

**TEHAMA COUNTY
VOLUNTARY OAK WOODLAND MANAGEMENT PLAN**



East Tehama County Blue Oak Woodlands

Photo by Rich Reiner

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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 OPENSACE

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 (SCAPOS 1998) (SCAPOS 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 CLASSIFICATION

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

<p>Resources Element, 1983</p>	<p>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).</p> <p>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).</p> <p>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</p>
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	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 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 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 <i>Oncorhynchus mykiss</i>	FT	ST
Spring-Run Chinook Salmon <i>Oncorhynchus tshawytscha</i>	FT	ST
Winter-Run Salmon <i>Oncorhynchus tshawytscha</i>	FE	SE
NON-RAPTOR BIRDS		CSC
California Horned Lark <i>Eremophila alpestris actia</i>	FSC	
Grasshopper Sparrow <i>Amodramus savannarum</i>	FSC	
Loggerhead Shrike <i>Lanius ludvicianus</i>	FSC	
Oak Titmouse <i>Baeolophus inornatus</i>	FSC	
Yellow Breasted Chat <i>Icteria virens</i>		CSC
Yellow Warbler <i>Dendroica petechia brewsteri</i>		CSC
RAPTORS		
American Peregrine Falcon <i>Falco peregrinus anatum</i>		SE
Bald Eagle <i>Haliaeetus leucocephalis</i>	FT	SE
Burrowing Owl <i>Athene cuniculata</i>	FSC	CSC
Coopers Hawk <i>Buteo regalis</i>	FSC	CSC
Prairie Falcon		CSC

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



