrigated prior to construction starting and through construction starting in May and stopping at the end of September. Irrigation shall consist of 35 gallons of water applied per one inch measured at breast height. Trees shall be watered once every three weeks. Example 36" DBH Valley Oak shall receive 2205 gallons of water at each application. The City of Visalia can require more water if needed. This will help ensure that the tree can better withstand the stress of construction. Irrigation is extremely important during spring and summer when the environment around a mature Valley Oak is changed by construction. Irrigation shall water all of the area under the crown drip-line. See detail 3.

9. Permanent irrigation systems shall be overhead spray, bubbler, drip, flood or sub-terrain only. No sprinkler systems allowed within 6 ft. of tree. If an irrigation system is to be added it must be approved by the City Arborist.

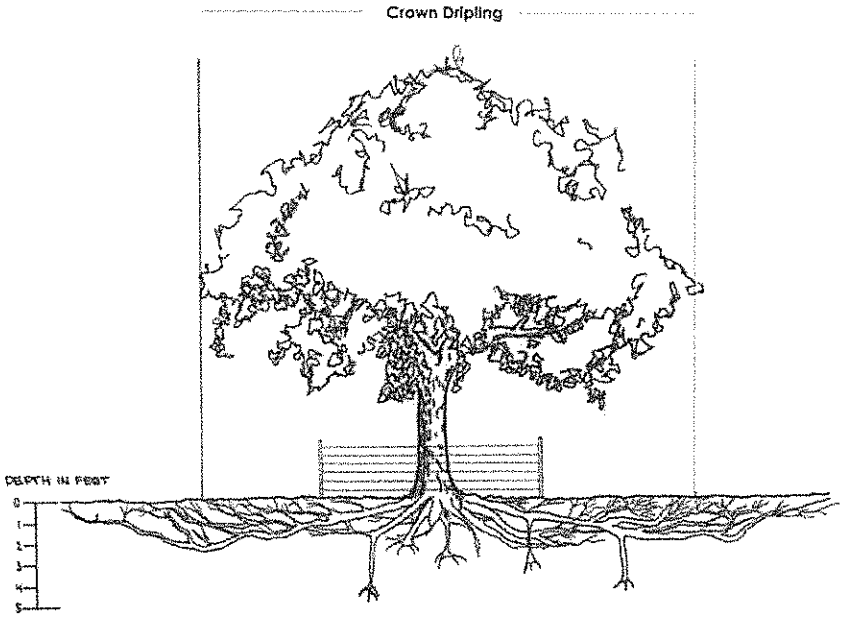
10. Landscaping under Valley Oaks shall consist of drought tolerant plants or California native plants that are drought tolerant in nature. There is to be no landscaping within 6 ft. of the trunk. Chipped bark and mulch are suitable for this area. No lawns shall be planted within 10 ft. of the trunk. We recommend that there be no lawn placed within the crown drip-line.

Please contact the City Arborist at 559-713-4295 to answer questions or provide assistance.

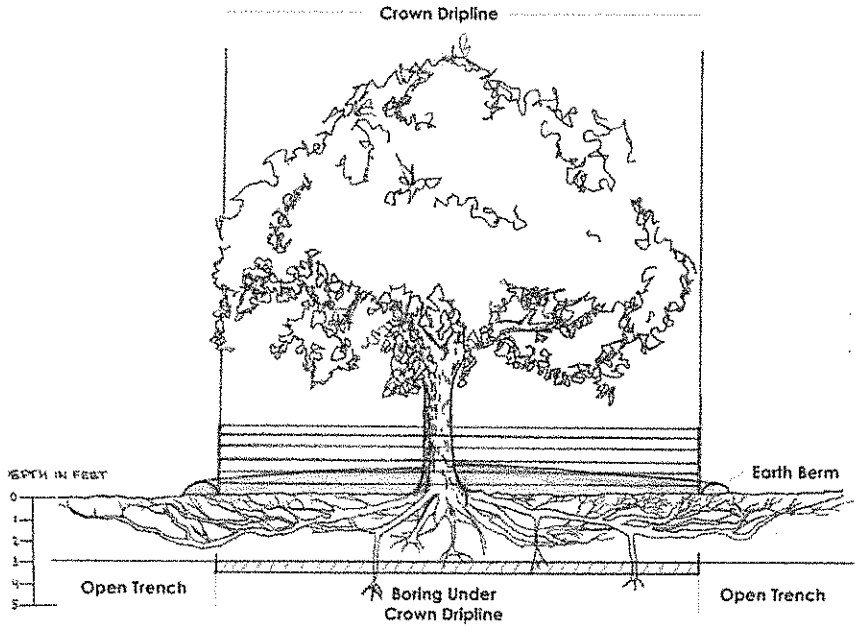
Detail 1. Proper Protective Tree Fencing: Protecting the root system under the crown drip-line is critical for the health, longevity and stability of a tree. Mature trees including Valley Oaks typically lack taproots as commonly thought. 80% of a mature trees root system is often within the top 18" of the soil surface. Protective fencing shall in place before any earth work begins on the site.



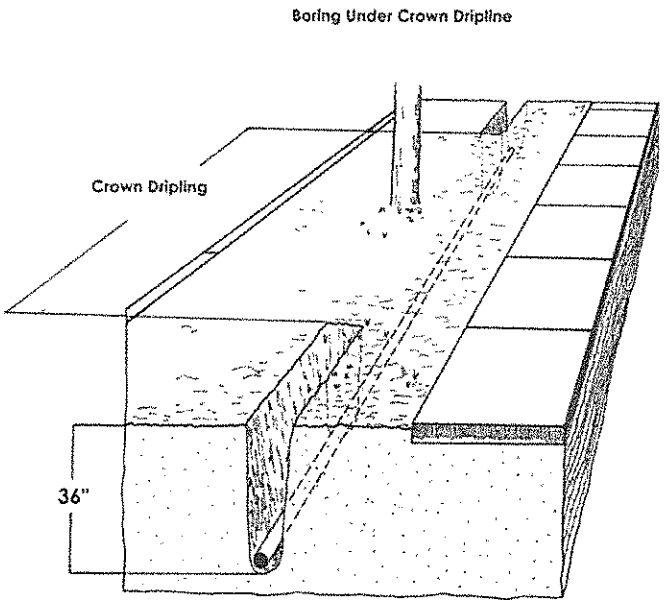
Detail 2. Improper Protective Tree Fencing: Protecting the health and stability of mature valley is impossible within out protecting the root system under the crown dripline. The detail below is not acceptable because it does not adequately protect the tree.



Detail 3. Irrigation: An eight inch tall by eight inch wide earth berm can be added direct outside the protective fence surrounding the crown dripline to direct water into the root zone. The area inside the earth berm under the crown dripline shall be flood irrigated.



Detail 4. Boring under the crown: Mechanical boring using a horizontal directional bore shall be required when tunneling under the crown dripline. The boring shall be at a minimum depth of 36".



APPLICATION FOR ASSISTANCE TO LOW-INCOME FAMILIES FOR OAK TREE CARE

The City of Visalia offers financial assistance for Valley Oak Tree maintenance including: pruning and removals for low-income homeowners that meet income qualifications. For more information contact: 713-4295 or 713-4384.

NAME: _____

ADDRESS: _____

_____

PHONE: _____

HOMEOWNER ☐ RENTER ☐
Please note: You must own your home to qualify

ANNUAL INCOME:

NO. OF PERSONS LIVING IN HOME:

You will need to provide proof of income and ownership of the property you are requesting assistance for. return this form to 336 N. Ben Maddox Way, Visalia, CA 93292

CITY OF VISALIA

VALLEY OAK TREE MANGEMENT PLAN

PROJECT: _____

As a component of the City of Visalia's valley oak tree protection ordinance (Visalia Municipal Code Title 12, Chapter 24) the Subdivider is required to submit a Valley Oak Tree Management Plan. This plan will ensure that valley oak trees within the limits of a development project are properly maintained by the Subdivider until such time that the City accepts maintenance responsibility. Completion of this standardized form will constitute this plan.

GENERAL OAK TREE INFORMATION
Complete the following table:

OAK TREE #	DBH (inches)	LOCATION WITHIN PROJECT

BERM AND PROTECTIVE FENCING
Earthen berm and protective fencing will be installed at the crown drip line of all oak trees by the following date:

DATE: _____

PRUNING SCHEDULE
All oak trees will be pruned by a certified arborist by the following date:

DATE: _____

WATERING SCHEDULE
All valley oak trees within the project limits will be watered monthly using 35 gallons per inch DBH on the following date of the month:

DATE: _____

WATERING CONTRACT
A copy of the contract with the company to provide watering to the oak tree(s) per the above watering schedule is attached as Exhibit A to this plan.

Company Name: _____

Contact Person: _____

Contact Number: _____

SUBDIVIDER

_____ _____ _____ _____

Signature Date Company Name

_____ _____

Print Name Title

OAK TREE ORDINANCE

Article 1. Purpose and Definitions

12.24.010 Purpose.

A. In order to promote the public health, safety and general welfare, to enhance the beauty of Visalia and to complement and strengthen zoning, subdivision and land use standards and regulations, while at the same time recognizing individual rights to develop private property, the city council finds it necessary to establish basic standards, measures and compliance requirements for the preservation and protection of native Valley oak trees and landmark trees.

B. The provisions of this chapter are enacted to:

1. Enhance natural scenic beauty;

2. Assist in the overall goal of preservation, maintenance and regeneration of a healthy urban forest and tree cover;

3. Promote the conservation of energy resources and regulation of temperature through the provision of shade, evaporative cooling and wind break provided by trees;

4. Improve the quality of air, water, and soil resources;

5. Sustain and enhance property values;

6. Promote the well-being of the community;

7. Provide for recreational settings, wildlife habitat, and ecological balance;

8. Provide for safety through responsible and safe standards for the trimming and/or removal of oak trees;

9. Promote Visalia's unique identity. (Ord. 2007-02 § 2 (part), 2007; Ord. 9907 § 2 (part), 1999)

12.24.020 Definitions.

As used in this chapter, the following terms are defined in this section:

"City Manager" means the city manager of the city or his or here designated representative.

"Crown-drip-line" means the outer perimeter of an oak tree's canopy.

"Oak tree" means Valley Oak Tree (Quercus lobata), with a trunk diameter of two inches or greater at a point 4.5 feet above the root crown (Also referred to as "2 inches Diameter Breast Height (D.B.H.)"). "Oak tree" may also mean a "landmark tree." "Landmark tree" means any native or non-native tree recognized by city council

resolution for its age, size, location, outstanding habitat value, superior beauty, historical, and/or cultural significance.

"Person" means individuals, associations, corporations, public agencies, joint ventures, partnerships, independent contractors, and other agents and employees.

"Pruning standards" means those pruning standards established by the Western Chapter of the International Society of Arboriculture dated 1995, as revised by the Society from time to time, and as amended by this chapter. (Ord. 2007-02 § 2 (part), 2007; Ord. 2003-07 § 1, 2003; Ord. 9907 § 2 (part), 1999)

Article 2. Destruction Prohibition - Removal Permit Requirements

12.24.025 Willful destruction of oak trees prohibited.

It is unlawful for any person to willfully remove, destroy, damage, mutilate, poison, or attempt to kill an oak tree in the city, except as may be allowed pursuant to a removal permit as provided for in Section 12.24.030 of this Chapter, or as designated in a notice to prune an oak tree that satisfies of Article 3 of this Chapter. As used in this section, the term "damage" shall include the pruning of an oak tree in a manner that is inconsistent with the pruning standards as established by section 12.24.070. (Ord. 2007-02 § 2 (part), 2007)

12.24.030 Oak tree removal permit required.

A. Any person desiring to destroy or remove an oak tree on private or public property must first apply for and obtain a removal permit. Such application shall be in writing to the city clerk, who shall forward such application to the city manager of the city. The application shall contain the number, size and location of the oak trees and a brief statement of the reason of the requested action. The city manager shall charge a fee for said permit, to be established by the city council's annual designation of city fees.

B. Within five calendar days of receipt of such application, the city manager shall post a notice on the subject tree, in a manner reasonably intended to inform the general public, stating that an application for removal of the tree has been filed and is pending with the city manager. Within fourteen calendar days of receipt of such application, the city manager shall inspect the premises whereon such oak trees are located, and shall issue an intended decision in writing as to whether or not the application will be approved, and if so, what mitigation shall be required as a condition to approval, consistent with Section 12.24.035 below; provided, however, that failure to render an intended decision within such period shall not be deemed approval.

C. The city manager shall not grant a removal permit unless one of three findings enumerated in Section 12.24.035 can be made based on substantial evidence and, where necessary, expert advice of a certified arborist. The applicant may submit his or her own supporting material, including a report of an independent certified arborist, for

consideration by the city manager. However, the City manager shall retain the discretion for determining the weight and value to be given to such independent reports.

D. Upon determination that one of the three findings enumerated in Section 12.24.035 can be met and a removal permit may be granted, the city manager shall establish mitigation requirements in a manner consistent with the policy to be developed and implemented pursuant to Section 12.24.037. No mitigation shall be required for oak trees removed pursuant to subsections A. or C. of section 12.24.035, unless the city manager determines that the applicant's negligence or willful conduct contributed to the decline of the health of the oak tree. The mitigation requirements established by the city manager shall attach to the permit as conditions, and shall be enforceable as a lien against the applicant's real property. In no event shall the availability of mitigation measures, or the willingness of the applicant to agree to such measures, be a factor in determining whether removal of the tree is warranted. (Ord. 2007-02 § 2 (part), 2007; Ord. 9907 § 2 (part), 1999)

12.24.035 Removal standards.

No removal permit shall be granted pursuant to section 12.24.030 of this Chapter unless the city manager determines that substantial evidence supports one of the following three findings:

A. The general health of the oak tree warrants removal. A removal permit may be granted based on the health of the tree only if one of the following tests can be satisfied:

1. The oak tree is in danger of falling or is deemed to be structurally unsound, according to generally accepted arboricultural standards, and is in proximity to existing or proposed structures; or

2. The oak tree is a host for plant, pest, or disease endangering other species of trees or plants with infection or infestations.

B. Removal of the oak tree is necessary to allow construction of new improvements or the repair or protection of pre-existing improvements that have been interfered with by the oak tree, or otherwise allow the reasonable enjoyment of private property. The city manager shall apply the following factors in determining the necessity of removal of an oak tree for purposes of this subsection:

1. The size and age of the oak tree to be removed, and its historic, aesthetic or cultural value; a larger, older and more historically, aesthetically, or culturally valuable tree may be removed only if each of the other factors weigh heavily in favor of removal.

2. The necessity of the removal of the oak to the enjoyment of the property by the property owner or protection of preexisting improvements.

3. The lack of any reasonable alternative to the proposed improvement that does not require removal of the oak tree. The availability of funds from the Oak Tree Maintenance Fund to assist the property owner in repairing or reconfiguring improvements in a manner to save an oak tree should be taken into account in

determining whether reasonable alternatives to removal exist such that a permit on this grounds should not be granted.

C. Urban forestry or land management practices warrant removal of the oak tree. An oak tree may be removed based on urban forestry or land management practices if one of the following conditions exist:

1. Removal of the oak tree will substantially benefit the topography of the land and the soil retention, water retention, and diversion or increased flow of surface waters.

2. Removal of the oak tree will not be detrimental to the general public because the number, species, size, and location of existing trees in the area offset the removal of the oak tree, and the removal will not have an adverse effect on shade areas, air pollution, historic values, scenic beauty, and the general welfare of the city as a whole.

3. Removal of the oak tree is consistent with good urban forestry practices such as, but not limited to, the number of healthy trees the subject parcel of land will support.

4. The property owner proposing to remove the tree can establish by adequate proof that the subject tree did not exist prior to the current owner's purchase of the property; this provision shall only apply to trees with a DBH of six (6) inches or less. (Ord. 2007-02 § 2 (part), 2007)

12.24.037 Mitigation requirements.

In recognition and furtherance of the purposes of this Chapter, as enumerated in Section 12.24.010, it is the policy of the City of Visalia that property owners who are granted a permit to remove an oak tree pursuant to Subparagraph B. of section 12.24.035 offset the loss of the oak tree by either replacing the oak tree removed with new oak trees on the same property (in-kind mitigation) or by paying mitigation fees intended to be used for the establishment of new oak trees on other property or on public property for the benefit of the general public (in-lieu mitigation). In furtherance of this policy, the city manager shall develop an Oak Tree Mitigation Policy establishing in-kind and in-lieu mitigation measures to be required for oak tree removals. The Oak Tree Mitigation Policy, and any subsequent amendment thereto, shall be submitted to the city council for approval by resolution. (Ord. 2007-02 § 2 (part), 2007)

12.24.040 Notice of action and appeals.

A. Notice of the city manager's intended decision on a permit application submitted pursuant to section 12.24.030 shall be given by personal delivery or first class mail to the applicant and to any person filing a written request with the city manager for notice of all permit approvals under this ordinance. Further, notice of the intended decision shall be posted on the subject tree in a manner reasonably intend to inform the general public of the decision, and the right to appeal.

B. Any person aggrieved or affected by the city manager's intended decision, or any member of the city council, may appeal the intended decision to the city council by filing a written notice of appeal with the city clerk within ten business days, excluding

weekends and holidays, after the delivery or mailing of the notice. Any such notice of appeal shall be accompanied by an appeal fee in the amount specified by the city council.

C. If no appeal is filed within such time, the city manager shall promptly implement the intended decision by denying or issuing the permit, with or without conditions. An appeal automatically stay execution of the implementation of the intended decision until the appeal has been considered and decided by the city council. (A member of the city council shall be exempt from the requirement of an appeal fee).

D. The city clerk shall place all such appeals on the agenda of the next regular council meeting and shall give notice to the applicant and/or appellant. The city council shall consider and decide all issues raised in the appeal, and the decision of the council shall be final. (Ord. 2007-02 § 2 (part), 2007; Ord. 9907 § 2 (part), 1999)

12.24.050 Emergencies.

A. In the case of emergency caused by the dangerous condition of an oak tree requiring immediate action for the protection of life or property, a tree may be cut down in whole or in part on the order of the city manager or any on-duty public works or public safety personnel.

B. Public utilities subject to the jurisdiction of the Public Utilities Commission of the state of California may also take such action as may be necessary to maintain a safe operation for their facilities. (Ord. 2007-02 § 2 (part), 2007; Ord. 9907 § 2 (part), 1999)

Article 3. Pruning Standards and Requirements

12.24.060 Pruning notice required

A. Except in cases of emergencies as described in Section 12.24.050, no person shall prune or cause to be pruned any oak tree limb of a diameter of two inches or greater within the city without first submitting a completed oak tree intent to prune notice with the city manager, as provided herein.

B. The notice shall be delivered to the city manager prior to the start of the work to be performed.

C. The notice shall be in a form as provided by the city manager and shall include the following information:

1. The name, address and telephone number of the property owner.

2. The name, address and telephone number of the person(s) intending to prune the tree.

3. The date(s) of the pruning.

4. A description of the tree(s) to be pruned including the approximate size and location of the tree with sufficient specificity to enable the city manager to precisely locate and identify the subject tree(s).

5. If the work is to be performed in any public right-of-way, proof of insurance coverage for general liability, property damage, and workers' compensation in case of injury or damage to person or property.

6. Proof of the possession of a valid city business license.

D. A copy of the notice must be in the possession of the person pruning the oak tree at all times during the course of the work being performed. (Ord. 2007-02 § 2 (part), 2007; Ord. 9907 § 2 (part), 1999)

12.24.070 I.S.A. pruning standards.

That certain document known and designated as ANSI A300 Pruning Standards and the International Society of Arboriculture Best Management Practices for Tree Pruning, as amended from time to time, is adopted by the council of the city as the standards for pruning trees located within the city to all intents and purposes and to the same effect as if each and every section, paragraph, sub-paragraph, word, phase, clause or illustration contained therein were fully set forth herein except for the deletion of any provisions as provided for in the chapter. A copy of such standards shall be on file with the city clerk and shall be available for purchase in the office of the city clerk. (Ord. 2007-02 § 2 (part), 2007; Ord. 9907 § 2 (part), 1999)

12.24.080 Copies of standards on file.

Reference is made to three copies of said standards filed in the office of the city clerk of the city which are now so filed for full particulars of said pruning standards. (Ord. 9907 § 2 (part), 1999)

12.24.090 Enforcement.

Except as otherwise provided herein, the provisions of this chapter shall be administered and enforced by the director in his or her capacity as enforcement officer. In the enforcement of this chapter such enforcement officer and his or her deputies may enter upon private or public property to examine any oak tree, and may issue citations for any violations of this chapter. (Ord. 9907 § 2 (part), 1999)

12.24.100 Public assistance for property owners.

A. If the city manager determines that a property owner, who has submitted a notice of intent to prune an oak tree, cannot properly prune his or her oak tree without the assistance of a professional tree trimmer, and that said property owner cannot afford to hire a professional tree trimmer because he or she does not have the financial resources to pay for such services, the city manager may provide financial assistance to said property

owner for the purpose of pruning the tree or trees, if all the following conditions are met and funds are available:

1. The property owner uses the property where the tree(s) is located as his or her principal place of residence;

2. The aggregate gross income of all persons eighteen (18) years of age or older residing on the property does not exceed the minimum amount as may be set from time to time, by resolution of the city council, pursuant to this subdivision; and

3. The city manager determines that it is necessary to prune the tree to remove hazardous conditions, remove disease, rot, pests, other harmful conditions, or promote healthy growth of the tree(s).

B. Such financial assistance may include, but not be limited to, low interest loans, work done by the city with the cost borne in part or in whole by the property owner, work done by the city with the cost borne by the city to be repaid by the property owner upon such terms as the city and property owner shall agree, or any combination thereof. (Ord. 2007-02 § 2 (part), 2007; Ord. 9907 § 2 (part), 1999)

12.24.110 Oak maintenance fund.

For purposes of providing such financial assistance as described in Section 12.24.100, and for accomplishing the oak tree mitigation goals as described in the Oak Tree Mitigation Policy developed pursuant to Section 12.24.037, it is established the "oak maintenance fund" which shall be funded either in part or in whole by those portions of fines which may be assessed by the courts, or through the administrative penalty process, known as "civil penalty assessments" for violations of this chapter, and by mitigation fee payments ordered pursuant to the Oak Tree Mitigation Policy established pursuant to Section 12.24.037. The Oak Tree Maintenance Fund shall be managed as described in the Oak Tree Mitigation Policy. (Ord. 2007-02 § 2 (part), 2007; Ord. 9907 §2 (part), 1999)

Article 4. Development proposals; protection of oak trees

12.24.120 Encroachment into drip-line of oak trees during construction.

A. With respect to any application for a building or development permit, all encroachment by permanent structures into the crown drip-line of a Valley Oak is prohibited unless approved by the City Manager or his/her designee. If encroachment into the crown drip line is approved, the city shall require special construction techniques to be employed, as determined by the city manager.

B. The existing ground surface within crown-drip-line (measured horizontally) of the trunk of any oak tree shall not be cut, filled, compacted or paved without the consent of the city manager. Tree wells may be used when advisable. Excavation adjacent to any oak tree shall not be permitted where material damage to the root system will result.

C. The city council shall, by resolution adopt guidelines for commercial, industrial, and residential development and construction on property within the city, and city-initiated projects, where any oak tree is located. Such guidelines adopted pursuant to this subsection shall be made a part of this subsection and shall be enforced as hereinafter set forth. (Ord. 2007-02 § 2 (part), 2007; Ord. 2003-07 § 2, 2003; Res. 2003-61 (part), 2003; Ord. 9907 § 2 (part), 1999)

12.24.130 Building permits.

A. When any building permit, grading permit, or development permit is applied for pursuant to the city code and a proposed structure or construction project would require the destruction, removal, or pruning of an oak tree, or encroachment into the crown-drip-line of an oak tree, said permit shall not issue until the city manager has confirmed that all requirements of this chapter, including the obtaining of a removal or pruning permit or the imposition of encroachment conditions, can be met In no event shall any disturbance of the premises, disturbance of the oak trees, or encroachment into the crow-drip-line be allowed until all requirements of the chapter are met and a building permit with appropriate conditions and oak tree removal permit are issued. The issuance of a building permit notwithstanding this section shall in no event serve as a defense to a violation of any provision of this Chapter.

B. In the event a permit to destroy or remove an oak tree is issued in order to enable the applicant to carry out some project of development or improvement of the property, such permit shall be valid and effective only in connection with the actual accomplishment of such project.

C. In the event conditions related to removal or pruning of oak trees, or encroachment into the crown-drip-line, are attached to a building, grading or development permit, a minimum $10,000 deposit (or amount deemed necessary by the city manager) shall be posted and maintained to ensure compliance with such conditions. The deposit shall be posted in a form approved by the City Attorney prior to any grading or movement of heavy equipment onto the site or issuance of any permits. Each violation of any condition regarding tree preservation shall result in forfeiture of a portion or the entirety of the deposit, at the discretion of the city manger. No deposit shall be required where the potential impacts to oak trees, and the required conditions to avoid such impacts, although present, are minimal. (Ord. 2007-02 § 2 (part), 2007; Ord. 9907 § 2 (part), 1999)

12.24.140 Willful destruction of oak trees.

It is unlawful for any person to willfully destroy, mutilate, poison, or attempt to kill an oak tree in the city. Exceptions to this section are to be found in Section 12.24.050 which provides for emergency destruction, removal, or pruning of an oak tree. (Ord. 9907 § 2 (part), 1999)

12.24.150 City projects.

City-initiated projects should comply with standards referred to in Section 12.24.120. (Ord. 2007-02 § 2 (part), 2007; Ord. 9907 § 2 (part), 1999)

Article 5. Enforcement

12.24.155 Enforcement.

Except as otherwise provided herein, the provisions of this chapter shall be administered and enforced by the city manager in his or her capacity as enforcement officer. In the enforcement of this chapter such enforcement officer and his or her deputies may enter upon private or public property to examine any oak tree, and may issue citations for any violations of this chapter. (Ord. 2007-02 § 2 (part), 2007)

12.24.160 Nuisances.

A. It is declared a public nuisance for any person owning, leasing, occupying or having charge of any premises in the city which has one or more oak trees located thereon to intentionally, negligently accidentally, or otherwise maintain said premises in such a manner so as to cause harm to and of said oak trees, by reason of any of the following conditions:

1. Water saturation or deprivation;

2. Nailing, screwing, stapling, bolting, or otherwise attaching boards, fences, signs, placards, posters, or other material which might cause injury to the oak tree;

3. Neglect in the pruning or trimming of overgrown, diseased, decaying, dead, or rotting limbs, branches and foliage.

B. In addition to enforcing provisions of this code that constitute a public nuisance through criminal citations, civil action or administrative enforcement, the city manager may enforce against and abate any and all nuisances declared pursuant to this section in a manner consistent with applicable provisions of the Visalia Municipal Code pertaining to the procedure for abatement of nuisances, or absent such provisions, in a manner consistent with the laws of the State of California pertaining to abatement of nuisances. (Ord. 2007-02 § 2 (part), 2007; Ord. 9907 § 2 (part), 1999)

12.24.170 Abatement.

All premises or oak trees declared to be such public nuisances and ordered to be abated may be abated by watering, conditioning the soil, constructing berms, pruning or trimming, or removing offending materials affixed to the tree which might cause injury to said tree, pursuant to the procedures set forth in this code. (Ord. 9907 § 2 (part), 1999)

12.24.180 Notice of hearing to abate.

A. Within thirty (30) days of the passage of said resolution, the city clerk shall cause to be conspicuously posted on the premises, where the oak tree(s) are located, a certified copy of the resolution of the city council, which said notices shall be titled: "NOTICE OF HEARING" in letters of not less than one inch in height and shall be substantially in the following form:

NOTICE OF HEARING

TO ABATE NUISANCE

Notice is hereby given that on the ___day of ___, __, the City Council of the City of Visalia passed a resolution declaring that certain Oak Tree(s) located or standing upon that certain lot, piece or parcel of land, situated in the City of Visalia, State of California, known and designated as, in said City, and more particularly described as Lot No., Tract No., or name of subdivision in said City, constitutes a public nuisance and must be abated by the rehabilitation of such premises by the watering, pruning, trimming, or other methods; otherwise said nuisance will be abated by the municipal authorities of the City, in which case the cost of such rehabilitation, watering, pruning or trimming will be assessed upon the land on which said Oak Tree(s) is or are located and such cost will constitute a lien upon such land until paid. (Reference is hereby made to said resolution for further particulars.)

B. The city clerk shall cause to be served upon the owner of each of the oak tree(s) declared to be a public nuisance and sought to be rehabilitated by watering, pruning or trimming one copy of said notice and a certified copy of the resolution of the city council, in accordance with these provisions.

C. Said notices and resolutions must be posted and served as aforesaid, at least thirty (30) days before the time fixed for the hearing before the city council and proof of posting and service of such notices and resolutions shall be made by affidavit which shall be filed with the city council. (Ord. 9907 § 2 (part), 1999)

12.24.190 Form of proper service of notice.

Proper service of said notice and resolution shall be by personal service upon the person owning the property as such person's name and address appears on the last equalized assessment roll, if he is found within the city limits, or if he is not to be found within the city limits, by depositing a copy of said notice and resolution in the U.S. post office properly enclosed in a sealed envelope and with the posting thereon fully prepaid. Said mail shall be registered or certified and addressed to said owner at the last known address of said owner. The service is complete at the time of deposit. (Ord. 9907 § 2 (part), 1999)

12.24.200 Hearing by city council.

A. At the time stated in the notices, the city council shall hear and consider all objections or protests, shall receive testimony and other evidence from owners, witnesses and parties interested relative to such alleged public nuisance and as to rehabilitation of such premises by the watering, pruning or trimming, or by other abatement thereof, and may continue the hearing from time to time.

B. Upon the conclusion of said hearing, the city council shall allow or overrule any or all of said protests. If the city council finds that good and sufficient cause does exist why said premises should be rehabilitated, or oak tree(s) should be watered pruned,

trimmed, or treated, the city council shall prepare and file a report of such findings with the city clerk.

C. Following said public hearing, the city council may by resolution order the director to abate said nuisance, after a period of thirty (30) days, by having the oak tree(s) watered, pruned, trimmed, treated, or the nuisance otherwise abated, and the director and his or her authorized representatives are hereby expressly authorized to enter upon private property for that purpose. (Ord. 9907 § 2 (part), 1999)

12.24.210 Service on owner of resolution to abate.

A copy of said resolution ordering the director to abate said nuisance shall be served upon the owner of said property in accordance with the provisions of this chapter and shall contain a detailed list of needed corrections. Any property owner shall have the right to have any such oak tree(s) watered, pruned, trimmed, treated, or the nuisance otherwise abated at his or her own expense, provided the same is completed prior to the expiration of the time set forth in said resolution. (Ord. 9907 § 2 (part), 1999)

12.24.220 Record of cost for abatement.

The director shall keep an account of the cost (including incidental expenses) of abating such nuisance on each separate lot, or parcel of land where the work has been done and shall render an itemized report in writing to the city council showing the cost of watering, pruning, trimming, or treating said oak tree(s), and incidental expenses, on each separate lot or parcel of land; provided, that before said report is submitted to the city council, a copy of the same shall be posted for at least five days upon the premises or property upon which such oak tree(s) are situated, or the nuisance committed, together with a notice of the time when said report shall be submitted to the city council for confirmation; and a copy of said report and notice shall be served upon the owner of said property, in accordance with the provisions of this chapter at least five days prior to submitting the same to the council; proof of said posting and service shall be made by affidavit and filed with city clerk. The term "incidental expenses" shall include, but not be limited to the expenses and costs of the city in the preparation of notices, specifications and contacts, and in inspecting the work, and the costs of printing and mailing required hereunder. (Ord. 9907 § 2 (part), 1999)

12.24.230 Hearing and proceedings.

At the date and time fixed for receiving and considering said report the city council shall hear and pass upon the report of the director, together with any objection or protests which may be raised by any of the owners of property liable to be assessed for the work of abating such nuisance any other interest persons. Thereupon, the city council may make such revision, correction or modification in the report as it may deem just, after which by resolution the report, as submitted, or as revised, corrected or modified, shall be confirmed; provided that said hearing or consideration may be continued from time to time. The decision of the city council on all protests and objections which may be made, shall be final and conclusive. (Ord. 9907 § 2 (part), 1999)

12.24.240 Assignment of costs against property--Lien.

The amount of the costs of abating such nuisance upon any lot or parcel of land, as confirmed by the city council, shall constitute a special assessment against the respective lot or parcel of land, and as thus keep a lien on said property for the amount of such assessment. After the confirmation of said report, a copy shall be turned over to the assessor and the tax collector of the county of Tulare, acting on behalf of the city, whereupon it shall be the duty of said assessor and tax collector to add the amounts of the respective assessments to the next regular bills of taxes levied against the said respective lots and parcels for land for municipal purposes, and thereafter said amounts shall be collected at the same time and in the same manner as other municipal taxes are collected, and shall be subject to the same penalties and the same procedure under foreclosure and sale in case of delinquency as provided for other municipal taxes. (Ord. 9907 § 2 (part), 1999)

12.24.250 Authority.

Any and all nuisances declared and abated hereunder shall be processed pursuant to the authority set forth in Sections 38771 et seq., of the Government Code of the state of California, in the manner described herein above. (Ord. 9907 § 2 (part), 1999)

12.24.260 Penalties.

A. Unless otherwise noted herein, a violation of any provision of this Chapter shall constitute a misdemeanor.

B. Any violation of any provision of Sections 12.24.060 and 12.24.070 shall be deemed an infraction and be punishable upon conviction as hereinafter set forth.

C. Any person convicted of a misdemeanor under this chapter shall be punished by a fine not to exceed one thousand dollars ($1,000.00) and/or six months in the county jail. Each day that a violation continues shall be regarded as a separate offense.

D. Any person convicted of an infraction of this chapter shall be punished by a fine not to exceed five hundred dollars ($500.00). Each day the violation continues shall be regarded as a new and separate offense.

E. Upon a person being convicted of any violation under this chapter, the court shall, in addition to, or in lieu of, the above penalties, or any other penalty provided and imposed under this chapter, order the defendant to pay a civil penalty assessment to the City of Visalia to be used in the manner described in the Oak Tree Maintenance Fund, as described in Section 12.24.110 herein, which Civil Penalty is designed as restitution to compensate the city and the community for the loss or diminution of economic, aesthetic, environmental, and property values resulting from the loss of any oak tree or portion thereof, and for the city's costs and attorney's fees in prosecuting the matter. In cases of un-permitted removal of an oak tree in violation of Section 12.24.025, such civil penalty shall be calculated by doubling the in-lieu mitigation amount as indicated in the Oak Tree Mitigation Policy implemented pursuant to Section 12.24.037, which would have been imposed for the specific tree had a permit been obtained. In cases of purposeful damage

to an oak tree in violation of Section 12.24.025, the civil penalty imposed shall be calculated by multiplying one half times the in-lieu mitigation amount as indicated in the Oak Tree Mitigation Policy implemented pursuant to Section 12.24.037, which would have been imposed for the specific tree had a removal permit been obtained.

F. Any violation of any provision of this chapter may result in the immediate suspension of any permit previously issued for the construction and/or development of property upon which said violation occurred, until compliance with all mitigation measures required by this ordinance is demonstrated to the satisfaction of the city manager.

(Ord. 2007-02 § 2 (part), 2007; Ord. 9907 § 2 (part), 1999)

12.24.270 Severability.

A. If any section, subsection, paragraph, sentence, clause, or phrase of this chapter is held to be unconstitutional or invalid or ineffective by any court or tribunal of competent jurisdiction, such decision shall not affect the validity or effectiveness of the remaining portions of this chapter, or any part thereof.

B. If the application of any provision of this chapter or any person, property, or circumstance is found to be unconstitutional or invalid or ineffective in whole or in part by any court or tribunal of competent jurisdiction, the effect of such decision shall be limited to the person, property, or circumstance immediately involved in the controversy, and the application of any such provision to other persons, properties or circumstances shall not be affected. (Ord. 2007-02 § 2 (part), 2007; Ord. 9907 § 2 (part), 1999)

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The City of Visalia offers financial assistance for Valley Oak Tree maintenance including: pruning and removals for low-income homeowners that meet income qualifications.

GUIDELINES FOR SEEKING ASSISTANCE:

1. Tree must be located on a private, residential lot.
2. Submit an intent to prune form to the Urban Forestry Division.
3. Submit an application for assistance for oak tree care.
4. The supervisor, or his representative, will make an on-site inspection of the tree to be pruned to determine the extent of work necessary.
5. Three bids, in writing, must be submitted to the supervisor.
6. The supervisor or his representative will then agree upon a price for the tree pruning with a tree trimming service who is under contract with the city.
7. The property owner who desires financial assistance will submit to the supervisor a copy of their previous year's taxable income documents and proof of ownership.

For more information contact: 713-4295 or 713-4384.

Return to: 336 N. Ben Maddox, Visalia, CA 93292 or 559.713.4818

Date of Request _____

INTENT TO PRUNE
OAK TREE
CITY OF VISALIA

Notice of intent to prune Valley Oak Tree(s) (Quercus Lobata) within the Visalia corporate City limits.

According to the California State Licensing Board, no person shall trim any tree over 15 feet tall or charge an amount in excess of $500.00 that is not duly licensed in accordance with the provisions of Division III, Chapter 9, of the State of California Business and Professions Code and has a current C-27 Landscape Contractor, or a C-61, D-49, Limited Specialty, Tree Service, State of California Contractor's License.

Approximate size of the trees Dia. at 4 Ft. _____

Date tree to be pruned_____

Name of tree service _____ Phone # _____

Business License # _____

Contractor's License # _____

Insurance carrier _____

Property owner _____ Phone _____

Address _____ Zip_____

Applicant's Signature _____ Phone _____

Print Name _____

Applicant's Address _____ Zip_____

LOCATION SKETCH:

Send your application, and check made payable to the **City of Visalia**:

City of Visalia
Parks & Urban Forestry
336 N. Ben Maddox Way
Visalia, CA 93292

Account No. 3790-21180

City of Visalia

OAK TREE REMOVAL APPLICATION

$25.00 NON-REFUNDABLE FEE

No Fee Required for Low-Income Applicants

Steps to remove a Valley oak:

1. **Fill out an Oak Tree Removal Application. Pay application fee.**
2. **A city staff representative will come out, evaluate the Valley oak tree and post intent within 5 days.**
3. **A permit or denial letter will be sent to the property owner within 14 days.**
4. **If a permit was granted, one may remove the tree once one receives an approved permit.**

Oak Tree Removal: Any person desiring to destroy or remove a Valley Oak Tree (Quercus lobata) on private of public property must **first obtain a removal permit ($25.00 + permit letter)** *(Section 12.24.140). It is unlawful for any person to willfully destroy, mutilate, poison, or attempt to kill a Valley Oak Tree (Quercus lobata) within the Visalia corporated city limits. Any person violating the Oak Tree Preservation Ordinance shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished by a fine of not more than one thousand dollars ($1,000.00) or by imprisonment for a period of not more than six months, or by both such fine and imprisonment [Section 12.24.260 (D)]*

This is an application for a permit to remove ( ) Valley Oak tree(s), Quercus Lobata, within the Visalia corporate city limits located at (address of tree):

_____

Approximate size of tree(s) in diameter at 4 feet high: _____

Reason for removal request:

_____

_____

_____

Cross Streets: _____

Name of Tree Service: _____ Phone # _____

Property Owner's Name: _____

Property Owner's Signature: _____

Property Owner's Address: _____ Zip: _____

Date: _____

Applicant's Name: _____

Applicant's Signature: _____ **Phone:** _____

Applicant's Address: _____ **Zip:** _____

LOCATION SKETCH

Please draw a description of the tree and the location on the property below

OAK TREE CARE

Care of California's Native Oaks

Young native oaks trees are very tolerant of their environment and make excellent, adaptable, landscape assets. The mature native oak is an invaluable part of our environment but does not tolerate many changes once established.

Architects, builders, homeowners, and others should be very careful in fitting their plans with these magnificent giants. Any substantial change in the mature oak's environment can weaken or kill an oak, even a healthy specimen.

A good rule of thumb is to leave the tree's **root protection zone (RPZ)** undisturbed. This area, which is half again as large as the area from the trunk to the drip line, is the most critical to the oak. Many problems for oaks are initiated by disturbing the roots within this zone.

A Word About Roots

Our native oaks have developed survival adaptations to the long, dry summers of most of California. Primary to this survival is the development and characteristics of its root system. When an acorn first sprouts, there is rapid root development and very little growth above ground.

This initial root is a taproot extending deep underground for dependable moisture. In fact, the tree's first few years are focused on establishing a deep sustaining root system. Once this has happened, greater foliage and aboveground growth takes place.

As the oak grows, the tap root is outgrown by an extensive lateral root system that spreads horizontally out from the trunk to and well beyond the drip line, sometimes as much as 90 feet. For a mature oak, this horizontal root system is the primary supporter of the tree for the rest of its life. It includes the important fine roots, which absorb moisture and nutrients. Most of the root system occurs within the top three feet of soil. In shallower soil, the root system is concentrated in an even shallower zone, typically one to two feet below the surface.

As the oak matures, particularly in areas naturally dry in summer, deep-growing vertical roots form off the laterals, usually within ten feet of the trunk. These sinker roots exploit deeper soil moisture and add stability to an increasingly massive tree.

By the time a mature oak has established its elaborate root system -so well designed for its environment and particular site conditions -it has lost the vigor of youth. It is less tolerant of change and can less easily recover to support a fully developed living structure.

To protect a mature oak, pay particular attention to drainage, and avoid filling, trenching, or paving near its root zone.

Fill Around Oaks

Soil and other materials placed on top of the natural soil level, called fill, are usually compacted. They make the soil less permeable, thereby restricting or prohibiting the exchange of gases and movement of water. Excessive moisture trapped by fill can also cause root and crown rot. Because there is no guarantee that fill can be safely added around an oak tree, it is best to avoid tampering with the natural grade, or to leave the natural grade within the root zone alone and use retaining walls.

Drainage

Poor drainage is a common cause of oak tree deaths, since adequate drainage is critical to ensure a proper balance of moisture, air, and nutrient to grow and survive. Particularly in the warm months when natural conditions are dry, too much moisture can smother the roots and encourage the proliferation of crown and root rot fungi.

Another moisture threat to oak roots is presented by barriers such as concrete foundations and footings, streets, and swimming pools downhill of oaks. These structures can dam underground water, causing water to back up into a tree's root zone and drown it.

Trenching

Trenching is an often-overlooked cause of tree death. Trenching usually occurs when underground utilities are installed. Digging a trench for utilities within the RPZ of an oak can sever a significant portion of a tree's roots.

Often, several trenches are opened by separate utilities. This multitrenching is particularly destructive since it impacts a greater portion of the root system.

If utilities must impinge on the root protection zone of a native oak, the trench should be dug by hand, avoiding roots, or utilities bored through the ground at least three feet below the surface.

Paving

Paving can cause the same problems associated with soil compaction. Paving, such as asphalt and concrete, prevents water from soaking into the soil and impedes the exchange of gases between roots, soil, and the atmosphere. In addition, paving usually requires excavation to create a stable base and to allow for depth of paving material. This process compacts the soil and damages roots.

Decking placed on piers is much more compatible with mature oaks than paving.

Care of Established Oaks on Home Grounds

Oaks on home grounds require certain conditions to survive and prosper. Activities of concern to the homeowner are planting near oaks, irrigation and feeding, pruning, installation of home improvements, and disease and insect infestations.

Most native oaks in California evolved and prospered in an environment typified by a cool, moist winter and a hot, dry summer. Under natural conditions, surface soils are wet during the cooler months and become dry by summer. Natural vegetation growing beneath oaks flourishes during the winter and spring and dies by early summer, creating the well-known golden-brown landscape of California's valleys and foothills.

Native oaks, however, remain green because their thick, leathery leaves and other adaptive features reduce their water use. The homeowner should attempt to approximate the natural environment in which these magnificent trees are originally found.

Planting Near Oaks

Only drought-tolerant plants that require no summer water should be planted around old established oaks, and they should be planted no closer than six feet from the base of the tree. Do *not plant exotic grasses, ivy, azaleas, rhododendrons, or any other vegetation that needs summer irrigation.* Such plants develop thick mats of roots and thus inhibit the exchange of air and water the established oak has grown used to.

There are a number of plants, some of which are native to California that can be grown beneath oaks. For an extensive listing of compatible plants useful for landscaping around oaks, contact the California Oak Foundation.

In place of plants, other types of ground cover can be used to landscape beneath oaks. When installed properly, cobbles, gravel, and wood chips are good examples of ground covers that do not interfere with the roots' ability to obtain oxygen and appropriate moisture.

Irrigating and Fertilizing

Native oaks usually do not require irrigation, as they are well adapted to dry summer conditions. Healthy oaks are even able to survive the excessively dry summers sometimes brought on by California's variable climate. However, if an oak has been compromised, as when impervious surfaces have been placed in the RPZ, occasional water may be helpful if done properly.

Oaks should be irrigated only outside of the RPZ. *Under no circumstances should the ground near the base of a native oak be allowed to become moist during warm weather periods.* Moist, warm soil near the base of a mature oak promotes crown and root rot.

Irrigation, if done, should be by the" deep watering method," which consists of a slow, all-day soaking only once or twice during the summer dry period. Frequent, shallow watering not only encourages crown and root rot, it also results in the growth of ineffective shallow roots near the surface, a needless waste of the tree's energy.

If oaks need supplemental watering, it is best to apply the water at times that lengthen the normal rainy season, so the normal dry period in the middle to the end of summer is preserved. For example, additional irrigation would be appropriate in May and September, while leaving the area under the tree dry in July and August.

Mature oaks usually need little or no supplemental fertilization. Light fertilization may be appropriate in landscaped situations to replace nutrients supplied by leaves and other litter that normally accumulates under an oak in its native environment. If leaves are allowed to remain under trees, they eventually break down and supply nutrients.

Fertilization should only be done if growth is poor. Fertilizers should be applied to the entire RPZ, ideally in late winter or early spring. Trees that have recently undergone severe pruning or root damage should not be fertilized for at least six months.

Often, when an oak tree shows yellowing leaves, one thinks it lacks nutrients. Generally, this is not the case. More likely, the tree is suffering from root or crown rot. When an oak appears unhealthy, consult a certified arborist to determine the cause.

Pruning

Excessive pruning or thinning of limbs may expose interior branches to sun damage, may stimulate the tree to produce succulent new growth that is subject to mildew, and in some cases; may cause a decline in vigor or may kill a tree. *Only dead, weakened, diseased,* or *dangerous branches should be removed. Necessary pruning should be done during the winter dormant period for deciduous species and during July and August for evergreen species. Recent research has shown that tree paint, wound dressings, and sealing compounds do more harm than good.*

Pruning should be performed by a certified arborist according to the pruning standards of the Western Chapter of the International Society of Arboriculture.

Home Improvement

The installation of home improvements should be done with caution when oaks are located nearby. Trenching severs roots, and impervious surfaces placed over roots may result in the death of the oak. A swimming pool placed downhill of oaks can act as a dam and cause an oak to drown in saturated soil.

Great caution should be taken and a certified arborist consulted before proceeding with improvements that impact on the root protection zone of any valued native oak.

Diseases

When growing under natural conditions, native California oaks are relatively tolerant of most diseases. However, they are subject to several problems when disturbed or hampered by frequent summer watering.

The two oak diseases most often encountered in irrigating settings are crown rot and oak root fungus. Both attack trees weakened by disturbance or improper care.

Crown Rot

This is one of the most common and serious diseases of oaks in home plantings. Infected trees decline slowly over a period of years. The disease caused by a microscopic fungus, is made worse by saturated soil and poor soil aeration.

Symptoms of this disease are a general decrease in tree vigor, twig dieback and wilting, abnormally yellow leaves, and formation of lesions on the bark accompanied by oozing of dark-colored fluid.

In most cases, people notice crown rot too late for successful treatment. However, if the disease is caught in the early stages a tree can be saved. Comprehensive treatment is best left to a qualified expert. The following measures usually benefit the tree:

1) Remove lawn and other plants that require summer irrigation from within the RPZ.

2) Remove soil and all other debris that has accumulated against the trunk.

3) Do not water within the RPZ during the summer except under unusual conditions when advised by a certified arborist.

4) Improve drainage around the tree, and make sure all water drains away from the trunk.

Oak Root Fungus

This oak fungus, also known as *Armillaria* root rot, is found in the root systems of most oaks in California. Our oaks experience little damage from this fungus under natural, dry summer conditions. However, when oaks are watered in the summer or weakened by other impacts, the tree can suffer damage from the fungus.

Symptoms shown by an infected oak include dieback of branches and yellowing and thinning of foliage. The fungus itself may appear as a white, fan-like growth with rhizomorphs and mushrooms.

Prevention of damaging conditions is the only sure action that can be taken against this disease. Avoid summer irrigation near oaks. Prevent mechanical damage to major roots or root crown. As with crown rot and other tree diseases, it is recommended that a certified arborist be consulted.

Mistletoe

This parasitic plant grows on the branches of many oaks and can cause structural weaknesses that make branches more vulnerable to breakage. Its sticky seeds are spread from one tree to another by birds. The seeds germinate under favorable conditions, and root-like structures find their way through the bark; ultimately becoming attached to the oak and tapping into the water-and-mineral- conducting tissues of the tree.

Small infestations can be controlled by removing the mistletoe and cutting back the oak's bark around the spot where the mistletoe stem entered the oak branch. Major infestations are difficult to control, however, and an arborist specializing in oaks should be consulted.

Other diseases

The health and vigor of oaks can also be compromised by a number of other afflictions that are not discussed here. Since 1980, for example, dieback and decline, particularly among the coast live oak *(Quercus agrifoJia),* has been observed in widespread areas of California. Several fungi may be involved in this condition, and treatments are still experimental. Seek professional advice whenever you notice serious, unexplained decline in your oaks.

INSECTS

Innumerable insects find their livelihoods in the branches and leaves of oaks, usually without much consequence to the healthy tree. The oak gall, for example, is a harmless swelling of leaves and twigs in reaction to enzymes released where a wasp lays its eggs. Some galls are large and round. Others resemble small wads of fuzz, stars, or tops. One type of gall, which looks like a tiny seed, falls from leaves in the late summer and occasionally jumps into the air like a Mexican jumping bean.

Some infestations, however, can cause serious damage. Insects such as pit scales (which appear as pinhead-sized scales on the bark of twigs), oak moth, and other leaf-eaters can weaken oaks, making them susceptible to disease.

Whenever an insect infestation causes substantial leaf loss, changes in leaf color, twig dieback, sticky or sooty foliage, and branches, or other significant changes in appearance, intervention may be required. Consult a certified arborist for assistance.

Edited by Sharon G. Johnson and Sarah S. Gustafson
California Oak Foundation - http://www.californiaoaks.org

Bond No._____

Premium_____

CITY OF VISALIA

FAITHFUL PERFORMANCE BOND

RETENTION AND PRESERVATION OF VALLEY OAK TREES

WHEREAS, The City Council of the City of Visalia, State of California, and _____ (hereinafter designated as "principal") have entered into an agreement whereby principal agrees to protect all valley oak trees within the limits of the project in accordance with the City of Visalia valley oak tree protection ordinance (Visalia Municipal Code Title 12, Chapter 24), which said agreement, dated _____, 20____, and identified as project _____, is hereby referred to and made a part hereof; and

WHEREAS, Said principal is required by said ordinance to furnish a bond for the retention and preservation of trees within the project limits; and

NOW, THEREFORE, we, the principal and _____, as surety, are held and firmly bound unto the City of Visalia, (hereinafter called "City"), in the penal sum of _____ dollars ($_____) lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, successors, executors and administrators, jointly and severally, firmly by these presents.

The condition of this obligation is such that if the above bounded principal, his or its heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions and provisions in the said agreement and any alteration thereof made as therein provided, on his or their part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless the City, its officers, agents and employees, as therein stipulated, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

As a part of the obligation secured hereby and in addition to the face amount specified therefor, there shall be included costs and reasonable expenses and fees, including reasonable attorney's fees, incurred by city in successfully enforcing such obligation, all to be taxed as costs and included in any judgment rendered.

The surety hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the agreement or to the work to be performed thereunder or the specifications accompanying the same shall in anywise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the agreement or to the work or to the specifications.

IN WITNESS WHEREOF, this instrument has been duly executed by the principal and surety above named, on _____, 20__.

"PRINCIPAL"

_____

By: _____

(Seal)

"SURETY"

_____

By: _____
Attorney-in-Fact

(Seal)

City of Visalia
Oak Tree Mitigation Policy

February 1, 2007

I. Authority and Adoption

This Oak Tree Mitigation Policy has been developed pursuant to Visalia Municipal Code sections 12.24.037 and 12.24.110. This Policy shall be approved by resolution of the City Council and shall become effective immediately upon such approval. A copy of the resolution approving this policy shall be attached hereto.

II. Mitigation

It is the policy of the City of Visalia that property owners who are granted a permit to remove an oak tree be required to mitigate for the loss of the oak tree by paying a mitigation fee, or by performing in-kind mitigation, or by a combination of payment of mitigation fee and in-kind mitigation, according to the following formulas:

A. Mitigation Fee: The mitigation fee to be paid shall be determined by the following formula

   $120 multiplied times DBH

   DBH = diameter, in inches, at breast height of the tree to be removed.

B. In Kind Mitigation: The property owner may elect to satisfy some or all of the mitigation requirement by planting new oak trees on his or her property or on public property with the approval of the urban forestry division of the City. If in-kind mitigation is elected, the property owner must plant one new oak tree for every inch of DBH of the existing tree. It is anticipated that for larger trees it will not be feasible to satisfy all of the mitigation requirement through in-kind mitigation on the subject property because the property will not reasonably sustain the number of oak trees required. The City Manager, or designee, shall determine the amount of in-kind mitigation that is appropriate in any particular case. Each tree allowed to be planted as in-kind mitigation will reduce the mitigation fee that is payable by $120 per tree. Where a property owner elects to satisfy some or all of the mitigation requirement through in-kind mitigation, the property owner shall do so with the understanding that the property owner will be responsible for protecting the health of the replacement trees (including the obligation to provide irrigation), that purposeful damaging or neglect of the replacement trees will be subject to prosecution pursuant to the Visalia Municipal Code, and that any pruning or removal of the trees must be accomplished in compliance with the Visalia Municipal Code.

Note: The mitigation fee formula provided above is intended to represent the reasonable estimate of the cost to replace the tree with new trees on the basis of one new tree per inch of the existing tree's diameter.

Example: Property Owner A proposes to remove an oak tree with a DBH of 20 inches in order to accommodate a garage reconstruction. Citing the particular location of the tree, and the lack of any reasonable alternative to removal, the City Manager has determined that the tree may be removed. The owner proposes to mitigate by planting three replacement trees on the property and paying $2,040 in mitigation fees ($120 x 20 = $2,400, less $360 (or $120 x 3) to recognize the in-kind mitigation). The mitigation proposal is acceptable because the property can reasonably accommodate three replacement oak trees. The fee is appropriate because the three replacement trees have the result of reducing the mitigation fee by the equivalent of $120 per in-kind tree.

Mitigation is shall not be required for trees that are approved for removal pursuant to section Subsections (A) or (C) of Visalia Municipal Code section 12.24.035 (removal warranted because of the health of the tree or because removal furthers urban forestry or land management practices).

II. Oak Tree Maintenance Fund

A. This policy shall apply to the Oak Tree Maintenance Fund created by operation of ordinance, Visalia Municipal Code section 12.24.110.
B. Funds from the Oak Tree Maintenance Fund shall be expended only for the purposes enumerated below:
   1. In support of planting oak trees on public and private property within the City of Visalia. Such expenditures may include the cost of purchasing and planting trees, and preparing the land for planting, including the cost of installing irrigation improvements. Any private property owner may apply to have an oak tree planted on his or her property at public expense, provided such expense does not exceed $120.
   2. In support of the care and preservation of existing oak trees on public property, and on private property but only where the private property owner has demonstrated an inability to pay for such care and preservation.
   3. To offset the expense to a private property owner in making improvements on private property that are necessary to create a reasonable alternative to removing an existing oak tree. It is intended that expenditures under this category only be made where, if not for the use of funds from the Oak Tree Mitigation Fund, there would be no reasonable alternative to removing the tree. It is not intended to be used where normal repairs to improvements to private property, though necessitated by the existence of an oak tree, constitute an ordinary and reasonable burden on the property owner.

      Example 1: Property Owner A has an oak tree that is lifting the foundation of a garage. Requiring the property owner to reconstruct the garage at

his cost is not reasonable, and therefore a removal permit may be granted; however, with the contribution of $500 from the Oak Tree Maintenance Fund, the property owner agrees to reconstruct a portion of the garage and thereby save the tree. Because it would create a reasonable alternative to removing the tree, an expenditure from the Oak Tree Maintenance Fund is appropriate.

C. The Parks and Recreation Director shall prepare an annual report accounting for the balance in the Oak Tree Mitigation Fund and summarizing the use to which such fund was put during the preceding year.

7. TULARE COUNTY OAK WOODLAND MANAGEMENT INFORMATION

A) BOARD OF SUPERVISORS OAK WOODLAND CONSERVATION PROGRAM REPORT JULY 7, 2009

B) TULARE COUNTY GENERAL PLAN 2030 UPDATE POLICIES AND IMPLEMENTATION

A) BOARD OF SUPERVISORS OAK WOODLAND CONSERVATION PROGRAM REPORT JULY 7, 2009

RESOURCE MANAGEMENT AGENCY
COUNTY OF TULARE
AGENDA ITEM

BOARD OF SUPERVISORS

ALLEN ISHIDA
District One

PETE VANDER POEL
District Two

PHILLIP A. COX
District Three

J. STEVEN WORTHLEY
District Four

MIKE ENNIS
District Five

AGENDA DATE: July 7, 2009

Public Hearing Required	Yes	☐	No	☒	N/A	☐
Scheduled Public Hearing w/Clerk	Yes	☐	No	☒	N/A	☐
Published Notice Required	Yes	☐	No	☒	N/A	☐
Advertised Published Notice	Yes	☐	No	☒	N/A	☐
Meet & Confer Required	Yes	☐	No	☒	N/A	☐
Electronic file(s) has been sent	Yes	☒	No	☐	N/A	☐
Budget Transfer (Aud 308) attached	Yes	☐	No	☐	N/A	☒
Personnel Resolution attached	Yes	☐	No	☐	N/A	☒
Resolution, Ordinance or Agreements are attached and signature line for Chairman is marked with tab(s)/flag(s)	Yes	☒	No	☐	N/A	☐

CONTACT PERSON: Celeste Perez PHONE: (559) 733-6291

SUBJECT: Report on Tulare County Oak Woodland Conservation Program

REQUEST(S):

That the Board of Supervisors:

Accept a Report on Tulare County Oak Woodland Conservation Program.

SUMMARY:

The attached staff report will provide an overview on Tulare County's Oak Woodland Conservation Program. The accompanying report includes the following sections: 1) existing Tulare County measures for oak woodland protection; 2) proposed Tulare County measures for oak woodland protection; 3) a summary of the adopted state oak woodland legislation; 4) background information on the status of oak woodlands in California and Tulare County; and 5) a review of oak woodland protection measures other Counties have implemented.

FISCAL IMPACT/FINANCING:

There is no net County cost to the General Fund.

LINKAGE TO THE COUNTY OF TULARE STRATEGIC BUSINESS PLAN:

Strategic Initiative 3: Quality of Life. Oak woodlands conservation promotes natural resource management and continued improvement of environmental quality.

SUBJECT: Report on Tulare County Oak Woodland Conservation Program
DATE: July 7, 2009

ALTERNATIVES:

Option No. 1:Receive Staff Presentation.

Option No. 2: Receive Staff Presentation and provide direction to Staff as warranted.

INVOLVEMENT OF OTHER DEPARTMENTS OR AGENCIES:

None

ADMINISTRATIVE SIGN-OFF:

Jake Raper, Jr., AICP
Assistant Director, Planning

cc: Auditor/Controller
County Counsel
County Administrative Office (2)

Attachment(s)

1. Report on Tulare County Oak Woodland Conservation Program
   Exhibit 1: Oak Woodlands Conservation Act of 2001
   Exhibit 2: Letters of Support for a Tulare County
   Oak Woodlands Management Plan
   Exhibit 3: Oak Woodlands Conservation Legislation of 2004
   (Kuehl SB 1334)
   Exhibit 4: Oaks 2040: The Status and Future of Oaks in California (Excerpts)
   Exhibit 5: Oaks 2040 Maps and Charts (Excerpts)
   Exhibit 6: Donald Bren SESM UCSB, "A Dynamic Strategy for Conserving
   Southern Sierra Blue Oak Woodland" (2007)
   Exhibit 7: IHRMP Study: What 41 Counties are Doing to Protect Oak Woodlands
   Exhibit 8: References

BEFORE THE BOARD OF SUPERVISORS
COUNTY OF TULARE, STATE OF CALIFORNIA

IN THE MATTER OF REPORT ON)
TULARE COUNTY OAK WOODLAND) RESOLUTION NO. _____
CONSERVATION PROGRAM)

UPON MOTION OF SUPERVISOR _____, SECONDED BY SUPERVISOR _____, THE FOLLOWING WAS ADOPTED BY THE BOARD OF SUPERVISORS, AT AN OFFICIAL MEETING HELD July 7, 2009 _____, BY THE FOLLOWING VOTE:

AYES:
NOES:
ABSTAIN:
ABSENT:

ATTEST: JEAN M. ROUSSEAU
COUNTY ADMINISTRATIVE OFFICER/
CLERK, BOARD OF SUPERVISORS

BY: _____
Deputy Clerk

* * * * * * * * * * * * * * * * * * *

That the Board of Supervisors:

Accepted a Report on Tulare County Oak Woodland Conservation Program.

TULARE COUNTY RESOURCE MANAGEMENT AGENCY
STAFF REPORT FOR BOARD OF SUPERVISORS
JULY 7, 2009

REPORT ON TULARE COUNTY OAK WOODLAND CONSERVATION ISSUES

This report provides an overview on Tulare County's Oak Woodland Conservation Program. The report begins with a summary of existing Tulare County measures for Oak Woodland protection (section 1), followed by proposed protection measures from the Tulare County Draft Goals and Policies Report, January 2008 (section 2). Next is a presentation on adopted state legislation regarding oak woodland conservation (section 3). Background information on oak woodlands in California and in Tulare County is presented in section 4. Section 5, the final section, provides information on the oak woodlands conservation measures that have been adopted by other Counties.

1. Existing Tulare County Measures for Oak Woodland Protection

Tulare County currently does not have an oak woodlands management plan, nor does it have a specific tree ordinance (there is no current state requirement for a tree ordinance or management plan).

Adopted goals and policies are referenced in the Tulare County General Plan (Foothill Growth Management Plan (1981)) as well as references to tree preservation in some community plans, that directly or indirectly support oak woodland conservation. These are summarized as follows:

The Foothill Growth Management Plan (1981), an Element of the Tulare County General Plan, includes several goals that will generally or specifically protect oak woodlands. These include the following:

Goal FGMP-8: Environmental Protection
"To protect the natural features of the foothills by directing development to selected areas",

> Policy FGMP 8.19 Preservation of Unique Features: "The County shall encourage maintenance and protection of unique open space areas such as riparian woodlands, oak groves, interesting rock formations, and scenic vistas..." (FGMP 1981 p.15).
>
> Policy FGMP 8.12: Vegetation Removal:
> "The County shall prohibit unnecessary removal of native trees on development sites prior to approval of development plans to control

erosion, preserve wildlife habitat, and maintain the natural character of developing areas (FGMP (1981) p.18).

Goal FGMP-4 under Recreation/Open Space:
"To provide recreational and open space opportunities both for local residents and for the visiting public"

Policy FGMP 4.1: Identification of Environmentally Sensitive Areas:
"The County shall identify and protect those environmentally sensitive areas in the foothill development corridors which should be maintained as open space, such as areas characterized by...habitat of special status species..."

Community Plan Goals and Policies supporting Oak Woodland Conservation

Some communities may have general goals and policies that indirectly support oak woodland protection. As an example, the Three Rivers Community Plan includes as General Development Considerations 3.:
Existing specimens and stands of trees and other plant materials of outstanding value should be preserved wherever possible..."(p.29).

In Vegetation and Wildlife, suggestions that the community "discourage removal of significant vegetation (trees 6" in diameter and more) when property is developed" also supports oak woodland conservation.

2. Proposed Tulare County Policies to Protect Oak Woodlands:
Elements of the Tulare County General Plan Update (January 2008 Draft),

The Tulare County General Plan update (January 2008 Draft) will addresses oak preservation more directly through several goals, policies, and implementation measures:

Goal ERM-1 for Biological Resources:
"To preserve and protect sensitive significant habitats, enhance biodiversity, and promote healthy ecosystems throughout the County (a new goal).

Policy ERM-1.12 (new): Management of Oak Woodland Communities states "The County shall support the conservation and management of oak woodland communities and their habitats."

Implementation Measures 14-16 for Policy ERM 1.12 address oak conservation specifically:

14. The County shall ensure that the provisions of Public Resources Code Section 21083.4 are followed when evaluating projects in areas containing oak woodlands.

15. The County shall work with stakeholders to determine the feasibility of adopting an oak woodlands management plan pursuant to the Oak Woodlands Conservation Act of 2001. The purpose will be to qualify for grant funding to support and encourage voluntary long term private stewardship and conservation of California's oak woodlands.

16. The County shall establish a program to require the replacement planting of native oaks where oak woodlands are proposed for alteration by development projects.

3. California Oak Woodlands Legislation: Oak Woodlands Conservation

Two key pieces of state legislation, adopted in 2001 and 2004, address aspects of oak woodland conservation that will effect strategies for Tulare County. These are 1) The Oak Woodlands Conservation Act of 2001, and 2) Oak Woodlands Conservation legislation adopted in 2004 (Kuehl SB 1334), summarized here as follows:

The Oak Woodlands Conservation Act of 2001
(California Fish and Game Code sections 1360-1372)

The goal of the Oak Woodlands Conservation Act of 2001 is to help maintain and preserve California Oak Woodlands. The Act recognizes the importance of California's oak woodlands, most of which are in private hands. The Oak Woodland Conservation Program is designed to support oak woodland conservation projects, particularly on farms and ranches, by providing a funding source through the Oak Woodlands Conservation Program. This is a voluntary program—eligible applicants including landowners, non-profit groups, and county agencies in qualifying Counties may apply for grant funding from the California Oak Woodlands Conservation Fund, which is administered by the State of California Wildlife Conservation Board (WCB). Eligible applicants can apply for WCB grant funds to be used for:

- *purchase of oak woodlands conservation easements*
- grants for land improvement;
- cost-sharing incentive payments to private landowners who enter into long-term conservation agreements promoting oak woodland management;
- public education and outreach initiatives;
- assistance to local government entities...for the development and implementation of oak conservation elements in local general plans; and

- technical assistance consistent with the purpose of oak woodlands

This program provides potential funding for a variety of oak-conservation related programs (County, private landowners, non-profit organization, unincorporated communities, etc.). Eligibility for WGB grant funding is limited to counties that have adopted Oak Woodlands Management Plans (State of California, Wildlife Conservation Board).

Exhibit 1 is the Oak Woodland Conservation Act of 2001; Exhibit 2 includes letters of support from leaders of two nonprofit organizations and one citizen supporting the adoption of a Tulare County Oak Woodlands Management Plan.

Oak Woodlands Conservation Legislation of 2004 (Kuehl SB 1334)
(Public Resources Code Section 21083.4)

This legislation added PRC 21083.4 (CEQA) and took effect on January 1, 2005. The legislation requires that: "a county shall determine whether a project within its jurisdiction may result in a conversion of oak woodlands that will have a significant effect on the environment." If so,

"...the county shall require one or more of the following oak woodlands mitigation alternatives to mitigate the significant effect of the conversion of oak woodlands:

(1) Conserve oak woodlands, through the use of conservation easements.

(2) (A) Plant an appropriate number of trees, including maintaining plantings and replacing dead or diseased trees.

(B) The requirement to maintain trees pursuant to this paragraph terminates seven years after the trees are planted.

(C) Mitigation pursuant to this paragraph shall not fulfill more than one-half of the mitigation requirement for the project.

(D) The requirements imposed pursuant to this paragraph also may be used to restore former oak woodlands.

(3) Contribute funds to the Oak Woodlands Conservation Fund, as established under subdivision (a) of Section 1363 of the Fish and Game Code, for the purpose of purchasing oak woodlands conservation easements, as specified under paragraph (1) of subdivision (d) of that section and the guidelines and criteria of the Wildlife Conservation Board. A project applicant that contributes funds under this paragraph

shall not receive a grant from the Oak Woodlands Conservation Fund as part of the mitigation for the project.

(4) Other mitigation measures developed by the county."

Certain exceptions to the requirements are allowed. This legislation authorizes use of grants from the Woodland Conservation Fund to prepare or amend an oak conservation element of a general plan; an oak protection ordinance; or oak woodlands management plan that meets the requirements of Section 1363 of the California Fish & Game Code.

Exhibit 3 is the Oak Woodlands Conservation Legislation of 2004 (Kuehl SB 1334)

4. Background: The Status and Future of Oaks in California

In November of 2006, the California Oak Foundation produced a research report--*Oaks 2040: The Status and Future of Oaks in California*-- designed to provide planners with information on oaks statewide and in their region. The Oaks 2040 report describes the location and extent of oak woodlands throughout California, and identifies oak woodlands most at risk. The report also includes data on oak forests, not included here. Following is a summary of the information presented in the Oaks 2040 report and some additional sources on the status of oak woodlands in California, the San Joaquin region, and in Tulare County (Oaks 2040 Report).

Exhibit 4 provides excerpts of the Oaks 2040 report, and Exhibit 5 includes a map series from the same report, showing oak distribution and threats to oaks relevant to Tulare County.

California's Oak Woodlands

California's oak woodlands provide habitat for numerous wildlife species, moderate temperature extremes, reduce soil erosion, facilitate nutrient cycling, and sustain water quality. They also provide recreational opportunities, scenic values, and serve as carbon resources that can help counteract impacts from global warming. California's blue oak woodlands (the dominant species statewide) may represent one of the most extensive old growth forest types remaining in the state. Studies of the annual growth rings of these ancient blue oak trees--including some oaks in Tulare County--have provided a record of drought and wetness cycles over California for the past 500 years (Oaks 2040 Report) Univ. of Arkansas Tree-Ring Lab.

According to the Oaks 2040 report, California has approximately 8.5 million acres of oak woodland and another 4.5 acres of oak forest. These categories are based on the *Calveg* classification system used by the California Department of

Forestry and Fire Protection's Fire and Resource Assessment Program (FRAP) maps, which classifies wildland oak habitat as either oak woodland (hardwood), in which oaks are the dominant tree type, or oak forests (oak/conifer mix), in which oaks comprise a smaller percentage of the tree types in the mix. Oak forests generally occur at higher elevations than oak woodlands (Oaks 2040 Report).

The Sacramento and San Joaquin regions are home to more than half of California's oak woodland. Statewide, blue oaks are the dominant species (over 1/3 of total, statewide). More than 1 million acres of California's oak woodlands have already been developed. Statewide, about 80% of the remaining oak woodlands are privately owned, and only about 4% are protected from conversion. Approximately 750,000 acres of California's remaining oak woodlands are at risk of development before 2040. Of the oak woodlands at risk, 80% are located in the Sacramento and San Joaquin regions, with the oak woodlands of the Central Valley and Sierra Foothills facing the most immediate threats (Oaks 2040 Report).

Statewide, the single largest threat to oak woodlands is from development. Other threats include conversion of oak woodlands to intensive agricultural (e.g. orchards and vineyards), and a lack of oak regeneration in many areas (including Tulare County). Because most remaining oak woodlands are on privately owned property, protection strategies must be designed to accommodate the needs of the private landowner while fostering protection. (Oaks 2040 Report, Guisti, "Conservation of Oak Woodlands—Recognizing the Values").

The San Joaquin Region

The Oaks 2040 Report divided California into six regions. The San Joaquin region encompasses 15 counties, including Tulare County. 27% of the state's oak woodland (over 450 million oak trees on 2.3 million acres) falls in this region. Oak woodlands are predominantly in private ownership (73% of the total). Other major landowners include The US Forest Service, Bureau of Land Management, and the National Park Service. The San Joaquin Region includes one third of the state's oak woodland at risk, with the South Yosemite area at highest risk. Only the Sacramento region contains more oak woodlands at risk (Oaks 2040 Report).

Tulare County Oak Woodlands

Tulare County has over 300,000 acres of oak woodland, one third of which are federally owned. Figure 1 (below) shows the distribution of Tulare County oak woodland species. Tulare County has more than half of the region's valley oak woodlands, as well as considerable blue oak woodland, the dominant oak woodland component of Tulare County foothills.

Figure 1: Tulare County Oak Woodland Species*

Species	Acres	%Total
Black oak	43,406	12.5%
Blue oak	157,740	45.6%
canyon live oak	43,210	12.5%
interior live oak	67,799	19.6%
mixed oak	33,504	9.7%
valley oak	256	0.1%
Total acres 345,915		

Data from Oaks 2040 Report

The Oaks 2040 Report has identified approximately 30,000 acres of Tulare County oak woodlands at high risk for development by 2040. Specific development pressures identified in the report include expansion of valley towns into the foothills, along with pressures from recreation and tourism.

In May 2007, the Donald Bren School of Environmental Science & Management, UC Santa Barbara, completed a study of Tulare County Blue Oak populations: "A Dynamic Strategy for Conserving Southern Sierra Blue Oak Woodland," making recommendations to the Nature Conservancy on strategies for conserving blue oak woodland in Tulare County. Areas of high ecological importance are identified, and a spatial and temporal analysis of climate change and development threats are discussed. The study also notes that Blue Oak Woodland as one of the most diverse communities in North America, supporting more than 1400 species of flowering plants, 29 species of amphibians and reptiles, 57 species of birds, and 10 species of mammals (Donald Bren SESM, UCSB 2007).

Specific challenges to blue oak woodland identified by the UC Santa Barbara study include potential oak woodland fragmentation, which can affect tree regeneration rates, lower biodiversity and result in extinction of sensitive species. Climate change will be another challenge for blue oak woodlands. Projected temperature increases statewide over the next 100 years will likely drive the oak range northwards and to higher elevations. If so, the blue oak woodlands range may be reduced to less than 60% of its current range statewide. (Donald Bren SESM, UCSB 2007).

Exhibit 6 is an article describing the 2007 Bren SESM UCSB 2007 study "A Dynamic Strategy for Conserving Southern Sierra Blue Oak Woodland".

5. Oak Woodland Policies: What other Counties Are Doing

In November of 2003, oak woodland policies of 41 California Counties were compiled in a study by Susan Kocher, UC Berkeley Center for Forestry and Integrated Hardwood Range Management Program (IHRMP) and the Oak Conservation Work Group. The goal was to compile and inventory all county-based policies to protect oak woodlands adopted by the 41 California Counties that had oak woodlands. Results of the study showed that a quarter of the oak woodland counties had no legally enforceable policies. Voluntary guidelines applying mainly to agricultural areas were found in 6 additional counties, and legally enforceable policies applicable in some locations only were found for another 12 counties (including Tulare County). Nineteen counties had both general plan language and implementing ordinances. Implementing ordinances included tree protection and woodland management ordinances, as well as zoning and grading ordinances, and mitigation measures. Nine of these counties had protections that apply in all zones: El Dorado, Marin, Napa, Nevada, Placer, Sacramento, San Bernardino, San Joaquin, and Ventura Counties. The results of the IHRMP study are included as Exhibit 5

Examples of Oak Woodlands Conservation Documents Meeting Legislative requirements:

- In July, 2004, El Dorado County became the first California County to adopt oak woodland mitigation measures as part of its General Plan, making it the first California County to provide oak woodland mitigation measures compatible with the 2004 CEQA legislation requirements.

- The Tehama County Oak Woodlands Management Plan meets the requirements of the Oak Woodland Conservation Act of 2001 and illustrates that the Plans can be quite simple.

- Many communities have adopted tree ordinances that protect oaks and/or other tree types. The City of Visalia Oak Tree Preservation Ordinance (revised August 4, 2003) is one example.

Exhibits:

1. Oak Woodland Conservation Act of 2001
2. Letters of Support for a Tulare County Oak Woodlands Management Plan
3. Oak Woodland Legislation of 2004 (Kuehl SB 1334)
4. Oaks 2040 Report (Excerpts)
5. Oaks 2040 Maps and Charts (Excerpts)
6. Donald Bren SESM, UCSB, "A Dynamic Strategy for Conserving Southern Sierra Blue Oak Woodland" (2007).
7. IHRMP Study: What 41 Counties are Doing to Preserve Oak Woodlands
8. References

Exhibit 1: Oak Woodlands Conservation Act of 2001
(California Fish & Game Code Sections 1360-1372)

Oak Woodland Legislation 2001: Oak Woodlands Conservation Act

CALIFORNIA FISH AND GAME CODE SECTIONS 1360-1372

1360. This article shall be known, and may be cited, as the Oak Woodlands Conservation Act.

1361. For purposes of this article, the following terms have the following meanings:

(a) "Board" means the Wildlife Conservation Board established pursuant to Section 1320.

(b) "Conservation easement" means a conservation easement, as defined in Section 815.1 of the Civil Code.

(c) "Fund" means the Oak Woodlands Conservation Fund.

(d) "Land improvement" means restoration or enhancement of biologically functional oak woodlands habitat.

(e) "Local government entity" means any city, county, city and county, district, or other local government entity, if the entity is otherwise authorized to acquire and hold title to real property.

(f) "Nonprofit organization" means a tax-exempt nonprofit organization that meets the requirements of subdivision (a) of Section 815.3 of the Civil Code.

(g) "Oak" means any species in the genus Quercus.

(h) "Oak woodlands" means an oak stand with a greater than 10 percent canopy cover or that may have historically supported greater than 10 percent canopy cover.

(i) "Oak woodlands management plan" means a plan that provides protection for oak woodlands over time and compensates private landowners for conserving oak woodlands.

(j) "Special oak woodlands habitat elements" means multi-and single-layered canopy, riparian zones, cavity trees, snags, and downed woody debris.

1362. It is the intent of the Legislature that this article accomplish all of the following:

(a) Support and encourage voluntary, long-term private stewardship and conservation of California's oak woodlands by offering landowners financial incentives to protect and promote biologically functional oak woodlands over time.

(b) Provide incentives to protect and encourage farming and ranching operations that are operated in a manner that protects and promotes healthy oak woodlands.

(c) Provide incentives for the protection of oak trees providing superior wildlife values on private lands.

(d) Encourage local land use planning that is consistent with the preservation of oak woodlands, particularly special oak woodlands habitat elements.

(e) Provide guidelines for spending the funds allocated for oak woodlands pursuant to the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act of 2000 (the Villaraigosa-Keeley Act (Chapter 1.692 (commencing with Section 5096.300) of Division 5 of the Public Resources Code)).

(f) Establish a fund for oak woodlands conservation, to which future appropriations for oak woodlands protection may be made, and specify grant making guidelines.

1363. (a) The Oak Woodlands Conservation Fund is hereby created in the State Treasury. The fund shall be administered by the board. Moneys in the fund may be expended, upon appropriation by the Legislature, for the purposes of this article.

(b) Money may be deposited into the fund from gifts, donations, funds appropriated by the Legislature for the purposes of this article, or from federal grants or loans or other sources, and shall be used for the purpose of implementing this article, including administrative costs. Funds from the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act of 2000 (the Villaraigosa-Keeley Act (Chapter 1.692 (commencing with Section 5096.300) of Division 5 of the Public Resources Code)), but not including funds dedicated as matching funds for the federal Forest Legacy Program, shall be deposited in the fund.

(c) To the extent consistent with the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act of 2000 (the Villaraigosa-Keeley Act (Chapter 1.692 (commencing with Section 5096.300) of Division 5 of the Public Resources Code)), the board may use money designated for the preservation and restoration of oak woodlands in the Oak Woodlands Conservation Fund for projects in conjunction with the California Forest Legacy Program (Div. 10.5 (commencing with Sec. 12200) of the P.R.C.)), but only for the purposes specified in this article and only if the following requirements are met:

(1) The Department of Forestry and Fire Protection shall make an initial recommendation to the board.

(2) The board may deny any initial recommendation to the Department of Forestry and Fire Protection. Subsequently, if the department alters an initial proposal, in a manner that the board determines to be significant, the board may withdraw its initial approval of the recommendation at any time during the process.

(d) The purposes for which moneys in the fund may be used include all of the following:

(1) Grants for the purchase of oak woodlands conservation easements. Any entity authorized to hold a conservation easement under Section 815.3 of the Civil Code may hold a conservation easement pursuant to this article. The holder of the conservation easement shall ensure, on an annual basis, that the conservation easement conditions have been met for that year.

(2) Grants for land improvement.

(3) Cost-sharing incentive payments to private landowners who enter into long-term conservation agreements. An agreement shall include management practices that benefit oak woodlands and promote the economic sustainability of farming and ranching operations.

(4) Public education and outreach by local government entities, park and open-space districts, resource conservation districts, and nonprofit organizations. The public education and outreach shall identify and communicate the social, economic, agricultural, and biological benefits of strategies to conserve oak woodlands habitat values, including watershed protection benefits that reduce soil erosion, increase streamflows, and increase water retention and sustainable agricultural operations.

(5) Assistance to local government entities, park and open-space districts, resource conservation districts, and nonprofit organizations for the development and implementation of oak

conservation elements in local general plans.

(6) Technical assistance consistent with the purpose of preserving oak woodlands.

(e) Not more than 20 percent of all grants made by the board pursuant to this article may be used for the purposes described in paragraphs (4), (5), and (6) of subdivision (d). Not less than 80 percent of funds available for grants pursuant to this article shall be expended for the purposes described in paragraphs (1), (2), and (3) of subdivision (d).

(f) Notwithstanding any other provision of law, this article governs the expenditure of funds for the preservation of oak woodlands pursuant to paragraph (4) of subdivision (a) of Section 5096.350 of the Public Resources Code.

1363.5. (a) Commencing on June 30, 2003, and every two years thereafter, the board shall report to the Legislature and the Governor concerning the activities and expenditures of the fund.

(b) (1) In the first report to the Legislature, the board shall provide its best estimate of the total amount, in terms of acreage, species, and coverage, of oak woodlands habitat purchased with funds from the Habitat Conservation Fund and other funds pursuant to the California Wildlife Protection Act of 1990 (Chapter 9 (commencing with Section 2780) of Division 3).

(2) In each subsequent report, the board shall update the information required by paragraph (1) to reflect additional oak woodlands habitat purchased with funds from the Habitat Conservation Fund pursuant to Chapter 9 (commencing with Section 2780) of Division 3, and any purchases made with moneys deposited in the Oak Woodlands Conservation Fund.

(c) The board shall provide its best estimate in each report of the acreage, cover, and species of oak woodlands habitat purchased with all moneys from the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Fund.

(d) The board shall make all information available online at its Web site.

(e) This section shall become inoperative on July 1, 2020, and, as of January 1, 2021, is repealed, unless a later enacted statute that is enacted before January 1, 2021, deletes or extends the dates on which it becomes inoperative and is repealed.

1364. Moneys in the fund shall be available to local government entities, park and open-space districts, resource conservation districts, private landowners, and nonprofit organizations for the purposes set forth in subdivision (d) of Section 1363.

1365. The board shall develop and adopt guidelines and criteria for awarding grants that achieve the greatest lasting conservation of oak woodlands. The board shall develop these guidelines in consultation with the Department of Forestry and Fire Protection, the Department of Food and Agriculture, the University of California's Integrated Hardwood Range Management Program, conservation groups, and farming and ranching associations. As it applies to the award of grants for the implementation of this article, the board criteria shall specify that easement acquisitions that are the most cost-effective in comparison to the actual resource value of the easement shall be given priority.

1366. (a) To qualify for a grant pursuant to this article, the county or city in which the grant money would be spent shall prepare, or demonstrate that it has already prepared, an oak woodlands management plan that includes a description of all native oak species located within the county's or city's jurisdiction.

(b) To qualify for a grant pursuant to this article, the board shall certify that any proposed easement was not, and is not, required to satisfy a condition imposed upon the landowner by any lease, permit, license, certificate, or other entitlement for use issued by one or more public agencies, including, but not limited to, the mitigation of significant effects on the environment of a project pursuant to an approved environmental impact report or to mitigate a negative declaration required pursuant to the California Environmental Quality Act (Division 13 (commencing with Section 21000)) of the Public Resources Code.

(c) To qualify for a grant under this article, the applicant shall demonstrate that its proposal provides protection of oak woodlands that is more protective than the applicable provisions of law in existence on the date of the proposal.

(d) A county or city may develop an oak woodlands management plan. A nonprofit corporation, park and open-space district, resource conservation district, or other local government entity may apply to the board for funds to develop an oak woodlands management plan for a county or city, but the county or city shall maintain ultimate authority to approve the oak woodlands management plan.

(e) The process for developing an initial oak woodlands management plan, and the adoption of significant amendments to a plan, as determined by the county or city, are subject to the Ralph M. Brown Act (Chapter 9 (commencing with Section 54950) of Part 1 of Division 2 of Title 5 of the Government Code).

(f) A proposal by a local government entity, nonprofit corporation, park and open-space district, private landowner, or resource conservation district for a grant to be expended for the purposes of this article shall be certified by the county or city as being consistent with the oak woodlands management plan of the county or city. If the land covered by the proposal is in the jurisdiction of more than one county or city, each county or city shall certify that the proposal is consistent with the oak woodlands management plan of each county or city.

(g) If two or more entities seek grant funding from the board pursuant to this article for the same jurisdiction, the county or city shall designate which entity shall lead the efforts to manage oak woodlands habitat in the area.

1367. On or before April 1, 2002, the board and the Department of Forestry and Fire Protection shall develop a memorandum of understanding regarding the protection of oak woodlands that does all of the following:

(a) If necessary, creates a specific process for working together to use money from the fund in conjunction with the California Forest Legacy Program Act of 2000 (Division 10.5 (commencing with Section 12200) of the Public Resources Code).

(b) Lists elements a county or city shall include in its oak woodlands management plan. Items included in the plan shall assist a county or a city to specify conservation priorities and prevent oak

woodlands habitat fragmentation while minimizing the cost and administrative burden associated with developing the plan. The elements may include any or all of the following:

(1) Tree inventory mapping.

(2) Oak canopy retention standards.

(3) Oak habitat mitigation measures.

(4) A procedure to monitor the effectiveness of the plan and to modify the plan as necessary.

(c) Designates an online repository for oak woodlands management plans that will be easily accessible to the public and any other state agency involved in oak woodlands conservation efforts.

(d) Discusses the relationship between oak woodlands conservation efforts under this article and efforts by other state agencies to protect oak woodlands, including efforts to combat sudden oak death, and outlines a plan, as necessary, for coordinating with these agencies.

1368. The board may not approve a grant to a local government entity, park and open-space district, resource conservation district, or nonprofit organization if the entity requesting the grant has acquired, or proposes to acquire, an oak woodlands conservation easement through the use of eminent domain, unless the owner of the affected lands requests the owner to do so.

1369. A city or county planning department may utilize a grant awarded for the purposes of this article to consult with a citizen advisory committee and appropriate natural resource specialists in order to report publicly to the city council or the board of supervisors on the status of the city's or county's oak woodlands. Each city or county planning department that receives a grant for the purposes of this article shall report to the city council or to the board of supervisors of the county, as appropriate, on the use of those grant funds within one year from the date the grant is received.

1370. No money may be expended from the fund to adopt guidelines or to administer the fund until at least one million dollars ($1,000,000) is deposited in the fund.

1372. Nothing in this article grants any new authority to the board or any other agency, office, or department to affect local policy or land use decisionmaking.

Exhibit 2: Letters of Support for a Tulare County Oak Woodlands Management Plan

a. Sopac McCarthy Mulholland, Executive Director, Sequoia Riverlands Trust (July 6, 2005 letter to Tulare County Board of Supervisors and Planning Staff)

b. Mehmet McMillan, Director, WildPlaces (March 6, 2009 letter to Tulare County Planning Commission and Tulare County Board of Supervisors)

c. Carol Clum. Three Rivers Resident (January 28, 2009 letter to John Elliot, Chairman, Tulare County Planning Commission)

TO: Tulare County Board of Supervisors & Planning Staff

FROM: Sopac McCarthy Mulholland, Executive Director

SUBJECT: Conserving Oak Woodlands in Tulare County

DATE: July 6, 2005

Sequoia Riverlands Trust (SRT) is encouraging the Board of Supervisors to take a proactive step that would provide landowners in Tulare County with access to voluntary, financial incentives to conserve some of our region's most cherished natural features: oak trees and oak woodlands. SRT believes that a significant opportunity exists for private landowners, cities and the county to obtain state funding to manage and conserve these resources, including grants for cost-sharing incentive payments, restoration or enhancement projects, long-term leases, education and outreach programs, and technical assistance in developing relevant general plan language. To make this possible, an oak woodlands management plan needs to be prepared and adopted by Tulare County. This plan can be as straightforward as the "Voluntary Oak Woodland Management Plan" recently adopted by the Tehama County Board of Supervisors. To facilitate the process, SRT is prepared to assist planning staff in drafting an oak woodlands management plan for Tulare County.

The Oak Woodlands Conservation Program

The California Oak Woodlands Conservation Program was created to help maintain the state's legacy of oak woodlands and to accommodate the needs of private landowners. This program was enacted by the Oak Woodlands Conservation Act, which recognizes the importance of California's oak woodlands, the critical role of the private landowner, and the importance of private land stewardship. The Act further acknowledges how oak woodlands increase the monetary and ecological value of real property and promote ecological balance. The Oak Woodlands Conservation Program was created to offer landowners, conservation organizations, cities and counties, an opportunity to obtain funding for projects designed to conserve and restore California's oak woodlands, particularly on farms and ranches. The Program does not prohibit landowners from harvesting oak trees, or otherwise remove any property rights from landowners in enjoying the use of their properties. While the Program is statewide in nature, it provides opportunities to address oak woodland issues on a regional basis. The Program is designed to help local efforts and to encourage sustainable ranch and farming operations and healthy oak woodlands.

Developing an Oak Woodland Management Plan in Tulare County

In order to qualify for funding under the Oak Woodland Conservation Program, a city or county must first develop an oak woodlands management plan. These Plans impose no restrictions on private landowners and facilitate access to funding programs only available to residents of cities or counties with a Plan in place. Developing an oak woodland management plan in Tulare County would give our citizens an opportunity to access these funding programs. Further, it would provide a mechanism to support our family farms, to maintain our valued resources, and

to limit the threat of increased regulatory oversight. An oak woodland management plan can be adopted in the form of a Resolution or included as part of the General Plan. To qualify for state funding, an oak woodland management plan must include:

1. Description of the status of oak woodlands in the County, including descriptions of the native oak species and a map of the current distribution of oak woodlands;

2. Elements designed to encourage the long-term conservation of oak woodlands, but not so restrictive as to discourage landowners and local jurisdictions from participating in the program;

3. Discussion of the importance of oak woodlands for wildlife habitat, retention of soil and water, and how their loss will result in negative impacts;

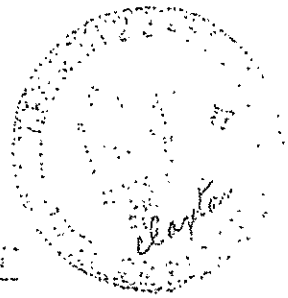
4. Description of education and outreach efforts to implement the Plan.

Importance of Oak Woodlands in Tulare County

In the public opinion surveys conducted as part of Tulare County's General Plan Update, there was unanimous agreement that one of the County's most important assets are the open, oak-covered foothills. Even for residents of the valley floor, it is clear that oaks represent a strong, symbolic tie to the natural and cultural history of California. Tulare County contains a wide variety of oak woodland habitats and one of the largest, healthiest extents of oak woodlands anywhere in the Sierra foothills. The unincorporated areas within the foothills contain the majority of the County's oak woodlands, and most of these lands are in private ownership. Throughout California, oak woodlands are crucial not only as habitat for plants and wildlife, but also for maintaining water quality, soil fertility, economic vitality, and the esthetic qualities so critical for drawing tourism and recreation to rural areas. Research has shown that the presence of native oak trees in rural subdivisions may contribute as much as 27% to the value of the property. One study in particular showed an increase of over $20 million in the total land and home value of 4,800 parcels immediately surrounding a protected oak woodland reserve, resulting in additional tax revenues to the County of $160,000 annually. It is well documented that natural resources in a broad geographic area contribute to the economic value of real property, as is apparent in numerous examples of high-end residential communities in California.

Proposed Action

Sequoia Riverlands Trust is a community-based, not-for-profit organization in Tulare County. In addition to owning land in the foothills, we also have relationships with many large, private landowners who have expressed interest in the funding benefits made possible by this program. We propose to facilitate the development of an oak woodland management plan for Tulare County, to assist our County planning staff with drafting the necessary language and generating the accompanying maps. We believe the resulting plan could be incorporated into Tulare County's General Plan Update or passed by Resolution, to the significant benefit of the citizens of our County. We stand ready to help and look forward to further discussion.



3/6/09

Tulare County Planning Commission
5961 South Mooney Blvd.
Visalia, CA 93277

Tulare County Board of Supervisors
2800 W. Burret Ave.
Visalia, CA 93291

To whom it concerns:

Recognizing the importance of native oaks and oak woodlands, the state of California and many counties and municipalities have worked to protect them. Many counties have adopted an OAK WOODLANDS MANAGEMENT PLAN, under the California Oak Woodlands Conservation Program, which offers opportunities to obtain funding for projects designed to conserve and restore our oak woodlands on a regional priority basis.

It supports and encourages voluntary, long-term private stewardship and conservation of California oak woodlands by offering landowners financial incentives to protect and promote biologically functional woodlands. To qualify for funding, the county where applicants are applying for funding must adopt an OAK WOODLANDS MANAGEMENT PLAN

It's time for Tulare County to adopt a Plan and make these benefits available to its residents and landowners.

Best regards,

Mehmet McMillan,
Director

35625 Highway 190; Suite 203• POB 853; Springville, CA 93265•
(559) 539-5263

Three Rivers, CA 93271
January 28, 2009

John Elliot, Chairman
Tulare County Planning Commission
5963 South Mooney Boulevard
Visalia, Ca 93277

Dear Chairman Elliot,

We request that Tulare County develop and adopt soon a strong oak ordinance to protect our interior live oaks, black oaks, blue oaks, canyon oaks and valley oaks. We want strong mandatory mitigation for oaks cut down, an equal size tree protected for each one destroyed. A two inch diameter sapling is not adequate replacement for a mature oak. The oak woodlands protected by a conservation easement must be nearby in our county. An alternate mitigation would be a fine for the true value of the tree. Mature oaks sequester greenhouse gases, clean our air, provide food and shelter to 330 wildlife species, cool buildings, plants, and soil in their shade, reduce soil erosion, filter rainwater through their roots, cleaning polluted run off, thereby sustaining healthy watersheds. They are an important part of our scenic views, of our county's heritage, and, for example, an important element in our Three Rivers Community Plan and Scenic corridor.

Preserving all trees and planting new trees is important for implementing Assembly Bill 32 (Global Warming Solutions Act) of 2006. Gov. Schwarzenegger has asked California counties and cities to plant more trees. Tulare County does not protect

the trees it has. It should promote the planting of our native oaks.

In 2001 the California Legislature passed the California Oak Woodland Conservation Act. As a result of the Act, a program administered by the Wildlife Conservation Board (WCB) is designed to provide $10 million to help local jurisdictions protect and enhance their oak woodland resources. It authorizes the WCB to purchase oak woodland conservation easements and provide grants for land improvements and oak restoration efforts. Funding may be granted for education and outreach. In order to qualify for funding the county must have an Oak Woodland Management Plan.

We recommend the county draft an oak ordinance.

Respectfully,

Carole A. Clum

Carole & Peter Clum
45638 South Fork Drive
Three Rivers, CA 93271

P.S. Eldorado County has good oak ordinance.

Exhibit 3: Oak Woodlands Conservation Legislation of 2004
(Kuehl SB 1334)
California Public Resources Code Section 21083.4

Oak Woodland Legislation 2004 (Kuehl SB 1334)

California Public Resources Code Section 21083.4.

a) For purposes of this section, "oak" means a native tree species in the genus Quercus, not designated as Group A or Group B commercial species pursuant to regulations adopted by the State Board of Forestry and Fire Protection pursuant to Section 4526, and that is 5 inches or more in diameter at breast height.

(b) As part of the determination made pursuant to Section 21080.1, a county shall determine whether a project within its jurisdiction may result in a conversion of oak woodlands that will have a significant effect on the environment. If a county determines that there may be a significant effect to oak woodlands, the county shall require one or more of the following oak woodlands mitigation alternatives to mitigate the significant effect of the conversion of oak woodlands:

(1) Conserve oak woodlands, through the use of conservation easements.

(2) (A) Plant an appropriate number of trees, including maintaining plantings and replacing dead or diseased trees.
(B) The requirement to maintain trees pursuant to this paragraph terminates seven years after the trees are planted.
(C) Mitigation pursuant to this paragraph shall not fulfill more than one-half of the mitigation requirement for the project.
(D) The requirements imposed pursuant to this paragraph also may be used to restore former oak woodlands.

(3) Contribute funds to the Oak Woodlands Conservation Fund, as established under subdivision (a) of Section 1363 of the Fish and Game Code, for the purpose of purchasing oak woodlands conservation easements, as specified under paragraph (1) of subdivision (d) of that section and the guidelines and criteria of the Wildlife Conservation Board. A project applicant that contributes funds under this paragraph shall not receive a grant from the Oak Woodlands Conservation Fund as part of the mitigation for the project.

(4) Other mitigation measures developed by the county.

(c) Notwithstanding subdivision (d) of Section 1363 of the Fish and Game Code, a county may use a grant awarded pursuant to the Oak Woodlands Conservation Act (Article 3.5 (commencing with Section 1360) of Chapter 4 of Division 2 of the Fish and Game Code) to prepare an oak conservation element for a general plan, an oak protection ordinance, or an oak woodlands management plan, or amendments thereto, that meets the requirements of this section.

(d) The following are exempt from this section:

(1) Projects undertaken pursuant to an approved Natural Community Conservation Plan or approved subarea plan within an approved Natural Community Conservation Plan that includes oaks as a covered species or that conserves oak habitat through natural community conservation preserve designation and implementation and mitigation measures that are consistent with this section.

(2) Affordable housing projects for lower income households, as

defined pursuant to Section 50079.5 of the Health and Safety Code, that are located within an urbanized area, or within a sphere of influence as defined pursuant to Section 56076 of the Government Code.

(3) Conversion of oak woodlands on agricultural land that includes land that is used to produce or process plant and animal products for commercial purposes.

(4) Projects undertaken pursuant to Section 21080.5 of the Public Resources Code.

(e) (1) A lead agency that adopts, and a project that incorporates, one or more of the measures specified in this section to mitigate the significant effects to oaks and oak woodlands shall be deemed to be in compliance with this division only as it applies to effects on oaks and oak woodlands.

(2) The Legislature does not intend this section to modify requirements of this division, other than with regard to effects on oaks and oak woodlands.

(f) This section does not preclude the application of Section 21081 to a project.

(g) This section, and the regulations adopted pursuant to this section, shall not be construed as a limitation on the power of a public agency to comply with this division or any other provision of law.

Exhibit 4: Oaks 2040: The Status and Future of Oaks in California
(Excerpts, pp. 1-13, 15)

Oaks 2040

The Status and Future of Oaks in California

By Tom Gaman and Jeffrey Firman
Published by the California Oak Foundation

Oaks 2040: The Status and Future of Oaks in California[1]

Produced for the California Oak Foundation

by Tom Gaman And Jeffrey Firman

November 2006

This is the unabridged web edition

Abstract

California oaks are seriously threatened as a burgeoning state population makes ever more use of the wildland. Most California oaks are not covered by the Forest Practice Act, are on private lands and are potentially at risk. The Oak Woodlands Conservation Act of 2004 requires cities and counties to assess their oak resources and to adopt Oak Woodlands Management Plans in order to meet the needs for healthy watersheds. Therefore *Oaks 2040* is designed to provide localized information for planners. This paper presents a forest and woodland map of the ten oak types found in California. The most recent statewide forest survey data from the Forest Inventory and Analysis (FIA) program are compiled into an inventory. The inventory data are then merged to describe the mapped oak types. By merging this inventory with state growth projections, the authors determine which oak woodlands are most likely to face development between now and 2040. Findings are reported for each of six regions: North Coast, North Interior, Central Coast, Sacramento, San Joaquin and Southern.

Introduction: Developing Planning Tools for Oak Futures

Ecological functions, wildlife habitat, recreational opportunities and scenic values are seriously impaired as population densities and other landscape use pressures increase. Managers of oak woodlands and forests need to balance the biological, sociological and economic interests of private landowners, public agencies, business, universities, environmental groups and concerned individuals. Planning must address the complexities of local, regional and statewide oak issues within the context of practical on-the-ground land use decisions.

Oaks 2040 is based on objective oak data and is designed to serve decision makers who may develop local and regional Oak Woodlands Management Plans or

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Thanks to Sally Campbell, Janet Cobb, Amy Larson, Doug McCreary, Bruce Pavlik, Mark Rosenberg and Dale Weyermann for their help in developing this research project. Thanks also to the Richard and Rhoda Goldman Fund for their financial assistance.

advance other conservation strategies. A statewide map of oak distribution and current forest and woodland inventory tree plot data, created by state and federal researchers, were the starting points for *Oaks 2040*. From those, regional analyses of forest structure and oak types as well as region-specific oak inventory summaries have been developed. By evaluating these maps and inventories against current economic growth projection *Oaks 2040* identifies the location and extent of oaks most at risk of development.

This document, the oak maps and inventory, constitute Part I of the oak story. This web-based version of ***Oak s2040: The Status and Future of California Oaks*** includes more detail on regional oak forests and woodlands than does the printed version. It is provided for those who desire further regional detail. A companion document, "***Oaks 2040: Sustaining California's Oak Woodlands and Forests***" will be available in the future. Both of these documents and supporting details, charts and tables will also be available on the COF website: http://www.californiaoaks.org/oaks2040.

We provide this information so that the many individuals and groups that are interested in oak woodland conservation can identify where threats are greatest and how conservation efforts should be focused to encourage sustainable land use and development with conservation priorities. Methods are described in the print version and in the full-length web version.

Methods

Mapping Oak Types

A number of overall vegetation maps, maps of hardwoods in general, and oak-specific maps have been generated over the years. Currently, the most reliable statewide vegetation map available is the "LCMMP Vegetation Map" (FRAP map) produced by the California Department of Forestry and Fire Protection's Fire and Resource Assessment Program (FRAP) in conjunction with the U.S. Forest Service (USFS) Region 5 Remote Sensing Lab (RSL) in Sacramento. While these maps do not focus specifically on oaks, oak habitat types can be extracted from mapped vegetation types. Using the FRAP map as a foundation (supplemented by other earlier mapping efforts), we have generated species-specific range maps of oak types throughout the state.

The FRAP map uses the *Calveg* classification system which first divides all vegetation into *Covertype*. For finding wildland oak habitat, only two *Covertypes* (HDW and MIX) are relevant. All *woodland* classified as 'hardwood' (HDW) or *forest* classified as 'conifer/hardwood mix' (MIX) can potentially be oak habitat, provided it contains the relevant hardwood species. All other *Covertypes* were eliminated from the analysis.

After *Covertype*, the Calveg system also specifies *Vegtype*, which identifies the dominant species association. For both HDW and MIX *covertypes*, the data were screened to ensure that the hardwood associations being mapped in a particular location are oaks. Nine such associations are dominated by a single species, each forming its own Oak Habitat Type, or "Oak Type". Three heterogeneous hardwood types were combined

to generate a "mixed" Oak Type. The 10 resulting Oak Types, each potentially occurring in both "woodlands" and "forests"[2], are listed below:

Table 1. Oak Types

Oak Type	Scientific Name	Calveg Type(s)
Black Oak	*Quercus kelloggii*	QK
Blue Oak	*Quercus douglasii*	QD
Canyon Live Oak	*Quercus chrysolepis*	QC
Coast Live Oak	*Quercus agrifolia*	QA
Engelmann Oak	*Quercus engelmannii*	QN
Interior Live Oak	*Quercus wislizeni*	QW
Oregon White Oak	*Quercus garryana*	QG
Tanbark Oak	*Lithocarpus densiflorus*	QT
Valley Oak	*Quercus lobata*	QL
Mixed Oaks	not applicable	EX/NX/TX

This selection and reclassification process was applied to the FRAP maps. The results are GIS layers and maps depicting the distribution of woodland and forest oak habitat types throughout the state of California. See the tables in Appendix A for acres of cover where oaks dominate the woodland by county and Oak Type and acres of cover where oaks are present in the forest by county and Oak Type.

Ownership & At Risk Analysis

Two additional layers are added to further intensify the oak mapping analysis. Land ownership and development risk layers are both incorporated into the map to assess pertinent conservation issues. The land ownership data is courtesy of the California Department of Forestry's Forest and Rangeland Resources Assessment Program (FRAP). Using their layer, the state is divided into a variety of public and private ownership categories. The statewide ownership layer overlaid on top of the Oak Type map reveals ownership patterns among California's oaks.

The development risk data has been derived from the California Department of Finance's projected development layer. This dataset is based on US Census Data (see FRAP Development Projections). This layer tracks past development by decade and predicts future development through 2040. Using this information, three categories were defined. 'Developed' is defined as anything that has developed (greater than 32 housing units per square mile) by 2000. 'At Risk' refers to anything that has not developed by 2000 but is expected to develop by 2040. And 'Stable' refers to anything that has not developed by 2000 and is unlikely to develop before 2040. Once the layer was divided into these three categories, it was overlaid on top of the Oak Type Map. The oak woodlands of the state were thereby divided into groups by oak type, ownership and development risk.

[2] "Oak Woodlands" are considered to be those mapped vegetation types where oaks dominate the landscape. "Oak Forests" include oaks, but oaks may not necessarily be among the dominant species. By definition forests and woodlands must have at least 10% canopy cover and be at least 1 hectare in extent.

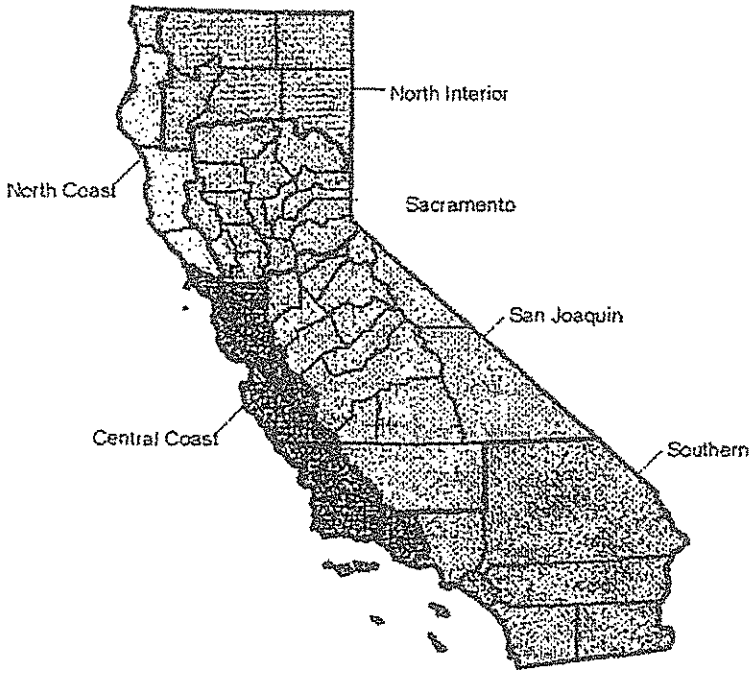
Inventory and Analysis

The other critical element for assessment of mapped oak types is the inventory summary, which is based upon data obtained from the USFS Forest Inventory & Analysis Program (FIA; see http://fia.fs.fed.us/tools-data/). This statewide grid of permanent forest survey sample "plots" yields information about what the mapped oak forests and woodlands look like on the ground. The plots provide information not obtainable via remote sensing techniques—an inventory of forest fuels, species distribution, specific size, growth, regeneration, habitat features, pest and disease. With point-specific data ranging from species composition to seedling regeneration to tree size and density, these plots help one understand the makeup of each of the 10 oak types.

The 2001-2004 FIA field data were obtained to provide an inventory of each of the oak types discussed above. Combining the ground-based survey data and the GIS mapping data enabled us to provide a new comprehensive oak inventory as shown in Appendix B.

California Oaks: A Statewide and Regional Analysis

To facilitate regional analysis, California has been divided into six distinct regions. In an attempt to represent the levels at which conservation policy is often decided, county boundaries have been utilized for this regional split, rather than natural boundaries such as watersheds or bioregions. These are the same regions used in Bolsinger's 1988 *The Hardwoods of California's Timberlands, Woodlands, and Savannas*, except that the San Joaquin Valley has been separated from the rest of Southern California. The six different regions and their associated counties are shown below:



North Coast: Del Norte, Humboldt, Mendocino, Sonoma

North Interior: Lassen, Modoc, Shasta, Siskiyou, Trinity

Central Coast: Alameda, Contra Costa, Marin, Monterey, San Benito, San Francisco, San Mateo, San Luis Obispo, Santa Barbara, Santa Clara, Santa Cruz, Ventura

Sacramento: Butte, Colusa, El Dorado, Glenn, Lake, Napa, Nevada, Placer, Plumas, Sacramento, Sierra, Solano, Sutter, Tehama, Yolo, Yuba

San Joaquin: Alpine, Amador, Calaveras, Fresno, Inyo, Kern, Kings, Madera, Mariposa, Merced, Mono, San Joaquin, Stanislaus, Tulare, Tuolumne

Southern: Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego

Forest Oaks and Woodland Oaks

For the purposes of this report "Oak Woodlands" are considered to be those mapped vegetation types where oaks dominate the landscape. By definition, they have at least 10% canopy cover. "Oak Forests" are those vegetation types dominated by trees, but *Quercus* spp. or *Lithocarpus densiflorus* may not necessarily be among the dominant species. The two broad categories are further subdivided each into the 10 "Oak Types" which describe the oak association (Table 1). Generally oak forests tend to occur at higher elevations with higher rainfall. They are generally denser and are located further from existing urban population centers so they are generally less at risk from development. There is also less concern about oak regeneration in these forest types. Note also that the 9 broad vegetation types of woodlands and forests each characterized by a single oak species usually contain multiple oak species.

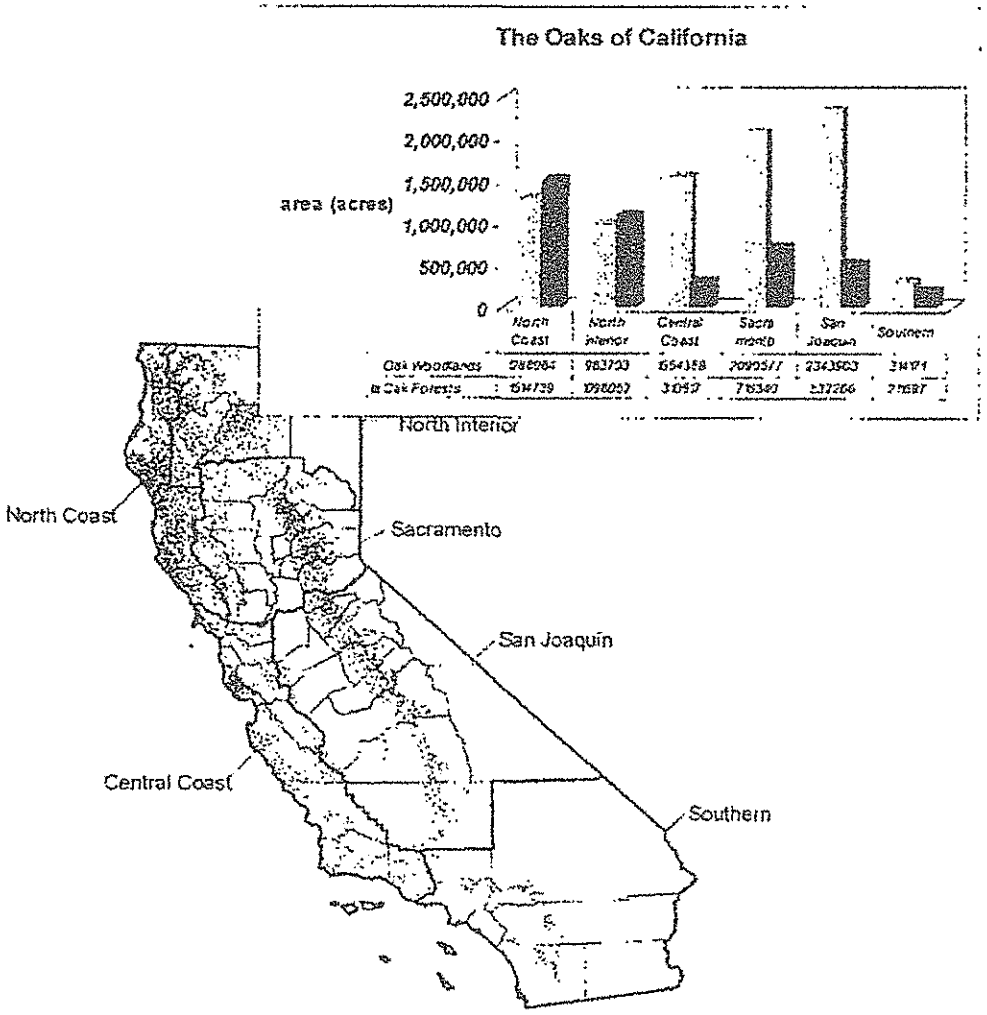
Table 2. Oak Types:

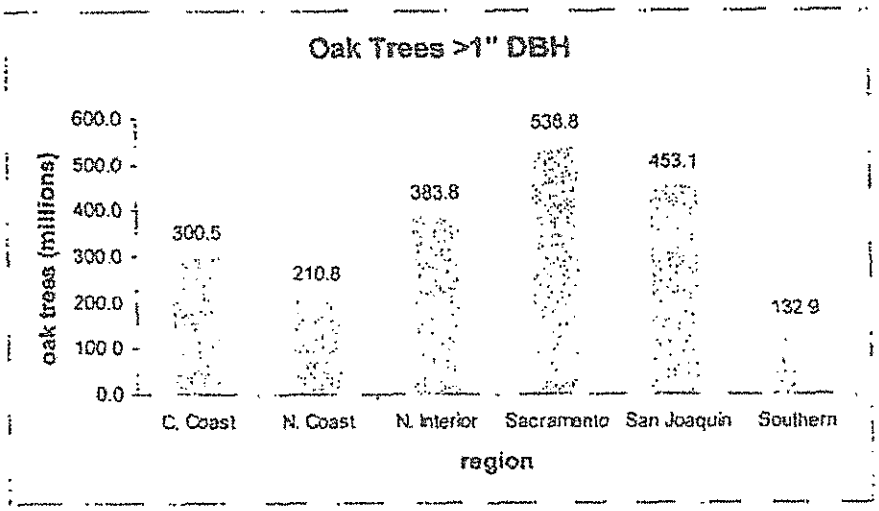
Oak Type	Scientific Name	Calveg Type(s)
Black Oak	*Quercus kelloggii*	QK
Blue Oak	*Quercus douglasii*	QD
Canyon Live Oak	*Quercus chrysolepis*	QC
Coast Live Oak	*Quercus agrifolia*	QA
Engelmann Oak	*Quercus engelmanni*	QN
Interior Live Oak	*Quercus wislizeni*	QW
Oregon White Oak	*Quercus garryana*	QG
Tanoak	*Lithocarpus densiflorus*	QT
Valley Oak	*Quercus lobata*	QL
Mixed Oaks	not applicable	EX/NX/TX

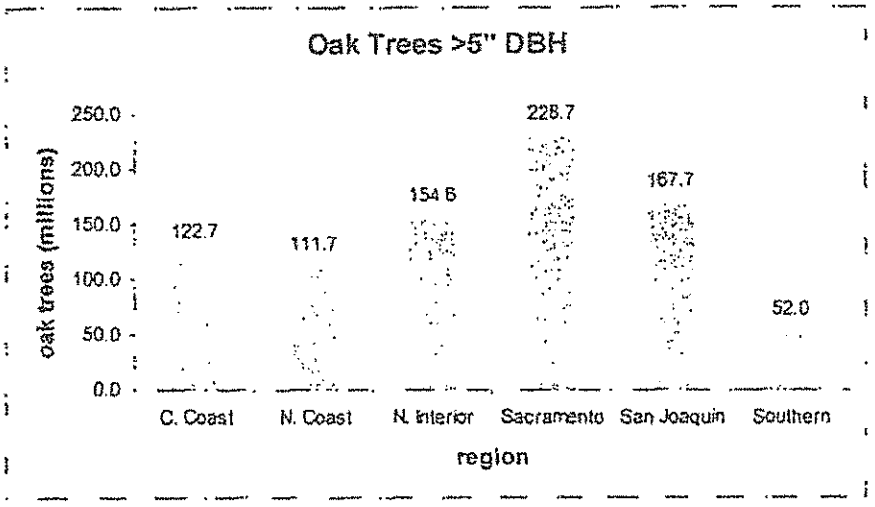
An analysis of the state as a whole and then each of these six regions individually follows. It delves into acreages of oak woodlands and forest oaks, densities of oak woodlands, distribution of various oak types, oak woodland ownership patterns, past development of oak woodlands, and categorization of oak woodlands at risk. All of these analyses are presented first at the state and regional levels. Then, within each region, the same factors are summarized at the county level to identify patterns and trends that pertain to oak conservation. The following statewide and regional analyses both paint a picture of California's oaks and highlight crucial areas for oak conservation throughout the state.

Oaks Play a Major Role in the California Landscape

- California has approximately 8.5 million acres of oak woodland and 4.5 million acres of oak forest.
- These 13 million acres comprise more than one-eighth of the state's area.
- The Sacramento and San Joaquin regions are home to more than half of California's oak woodland.
- Oak forests are concentrated in the North Coast and North Interior regions.
- California currently has approximately two billion oaks greater than 1" DBH.
- More than 800 million of these oaks are larger than 5" DBH.




Oak Trees >1" DBH
oak trees (millions)
600.0
500.0
400.0
300.0
200.0
100.0
0.0
300.5
210.8
383.8
536.8
453.1
132.9
C. Coast
N. Coast
N. Interior
Sacramento
San Joaquin
Southern
region

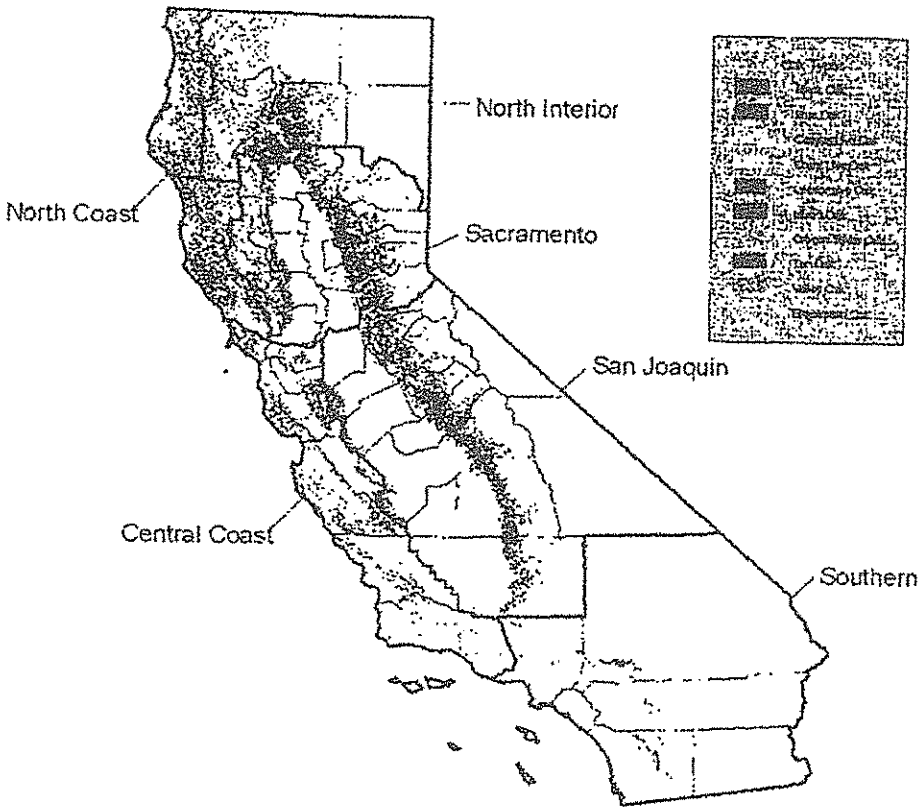

Oak Trees >5" DBH
oak trees (millions)
250.0
200.0
150.0
100.0
50.0
0.0
122.7
111.7
154.6
228.7
167.7
52.0
C. Coast
N. Coast
N. Interior
Sacramento
San Joaquin
Southern
region

California's Diverse Oaks

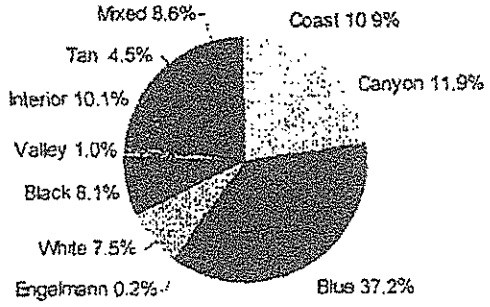
- Blue oak is California's dominant oak species by total acreage, representing more than one-third of the state's oak woodlands.
- Canyon, coast and interior live oak woodlands comprise approximately one-third of California's oak woodlands.
- Tanoak, black and canyon live oak forests account for more than 80% of California oak forests.

Oak Type	Woodlands (ac)	Forest (ac)
Blue	3,185,000	15,000
Canyon	1,015,000	995,000
Coast	930,000	115,000
Interior	870,000	70,000
Mixed	740,000	305,000
Black	695,000	1,125,000
White	640,000	300,000
Tan*	390,000	1,460,000
Valley	85,000	0
Engelmann	20,000	0
Totals	8,575,000	4,385,000

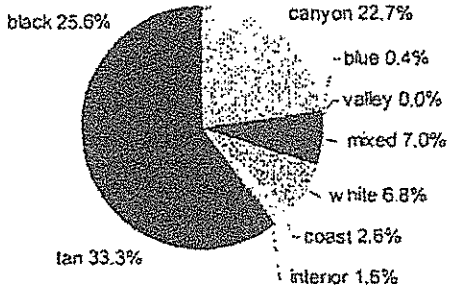
**Tanoak is the only native North American member of the genus* Lithocarpus *while all other California oaks are* Quercus *spp. While not a "true oak" tanoak is included in this report as it is a significant part of California's oak forest, produces an important acorn crop, and serves a similar biological role*



Oak Woodland Diversity of California

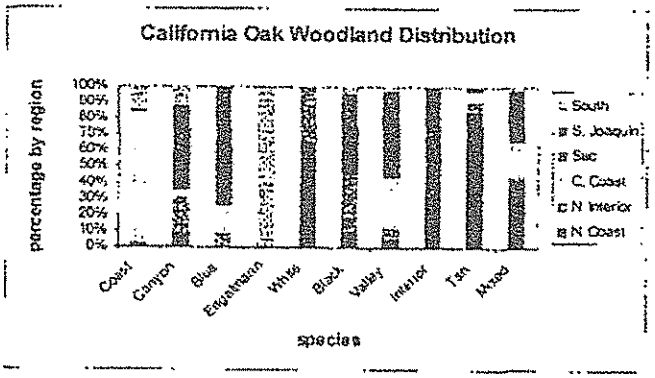


Oak Forest Diversity of California

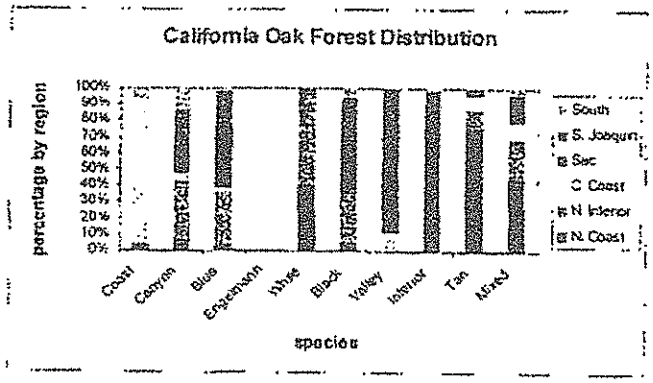


The Heterogeneous Distribution of California's Oaks

- **Coast Live Oak:** 80% of oak woodlands and 90% of oak forests are found in the Central Coast
- **Tanoak:** 85% of oak woodlands and 75% of oak forests are found in the North Coast
- **Blue Oak:** Concentrated in the San Joaquin and Sacramento Regions
- **Interior Live Oak:** Almost exclusively restricted to the San Joaquin and Sacramento Regions
- **Black Oak:** Most concentrated at higher elevations in the North Interior and Sacramento Regions
- **Oregon White Oak:** Mostly found in the North Coast and North Interior Regions
- **Canyon Live Oak:** Most common in the North Interior, Sacramento, and San Joaquin Regions
- **Valley Oak:** Most prominent in the Sacramento, Central Coast, and San Joaquin Regions
- **Engelmann Oak:** Restricted solely to the Southern Region

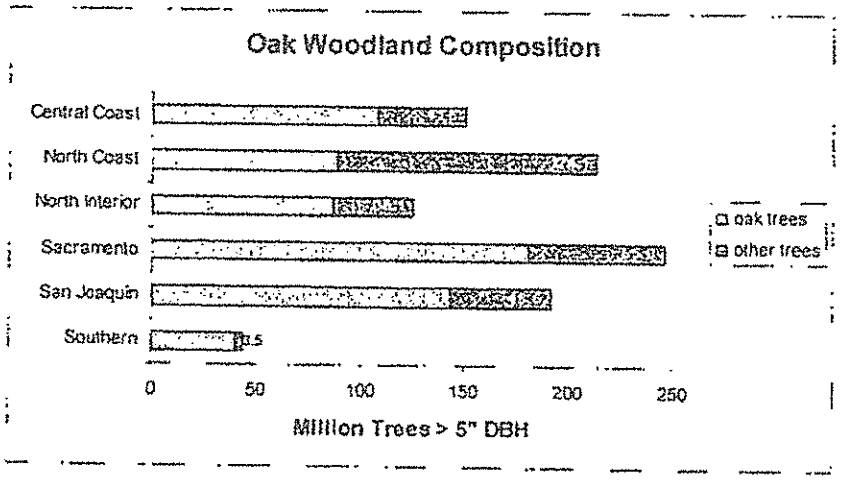


In Oak Woodland...

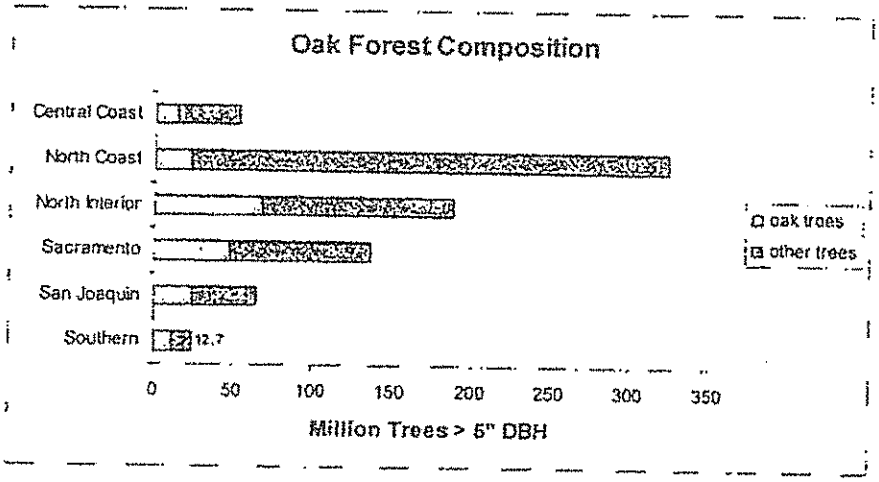


- Oaks comprise 60% of the total tree basal area.
- Oaks account for 67% of trees greater than 5" DBH.
- Oaks account for 37% of trees greater than 24" DBH.

In Oak Forest...



- Oaks comprise 18% of the total tree basal area.
- Oaks account for less than 24% of trees greater than 5" DBH.
- Oaks account for only 8% of trees greater than 24" DBH.



Oaks 2040: Future Prospects for California's Oaks

- Approximately 750,000 acres of California's oak woodlands are at risk of development before 2040.
- More than one million acres of California's oak woodlands have already been developed.
- In total, 20% of California's oak woodlands will be facing rapid urbanization by 2040.
- The oak woodlands of the Central Valley and Sierra Foothills face the most immediate threats.
- Eighty percent (80%) of California's oak woodlands that are at risk of development are in the Sacramento and San Joaquin Region.

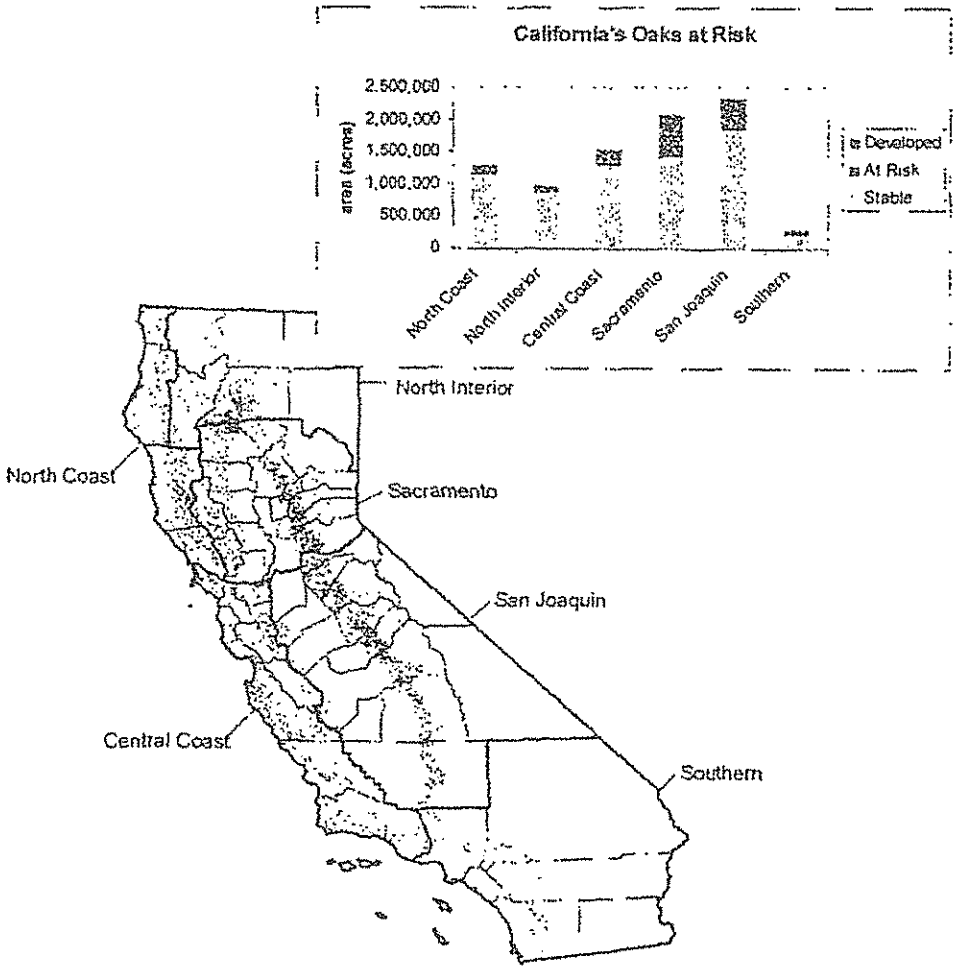


Exhibit 5: Oaks 2040: The Status and Future of Oaks in California
(Excerpts, pp. 41-46)

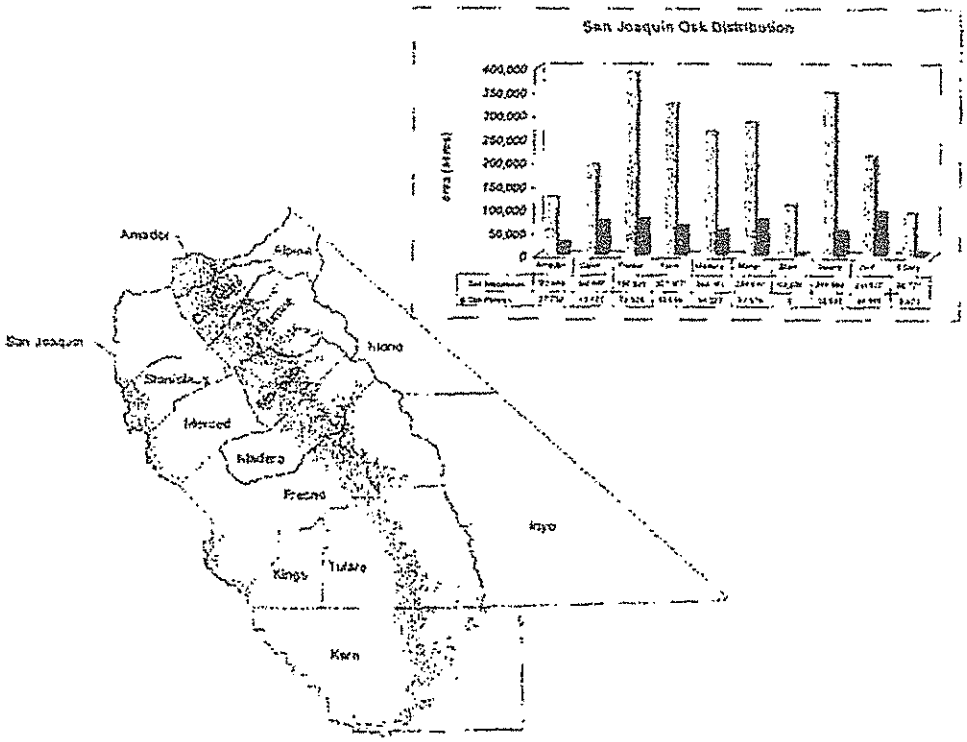
The San Joaquin Region

Alpine, Amador, Calaveras, Fresno, Inyo, Kern, Kings, Madera, Mariposa, Merced, Mono, San Joaquin, Stanislaus, Tulare, Tuolumne

Data Availability: The FRAP maps combined with the US Bureau of Reclamation map covers most of this region. The Sequoia-Kings Canyon National Park map covers the gaps in Tulare and Fresno Counties. The only other data gap is in the desert, where little or no oak woodland is present.

Oak Mapping

- The San Joaquin region has more than 2.3 million acres of oak woodlands and 500,000 acres of oak forests.
- Oaks are present on only 10% of the region's land. However, certain portions of the region have far greater oak woodland density than others.
- Overall, 27% of the state's oak woodland falls within these 15 counties.
- The San Joaquin region currently has more than 450 million oak trees. More than one-third of these oaks are larger than 5" DBH.



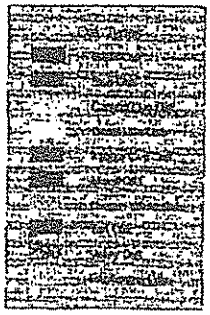
San Joaquin Oak Diversity

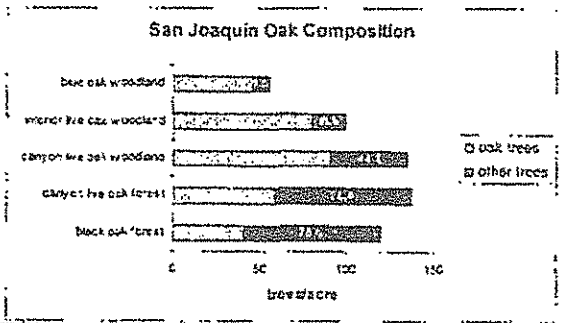
Oak Woodlands

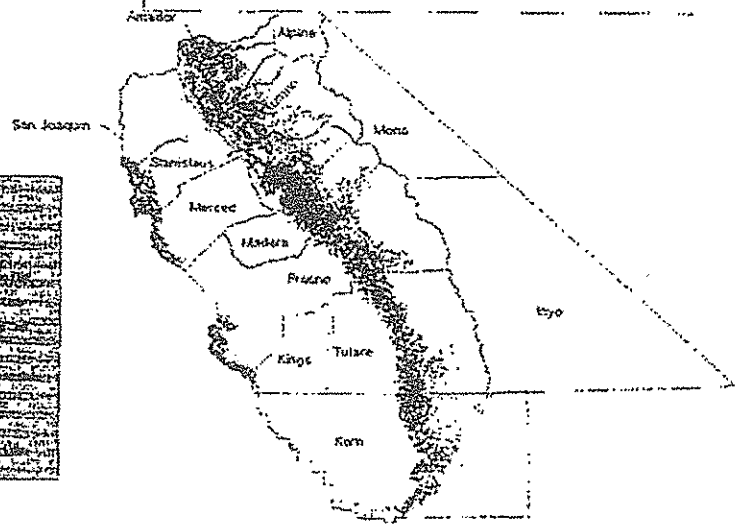
- More than half of the region's oak woodlands are blue oak and another 25% are interior live oak.
- Associated species include gray pine and buckeye, as well as valley oak, blue oak and canyon and interior live oaks.
- The San Joaquin region has more blue oak woodlands and interior live oak woodlands than any other region.
- In blue oak woodlands, oaks account for 70% of the trees and 80% of the basal area and trees greater than 5" DBH.
- In interior live oak woodlands, oaks provide 70% of the tree basal area and more than 80% of the trees.
- In canyon live oak woodlands, oaks comprise 55% of the basal area, 62% of all trees, and 67% of trees greater than 5" DBH.

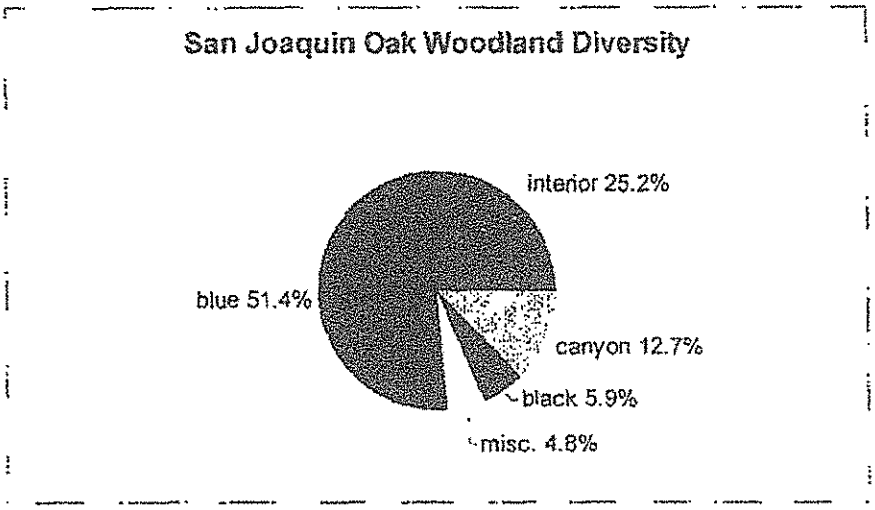
Oak Forests

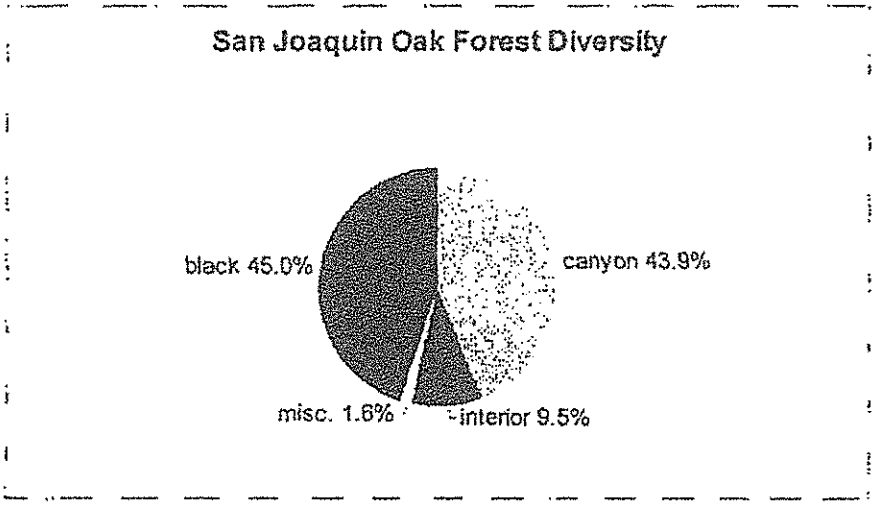
- Canyon live oak and black oak comprise almost 90% of the oak forests.
- Associated species in San Joaquin oak forests include incense cedar, ponderosa pine, sugar pine and white fir.
- In canyon live oak forests, oaks provide one-third of the basal area and nearly one-half of the trees.
- In black oak forest, oaks comprise more than half of the trees, but only one-third of the trees greater than 5" DBH and only one-quarter of the tree basal area.







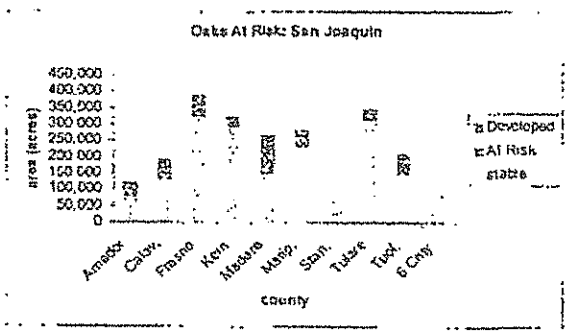

San Joaquin Oak Woodland Diversity
interior 25.2%
blue 51.4%
canyon 12.7%
black 5.9%
misc. 4.8%


San Joaquin Oak Forest Diversity
black 45.0%
canyon 43.9%
misc. 1.6%
interior 9.5%

Oaks at Risk in the San Joaquin Region

Ownership

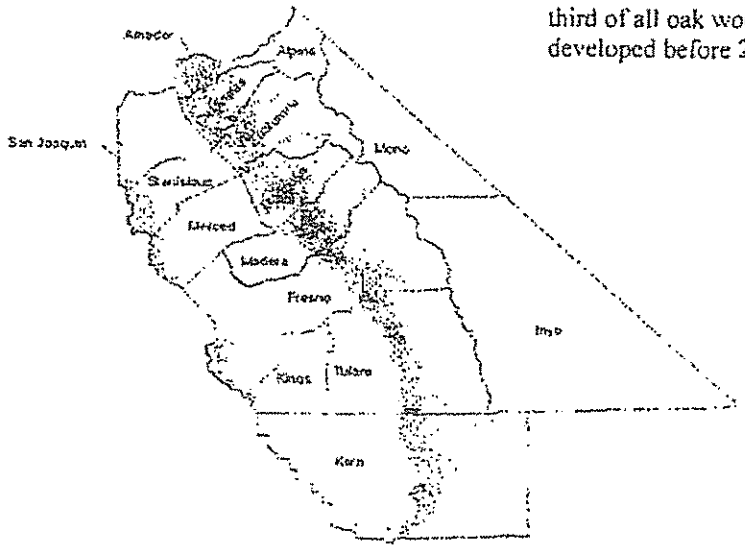
- Seventy-three percent of the San Joaquin region's oak woodlands are privately owned.
- The USFS owns 18% and the BLM owns five percent.



Development

- Ten percent of the oak woodlands in the region have already been developed. Ten percent are at high risk of development by 2040. Eighty percent are currently stable, however targeted planning could ensure that a greater number of acres are conserved for the long-term.
- Nearly 250,000 acres of oak woodlands in the San Joaquin region are at risk of development by 2040. Only the Sacramento region contains more oak woodlands at risk.
- In Madera, Amador, and Calaveras Counties combined, more than one-third of all oak woodland may be developed before 2040.

- In Madera, Amador, and Calaveras Counties combined, more than one-third of all oak woodland may be developed before 2040.



Critical Oak Conservation Issues: San Joaquin Region

The San Joaquin region has more than one-quarter of California's oak woodlands, more than one-third of California's blue oak woodlands and more than two-thirds of California's interior live oak woodlands. While oaks are present on only 10% of the acreage region-wide, oak woodlands are densely distributed throughout the Southern Sierra Nevada Foothills. More than 70% of this critical and sizeable chunk of oak woodlands is privately owned, but the USFS, BLM, and the National Park Service have major holdings as well. Nearly a quarter million oak woodland acres in this region have already been developed and another quarter million acres are at risk by 2040. One third of the state's oak woodland at risk is found within the San Joaquin Region. The South Yosemite areas around Oakhurst and Mariposa are most at risk, but the development axis spreads up Highway 49 through Sonora, Angel's Camp and Jackson. Additional pockets are found further south by the entrances to Sequoia-Kings Canyon National Park and by Tehachapi. Vast oak woodland resources are found within the San Joaquin region. In an area so vast and with so much diversity, a variety of conservation tools are necessary. Management of public oak woodlands is a crucial issue. Development also needs to be managed to provide sustainability. Perhaps most importantly, efforts must be made to legally protect huge acreages of private land through easements and/or in fee acquisitions.

Twenty-five percent of **Madera County's** quarter million oak woodland acres are at risk of development by 2040. Only El Dorado and Tehama counties have more acres at risk. The foothill bands of blue and interior live oak woodland pass through Madera where they face developmental pressures radiating out from Oakhurst and Yosemite's South Entrance. Recreation and tourism are key factors here, as well as the typical expansion outward from Fresno and the other valley cities.

Mariposa County has more oak woodlands than Madera County. In fact, oaks cover more than a third of the county. Mariposa's oak woodlands face less immediate threat of development than those in Madera. Nonetheless, 30,000 acres of oak woodland are at risk by 2040. In both Madera and Mariposa, public land management is a crucial issue. Smart growth is essential to manage development but still retain natural oak woodland resources.

Tuolumne County has the highest rate of oak woodland development in the region. Management of significant public land holdings, protection of the remaining private oak woodlands and application of smart growth principles around Sonora and Standard are essential in order to avoid degradation of scenic and wildlife values. Oaks are present on 40% of Calaveras County land, of which thirty-thousand acres are developed. Another 35,000 of oak woodlands are at risk around San Andreas and Angel's Camp. Almost 90% of Calaveras' oak woodland is privately owned. Steps must be taken to mitigate development in the short term and provide easements for the long term.

In Amador County, more than one-third of the oak woodlands have already been developed and over 90% of remaining oak woodlands are privately owned. Conservation and management of oak woodlands around Amador City, Ione, Jackson, Plymouth and Sutter Creek is critical. Additionally, steps should be taken to provide more long-term protections for oak woodlands in this county.

Critical Oak Conservation Issues: San Joaquin Region (continued)

Fresno County tops the San Joaquin region with nearly 400,000 acres of oak woodland. Fresno is one of four counties in the state with more than 200,000 acres of blue oak woodland (Tehama, Shasta, and Monterey are the other three). Despite high public ownership by the USFS and the BLM, more than 50,000 acres of oak woodland in Fresno are at risk of development before 2040. The most vulnerable areas are those that are commutable to the City of Fresno. The southern portion of the county near the National Park is also at high risk. Fresno has oak woodlands on its western side, much like Stanislaus and Merced. Fresno also has some oaks in the Central Valley, which are typically scattered around existing developed and agricultural areas. These areas are often covered by the USBR map, but not by the FRAP map. Nonetheless, the majority of the region's oak woodlands and oak forests are found in the Sierra Foothills to the east. With the great diversity of environments found in Fresno County comes a diversity of problems and solution options. Development must be managed towards sustainability. Oak woodlands in residential areas must be protected through education and public incentives and regulations. Protections must be put in place in order to conserve rural private oak woodlands in perpetuity. Public lands must be appropriately managed.

Tulare County's situation is similar to Fresno County, but with a less severe threat. Tulare has over 300,000 acres of oak woodland, nearly 30,000 of which are at risk for development by 2040. Tulare maintains more than half of the region's valley oak woodlands and considerable acreage of blue oak woodland as well. Development pressures include valley towns expanding into the foothills and pressures from recreation and tourism. One-third of Tulare's oak woodlands are owned by the government, so proper management of public oak woodlands is important. Additionally, growth and development should be carefully monitored and limited where possible. Finally, long term protections are needed for wild private woodlands.

Kern County also has over 300,000 acres of oak woodland. Roughly five percent has already been developed and another five percent are at risk of development before 2040. As in many other parts of the San Joaquin region, blue oak woodlands and interior live oak woodlands abound. Oak woodland development is concentrated around the City of Tehachapi. Kern is experiencing problems similar to those faced in Fresno and Tulare. In particular, the issue of private land stewardship is critical to protect vast acreages of oak woodlands.

Stanislaus, Merced, San Joaquin, and Kings Counties have a total of 200,000 acres of mapped oak woodland. The majority of these oak woodlands are found in Stanislaus and Merced Counties. Most of this is in the western portions of the counties and while most of it is privately owned, very little is expected to be developed before 2040. The U. S. Bureau of Reclamation map shows some additional acreage in the county, but mostly in agricultural or developed areas. Permanent protection should be sought for oak woodlands before large-scale development eliminates this option.

Alpine, Mono, and Inyo Counties combined have less than 5,000 acres of oak woodland, owned and managed almost entirely by USFS.

Exhibit 6: Donald Bren School of Environmental Science & Management, UCSB, "A Dynamic Strategy for Conserving Southern Sierra Blue Oak Woodland" (2007) (Full article, pp. 1-4)

DONALD BREN SCHOOL OF
ENVIRONMENTAL SCIENCE & MANAGEMENT
UNIVERSITY OF CALIFORNIA SANTA BARBARA

A Dynamic Strategy for Conserving Southern Sierra Blue Oak Woodland

Project Members:
Zachary Bradford
Ryan Engelhardt
Sarah Graber
Stephanie Hale
Nathan Snider

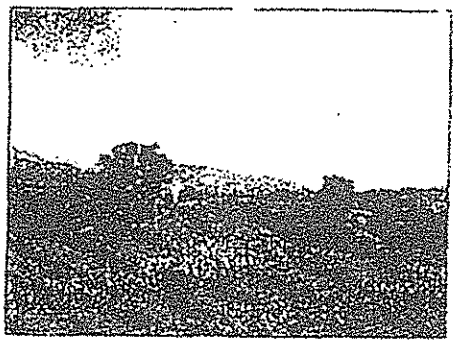
Project Advisor:
Lee Hannah

ON THE WEB AT HTTP://WWW.BREN.UCSB.EDU SPRING 2007

Blue oak (*Quercus douglasii*) is a conspicuous and charismatic California endemic species. Blue oak woodlands host an array of native understory vegetation and provide important habitat for wildlife. This habitat also occupies a large quantity of valuable real estate, making it one of the more threatened California biomes. Historic threats such as habitat fragmentation, invasive species, altered waterways and ubiquitous pollution are compounded by climate change. In an effort to conserve remaining blue oak habitat, The Nature Conservancy is purchasing lands in sensitive areas and negotiating conservation easements with private land owners.

We provide The Nature Conservancy (TNC) with a dynamic strategy for conserving blue oak woodland in Tulare County which is located in the southern portion of the blue oak range. This brief identifies areas of high ecological importance and provides a spatial and temporal analysis of climate change and development threats.

To provide a well-rounded strategy for protecting Tulare County blue oak woodland, we examine several components of blue oak woodland conservation, including the identification of quality habitat, a threat analysis, and strategies for multi-species management within protected areas.



Priority conservation areas

Conservation priority areas are core areas of habitat that contain the highest measurable habitat heterogeneity and biodiversity within Tulare County blue oak woodland. We recognize that TNC is interested in conserving both blue oaks and the blue oak woodland community. We therefore identify parts of Tulare County blue oak woodland that are likely to contain high quality habitat for woodland plant and animal species. In order to do this, we identify coarse-scale landscape features that represent habitat heterogeneity or act as indicators of high species biodiversity. Using a multi-criteria analysis, we rank watersheds within Tulare County blue oak woodland according to: (a) the amount of riparian habitat; (b) elevational range; (c) threatened and endangered plant species richness; (d) number of recorded vertebrate species; (e) degree of intactness. We identify six conservation priority areas based on the highest ranking watersheds or conglomeration of high-ranking watersheds. Our conservation priority areas comprise just under 20% of Tulare County blue oak woodland (358 km²), 18.6% of which (66.5 km²) is privately held. We believe this is a reasonable conservation goal.

Threat from development

Tulare County's population has been growing at an average rate of 2% per year, with new development occurring in the foothill region of the county. The majority of blue oak woodland currently falls under private ownership and was historically used primarily as land for grazing. The decline in profitability of cattle ranching in California along with rapidly increasing land prices is putting

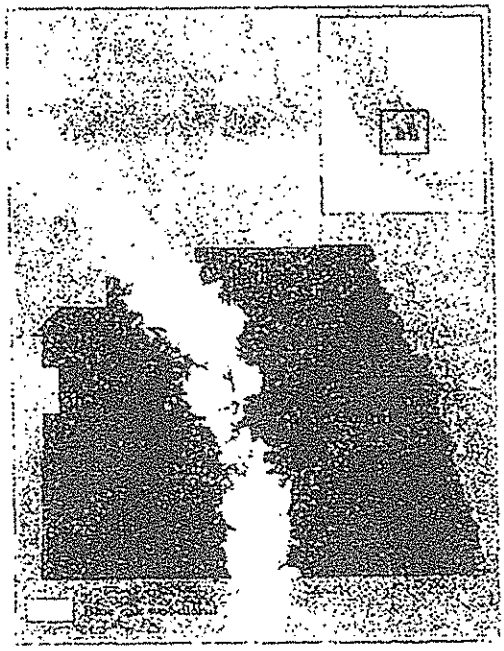


Figure 1: Blue oak woodland forms a vertical band across Tulare County within the foothill region of the southern Sierra.

unprecedented pressure on landowners to develop. Tulare County's foothills are still a relatively contiguous, undragmented band of habitat, but commuters into the Valley's rapidly growing urban centers and retiring baby boomers looking for a rural lifestyle are beginning to develop the foothills. People bring with them homes, roads, pets, and invasive species, all of which present a threat to the native flora and fauna that live in blue oak woodland and to the oaks themselves. Studies have shown that oak woodland fragmentation affects tree regeneration rates, lowers biodiversity, and results in the extirpation of sensitive species. Efficient conservation will need to identify which patches of blue oak woodland are under the most immediate pressure from development.

We evaluate current development in Tulare County blue oak woodland. Presently less than 15% of Tulare County blue oak woodland is impacted by development. We provide development scenarios that depict a likely progression of development in the southern Sierra foothills and calculate the subsequent impact on the county's blue oak woodland. For example, we show that a complete build-out under Tulare County's current General Plan would directly impact 21% of the county's blue oak woodland; increased fragmentation by roads and rural residences would degrade an additional 57% of the blue oak woodland.

Climate change

Climate change will compound traditional threats such as habitat fragmentation, invasive species, altered waterways, and pollution that come with development. This synergy of threats has the potential to change natural blue oak woodland habitat in unprecedented ways. Driven largely by climatic requirements, blue oaks' current distribution covers a well-defined elevational band in the foothills encircling the Central Valley of California. Increases in temperature are expected to shift the distribution of suitable habitat for blue oaks northward and upslope, resulting in decreased range size. Existing research has found that the potential range of blue oaks is likely to shrink to 59% of the current range statewide over the next 100 years.

We evaluate the potential impacts of multiple climate change scenarios on blue oak woodland in Tulare County using both statistical modeling of suitable habitat and dynamic simulations of the blue oaks' response to a changing environment. Based on our model results, we develop a simple metric for assessing the likely persistence of blue oak woodland under climate change. Our models predict that climate change will reduce the range of suitable habitat for blue oaks in Tulare County by 25-95%. Because mature blue oaks are hardy and long-lived, the actual shifts in the distribution of the species will be lagged significantly compared to the shifts in habitat suitability. We identify which parts of the current range of Tulare County blue oaks are likely to disappear as suitable habitat, which parts are likely to persist, and which are likely to emerge as newly suitable habitat. We use these results in conjunction with development predictions to

evaluate the threat patterns within conservation priority areas.

Threat synergy

Conservation planning that aims for long-term blue oak persistence will have to protect blue oak woodland from the immediate threat of development, while planning for an eventual range shift due to climate change. We examine the relative effects of development and climate change on Tulare County blue oak woodland in 2080, which we believe to be a reasonable time horizon for conservation planning. We divide Tulare County blue oak woodland into 2500 m² pixels, then determine the relative quality of blue oak habitat under a 2080 climate and associated level of development threat for each pixel. This information may be used by TNC to identify areas for conservation priority.

Figures 3 and 5 provide an example of how we interpret the threat synergies of development and climate change. In 2080, about half of the current range of blue oak woodland will become unsuitable due to climate change. The suitable habitat that will remain is scattered through the range, and contraction to the upper-middle elevations of the current range occurs. Within suitable habitat, we evaluate the threat of development. If TNC were interested in conserving areas with high habitat quality and are highly threatened, then TNC should focus on priority areas B, C, and D.

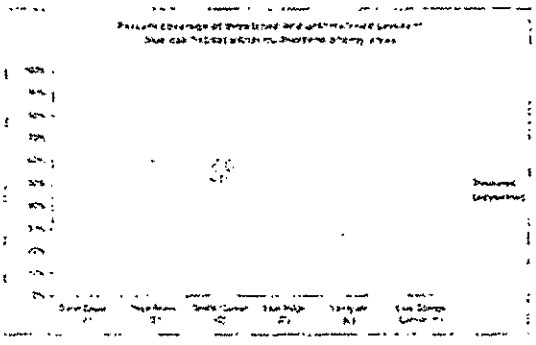


Figure 2: This graph shows the proportion of threatened and unthreatened persistent woodland within priority areas.

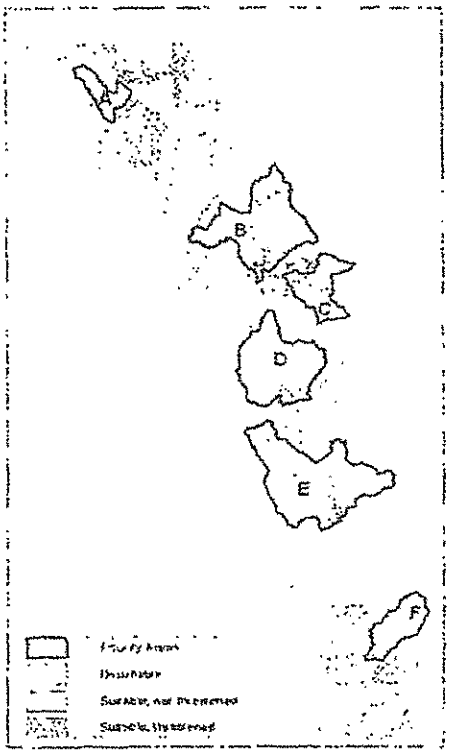


Figure 3: The distribution of threats within areas of likely persistence for blue oak woodland in the year 2080.

The blue oak community

We conducted our multi-criteria analysis and subsequent identification of conservation priority areas at the scale of Calwater planning watersheds, which average approximately 8500 acres. Conservation site selection, however, will likely be done at a smaller scale – possibly through the purchase or easement of private parcels. Fine-scale landscape features can be used to further identify and prioritize sites within conservation priority areas. Targeted wildlife species may require specific landscape features such as ponds, rocky outcrops, or mature trees. We provide a brief overview of blue oak woodland wildlife species and associated status on federal and state endangered species lists. We address the minimum size required to maintain viable populations of various woodland species. An

Recommendations

1. Work within conservation priority areas
2. Use threat-synergy in making conservation decisions within and between priority areas
3. Use bands of high persistence to connect reserves
4. Manage lands to optimize the chance of blue oak regeneration
5. Use species targets to determine site size, configuration, and connectivity.
6. Work with local institutions to maximize blue oak persistence outside of designated reserves

appropriate reserve size depends both on the species targeted and the management of land outside of protected reserves. We therefore provide a tiered approach to determining reserve size; we offer guidelines for the protection of wide-ranging woodland species down to areal requirements of smaller species within blue oak woodland. Mountain lions, for example, have home ranges of almost 10,000 acres and use a wide range of habitats, including blue oak woodland; reserves designed to accommodate this species will need to be large and interconnected to other foothill reserves and public parks.

Optimizing blue oak recruitment

Our models assume that blue oaks will persist indefinitely under current land use and climate conditions. There is evidence, however, that blue oaks are not regenerating over much of their range, including Tulare County. The reasons for lack of recruitment and seedling survivorship are varied, and include grazing, invasive species, altered disturbance regimes, fragmentation, herbicides, and tilling. We review the debate over the "regeneration problem" and offer strategies for managing blue oak lands in order to optimize the chance of successful recruitment and survivorship.

We suggest the use of wire cage enclosures to protect emergent seedlings from grazing in areas where deer and cattle have access and root-cages where rodent damage is a problem. We recommend that grazing be kept to 10-20 acres per cow per year and pastures allowed to rest in the spring and summer. Mulching and weed control around emergent seedlings can reduce water and light competition. These techniques will likely increase blue oak regeneration in managed areas.

Conclusion

Blue oaks are an integral component of the California landscape. We offer a strategy for blue oak conservation in a dynamic landscape. We provide both methods and information for (a) prioritizing sites for limited-budget conservation, and (b) reconciling protecting lands from the immediate threat of development with planning for the long-term change caused by a warming climate. We suggest wildlife species that may be used for fine-grain conservation. Finally, we offer suggestions for the management of blue oak woodland in order to ensure that these magnificent trees are around for centuries to come.

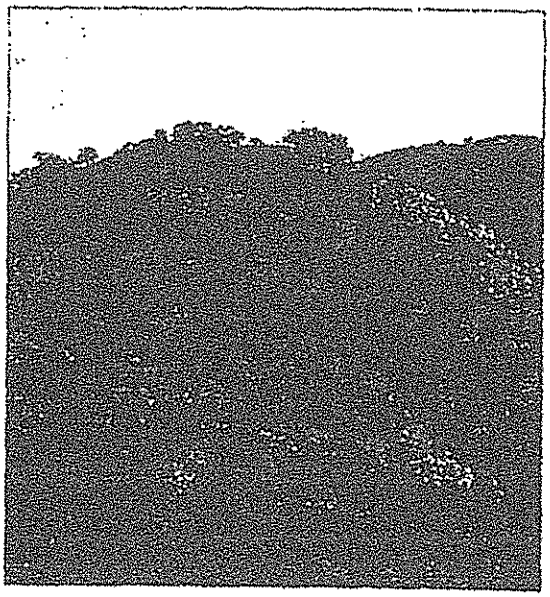


Exhibit 7: IHRMP Study: "Compilation of Woodland Policy Inventory (pp. 1-2)
and "Oak Woodland Policies of 41 California Counties" (pp. 1-4)
(Susan D. Kocher, IHRMP, November 2003)

Compilation of Oak Woodland Policy Inventory

Susan D. Kocher
University of California/Berkeley - Center for Forestry
Integrated Hardwood Range Management Program and Oak Conservation Workgroup
November, 2003

Goal

The goal of this project was to compile and inventory all county-based policies to protect oak woodlands adopted by the 41 California Counties with oak woodlands.

Background

This project was developed by UC's Oak Conservation Workgroup and Integrated Hardwood Range Management Program (IHRMP) of the Division of Agriculture and Natural Resources (ANR). This information was considered to be a top priority in the development of educational programs addressing local conservation strategies to conserve oak woodland resources.

Methods

Policy documents were gathered primarily in electronic format. County general plans, zoning, grading and subdivision ordinances were downloaded from county websites and from CERES, the California Environmental Resources Evaluation System, when available. Electronic versions of policy documents were also e-mailed directly by county staff in several counties. Hard copy versions of policies were collected by mail in a few instances. Additional policies such as General Plan Background Reports or EIRs were reviewed when easily available.

Collection of every policy and general plan element from every county, regardless of relevance to oak woodland conservation, was not attempted due to the scale of the inventory effort. Area and specific plans were not reviewed due to their great quantity. Phone calls and e-mails were made to staff in most counties where very few policies were found in order to confirm that the search had not missed important information. A copy of each county's policy inventory was sent to each planning department. Responses either confirming the accuracy of the inventory or suggesting changes were received from about half the counties. Suggested changes, if applicable, were incorporated into the inventory.

County Specific Policy Summaries

All policy documents collected were read to identify language that might conserve or protect oak resources and a county specific summary was developed for each of the 41 counties. Relevant language from each collected policy document was summarized in a table. Policies were classified according to content with note made when policies required oak tree retention or replacement during development or protection during construction. A small number of counties required conservation of the areal extent of oak woodland canopies. Requirements for protection of heritage trees and riparian vegetation were also noted. Several counties had policies that required an oak woodland conservation program on the part of the county. This categorization scheme is an expansion on previous work reported in Harris and Kocher, 2002.

These policies were then summarized by type to identify whether the policy was contained in general plan language, as a specific ordinance, or as guidelines to be followed voluntarily by landowners. The type of policy (general plan, ordinance or guideline) has serious implications on the ability of county

planning staff to enforce it. For an evaluation of effectiveness of policies according to policy type see Harris and Kocher, 2002.

Each county summary also contains a listing of each policy reviewed and date of review in order to assist with future updating of the information. Contact information and along with a categorization of the amount of interaction with county planning staff occurring during this inventory is also included.

Statewide Policy Matrix

A matrix was developed to summarize the status of oak woodland conservation policy implementation statewide. Counties were stratified according to their adoption of general plan, ordinance, or guidelines to conserve oaks.

No legally enforceable policies were found in about a quarter of oak woodland counties. No countywide conservation policies were identified in four counties, including Kern, Merced, Orange and Solano Counties. Voluntary guidelines applying primarily to agricultural areas only were found in six counties, including Calaveras, Colusa, Glenn, Mariposa, Shasta, and Tehama.

Legally enforceable policies applicable in some locations were found for another twelve counties that have either general plan language or implementing ordinances, but not both. Protective general plan language only was found in seven counties, including Alameda, Amador, Mendocino, Stanislaus, Tulare, Yolo, and Yuba Counties. In most of these, protections apply in specific locations only such as scenic areas or only for landmark or valley oak trees. Stanislaus County was an exception with protections applying to all discretionary projects. Two counties, Fresno and Madera, have both voluntary guidelines for agriculture and general plan protections for scenic areas or landmark trees. Two counties were found with protections only within specific ordinances, Los Angeles within a specific tree protection ordinance and Butte applicable only during subdivisions. One county, Lake, has both voluntary guidelines and an implementation ordinance that applies only to waterway zoning.

A total of nineteen counties were found to have both general plan language and implementing ordinances. Of these, fifteen counties have both general plan language and implementation ordinances that protect oaks to some extent and four also have voluntary guidelines. Contra Costa, Riverside, San Benito, San Diego, San Luis Obispo, Santa Clara, Sonoma, and Tuolumne County have general plan protections in areas limited by slope, parcel size, zone, species, or have protections that apply only to very large heritage trees. Protections apply in all zones in El Dorado, Marin, Napa, Nevada, Placer, Sacramento, San Bernardino, San Joaquin, and Ventura Counties. Policies in Monterey and Santa Barbara also apply to agricultural areas. Implementation ordinances in these nineteen counties included tree protection and woodland management ordinances as well as zoning and grading ordinances and mitigations and standards contained within land use codes.

References

Harris, Richard R. and Susan D. Kocher. 2002. *Oak Management by County Jurisdictions in the Central Sierra Nevada, California*. In: Proceedings of the Fifth Symposium on Oak Woodlands, Oaks in California's Changing Landscape. October 22-25, 2001, San Diego, California. USDA Forest Service General Technical Report PSW-GTR-184. pp 463-472.

Hardwood Rangeland Policies for California Counties

Oak Woodland Policies of 41 California Counties

Current California State Board of Forestry oak conservation policy supports a statewide program of research and education known as the Integrated Hardwood Range Management Program, and provides strong encouragement to local governments to develop their own policies responsive to ecological, economic, and political issues impacting hardwood rangelands. Shown below is a table of counties with significant hardwood rangeland acreage, and the current policy approaches being used.

Overview of Project and Data Collection Methodology

County	Hardwood Rangeland (acres)	Voluntary Guidelines	General Plan Language	Implementing ordinance
Alameda	131,000		scenic areas only	
Amador	178,000		scenic areas only	
Butte	230,000			subdivisions only
Calaveras	316,000	X		
Colusa	149,000	X		
Contra Costa	81,000		discretionary projects with heritage trees	tree protection ordinance for all areas with 4 or more oaks >6.5" dbh
El Dorado	178,000	X	X	zoning and subdivision ordinance
Fresno	493,000	X	scenic areas and landmark trees	
Glenn • Co. Plans • Voluntary Guidelines	133,000	X		
Kern	721,000			
Lake				

• Co. Plans • 5-yr. Assessment	119,000	X		waterway zoning only
Los Angeles • Co. Plan • Oak Ordinance	70,000			oak tree ordinance
Madera • Co. Plan • Voluntary Guidelines	283,000	X	landmark trees only	
Marin • Co. Plan • Native Tree Ordinance	62,000	X	X	tree protection ordinance (zoning)
Mariposa	299,000	X		
Mendocino	374,000		landmark trees only	
Merced	96,000			
Monterey	921,000		including agriculture	zoning ordinance
Napa	159,000		X	erosion hazard and municipal watershed zoning only
Nevada	139,000		X	within land use code and site standards
Orange	40,000			
Placer	105,000		X	tree ordinance
Riverside	72,000		on ½ parcels above 5,000' only	tree removal ordinance
Sacramento	23,000		X	tree preservation ordinance
San Benito	437,000		when removal approaches a canopy retention standard or on slopes >/ 30%	woodland management ordinance

San Bernardino	18,000		X	plant protection ordinance
San Diego	320,000		on 5 acre lots only	grading ordinance
San Joaquin	39,000		X	tree ordinance
San Luis Obispo • Co. Plan • Oak Mgt. Plan	724,000	X	in some zones	zoning ordinance
Santa Barbara • Co. Plan • Conser. Element • Oak Prot. Article • Oak Grading Ordinance	345,000	X for agriculture	including agriculture	deciduous oak ordinance
Santa Clara	321,000	X for golf courses	Heritage trees and 12" trees in hillside zones	tree protection ordinance
Shasta • Co. Plan • Voluntary Guidelines	287,000	X		
Solano	45,000			
Sonoma	211,000		valley oak district only	zoning ordinance
Stanislaus	145,000		all discretionary projects	
Tehama	633,000	X		
Tulare	536,000		along scenic highway only	
Tuolumne	234,000	X	valley oak woodland only	mitigations designated in wildlife handbook
Ventura	113,000		X	both ministerial and discretionary
Yolo • Co. Plan	99,000		should adopt tree	

• Urban For. Plan			ordinance	
Yuba	95,000		valley oak only	

back to top . IHRMP Home . Purpose Personnel ; Oak Assistance ; Publications IHRMP Funded Research Othe Links

University of California Integrated Hardwood Range Management Program, UC Berkeley.
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Exhibit 8: References on Oak Woodland Conservation

Exhibit 8: References on Oak Woodland Conservation

California Oak Foundation, good reference webpage for oak conservation: http://californiaoaks.org/html/reference.html

City of Visalia Municipal Code – Chapter 12.24, Oak Tree Preservation (revised August 4, 2003). accessed online at http://www.ci.visalia.ca.us/vbc/otordinance.htm.

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B) TULARE COUNTY GENERAL PLAN 2030 UPDATE POLICIES AND IMPLEMENTATION

OAK WOODLAND MANAGEMENT

TULARE COUNTY GENERAL PLAN 2030 UPDATE POLICIES

LAND USE ELEMENT

LU-2.3 Open Space Character
The County shall require that all new development requiring a County discretionary approval, including parcel and subdivision maps, be planned and designed to maintain the scenic open space character of open space resources including, but not limited to, agricultural areas, rangeland, riparian areas, etc., within the view corridors of highways. New development shall utilize natural landforms and vegetation in the least visually disruptive way possible and use design, construction and maintenance techniques that minimize the visibility of structures on hilltops, hillsides, ridgelines, steep slopes, and canyons.

ENVIRONMENTAL RESOURCE MANAGEMENT ELEMENT

ERM-1.12 Management of Oak Woodland Communities
The County shall support the conservation and management of oak woodland communities and their habitats.

ERM-1.4 Protect Riparian Areas
The County shall protect riparian areas through habitat preservation, designation as open space or recreational land uses, bank stabilization, and development controls.

ERM-1.8 Open Space Buffers
The County shall require buffer areas between development projects and significant watercourses, riparian vegetation, wetlands, and other sensitive habitats and natural communities. These buffers should be sufficient to assure the continued existence of the waterways and riparian habitat in their natural state.

HEALTH AND SAFETY ELEMENT

HS-5.4 Multi-Purpose Flood Control Measures
The County shall encourage multipurpose flood control projects that incorporate recreation, resource conservation, preservation of natural riparian habitat, and scenic values of the County's streams, creeks, and lakes. Where appropriate, the County shall also encourage the use of flood and/or stormwater retention facilities for use as groundwater recharge facilities.

HS-5.9 Floodplain Development Restrictions
The County shall ensure that riparian areas and drainage areas within 100-year floodplains are free from development that may adversely impact floodway capacity or characteristics of natural/riparian areas or natural groundwater recharge areas.

SCENIC LANDSCAPES ELEMENT

SL-2.3 Historic and Cultural Landscapes
The County shall use the County's scenic routes and highways to connect cultural landscapes, historic landmarks and communities, and points of interest including:
1. Historic travel routes and trails,
2. Historic settlements,
3. Historic places, events, sites, buildings and structures,
4. Prehistoric and archeological features, and
5. Majestic trees, streetscapes, and parks.

FOOTHILL GROWTH MANAGEMENT PLAN

FGMP-8.1 Riparian Area Development
The County shall discourage the location of development and improvements that are in close proximity to watercourse areas and riparian habitat, and prevent actual encroachment into those habitats.

FGMP-8.12 Vegetation Removal
The County shall prohibit unnecessary removal of native trees on development sites prior to approval of development plans to control erosion, preserve wildlife habitat, and maintain the natural character of developing areas.

FGMP-8.19 Preservation of Unique Features
The County shall encourage maintenance and protection of unique open space areas such as riparian woodlands, oak woodlands, interesting rock formations, and scenic vistas.

ENVIRONMENTAL RESOURCE MANAGEMENT ELEMENT Implementation

ERM-1.12 Management of Oak Woodland Communities
The County shall support the conservation and management of oak woodland communities and their habitats.

2012-15

5. The County shall work cooperatively with the California Department of Fish and Game to develop a joint study which will identify in Tulare County the following: a. Significant habitat to be preserved in a natural state for the survival of rare and endangered species, b. Fish and game habitat desirable for meeting the quantity of demand for fishing and hunting, and c. Wildlife habitat needed for meeting the quantity of demand for recreational, educational and scientific observation, scenic enjoyment and appreciation of open space.	ERM-1.1 ERM-1.2 ERM-1.4 ERM-1.6 ERM-1.7 ERM-1.8 ERM-1.9 ERM-1.12	RMA, Planning

On-Going			
14.	The County shall ensure that the provisions of Public Resources Code § 21083.4 are followed when evaluating projects in areas containing oak woodlands.	ERM-1.12	RMA, Planning
2015-2020			
15.	The County shall work with stakeholders to determine the feasibility of adopting an oak woodlands management plan pursuant to the Oak Woodlands Conservation Act of 2001. The purpose will be to qualify for grant funding to support and encourage voluntary long term private stewardship and conservation of California's oak woodlands.	ERM-1.12	RMA, Planning
2012-2015			
16.	The County shall establish a program to require the replacement planting of native oaks where oak woodlands are proposed for alteration by development projects.	ERM-1.12	RMA, Planning

8. OAK WOODLAND MANAGEMENT INVENTORIES

A) CITY OF SANTA CLARITA CALIFORNIA LIVE OAK INVENTORY

B) OAK TREE REPORT SAN LUIS OBISPO COUNTY

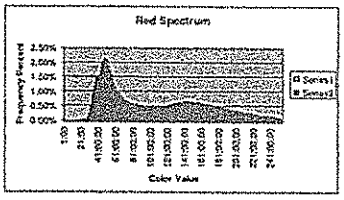
A) CITY OF SANTA CLARITA CALIFORNIA LIVE OAK INVENTORY

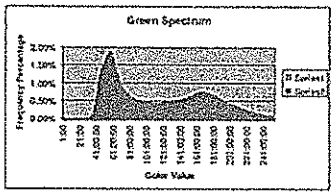
ATTACHMENT 1
CITY OF SANTA CLARITA CALIFORNIA LIVE
OAK INVENTORY
(Los Angeles
County)

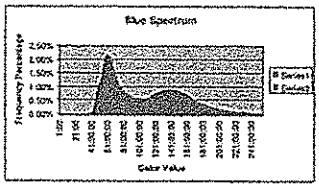
Engineering Systems

Inventory of California Live Oak in the City of Santa Clarita Using LAR-IAC High Resolution Near Infrared and Color Photography: A Programmed Approach

The City of Santa Clarita contracted with Nag Inc. to utilize LAR-IAC four-inch resolution Near Infrared and Color digital ortho photography to inventory California Live Oak trees within their jurisdiction. This species is protected under the City's Oak Tree Ordinance formulated along the guidelines provided by a similar ordinance of the County of Los Angeles. Development of any property within the City jurisdiction requires mitigation measures to compensate for any oak tree that may be impacted, an expensive operation, since the cost of mitigation for a heritage oak may exceed $100,000.







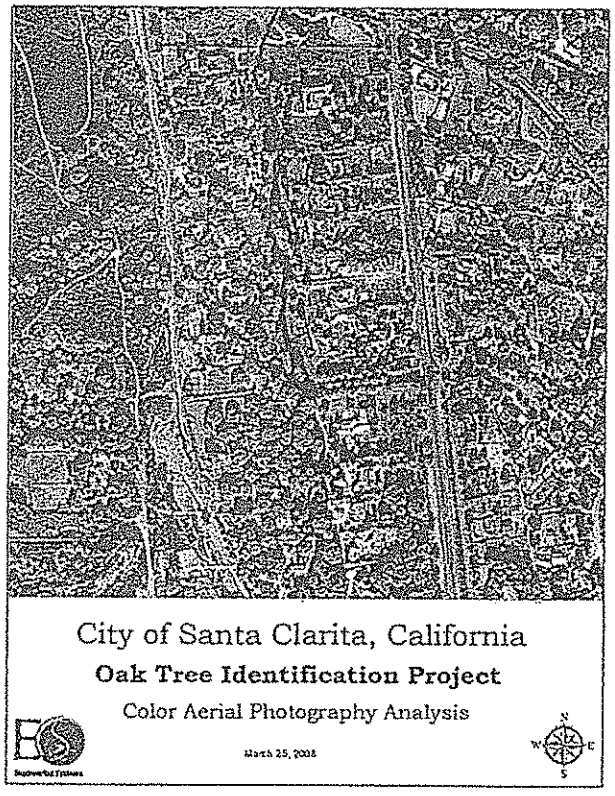
A pilot area was defined comprising four tiles in an area with an abundance of oak trees towards the southeastern portion of the jurisdiction for the development of a prototype application.

The pilot area was field surveyed with the assistance of City GIS staff and an Arborist of the Parks and Recreation Department. Oak trees were identified at site and delineated on a printout of a single tile. Back at the ES GIS facility, polygons were created to envelop the corresponding tree canopies observed on the geo-referenced photography.

Engineering Systems developed an application in the Microsoft Visual C++ .NET environment to scan four-inch resolution raster images of near-infrared and color aerial photography that the City licenses from LAR-IAC in native tagged image file format (TIFF). Each tile comprised an 8000 x 8000 4-inch pixel grid comprising 64 million pixels that were analyzed to prepare histograms to represent the

frequency of individual Red, Green and Blue values. Frequencies were independently derived for pixels contained within the boundaries of each polygon representing a known oak tree and separately for pixels outside these polygons. The two histograms were compared to select peak values that would represent the spectral signature of the presence of an oak tree.

A second program rescanned each tile to select pixels with these signature values to as a preliminary means of identification of oak trees. Each identified pixel was represented as a point feature on a graphic overlay of the geo-referenced otho-photo tile. Circles were then drawn to represent each oak tree canopy. The resulting maps were then used for a second field survey to validate the results of the program. It was determined that the program was relatively accurate in identifying mature oak trees, but that younger trees with smaller canopies were not being identified. ES is now in the process of analyzing the signature of these younger trees for inclusion in the model. Three errors were also noted of trees that were not oak trees, requiring a separate analysis to ensure that these signature values were not selected in subsequent processing.



B) OAK TREE REPORT SAN LUIS OBISPO COUNTY

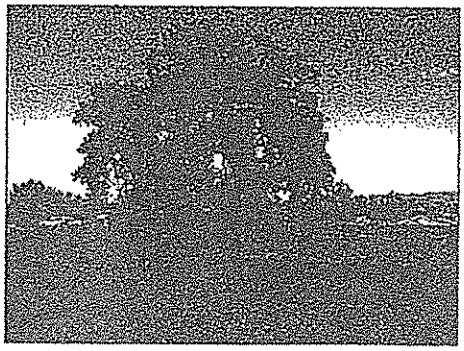
Oak Tree Report

for the

Estrella River Vineyard

Tract 2905

Estrella Road
Paso Robles
San Luis Obispo County



Prepared for:

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by

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April 2008

661.01

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I. Introduction

This document provides information on native oak trees in the vicinity of roadways and lots on the Estrella River Vineyard property at Estrella Road, Paso Robles, San Luis Obispo County. The project is a 24-lot residential subdivision on a 560 acre agricultural property. Trellised vineyards comprise more than 200 acres of the property, and most of the remaining acreage is in dry-farmed grain and vegetables.

A biological report was completed for the property in 2007 (Althouse and Meade, Inc. 2007). The report identified two species of native oaks on the property: blue oak (*Quercus douglasii*) and valley oak (*Quercus lobata*).

In this document we provide an inventory of native oak trees near the project areas, assess potential impacts to oak trees from the proposed project, and provide mitigation and protection recommendations designed to reduce potential impacts to a less than significant level. The oak tree inventory, included in Appendix A, provides the type, size, health, location, and impact analysis for each tree.

Discretionary permit projects in the County of San Luis Obispo require approval and mitigation for removal of oak trees. General mitigation measures are included that are designed to guide landowners and contractors with performance criteria and reporting obligations that would fulfill the CEQA obligation to mitigate vegetation impacts to a less than significant level.

II. Project Information

A. Responsible Parties

TABLE 1. RESPONSIBLE PARTIES. Applicant, agent, engineer, biological consultant, and lead agency are provided.

Applicant (Owner)
Estrella River Vineyard, LLC 523 South Cascade Avenue, Suite E Colorado Springs, CO 80903

Agent	Engineering
Kirk Consulting 8830 Morro Road Atascadero, CA 93422 (805) 461-5765 Contact: Jamie Kirk	North Coast Engineering, Inc. 725 Creston Road, Suite B Paso Robles, CA 93446 805-239-3127 Contact: Greg Jaeger, PE

Biological Consultant	Lead Agency
Althouse and Meade, Inc. 1875 Wellsona Road Paso Robles, CA 93446 (805) 467-1041 Contact: Daniel E. Meade, Ph.D.	County of San Luis Obispo Department of Planning and Building County Government Center San Luis Obispo, CA 93408 (805) 781-5600

B. Location of Project

The subject property is located at Estrella Road, east of the Paso Robles city limits, in San Luis Obispo County, California. The parcel is on the south side of Estrella Road, bordered on the south by Dusty Place and agriculture fields, the west by Fa-Rouse Way, and the east by an unnamed creek. The property is within the Estrella United States Geological Survey (USGS) 7.5 minute quadrangle (Figure 2). The approximate coordinates for the center of the property are N35° 41' 25" W120° 35' 50". Elevation varies from approximately 740 feet to 882 feet above sea level.

C. Brief Summary of Overall Project

The proposed project, Estrella River Vineyard Tract 2905, is a 24-lot residential development on a large agricultural property currently planted in vineyards, dry farmed grain, and vegetables. Each lot is one acre in size. Primary and secondary access is from Estrella Road, through the existing vineyards. Vineyards would not be removed for the proposed project. Two drainage crossings would be required for access to the lots.

North Coast Engineering, Inc. provided the Estrella River Vineyard Site Plan Tract 2905 for our review. The site plan is used as the base for our Oak Tree Map (Appendix A).

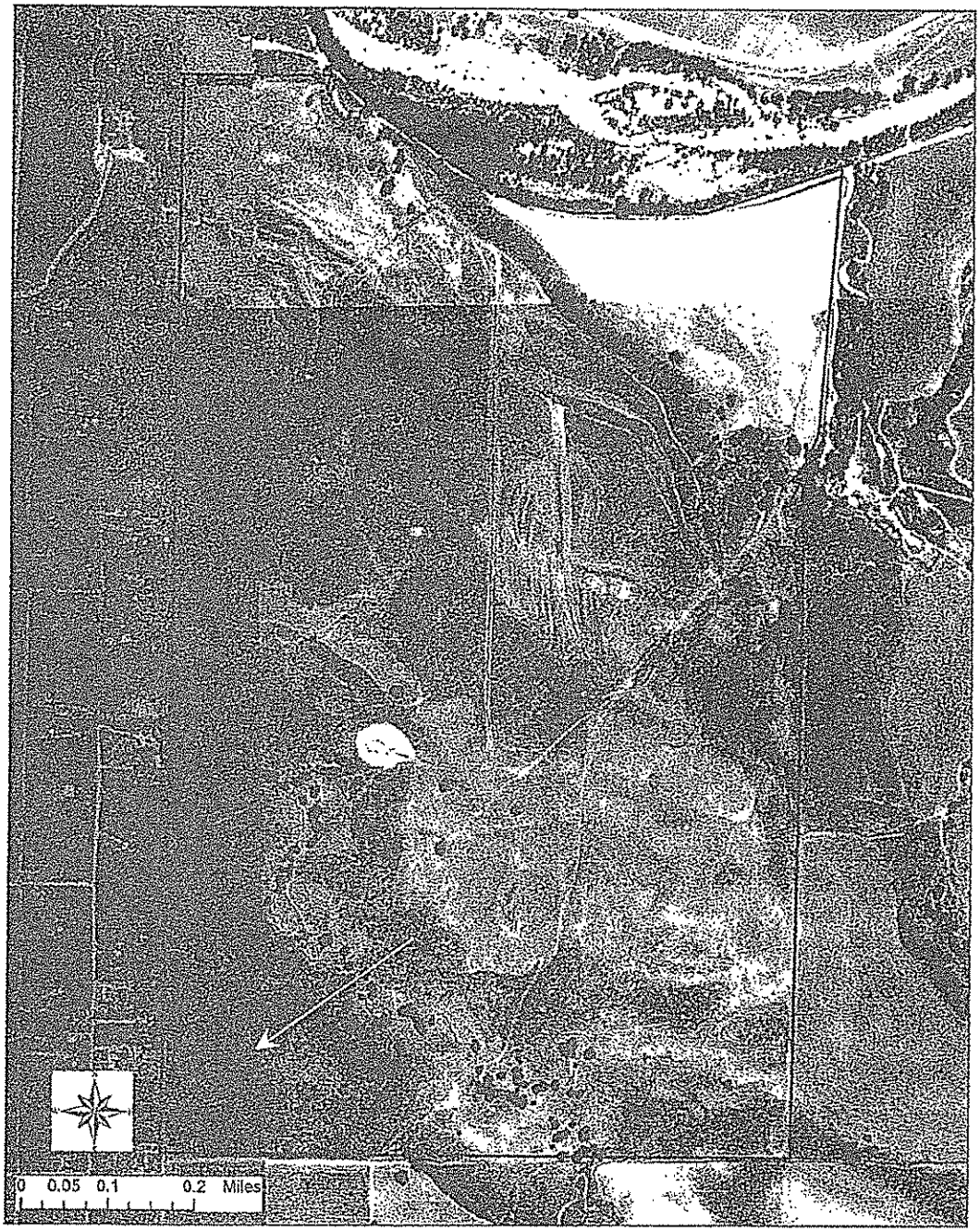


Figure 1. 1993 AERIAL PHOTOGRAPH. Approximate property boundaries are shown in red on an aerial photograph of the site. The proposed development area is located in the southwest corner of the property between the oak woodland and the property boundaries (note arrow). Access to the development would be on two entrance roads from Estrella Road at the north end of the property.

III. Methods

The initial tree inventory and assessment was conducted on April 9, 2008 by Althouse and Meade, Inc. biologists Jason Dart and Kerri Johnson. Oak trees were included in the inventory if they were within approximately 50 feet of proposed limits of disturbance (based on site plans). Some trees in the blue oak woodland adjacent to the lots were not included in the inventory because they were located far downhill from potential building envelopes. All oak trees included in the inventory were marked with a metal numbered tag.

A map of oak trees included in the inventory was prepared by Althouse and Meade, Inc. using field sketches transferred to CAD drawings. The CAD drawings, provided by North Coast Engineering, Inc. (NCE), contained the site plan layers and approximate locations of the tree canopies. An Oak Tree Map (Appendix A) was created by overlaying our tree numbers on NCE tree canopy layers. Precise trunk locations have not been surveyed and are not shown on the map.

The tree impact analysis is based on the NCE site plan and tree canopy layers. Lots and roads were not staked in the field to confirm potential impacts.

The condition of each tree was rated from A to D: A = excellent health and form; B = good condition, but not excellent form; C = fair condition, not good form; D = poor condition, not good form. The diameter of each tree was measured at 4.5 feet with a diameter tape (Spencer 35'L ProTape). Diameters were measured to the nearest inch. Our impact analysis is based on the NCE tract map. Roads and lots were not marked in the field, therefore our analysis is considered preliminary.

A database was compiled to summarize tree data and proposed impacts for this report. A complete list of trees in the database is provided in Appendix A.

The Critical Root Zone (CRZ) is defined as an area of root space extending out from the trunk of the tree one and a half times the radius of the canopy. Any trenching or earthwork within the CRZ is considered an impact requiring mitigation.

IV. Results

A. Species Included in the Inventory

Two species of native oak tree occur within fifty feet of the project areas (Table 2). Thirteen valley oaks (*Quercus lobata*) and 90 blue oaks (*Quercus douglasii*) were mapped and assessed in the vicinity of the project areas. Some of the oak trees appear to be hybrids, however we did not conduct a formal analysis of tree taxonomy. The trees are categorized based on the species they most closely resemble.

Mitigation for oak tree impacts and removals is required by the County of San Luis Obispo. Table 2 provides the mitigation ratios currently accepted by the County.

TABLE 2. OAK TREE SPECIES. Two species of native oak tree are located within 50 feet of the project areas.

Common Name	Scientific Name	State/Federal/CNPS Protection Status	Mitigation Ratio
Valley Oak	*Quercus lobata*	No state or federal protection; Protected by County of San Luis Obispo	2:1 for impacted oaks 4:1 for removed oaks
Blue Oak	*Quercus douglasii*	No state or federal protection; Protected by County of San Luis Obispo	2:1 for impacted oaks 4:1 for removed oaks

B. Oak Tree Inventory

There are 103 oak trees in the project areas that were included in our database (Appendix A). Blue oak trees occur in two woodland areas on north-facing slopes. Valley oak trees included in our inventory occur in deeper soils in open grassland areas now converted to agriculture (refer to Oak Tree Map in Appendix A). Oak trees included in our inventory range in diameter from 4 inches to 55 inches. Blue oaks averaged approximately 19 inches in diameter (range from 4 to 49 inches), and valley oaks averaged approximately 30 inches (range from 9 to 55 inches). Two dead oak trees are located in the project areas. Dead trees are not shown on the Oak Tree Map and do not require mitigation for removal. Removal of any tree, dead or alive, should be conducted from August 15 through March 15, outside the nesting bird season.

C. Oak Tree Impacts

The proposed project would not require removal of any living oak trees. Impacts to 13 oak trees are anticipated from construction activities associated with the primary roads, including five valley oaks and eight blue oaks (Table 3). Two trees with a health value of

"A", seven trees with a health value of "B", and four trees with a health value of "C" would be impacted. The impacts would result from encroachment into the CRZ or from pruning of branches four inches in diameter or greater. Oak trees occurring in the lots should be protected by designation of suitable building envelopes that would prevent soil disturbance within the CRZ. Ten of the 24 lots contain at least one mature oak tree. After examining the site plan and canopy locations, there appears to be ample room for construction of a home site and driveway within each lot without impacting oak trees.

In addition to anticipated to oak tree impacts, there is always a potential for incidental impacts from construction activities. We provide protection recommendations to reduce the potential for incidental oak tree impacts to a less than significant level. If incidental impacts do occur, additional mitigation plantings shall be incorporated into the mitigation plan per the standard mitigation ratio (refer to Table 2).

Many of the anticipated oak tree impacts could be avoided by modifications of the road alignments.

TABLE 3. IMPACTED OAK TREES. Information is provided for each of the 13 oak trees anticipated to incur impacts as a result of construction activities. No trees are proposed for removal.

Tag Number	Species	DBH (in)	Health Value	Location	Impact Assessment	Recommendations
1	Valley Oak	26	B	Rio Robles Road, Front Gate at Estrella Road	Grading and paving within CRZ	
8	Valley Oak	46	A	Rio Robles Road, Front Gate at Estrella Road	Grading and paving within CRZ	Large healthy tree, protect to the maximum extent feasible
15	Blue Oak	33	C	Along main road, southeast of central reservoir within existing spinach field	Grading and paving within CRZ	
17	Blue Oak	41	C+	NW of central reservoir, on north side of road	Grading and paving within CRZ	
20	Blue Oak	23	B+	Within drainage, S of northern road crossing location	Grading and paving within CRZ	

Tag Number	Species	DBH (in.)	Health Value	Location	Impact Assessment	Recommendations
25	Blue Oak	15, 18	C-	Within drainage, W of northern road crossing location	Grading and paving within CRZ	
26	Blue Oak	21	A	Within drainage, W of southern road crossing location	Grading and paving within CRZ	
91	Blue Oak	25	B	In open space along main road, SW of Lot 14	Grading and paving within CRZ	
92	Blue Oak	41	C	Lot 13, along main road	Grading and paving within CRZ	Driveway and bldg envelope should be designed outside of CRZ
94	Valley Oak	43	B	Lot 11, along main road	Grading and paving within CRZ	Driveway and bldg envelope should be designed outside of CRZ
95	Valley Oak	30	B-	Lot 21, along main road	Grading and paving within CRZ	Driveway and bldg envelope should be designed outside of CRZ
101	Blue Oak	16	B	Rio Robles Road, Front Gate at Estrella Road	Grading and paving within CRZ	
102	Valley Oak	16	B	Rio Robles Road, Front Gate at Estrella Road	Grading and paving within CRZ	

D. Mitigation Requirement

The standard mitigation ratio for non-life threatening impacts to oak trees is 2:1 (refer to Table 2). Thirteen mature oak trees are anticipated to be impacted from the current site plan design, requiring 26 mitigation trees. Ten of the mitigation trees shall be valley oaks (five valley oaks impacted), and 16 mitigation trees shall be blue oaks (eight blue oaks impacted). This impact analysis is subject to change if the project site plan changes prior to project approval.

Mitigation trees are to be a minimum of one gallon container size of locally grown material. Locally grown material means the trees are to be propagated from acorns collected in the vicinity of the project site, and preferably from trees on site.

We identified a location near the front entrance gate that is proposed as the oak tree mitigation area (refer to Oak Tree Map in Appendix A). Mature valley and blue oaks are present adjacent to the mitigation area, and we expect the site would be excellent for establishment of the mitigation trees. A water source is nearby that would be able to provide irrigation. The mitigation area is along the main entrance road near the front gate and would provide usable wildlife habitat. Mitigation trees should be planted in locations indicated in the field by a qualified biologist.

E. Monitoring Requirement

The mitigation oak trees shall be monitored annually for a period of at least seven years. The mitigation project shall maintain all 26 trees in good health for the length of the monitoring period. If any trees die, they shall be replaced immediately with like material. The project biologist or arborist shall provide a written report annually to the lead agency by July 15th of each year.

V. Recommendations for Tree Protection and Mitigation

This section provide protection and mitigation recommendations designed to reduce the potential for incidental impacts to oak trees at the project site due to construction related activities.

Table 2 on page 5 provides the standard County approved mitigation ratios for impacts and removals of oak trees greater than five inches in diameter at breast height (dbh).

TABLE 4. SUMMARY OF RECOMMENDED PROTECTION AND MITIGATION MEASURES.

Recommendation 1.	All trees within 50 feet of disturbance shall be inventoried, numbered, mapped, and assessed by a qualified biologist or certified arborist.
Recommendation 2.	All trees within 50 feet of disturbance shall be shown on final grading plans. Trunk locations shall be surveyed by licensed land surveyor.
Recommendation 3.	Protect all trees using orange construction fencing placed at the outer edge of the Critical Root Zone, defined as 1.5 times the radius of the tree canopy. Tree protection fencing shall be shown on all site and grading plans.
Recommendation 4.	Impacts or removals of oak trees shall be monitored by a qualified biologist or certified arborist.
Mitigation 1.	If oak trees on the site are impacted or removed, replacement trees must be planted per County guidelines (refer to Table 2).
Mitigation 2.	For impacted trees, judiciously prune branches and roots as needed under the supervision of a tree care specialist; treat large wounds and cuts to roots and branches.
Mitigation 3.	Maintain and monitor all mitigation trees annually for at least seven years.
Mitigation 4.	Use porous pavers when paving within the CRZ of any oak tree.

Recommendation 1. All mature oak trees within approximately 50 feet of project construction activities shall be inventoried, numbered, mapped, and assessed by a qualified biologist or certified arborist. **Completed April 2008.**

Recommendation 2. Trunk and canopy locations of all oak trees included in the inventory shall be shown on final grading plans. Trunk and canopy locations shall be surveyed by a licensed land surveyor for accuracy.

Recommendation 3. All oak trees shall be protected to the maximum extent feasible.

a. Tree protection fencing (orange construction fencing) will be installed at the outer limit of the CRZ with t-posts placed in the ground no further apart than six (6) to eight (8) feet. Construction fencing will be firmly affixed with wire or zip ties. Trees that may be impacted shall be protected with construction fencing, depending on the impacts expected within the dripline.

- Protective fencing is required between all construction activities and oak trees. Fencing will be established prior to start of construction, and shall be approved by the project environmental monitor.
- Protective fencing shall be installed prior to any site disturbance or construction, and shall remain in place until all construction is complete.
- No grading, trenching, materials storage, soil storage, debris or site disturbance shall occur within the protected area. No concrete, plaster, or paint washouts shall be allowed within the protected area.
- Weather-proof signs shall be permanently posted on protection fences every 50 feet (maximum) with the following information:

Tree Protection Zone
No personnel, equipment, materials, or vehicles are allowed. Do not remove or replace this fence.
Project Manager [name and phone number].

b. An environmental monitor or arborist shall conduct a worker education meeting for the contractors and operators prior to ground-breaking activities. The briefing shall include a walk-through to identify each of the trees in the work area: the trees to be protected, and the trees that may be impacted or removed. The project Manager shall be responsible for instructing workers about tree protection goals, implementing protection of root zones, dust control, and installing and maintaining protective fencing.

c. The monitor shall check weekly to determine if the listed trees are being protected.

Recommendation 4. Monitor all tree impacts and removals.

a. Any ground disturbance within the CRZ will be monitored by the project biologist and/or the project arborist. Proposed root disturbance may require air-spading the proposed disturbance area and the roots trimmed and treated by the project arborist, prior to construction activities. A tree care specialist shall treat damaged roots and keep exposed roots covered with moist burlap.

b. All impacts and disturbance within the root zone shall be documented and reported to the project manager and to the arborist who must treat and/or assess damaged branches and roots.

c. Removals will be documented by the monitor who will tabulate mitigation obligations. No tree removals are anticipated.

Mitigation 1. Impacted oak trees must be mitigated at a 2:1 ratio. Removed oak trees must be mitigated at a 4:1 ratio. Impacts to and removal of mature oak trees must be approved by the lead agency. The current site plan is estimated to incur CRZ impacts to 13 oak trees, requiring 26 mitigation trees. Replacement trees shall be locally grown, native stock of the same species as the removed tree.

The project biologist or arborist shall keep a running tally of the total number of trees removed or impacted during construction of the project. A final mitigation obligation determination will be provided by the monitor to the project manager and to the lead agency.

Mitigation 2. Pruning and wound care shall be done under the supervision of a Certified Arborist or County approved tree care specialist.

a. All cuts to roots over 1 inch and branches over 3 inches in diameter will be treated, as appropriate, to reduce fungal, bacterial, and insect infections. A Certified Arborist or tree care specialist shall be contracted to care for damaged roots and branches during construction. Appropriate antifungal, antibacterial, and pesticide treatments should be used on cut roots and branches. Black tree paint shall not be used on either roots or branches.

b. Treat large wounds to roots and branches by cutting perpendicular to the root direction. Cut back to undamaged wood.

c. Roots exposed during demolition and construction shall be treated, as appropriate, by a tree care specialist and covered by a layer of soil.

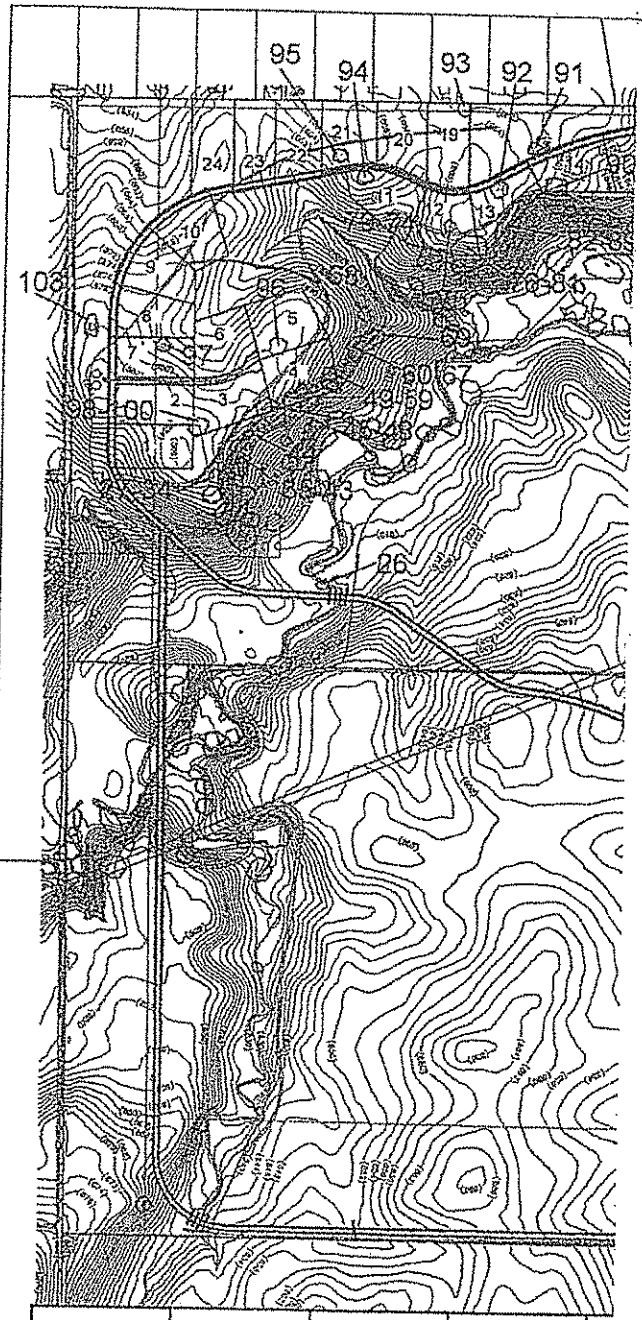
Mitigation 3. Maintain and monitor all mitigation oak trees annually for at least seven years. The trees shall be irrigated and weeded seasonally to promote health and vigorous growth. The project biologist or arborist shall provide a written report annually to the lead agency by July 15th of each year. The mitigation program shall have a no net loss of mitigation trees throughout the seven year monitoring period. Dead trees shall be replaced immediately.

Mitigation 4. Use porous pavers when paving is required within the CRZ.

a. It appears from the site plan that paving would occur within the CRZ of several oak trees. Any paving within the CRZ shall be done with porous pavers that will allow oxygen and moisture exchange to occur within the root zone.

Exhibit A – Oak Tree Map and Inventory

- **Estrella River Vineyard, Tract 2905 Oak Tree Map, April 2008**
- **Oak Tree Inventory**



Estrella River Vineyard
Tract 2905
Oak Tree Map

Prepared For:
Estrella River Vineyard, LLC
c/o Kirk Consulting
8830 Morro Road
Atascadero, CA 93422

April 2008

Site Plan by:
North Coast Engineering Inc.
725 Creston Road, Suite B
Paso Robles, CA 93446

N

Tag #	Common Name	# of Trunks	DBH 1 (In.)	DI
1	Valley Oak	1	26	
8	Valley Oak	1	46	
15	Blue Oak	1	33	
17	Blue Oak	1	41	
20	Blue Oak	1	23	
25	Blue Oak	2	15	
26	Blue Oak	1	21	
91	Blue Oak	1	25	
92	Blue Oak	1	41	
94	Valley Oak	1	43	
95	Valley Oak	1	30	
101	Blue Oak	1	16	
102	Valley Oak	1	16	

TABLE 5. OAK TREE INVENTORY. Mature oak trees near the project areas included in the database include 13 valley oaks and 90 blue oaks, for a total of 103 oak trees.

Tag #	Common Name Scientific Name	# of Trunks	DBH 1 (in.)	DBH 2 (in.)	Height (ft.)	Width (ft.)	Health Value	Location	Impact Remove Protect	Nests/ Cavities	Notes	Impact Notes
	Valley Oak *Quercus lobata*	1	26		60	50	B	Rio Robles Road, Front Gate at Estrella Road	Impact	None	Some dead wood, many galls	Grading and paving within CRZ
2	Valley Oak *Quercus lobata*	1	33		45	50	A	Rio Robles Road, Front Gate at Estrella Road	Protect	None		
3	Valley Oak *Quercus lobata*	1	21		35	40	C	Rio Robles Road, Front Gate at Estrella Road	Protect	None	Shaded, lop sided, pruned	
4	Valley Oak *Quercus lobata*	1	13		40	15	D	Rio Robles Road, Front Gate at Estrella Road	Protect	None	Lopsided, mistletoe	
5	Valley Oak *Quercus lobata*	1	9		30	12	D	Rio Robles Road, Front Gate at Estrella Road	Protect	None	Lopsided, dead wood	
6	Valley Oak *Quercus lobata*	1	23		45	40	C	Rio Robles Road, Front Gate at Estrella Road	Protect	None	squirrel trauma to roots, dying mistletoe	
	Valley Oak *Quercus lobata*	1	11		35	20	C	Rio Robles Road, Front Gate at Estrella Road	Protect	None	Lopsided, not much branching	

Tag #	Common Name Scientific Name	# of Trunks	DBH 1 (in.)	DBH 2 (in.)	Height (ft.)	Width (ft.)	Health Value	Location	Impact, Remove, Protect	Nests/ Cavities	Notes	Impact Notes
8	Valley Oak *Quercus lobata*	1	46		65	70	A	Rio Robles Road, Front Gate at Estrella Road	Impact	None	Old, very large tree in excellent condition	Grading and paving within CRZ
9	Blue Oak *Quercus douglasii*	1	22		50	40	B	Oak Woodland, at access road on east property line	Protect	Natural and Acorn woodpecker cavities; nesting Oak Titmouse		
10	Blue Oak *Quercus douglasii*	1	14		30	35	A	Oak Woodland, at access road on east property line	Protect	None		
11	Blue Oak *Quercus douglasii*	1	49		50	65	A	Oak Woodland, at access road on east property line	Protect	None		
12	Blue Oak *Quercus douglasii*	1	30		45	50	A	Oak Woodland, at access road on east property line	Protect	None		
13	Blue Oak *Quercus douglasii*	1	23		45	50	A	Oak Woodland, at access road on east property line	Protect	None		
14	Blue Oak *Quercus douglasii*	1	28		50	50	A	Oak Woodland, at access road on east property line	Protect	Few woodpecker cavities, one small stick nest		

Tag #	Common Name Scientific Name	# of Trunks	DBH 1 (in.)	DBH 2 (in.)	Height (ft.)	Width (ft.)	Health Value	Location	Impact Remove Protect	Nests/ Cavities	Notes	Impact Notes
15	Blue Oak *Quercus douglasii*	1	33		45	50	C	Along main road, southeast of central reservoir within existing spinach field	Impact	Natural Cavities, one large cavity containing a bee hive	Burl, disked root zone, old burn scar on trunk, possible internal rot	Grading and paving within CRZ
16	Blue Oak *Quercus douglasii*	2	28	24	40	60	A	South edge of central reservoir	Protect	None		
17	Blue Oak *Quercus douglasii*	1	41		60	55	C+	NW of central reservoir, on north side of road	Impact	Few woodpecker cavities	dead wood and limb, old fire damage	Road grading within CRZ
18	Blue Oak *Quercus douglasii*	1	21		45	35	B	In drainage NW of central reservoir, north of road	Protect	None	Dead wood, late to leaf out	
19	Blue Oak *Quercus douglasii*	1	33		50	45	A	Within drainage, N of northern road crossing location	Protect	Some natural cavities	roots exposed in drainage	
20	Blue Oak *Quercus douglasii*	1	23		30	30	B+	Within drainage, S of northern road crossing location	Impact	None		Grading and paving within CRZ
21	Blue Oak *Quercus douglasii*	1	18		30	35	B	Within drainage, W of northern road crossing location	Protect	None	dead wood	
22	Blue Oak *Quercus douglasii*	1	29		40	35	B -	Within drainage, W of northern road crossing location	Protect	None	lopsided, some erosion at root base	

Tag #	Common Name Scientific Name	# of Trunks	DBH 1 (in.)	DBH 2 (in.)	Height (ft.)	Width (ft.)	Health Value	Location	Impact, Remove, Protect	Nests/ Cavities	Notes	Impact Notes
23	Blue Oak *Quercus douglasii*	2	28	22	50	40	B -	Within drainage, W of northern road crossing location	Protect	Many natural cavities and woodpecker cavities	Lopsided, smaller trunk is dead but good habitat	
24	Blue Oak *Quercus douglasii*	1	29		35	40	C	Within drainage, W of northern road crossing location	Protect	Low acorn storage in rotted limbs	Heavily shaded	
25	Blue Oak *Quercus douglasii*	2	15	18	25	35	C -	Within drainage, W of northern road crossing location	Impact	None	Growing horizontally, roots exposed in drainage	Grading and paving within CRZ
26	Blue Oak *Quercus douglasii*	1	21		40	30	A	Within drainage, W of southern road crossing location	Impact	None		Grading and paving within CRZ
27	Blue Oak *Quercus douglasii*	1	18		25	35	B+	Oak Woodland, NE of Lot 1	Protect	None	Shaded	
28	Blue Oak *Quercus douglasii*	1	31		40	50	A	Oak Woodland, NE of Lot 1	Protect	None	Some dead wood	
29	Blue Oak *Quercus douglasii*	1	19		20	35	D	Oak Woodland, NE of Lot 1	Protect	Natural cavities and woodpecker cavities	Mostly dead	
30	Blue Oak *Quercus douglasii*	1	32		50	55	B -	Oak Woodland, NE of Lot 1	Protect	High natural cavities and High nettles woodpecker cavities	Major branch failure	

Tag #	Common Name Scientific Name	# of Trunks	DBH 1 (in.)	DBH 2 (in.)	Height (ft.)	Width (ft.)	Health Value	Location	Impact: Remove Protect	Nests/ Cavities	Notes	Impact Notes
31	Blue Oak *Quercus douglasii*	1	23		40	45	B+	Oak Woodland, NE of Lot 1	Protect	None	Furrowed bark, some dead wood	
32	Blue Oak *Quercus douglasii*	1	17		45	30	C	Oak Woodland, NE of Lot 1	Protect	None	Lopsided, on steep slope; branch leaning on hill slope	
33	Blue Oak *Quercus douglasii*	1	28		40	40	C+	Oak Woodland, NE of Lot 1	Protect	High natural cavities and High acorn storage in dead branch	Steep slope, dead branch	
34	Blue Oak *Quercus douglasii*	1	26		55	60	B+	Oak Woodland, NE of Lot 1	Protect	Some natural cavities and woodpecker cavities	Bee hive, some dead wood	
35	Blue Oak *Quercus douglasii*	1	7		25	15	B	Oak Woodland, N of Lot 1	Protect	None	Blue oak woodland on slope, young tree, shaded.	
36	Blue Oak *Quercus douglasii*	1	8		30	20	B	Oak Woodland, N of Lot 1	Protect	None	Blue oak woodland on slope, young tree, shaded.	
37	Blue Oak *Quercus douglasii*	1	8		30	15	B	Oak Woodland, N of Lot 1	Protect	None	Blue oak woodland on slope, young tree, shaded.	

Tag #	Common Name Scientific Name	# of Trunks	DBH 1 (in.)	DBH 2 (in.)	Height (ft.)	Width (ft.)	Health Value	Location	Impact: Remove Protect	Nests/ Cavities	Notes	Impact Notes
38	Blue Oak *Quercus douglasii*	2	7	5	30	15	B	Oak Woodland, N of Lot 1	Protect	None	Blue oak woodland on slope, young tree, shaded.	
39	Blue Oak *Quercus douglasii*	1	7		35	25	B	Oak Woodland, N of Lot 1	Protect	None	Same Blue Oak woodland, larger trees on this side	
40	Blue Oak *Quercus douglasii*	1	6		35	25	B	Oak Woodland, N of Lot 1	Protect	None	Same Blue Oak woodland, larger trees on this side	
41	Blue Oak *Quercus douglasii*	2	7	6	35	25	B	Oak Woodland, N of Lot 1	Protect	None	Same Blue Oak woodland, larger trees on this side	
42	Blue Oak *Quercus douglasii*	1	16		40	30	B	Oak Woodland, N of Lot 1	Protect	None	Same Blue Oak woodland, larger trees on this side	
43	Blue Oak *Quercus douglasii*	2	12	13	40	30	B	Oak Woodland, N of Lot 1	Protect	None	Same Blue Oak woodland, larger trees on this side	
44	Blue Oak *Quercus douglasii*	1	12		40	25	A	Oak Woodland, E of Lot 3	Protect	None	Young, healthy, nice shape	

Tag #	Common Name Scientific Name	# of Trunks	DBH 1 (in.)	DBH 2 (in.)	Height (ft.)	Width (ft.)	Health Value	Location	Impact Remove Protect	Nests/ Cavities	Notes	Impact Notes
45	Blue Oak *Quercus douglasii*	1	20		20	30	C -	Lot 3	Protect	Yes	Old burn scar, new wood alive, new growth is healthy	
46	Blue Oak *Quercus douglasii*	1	20		35	30	B	Lot 3	Protect	None	Shaded and lopsided	
47	Blue Oak *Quercus douglasii*	2	18	15	40	50	B	Lot 3	Protect	None		
48	Blue Oak *Quercus douglasii*	1	21		40	50	B	Lot 3-4	Protect	Low natural cavities	Shaded	Trees 49-59 are in Lot 4, and should be protected from home construction activities
49	Blue Oak *Quercus douglasii*	1	22		45	55	B+	Lot 4	Protect	None		
50	Blue Oak *Quercus douglasii*	1	27		50	60	A	Lot 4	Protect	None		
51	Blue Oak *Quercus douglasii*	1	8		25	20	B+	Lot 4	Protect	None		
52	Blue Oak *Quercus douglasii*	1	26		35	45	A	Lot 4	Protect	None, numerous defined branch crotches		
53	Blue Oak *Quercus douglasii*	1	7		15	10	B	Lot 4	Protect	None		
54	Blue Oak *Quercus douglasii*	2	12	11	15	20	B	Lot 4	Protect	None	2 Inch Blue Oak under canopy- not tagged	

Tag #	Common Name Scientific Name	# of Trunks	DBH 1 (in.)	DBH 2 (in.)	Height (ft.)	Width (ft.)	Health Value	Location	Impact Remove Protect	Nests/ Cavities	Notes	Impact Notes
55	Blue Oak *Quercus douglasii*	1	11		25	20	A	Lot 4	Protect	None		
56	Blue Oak *Quercus douglasii*	1	13		25	20	A -	Lot 4	Protect	None		
57	Blue Oak *Quercus douglasii*	1	14		30	30	B	Lot 4	Protect	None		
58	Blue Oak *Quercus douglasii*	3	7	7,5	25	25	B	Lot 4	Protect	None		
59	Blue Oak *Quercus douglasii*	1	22		35	45	A	Lot 4	Protect	None		
60	Blue Oak *Quercus douglasii*	1	4		15	10	B	N of Lot 4	Protect	None	Blue Oak Woodland	
61	Blue Oak *Quercus douglasii*	12	6		25	20	B	N of Lot 4	Protect	None	Blue Oak Woodland	
62	Blue Oak *Quercus douglasii*	2	8	7	25	20	B	N of Lot 4	Protect	None	Blue Oak Woodland	
63	Blue Oak *Quercus douglasii*	2	15	9	35	40	B	N of Lot 4	Protect	None	Blue Oak Woodland	
64	Blue Oak *Quercus douglasii*	1	12		40	45	B	N of Lot 4	Protect	None	Blue Oak Woodland	
65	Blue Oak *Quercus douglasii*	1	35		55	55	A	N of Lot 4	Protect	Some natural cavities		
66	Blue Oak *Quercus douglasii*	3	14	8,8	40	35	A	N of Lot 4	Protect	None		
67	Blue Oak *Quercus douglasii*	1	7		30	10	B -	N of Lot 4	Protect	None	Shaded	
68	Blue Oak *Quercus douglasii*	1	27		45	55	B	N of Lot 4	Protect	Low natural cavities	Some Mistletoe	

Tag #	Common Name Scientific Name	# of Trunks	DBH 1 (in.)	DBH 2 (in.)	Height (ft.)	Width (ft.)	Health Value	Location	Impact Remove Protect	Nests/ Cavities	Notes	Impact Notes
69	Blue Oak *Quercus douglasii*	1	30		55	65	A	N of Lot 4	Protect	None	Part of the same Blue Oak woodland as trees 60-64	
70	Blue Oak *Quercus douglasii*	2	9	8	35	35	B	E of Lot 12	Protect	None	Front Row of Blue Oak Woodland	
71	Blue Oak *Quercus douglasii*	2	11	13	35	35	B	E of Lot 12	Protect	None	Front Row of Blue Oak Woodland	
72	Blue Oak *Quercus douglasii*	1	13		25	35	B	E of Lot 12	Protect	None	Front Row of Blue Oak Woodland	
73	Blue Oak *Quercus douglasii*	1	10		30	25	B	E of Lot 12	Protect	None	Front Row of Blue Oak Woodland	
74	Blue Oak *Quercus douglasii*	1	15		30	30	B	E of Lot 12	Protect	None	Front Row of Blue Oak Woodland	
75	Blue Oak *Quercus douglasii*	1	24		35	30	B	Lot 12	Protect	None	Isolated tree	**Located in lot 12, design bldg envelope outside of CRZ**
76	Blue Oak *Quercus douglasii*	1	28		40	35	A -	E side of Lots 12 & 13	Protect	None		
77	Blue Oak *Quercus douglasii*	1	20		55	60	A	E side of Lots 12 & 13	Protect	Few natural cavities	Next Woodland	
78	Blue Oak *Quercus douglasii*	1	20		35	40	B -	E side of Lots 12 & 13	Protect	Many woodpecker cavities	Shaded, lopsided	

Tag #	Common Name Scientific Name	# of Trunks	DBH 1 (in.)	DBH 2 (in.)	Height (ft.)	Width (ft.)	Health Value	Location	Impact Remove Protect	Nests/ Cavities	Notes	Impact Notes
79	Blue Oak *Quercus douglasii*	2	14	15	30	15	C	E side of Lots 12 & 13	Protect	Many natural cavities		
80	Blue Oak *Quercus douglasii*	1	24		45	55	B	E side of Lots 12 & 13	Protect	None		
81	Blue Oak *Quercus douglasii*	2	16	14	30	45	B -	E side of Lots 12 & 13	Protect	None	Some dead wood	
82	Blue Oak *Quercus douglasii*	1	24		45	45	C	E side of Lot 13	Protect	None	dead wood	
83	Blue Oak *Quercus douglasii*	1	24		8	45	D	E side of Lot 13	Protect	None	snapped trunk	
84	Blue Oak *Quercus douglasii*	1	15		30	5	C -	E side of Lot 13	Protect	None	tree 85 fell on this tree	
85	Blue Oak *Quercus douglasii*	2	18	18	35	35	C+	E side of Lot 13	Protect	few natural cavities	one trunk fell, both alive	
86	Blue Oak *Quercus douglasii*	2	15	14	25	50	B	E side of Lot 13	Protect	None		
87	Blue Oak *Quercus douglasii*	1	26		35	30	C+	E side of Lot 13	Protect	Some woodpecker cavities	Pruned, rotten backside	
88	Blue Oak *Quercus douglasii*	1	20		20	40	C -	E side of Lot 13	Protect	None	fallen to ground with some new vertical branches	
89	Blue Oak *Quercus douglasii*	1	6		15	25	B	E side of Lot 13	Protect	None		
90	Blue Oak *Quercus douglasii*	1	30		40	10	A -	Lot 14	Protect	natural cavities		**Located in Lot 14, bldg envelope should be designed outside of CRZ**

Tag #	Common Name Scientific Name	# of Trunks	DBH 1 (in.)	DBH 2 (in.)	Height (ft.)	Width (ft.)	Health Value	Location	Impact Remove Protect	Nests/ Cavities	Notes	Impact Notes
91	Blue Oak *Quercus douglasii*	1	25		35	50	B	In open space along main road, SW of Lot 14	Impact	None	Hollow trunk, not suitable for birds or bats	Grading and paving within CRZ
92	Blue Oak *Quercus douglasii*	1	41		45	40	C	Lot 13, along main road	Impact	many nests and woodpecker cavities	Major branch failure	Grading and paving within CRV. Driveway and bldg envelope should be designed outside of CRZ
93	Blue Oak *Quercus douglasii*	1	39		45	40	C	W edge of Lot 19	Protect	Many woodpecker and natural cavities	Dead tree in Lot 19 not tagged and should be removed	
94	Valley Oak *Quercus lobata*	1	43		45	55	B	Lot 11, along main road	Impact	Large natural cavity, one woodpecker cavity	Cavity not suitable for birds or bats	Grading and paving within CRZ. Driveway & bldg envelope should be designed outside of CRZ
95	Valley Oak *Quercus lobata*	1	30		50	40	B -	Lot 21, along main road	Impact	None		Grading and paving within CRZ. Driveway & bldg envelope should be designed outside of CRZ
96	Valley Oak *Quercus lobata*	1	55		50	55	B	Lot 5	Protect	Many natural cavities	Largest tree on the property, two snag limbs, no woodpecker cavities	Located in Lot 5, driveway & bldg envelope should be designed outside of CRZ

Tag #	Common Name Scientific Name	# of Trunks	DBH 1 (in.)	DBH 2 (in.)	Height (ft.)	Width (ft.)	Health Value	Location	Impact Remove Protect	Nests/ Cavities	Notes	Impact Notes
97	Valley Oak *Quercus lobata*	1	37		55	45	D+	Lot 7	Protect	Many natural cavities	Nesting Barn Owl	Located in Lot 7, driveway & bldg envelope should be designed outside of CRZ
98	Blue Oak *Quercus douglasii*	1	14		20	20	C	Lot 3	Protect	Many natural cavities	Shaded by a dead tree	Remove dead tree adjacent to Trees 98-100
99	Blue Oak *Quercus douglasii*	2	16	13	15	30	C	Lot 3	Protect	Many natural cavities	Shaded by a dead tree	Remove dead tree adjacent to Trees 98-101
100	Blue Oak *Quercus douglasii*	1	22		12	25	D	Lot 3	Protect	Many natural cavities	Trunk fell over, some new growth	Remove dead tree adjacent to Trees 98-102
101	Blue Oak *Quercus douglasii*	1	16		40	40	B	Rio Robles Road, Front Gate at Estrella Road	Impact	None	Possible hybrid, few galls	Grading and paving within CRZ
102	Valley Oak *Quercus lobata*	1	16		40	35	B	Rio Robles Road, Front Gate at Estrella Road	Impact	None	few galls	Grading and paving within CRZ
103	Blue Oak *Quercus douglasii*	1	42		40	55	C	South of main road, near Lot 8	Protect	None	Large branch failures, otherwise healthy	

Exhibit B – Figures

- **Figure 2. Location Map**
- **Figure 3. USGS Topographic Map**
- **Figure 4. Aerial Photograph**

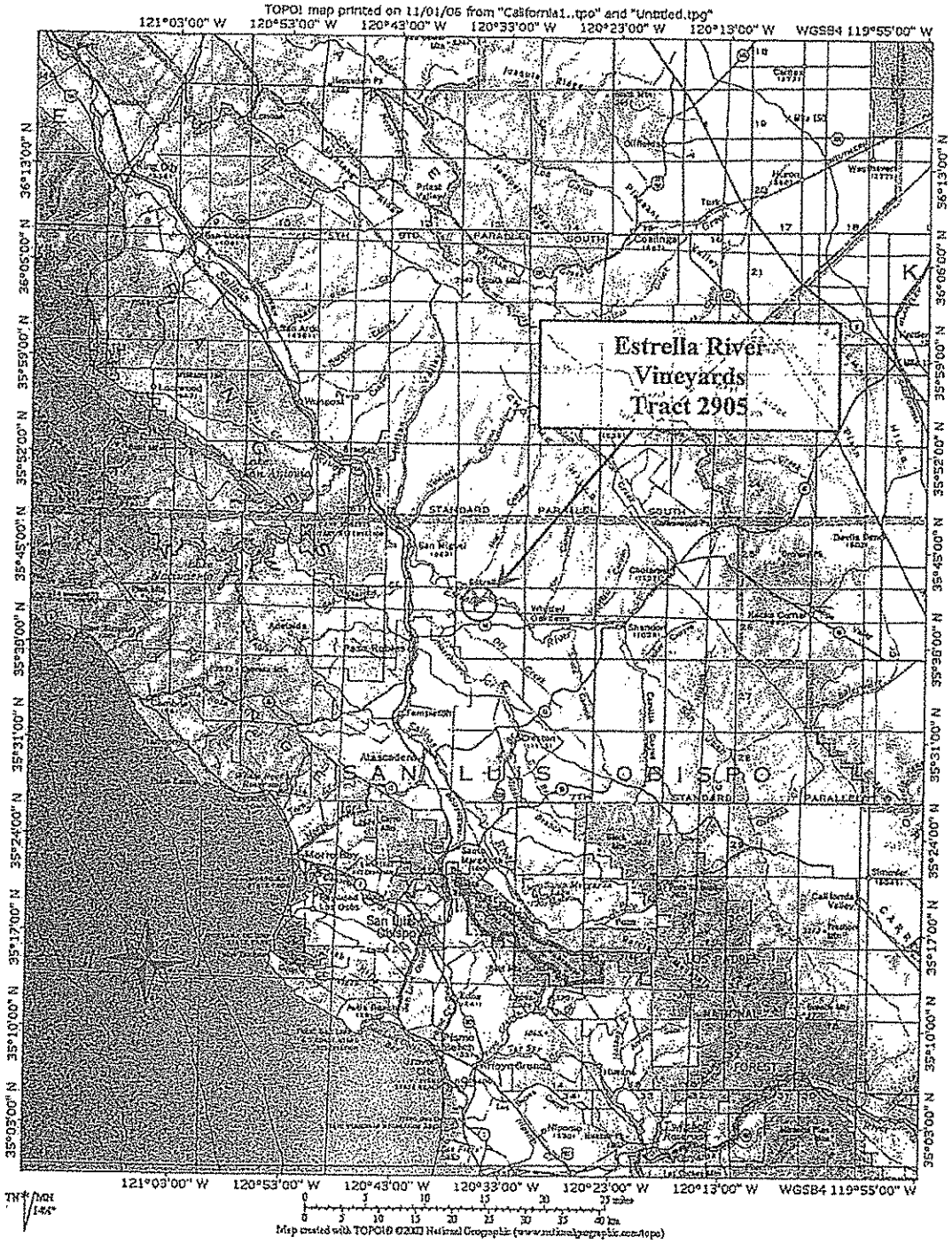


FIGURE 2. LOCATION MAP. The subject property (red circle) is located northeast of Paso Robles, San Luis Obispo County, California.

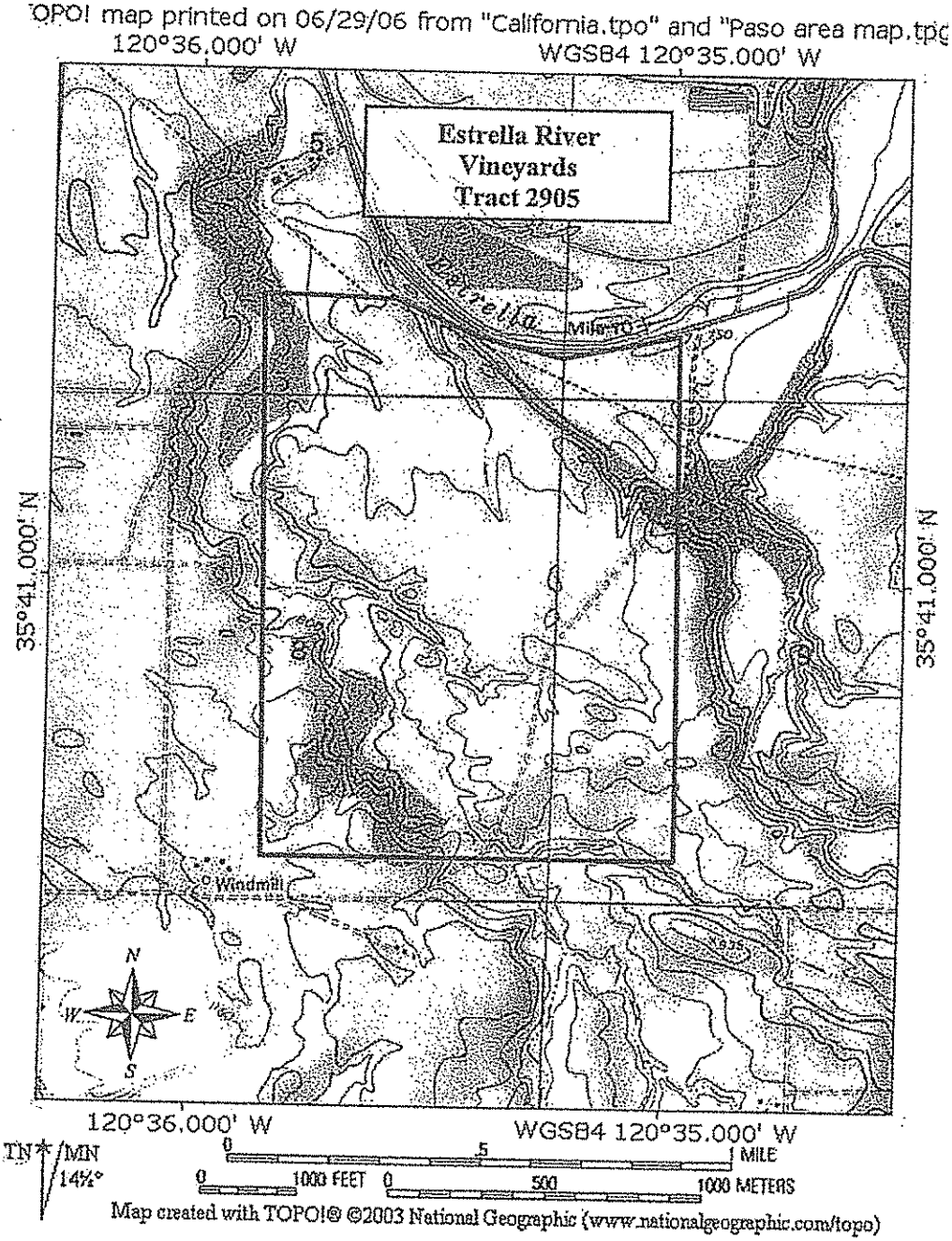


FIGURE 3. USGS TOPOGRAPHIC MAP. The 560-acre property is located on Estrella Road in the Estrella USGS topographic quadrangle. The approximate property boundaries are shown in black.

Exhibit C – Photographs

Photo 1. View north of the front gate entrance to the property from Estrella Road. The existing vineyard road would be re-aligned. Tree #1, pictured left of the gate, would be impacted.

Photo 2. View north of the existing agricultural road along the east property border that would be paved and widened. The deciduous trees at the base of the road are non-native tree of heaven. Native blue oaks are visible at left.

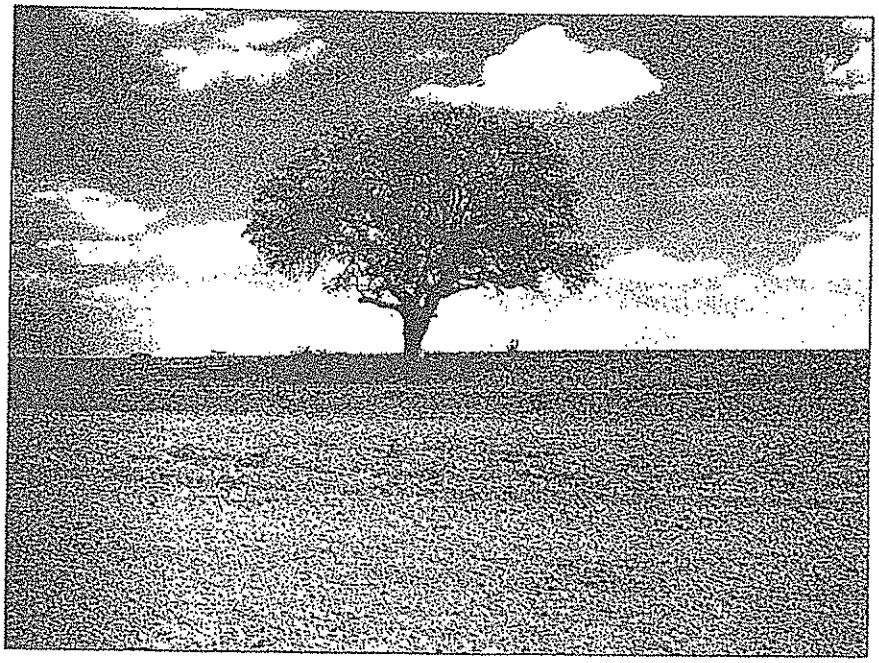


Photo 3. Tree #15 is a 33 inch blue oak (rated "C") located in an existing agricultural field, where the ground is plowed seasonally within the CRZ. The proposed access road would require paving within the CRZ.

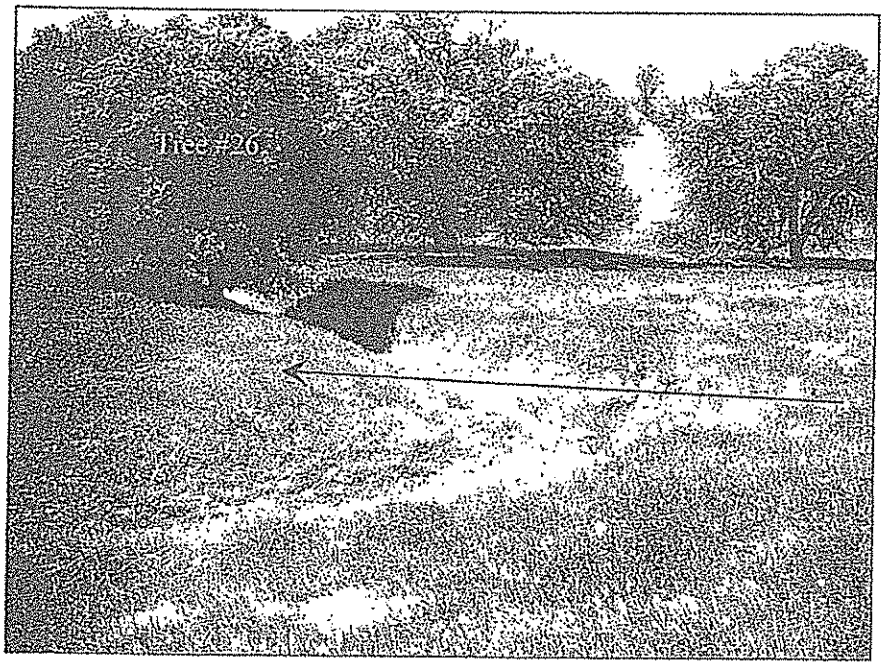


Photo 4. Tree #26 is a very healthy blue oak (rated "A") located along an ephemeral drainage. The southern drainage crossing is proposed at this bend in the stream (note arrow), and would encroach within the CRZ of this tree.

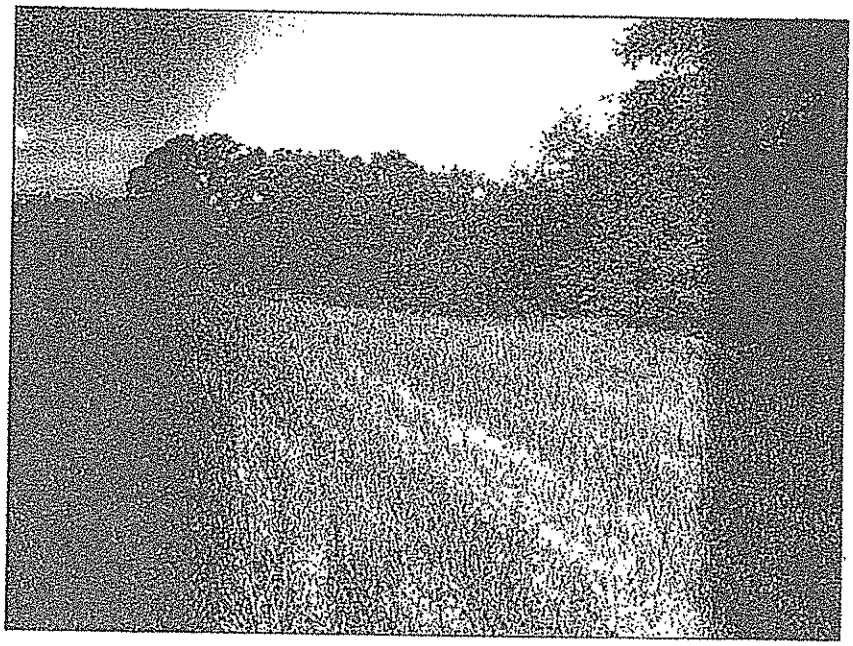


Photo 5. View north of the tree line along at the top of the oak woodland at Lots 3 and 4. Building envelopes have not been established, but there appears ample room to avoid impacts to these trees during home construction.

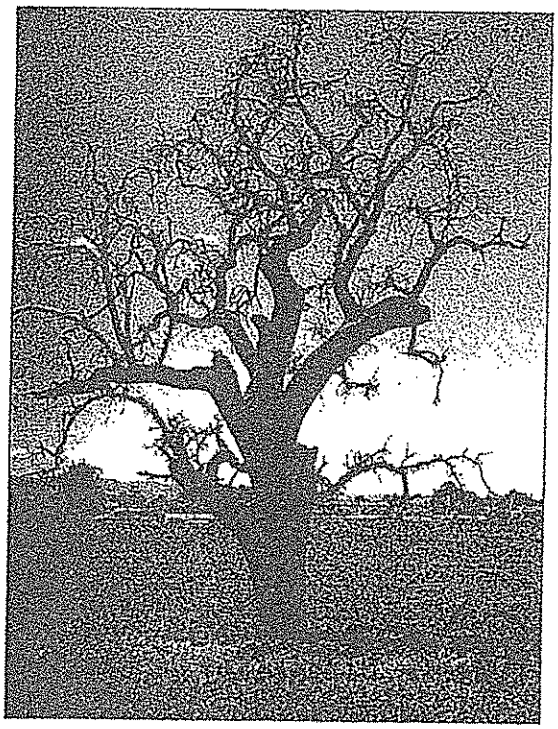


Photo 6. Tree #97 is a valley oak in poor health. It has numerous natural cavities, including one harboring a barn owl nest. Although it is nearly dead, it was rated "D+" because of its habitat value to wildlife.

Photo 7. View northwest of Tree 8 (right) and Trees 101 and 102 (left) near the front entrance gate at Estrella Road. The proposed entrance road would pass between these trees, resulting in CRZ encroachment impacts.

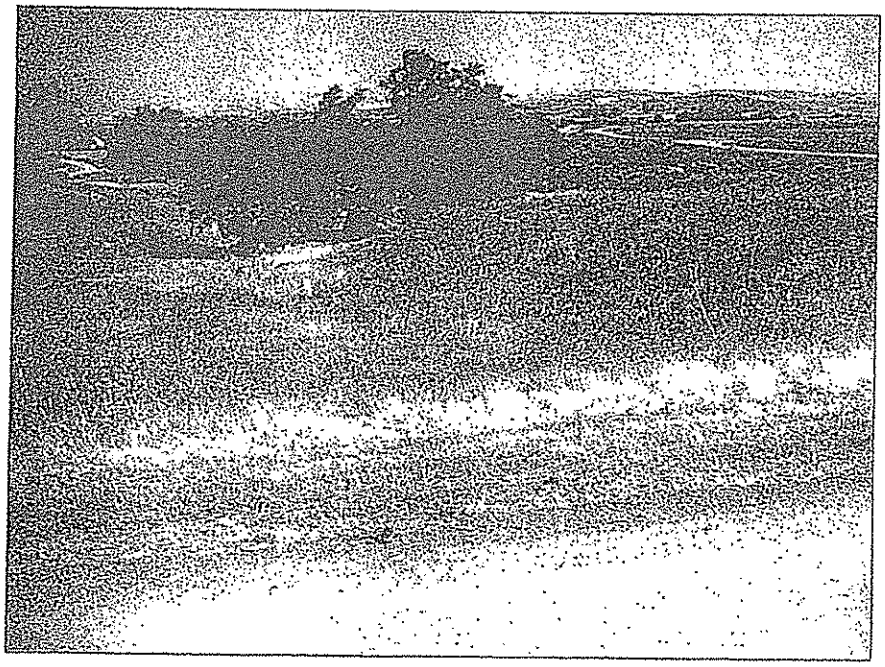


Photo 8. View northwest of the proposed oak tree mitigation area. The mitigation area is a grassy swale close to the northern reservoir where irrigation water would be available.

Exhibit D – Oak Tree Protection Plan

OAK TREE PROTECTION PLAN
County of San Luis Obispo

Pre-Construction Tree Protection and Removal

The project manager, construction manager, and equipment operators will be briefed by an environmental monitor. Monitor will describe oak tree protection and removal practices during a morning safety or planning meeting prior to the start of construction.

All trees within 50 feet of the construction zone will be identified, marked and numbered with metal tags. Information about each tree will be collected, including the following: date, species, number of stems, diameter at breast height (dbh) of each stem, critical root zone (CRZ) diameter, canopy diameter (in all four compass directions), tree height, health, habitat notes, and nests observed. Before construction begins, markings will distinguish trees that are to be removed, impacted, or fully protected. Tree removal will be planned to minimize impacts to adjacent trees. Tree impacts include any activity under the canopy or within the CRZ (CRZ = 1.5 times the diameter of the tree). The site will be checked for compliance by the environmental monitor. Grading, cutting and filling on property that has oak trees but which is planned to occur at least five feet beyond the CRZ of any oak trees of six inches or greater dbh shall not occur unless there is a monitor present to insure that grading occurs in accordance with approved plans and without encroachment into areas within five feet of the CRZ of any oak tree(s) of six inches or greater dbh.

Trees to Remove

- Mark each of the oaks to be removed with a blue "X" at approximately 4.5 feet above ground. Alternatively, trees to be removed may be marked with blue flagging.
- Number each of the oaks to be removed with blue paint (if not already tagged).
- Trees to be removed will be verified by the project manager and the environmental monitor or arborist.
- Trees will be removed with minimal impact to adjacent trees.

Trees to Impact

- Impacts are any disturbance within the diameter of the tree canopy or CRZ, including pruning, grading, parking, driving under or near, trenching, storing material, or adding fill.
- Tag each of the trees with two permanent numbered metal tags on two sides of the tree placed approximately 4.5 feet above ground. Flag with green flagging.

- Install orange construction fencing between the construction zone and the tree to indicate limits of disturbance planned for each tree (Figure A).

The environmental monitor will document pre-construction tree protection activities. An oak tree database will be maintained throughout the construction period that will contain all information related to oak tree impacts and removals.

Construction Tree Protection

- Orange construction fencing will be maintained weekly when heavy equipment is within 50 feet of oak trees.
- If any fully protected oak trees are impacted, the trees will be tagged with permanent metal tags placed approximately 4.5 feet above ground (if not already tagged). An environmental monitor will note the type and severity of the impact.
- Branch and root pruning shall leave clean cuts. Branch pruning shall be at an angle to shed rain water. Torn roots shall be properly trimmed so that all torn sections are removed and the cut is clean.
- Any impacts to trees that involve cut roots over one inch and branches over three inches in diameter shall be treated by a Certified Arborist or County approved tree care specialist qualified to apply fungicides and pesticides to damaged tissue.
- No vehicles, fill soil, rocks, or construction materials shall be placed within the dripline or CRZ of any oak trees.
- Trenching under the tree canopy shall be avoided. Any trenching required within the dripline or CRZ of an oak tree shall be approved by a Certified Arborist, and done by hand. The Arborist may recommend use of an air spade to reduce root impacts.
- The only plant species which shall be located within the dripline or CRZ of oak trees are plants that are indigenous to the Paso Robles area. No permanent irrigation shall occur within the CRZ of any mature oak tree.
- The environmental monitor and/or a Certified Arborist shall be present during construction that impacts oak tree root zones.

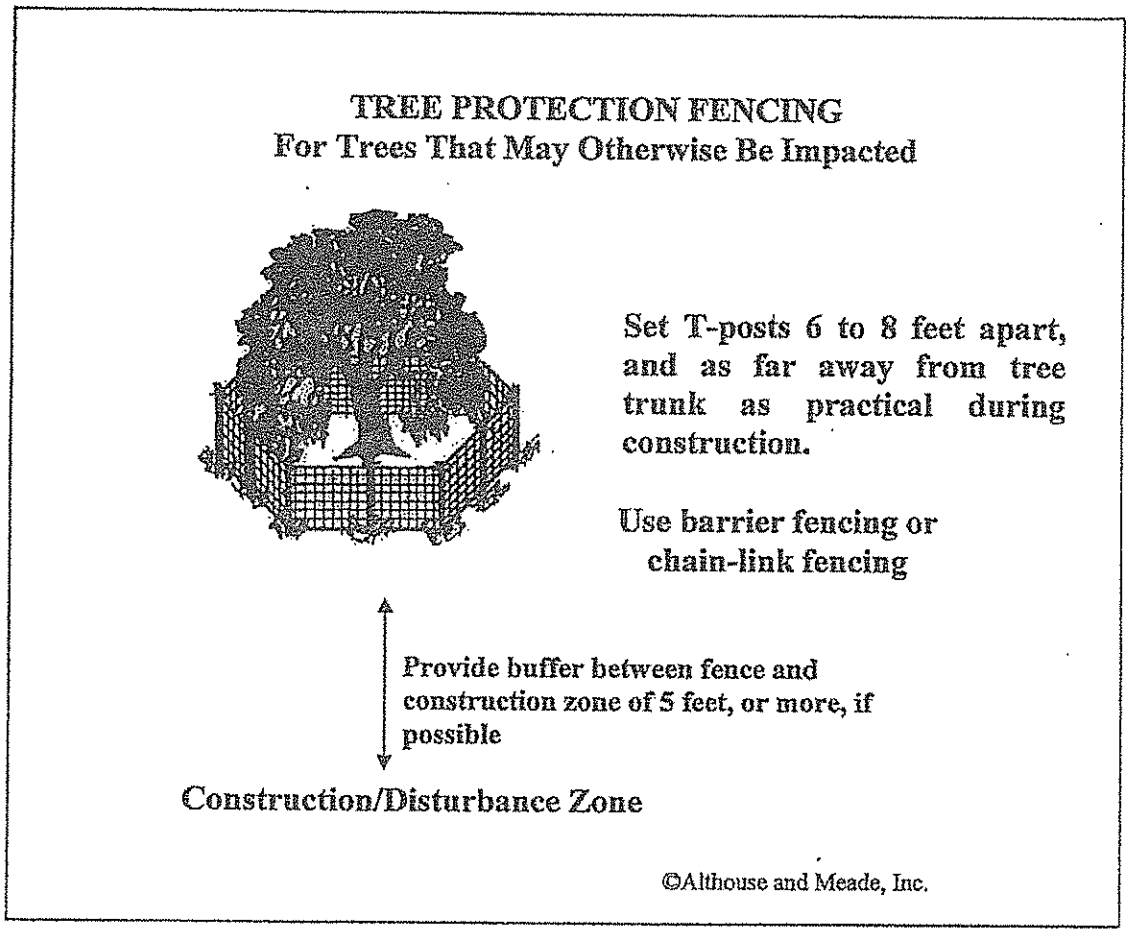
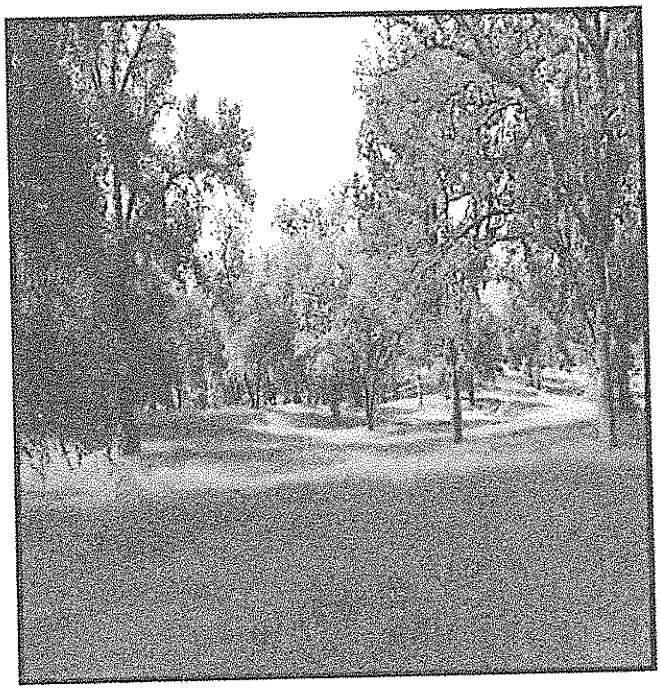


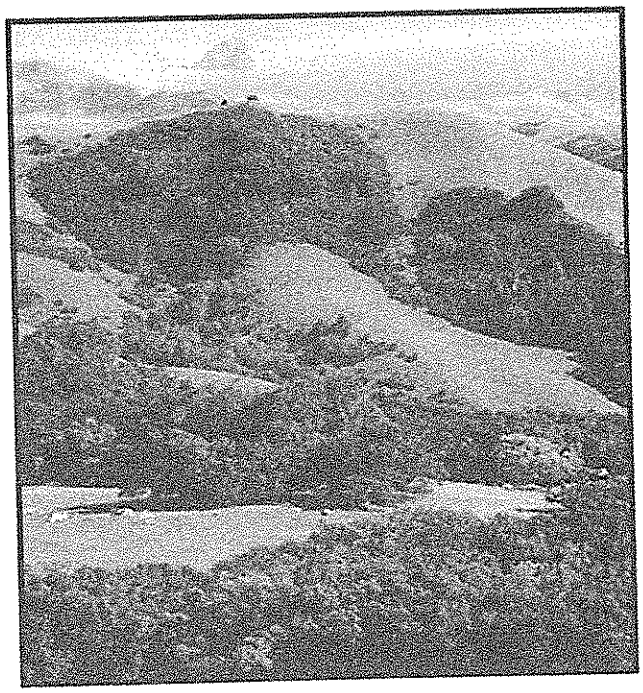
Figure A. Orange barrier fencing shall be used to protect oak trees near construction and disturbance zones. Construction fencing shall be placed at the outer edge of the CRZ.

9. WILDLIFE CONSERVATION BOARD OAK WOODLANDS CONSERVATION PROGRAM 2010 ANNUAL REPORT

A) WILDLIFE CONSERVATION BOARD OAK WOODLANDS CONSERVATION PROGRAM 2010 ANNUAL REPORT

Wildlife Conservation Board
Oak Woodlands Conservation Program
December 2010





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December 2010

Executive Summary

The management of our natural resources is a complex and challenging endeavor and conservation of oak woodlands is no exception. Currently there are about 10 million acres of oak woodlands found in 54 of California's 58 counties, 80 percent of which are located on privately owned property. As the population of California continues to increase and more and more Californian's are leaving metropolitan areas in favor of a more rural lifestyle, the debate over how best to protect and conserve oak trees and oak woodlands is becoming more controversial.

In response to the continuing loss of oak woodlands, the Oak Woodlands Conservation Act was enacted (Chapter 588, Statutes of 2001). The Act specifically recognizes the important role oak woodlands play in the economic, social, environmental and ecological matters of this State and is designed to serve a segment of California's population that is instrumental in the preservation of oak woodlands, the private landowner.

The Act mandates the Wildlife Conservation Board (WCB) to establish a grant program designed to protect and restore oak woodlands using conservation easements, cost-share and long-term agreements, technical assistance and public education and outreach. Consistent with the enabling legislation, the WCB developed the Oak Woodland Conservation Program (OWCP). The program provides incentives designed to foster the conservation of oak woodlands in a manner that promotes local priorities while sustaining the economic viability of working landscapes.

The following information has been prepared in response to Fish and Game Code Section 1363.5, whereby the WCB is required to prepare a report documenting the accomplishments of the program. Specifically, the Act requires the WCB to provide its best estimate of the total acreage, species and coverage of oak woodlands purchased with funds from the Habitat Conservation Fund (HCF) and the Oak Woodlands Conservation Fund (OWCF).

In September of 2004, legislation was enacted [Chapter 409, Statutes of 2004 (AB 79)] that suspended until January 1, 2008, the requirement to prepare annual reports. As such, this report has not been prepared since November, 2003. This report will also summarize activities and expenditures from the HCF and the Oak Woodlands Conservation Program from 2003 through 2010.

From the period of 1990 through 2010, the Board has allocated approximately $55.8 million from the HCF to protect about 129,687 acres of oak trees and oak woodlands. Through the purchase of conservation easements, an additional $21.1 million has been allocated for purposes of the Oak Woodland Conservation Program resulting in the permanent protection of about 38,022 acres of oak woodlands. Utilizing all other fund sources available to the Board, an additional $167.8 million has been allocated to protect 45,515 acres of oak woodlands. In total, since 1990, the WCB has allocated over $244.7 million for the protection of 213,224 acres of oak woodlands throughout the entire state of California.

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CHAPTER 1

Oak Woodland Conservation

Introduction

Pursuant to the requirements of Fish and Game Code Section 1363.5, information has been prepared regarding the status of protected oak woodlands and the Oak Woodlands Conservation Program. Specifically, the WCB is required to report ,every two years, to the Legislature and the Governor on the number of acres and coverage of oak woodlands purchased with funds from the Habitat Conservation Fund (HCF) and the Oak Woodlands Conservation Fund (OWCF).

In September of 2004, legislation was enacted (Chapter 409, Statutes of 2004 (AB 79/Dutra) that suspended until January 1, 2008, the requirement to prepare annual reports. As such, a report has not been prepared since November, 2003. This report summarizes activities and expenditures from the HCF and the Oak Woodlands Conservation Program from 2003 through 2010.

The Habitat Conservation Fund and Oak Woodlands

In June of 1990, the voters of California passed Proposition 117, the California Wildlife Protection Act of 1990, commonly referred to as Proposition 117, or the Mountain Lion Initiative. To assure the preservation of unique habitat, the initiative created the HCF and required an annual transfer of $30 million into the Fund until the year 2020. Further, the initiative specified how the monies were to be expended for acquiring, restoring and enhancing habitat necessary to protect oak woodlands, wildlife (especially deer, mountain lions), rare, endangered, threatened or fully protected species, wetlands, riparian and aquatic habitat.

The initiative further requires that $4.5 million be appropriated to the Department of Parks and Recreation; $4.0 million to the California Coastal Conservancy; $500,000 to the California Tahoe Conservancy; $10.0 million to the Santa Monica Mountains Conservancy until July 1, 1995, after which the WCB would be the recipient of these funds, plus $11.0 million for a total of $21.0 million.

Reporting Requirements

As previously mentioned, the Oak Woodlands Conservation Act requires the WCB to report, every two years, to the Legislature and the Governor and provide its best estimate of the total amount in terms of acreages, species and coverage of oak woodlands purchased with funds from the HCF. Since 1990, approximately $55.8 million has been allocated to protect about 129,687 acres of habitat designed to benefit deer, mountain lions and oak woodlands.

Proposition 117 identified deer and mountain lion habitat as one of the eligible habitat types upon which funds should be expended. While oak woodlands were not specifically identified as a type of habitat upon which HCF funds should be expended, one can assume that oak trees and oak woodlands benefited from the allocations since deer and mountain lions generally exist within oak woodlands.

Eagle Ridge Conservation Easement, Calaveras County

CHAPTER 2

The Oak Woodland Conservation Program

Opportunities for People and Oak Woodlands

Approximately two-thirds or 10 million acres of California's oak woodlands remain intact, of which, about 80 percent are found on private property. Of the remaining oak woodlands, about 4 percent are protected from conversion. Today, the single largest threat to oak woodlands is residential, commercial and industrial development. Conversion of oak woodlands to intensive agricultural development such as orchards and vineyards also takes a heavy toll.

Other factors, contributing to the loss of oak woodlands include woodcutting, the lack of oak regeneration and Sudden Oak Death (SOD). For these reasons and because the preponderance of remaining oak woodlands can be found on privately owned property, the Oak Woodlands Conservation Program is designed to accommodate the needs of the private landowner while fostering incentives designed to protect oak woodlands.

Although the rate of conversion of oak woodlands, coupled with the lack of oak regeneration and the emergence of SOD present a very dismal outlook and future for California's oak woodlands, there is an opportunity to reverse the present trend. With 80 percent of the remaining oak woodlands on private lands, an opportunity exists to compensate landowners who have maintained economic opportunities for the property without sacrificing open space, healthy watersheds and quality wildlife habitat. In addition, opportunities exist for private landowners to restore oak woodlands while further enhancing the economic potential of their ranchlands.

The Oak Woodlands Conservation Program

The Oak Woodlands Conservation Program recognizes the importance of California's oak woodlands, how they enhance the natural and scenic beauty of this great State, the critical role of the private landowner and the importance of private land stewardship. The program further acknowledges how oak woodlands increase the monetary and ecological value of real property and promotes ecological balance.

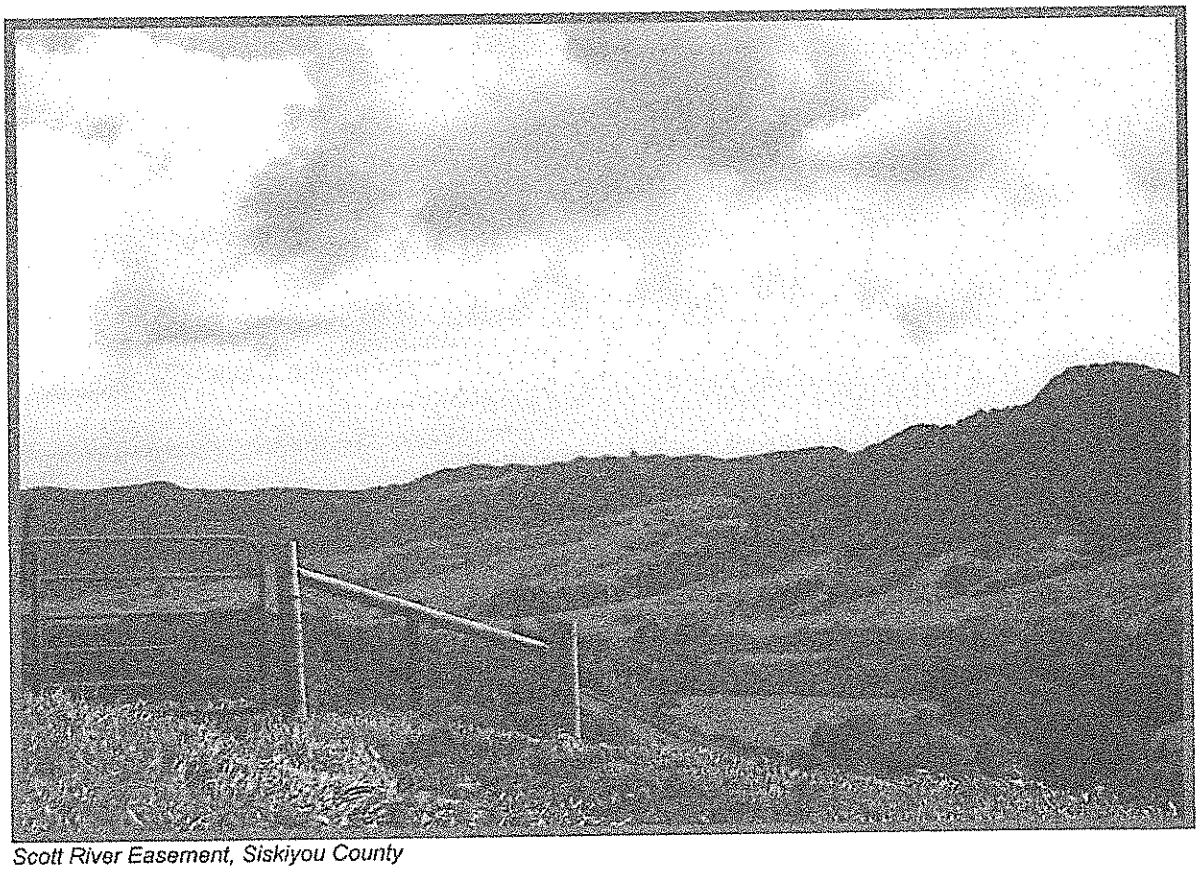
The Oak Woodlands Conservation Program offers landowners, conservation organizations, cities and counties, an opportunity to obtain funding for projects designed to conserve and restore California's oak woodlands. While the Program is statewide in nature, it provides opportunities to address oak woodland issues on a regional priority basis.

The Program is designed to help local efforts achieve oak woodland protection. More importantly, this program provides a mechanism to bring ranchers and conservationists together in a manner that allows both to achieve that which is so valued -- sustainable ranching and farming operations and healthy oak woodlands.

Legislative Intent

Recognizing the importance of oak woodlands and the critical role private landowners have in the conservation of oaks, the Legislature created the Oak Woodlands Program with the expressed intent the program accomplish the following:

- Support and encourage voluntary, long-term private stewardship and conservation of California oak woodlands by offering landowners financial incentives to protect and promote biologically functional oak woodlands;
- Provide incentives to protect and encourage farming and ranching operations that are operated in a manner that protect and promote healthy oak woodlands;
- Provide incentives for the protection of oak trees providing superior wildlife values on private land; and
- Encourage planning that is consistent with oak woodlands preservation.



Scott River Easement, Siskiyou County

To accomplish the legislative intent, WCB is authorized to purchase oak woodland conservation easements and provide grants for land improvements and restoration efforts. In addition, the WCB is authorized to award cost-sharing incentive payments to private landowners who enter into long-term agreements. Such agreements are structured to include management practices that benefit oak woodlands and promote the economic sustainability of the farming or ranching operation.

Local County Plans

To qualify for a grant, the Act requires the county or city in which the grant money would be spent to prepare an oak woodlands management plan that in part, includes a description of all native oak species located with the county or city's jurisdiction. To date, 21 California counties have adopted an Oak Woodland Management Plan thus qualifying the county to participate in the Oak Woodland Conservation Program.

The 21 adopted plans are unique and as diverse as the counties themselves. The plans also vary in breadth and complexity with respect to the type and specificity of information they contain. The plans all contain a description of the native oak species located within the particular county and provide a description of the major threats to oak woodlands in the particular county. All of the plans are voluntary in nature as they do not regulate the management of oak woodlands.

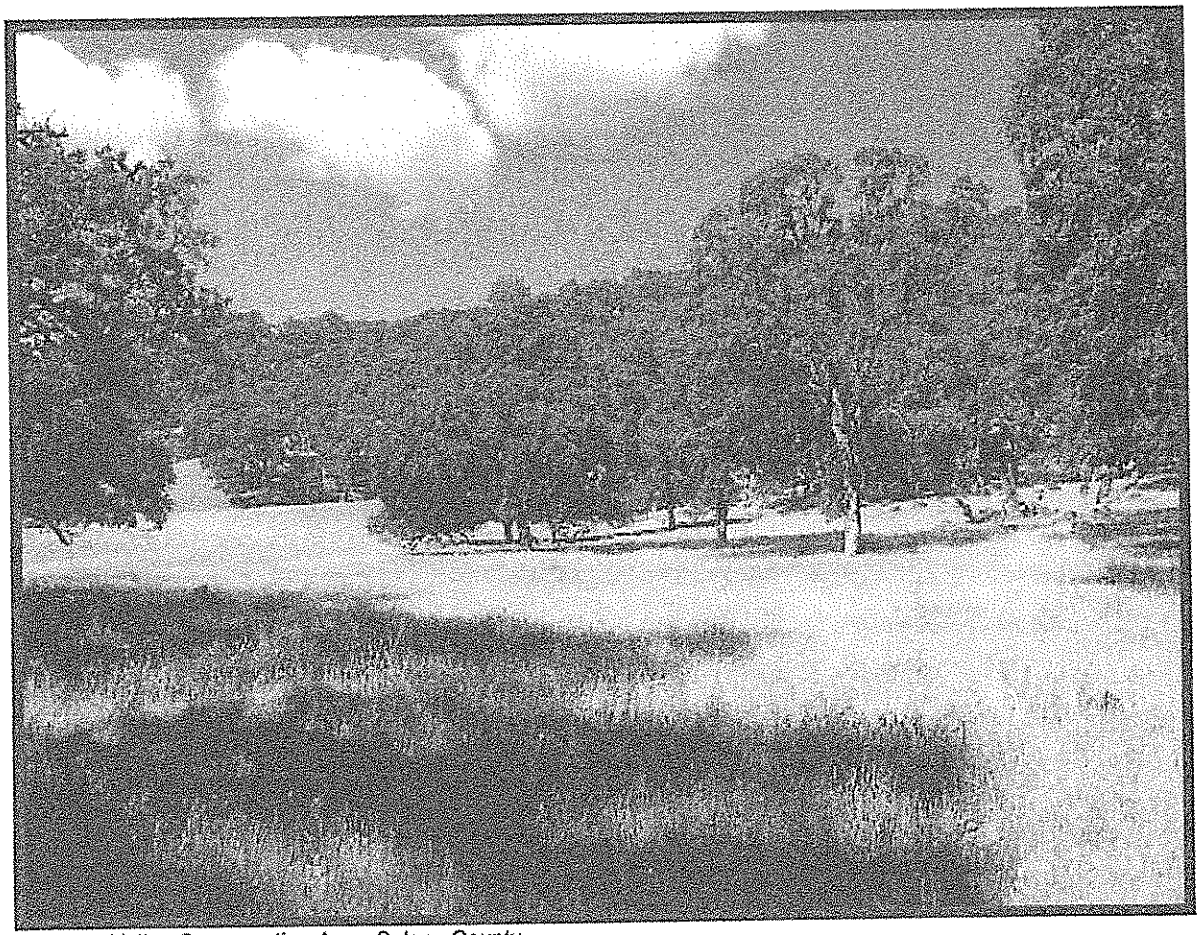
While the plans were adopted by the local governing boards of supervisors, the plans were prepared and reflect the input from numerous stakeholders interested in oak woodland habitat. While discussions were time consuming and oftentimes contentious, divergent interests groups representing the numerous stakeholders from the farming and ranching community, conservation and environmental community, came together, discussed ideas and concerns and reached a level of consensus that resulted in an adopted Oak Woodland Management Plan.

To date, the following counties have adopted Oak Woodland Management Plans:

Alameda	Marin	San Luis Obispo
Butte	Mariposa	Santa Barbara
Calaveras	Mendocino	Santa Clara
Colusa	Monterey	Tehama
El Dorado	Napa	Ventura
Fresno	Placer	Yolo
Madera	Sacramento	Yuba

Conservation Easements

The Act requires that at least 80 percent of the money be used for grants for the purchase of conservation easements, for restoration activities or for enhancement projects. In addition, the funds may be used for grants that provide cost-share incentive payments and long-term agreements. While the Act specifies how the monies are allocated, the Act requires that priority be given to grants that result in the purchase of oak woodland conservation easements.



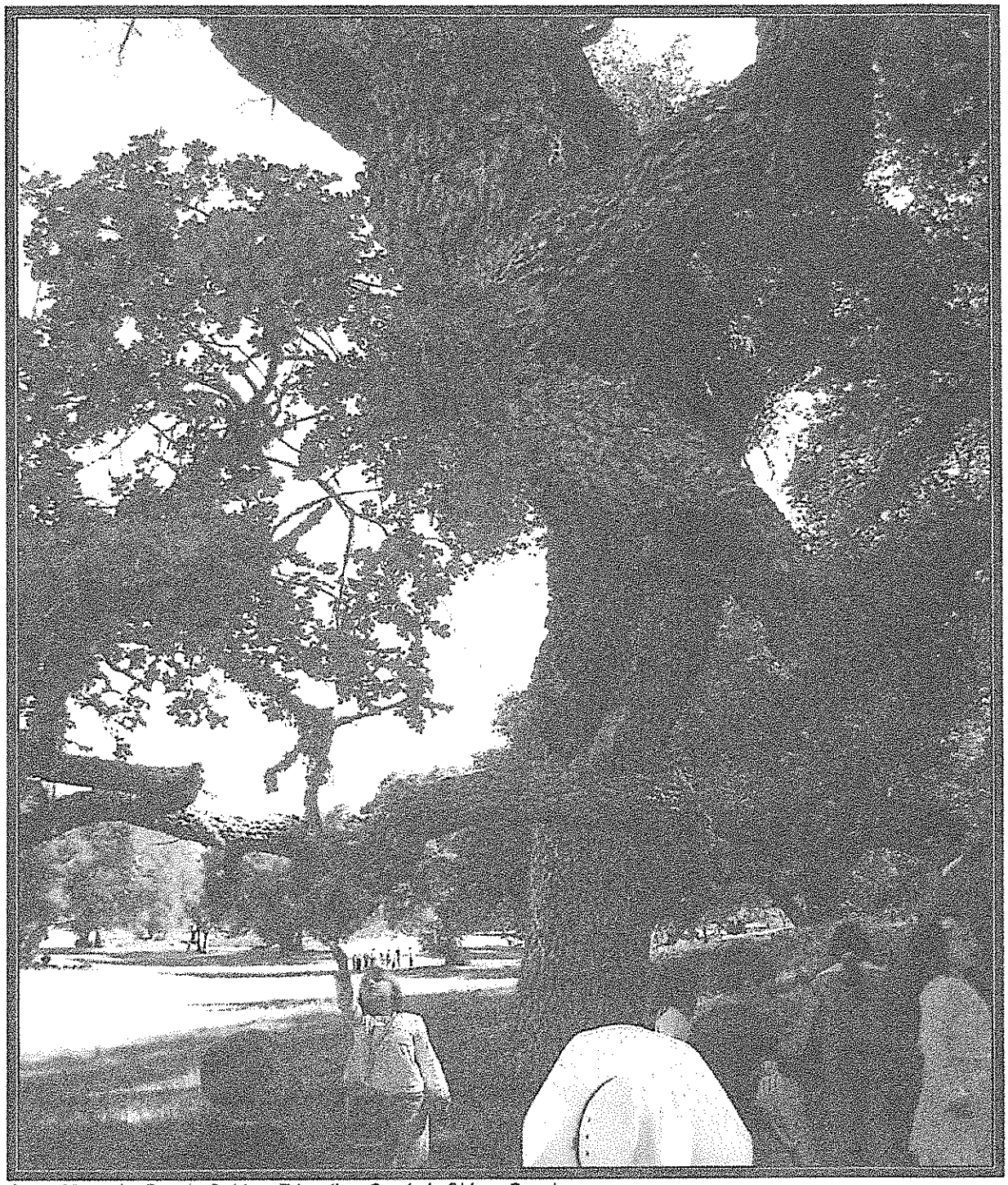
Pleasant Valley Conservation Area, Solano County

To date, approximately $21.1 million has been allocated to protect in perpetuity approximately 38,022 acres of oak woodlands in counties that have adopted oak management plans. While all of the conservation easements are designed to protect the oak woodlands and the surrounding habitat, the majority of the easements are located on working landscapes. While oak trees and oak woodlands provide critical habitat for deer, mountain lions and numerous species of migrating birds, the ranches are operated in a manner that promotes sustainable economic returns beneficial to the landowners and the wildlife species that are dependent upon the preservation of oak woodlands.

Education and Outreach:

Consistent with the Act, 20 percent of the funds may be used for public education and outreach efforts. The Board has allocated $612,235 to fund educational and outreach projects designed to educate private landowners, city and county planners, land trusts and K-8 grammar school children on the social, economic and environmental values associated with healthy oak woodlands.

K-8 grade students learn about oaks at the Santa Margarita School in San Luis Obispo County.



Santa Margarita Ranch, Outdoor Education, San Luis Obispo County

Over the years, emphasis has been placed on securing money for the acquisition of important natural resources to protect in perpetuity, those critical habitat values that in many ways define California. One of the unique features of the Oak Woodlands Conservation Program is the recognition and emphasis on the need for public education and outreach. This component of the program has received a great deal of interest from scholars at major universities, land use planners and a group of people whose role in our society is critical, i.e., the grammar school teacher.

Through the oak program, WCB has facilitated educational and outreach efforts specifically designed to reach private landowners and ranchers on how best to integrate oak conservation efforts into their farming and ranching operations. The program funded an effort to educate and assist county planners with the process of determining project significance including, what types of projects fall under the purview of regulations governing land use changes, what constitutes a "significant impact", compliance standards and effective strategies to conserve oak woodlands. Funds have been provided to create a "Master Naturalists" program patterned after the popular and successful UC California Cooperative Extension "Master Gardeners" program.

While each of the projects are designed and tailored to reach a unique audience, i.e. ranchers, planners, homeowners or grammar school students, they all have a unique feature in common. The projects are sustainable in nature and will continue to provide benefits beyond their initial applicants. The knowledge and expertise gained by each of the participants, that range in age from 72 years to 8 years of age will help shape future management and conservation of oak woodlands.

Education and Outreach to local ranchers, San Luis Obispo County

Geographic Distribution of Oak Woodlands and Major Threats

To appreciate the vast geographic distribution of oak woodlands and areas in need of protection, the Oak Woodland Conservation Program is focusing on eight ecological regions. Using information from the Ecological Units of California, information has been compiled describing the characteristics of each region and the approximate location of oak woodlands by species. For purposes of this report, information is provided with respect to oak woodlands protected by WCB. Overall, since 1990 with funding from the HCF and the oak program, WCB has protected in fee or easement approximately 167,709 acres of oak woodlands. To better understand the distribution, protection status and management issues associated with approximately 10 million acres of oak woodlands, the eight ecological regions are described below. In addition, Table 1 displays the major threats to oak woodlands within each of the ecological regions.

1. North Coast Oak Woodland Region

The North Coast Region contains approximately 2.1 million acres of oak woodlands. The boundaries run from Crescent City in the north to Marin in the south. The Region covers approximately 12,618 square miles (8.08 million acres) and varies in elevation from sea level on the western edge to approximately 8,100 feet. The predominant oak species include valley oaks in the southern reaches of the area, blue oak, black oak, canyon oak, interior live oak, Shrives oak and Oregon white oak in the upper reaches of Humboldt and Del Norte Counties and coast live oak along coastal areas. Oak woodlands face conversion pressures, predominantly to vineyards, residential developments and ranchettes. Overgrazing, lack of oak regeneration, firewood cutting and in some areas, Sudden Oak Death (SOD), threaten the biological integrity of the oak woodlands.

Since 1990, approximately 2,768 acres of oak woodlands have been protected.

2. Klamath/South Cascade Oak Woodland Region

The Region contains approximately 940,000 acres of oak woodlands and borders the North Coast Region on the west. The Region covers approximately 15,198 square miles (9.7 million acres) and varies in elevation from 200 feet to 14,600-foot elevation at Mt. Shasta. The predominant oak species include valley oak, blue oak, black oak, interior live oak and Oregon white oak. The major threat in this section comes from firewood cutting. In addition, threats include agricultural conversion, development of mini ranchettes, and lack of oak regeneration, drought and poor watershed conditions.

Since 1990, approximately 32,701 acres of oak woodlands have been protected.

3. Modoc Oak Woodland Region

The Region contains approximately 5,000 acres of oak woodlands comprised of a few areas of blue oak woodlands and montane hardwood forests. This Region is 6,222 square miles (4 million acres) in size and ranges in elevation from 300 to 9,900 feet. The principal threat in this area comes from overgrazing and extensive firewood cutting.

Since 1990, approximately 1,226 acres of oak woodlands have been protected.

4. Central Coast Oak Woodland Region

The Central Coast Region contains approximately 1.9 million acres of oak woodlands and covers the area from San Francisco in the north to San Luis Obispo in the south. The Region covers approximately 14,891 square miles (9.5 million acres) and varies in elevation from sea level on the western edge to approximately 5,200 feet in the eastern portion of the section. The predominant oak species include valley oak, a few black oak, blue oak, interior live oak and coast live oak. Intensive agricultural development and conversion of oak woodlands to vineyards is the major threat in this Region. In the northwest portions of the Region there are confirmed cases of SOD. Lack of oak regeneration, and fire risk, threatens many of the remaining stands of oak woodlands.

Since 1990, approximately 8,559 acres of oak woodlands have been protected.

5. Southern California Coast Oak Woodland Region

The Southern Coast Region has approximately 590,000 acres of oak woodlands remaining throughout the area. The Region covers the area from Santa Barbara County in the north to San Diego County in the south. The entire section covers approximately 15,893 square miles (10.2 million acres) and varies in elevation from sea level on the western edge to approximately 11,500 feet in the eastern portion of the section. The predominant oak species include Engleman oak, valley oak, coast live oak, interior live oak, canyon live oak and blue oak. High density, residential development is the principal threat in this area resulting in fragmented landscapes and few remaining large tracks of oak woodlands. Intensive agricultural development also threatens the remaining oak woodlands.

Since 1990, approximately 15,258 acres of oak woodlands have been protected.

6. Great Valley Oak Woodland Region

This Region contains approximately 960,000 acres of oak woodlands and covers the Central Valley from Redding in the north to Bakersfield in the south. The entire area covers approximately 21,815 square miles (about 14 million acres) and varies in elevation from 300 feet on the western edge to 50 feet in the center to approximately 3,000 feet on the east side. The predominant oak species include valley oak, blue oak, Oregon white oak, black oak, interior live oak and canyon live oak. The principal threat to oak woodland values in the Central Valley comes from residential development and intensive agricultural conversion. In addition, extensive firewood cutting in the northern areas of Shasta and Tehama County, poor oak regeneration, development of small ranchettes, overgrazing and hobby livestock coupled with ground water diversions pose additional threats.

Since 1990, approximately 68,770 acres of oak woodlands have been protected.

7. Sierra Nevada Foothills Oak Woodland Region

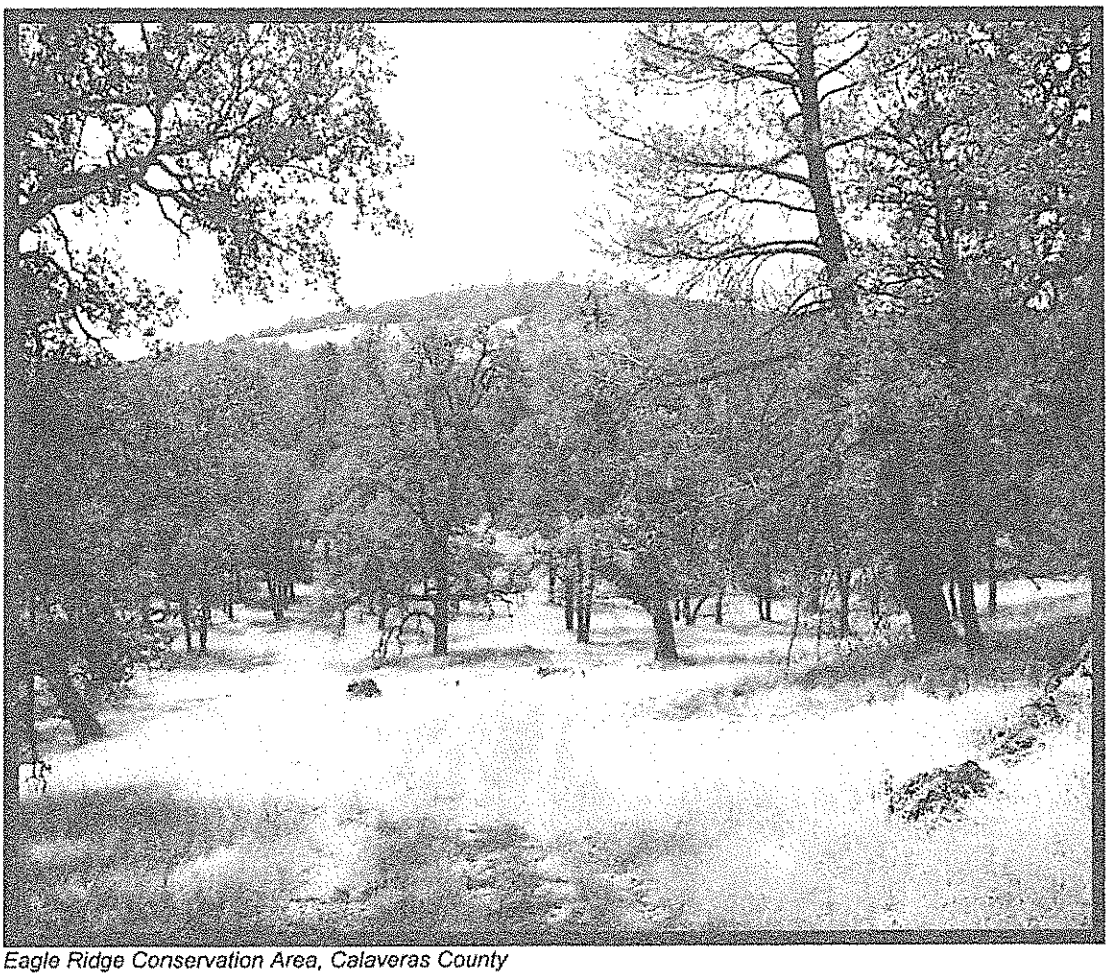
The Sierra Nevada Foothill Region, one of the largest oak woodland areas remaining in California, contains approximately 2.1 million acres of oak woodlands. The Region covers the eastern edge of the Central Valley from Redding in the north to Kern County in the south. The section covers approximately 7,024 square miles (4.5 million acres) and varies in elevation from 200 feet on the western edge to approximately 5,000 feet on the eastern edge of the section. The predominant oak species include blue oak, black oak, interior live oak and some valley oak. Residential development and intensive agricultural conversion to vineyards threaten the oak woodlands. In addition, firewood cutting, poor oak regeneration and low density, suburban development in the form of small ranchettes, affect the oak woodlands.

Since 1990, approximately 2,525 acres of oak woodlands have been protected.

8. Sierra Nevada Oak Woodland Region

The Sierra Nevada Region contains approximately 590,000 acres of oak woodlands and covers the higher elevations of the west side and the eastern edge of the Sierra Nevada. The Region covers approximately 19,919 square miles (12.7 million acres) and varies in elevation from 1,000 feet on the western edge to approximately 15,000 feet in the eastern portion of the section. The predominant oak species include blue oak, black oak, interior live oak and some valley oak. The Region also provides critical riparian vegetation containing oaks. Threats to this Region include residential development and intensified agricultural conversion, primarily vineyards. In addition, poor oak regeneration, increasing low density, suburban development and high fire risk are concerns.

Since 1990, approximately 35,901 acres of oak woodlands have been protected.



Eagle Ridge Conservation Area, Calaveras County

Table 1

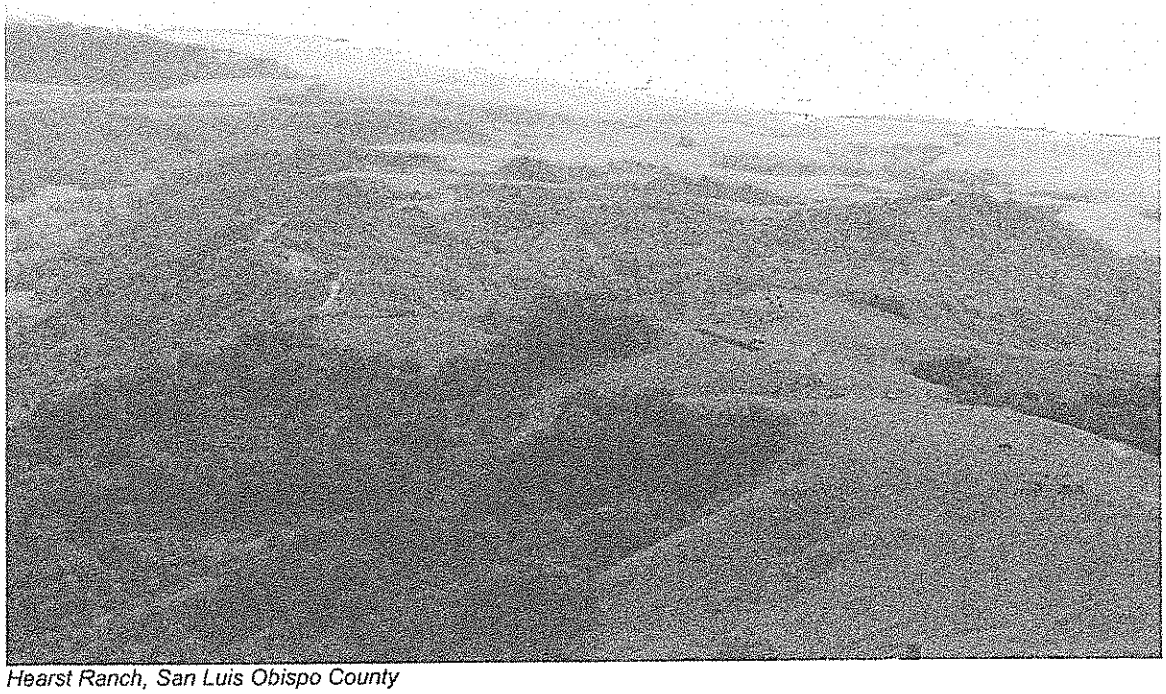
OAK WOODLANDS --- REGIONAL THREATS

ELEMENT of THREAT	North Coast Region	Central Coast Region	South Coast Region	Modoc Region	Klamath Region	Sierra Foothill Region	Sierra Nevada Region	Great Valley Region
Riparian Conversion	✓							
Vineyards	✓	✓				✓	✓	
Agricultural Intensification		✓	✓		✓	✓		✓
Ranchettes	✓				✓	✓		✓
Fragmentation			✓			✓		✓
Over Grazing	✓			✓				✓
Regeneration	✓	✓			✓	✓	✓	✓
Wood Cutting	✓			✓	✓	✓	✓	✓
High Fire Risk		✓					✓	
Drought		✓						
Rural Develop.	✓		✓			✓	✓	✓
Water Diversions					✓			✓
Sudden Oak Death	✓	✓						
Livestock						✓	✓	
Drug Labs	✓	✓					✓	✓
Golf Courses							✓	✓
Recreation						✓	✓	✓

Conclusions

A great deal of interest has been expressed regarding incentive-based approaches to protecting natural resources and oak woodlands are no exception. Further, private landowners, representatives from the ranching and farming industry, rural counties and metropolitan cities have expressed interest and support for innovative approaches. The Oak Woodland Conservation Program provides such an opportunity. To date, 21 counties across California have prepared Oak Woodland Management Plans and adopted county resolutions reflecting local oak woodland priorities and interests. While each county has adopted plans reflective of local interests and priorities, recognition continues to grow regarding the importance of maintaining and preserving our oak woodlands.

As one colleague shared with the Board, "Conserving oak woodlands reflects a wise investment toward achieving clean air, safe drinking water and sustainable wildlife habitat in this fast-growing state". Since 1990, the Board has allocated $76.9 million from the HCF and the Oak Woodland Conservation Program, to protect over 167,709 acres of oak woodlands. Utilizing all other fund sources available to the Board, an additional $167.8 million has been allocated to protect 45,515 acres of oak woodlands. While a tremendous amount of work remains to be completed, the $244.7 million allocated by the Board since 1990 to protect about 213,224 acres of oak woodlands throughout California exemplifies the Board's commitment and dedication toward preserving oak woodlands.



Hearst Ranch, San Luis Obispo County