

CALIFORNIA FOREST LEGACY PROGRAM
ASSESSMENT OF NEED
AMENDMENT

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INTRODUCTION TO THE AMENDMENT TO THE CALIFORNIA FOREST LEGACY PROGRAM ASSESSMENT OF NEED

California Department of Forestry and Fire Protection (CDF) has prepared this document to amend the Assessment of Need (AON) for the State’s Forest Legacy Program (FLP), prepared in 1995. Forest Legacy is a voluntary, incentive-based program designed to benefit forest landowners and the public by contributing to the conservation of private forest resources in the State. It is a cooperative effort among private, State, Federal and local partners, in which Federal and State matching funds are used to acquire conservation easements from willing landowners on forestlands threatened with conversion to uses that would diminish or degrade the forest resource.

Such Federal and State funds are made available for purchasing easements from participating forestland owners, or for covering costs associated with the donation of easements by forest landowners. Forest Legacy seeks to work across boundaries and among diverse groups to ensure that forests and key forest resources can remain intact for future generations of Californians.

Background

More than a third of the land base of California is forested. Thirty nine million acres of forestland – 43% of it in private ownership – provide jobs and wood products, water quality protection and wildlife habitat, and many other public goods for the people of the State. But private forest landowners in California – the most populous State in the country – are under increasing pressure to convert their woodlands to other uses, including residential and commercial development.

In 1995 the California Department of Forestry and Fire Protection completed its AON that established the California Forest Legacy Program. The provisions of the original AON were developed through a rigorous analysis and extensive public process, and are unaffected by this Amendment in most respects. Among those provisions are the Program's goals for forestlands:

- To prevent future conversions of forestland and forest resources;
- To protect wildlife habitat, rare plants, and biodiversity;
- To maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions;
- To protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity;
- To protect water quality, fisheries, and water supplies; and
- To maintain and restore natural ecosystem function.

The original AON states that these goals can be fulfilled through the acquisition of conservation easements or other interests in land from willing sellers or donors in Forest Legacy Areas (FLAs). FLAs are counties identified in the AON that contain high forest resource values, high biological diversity and other outstanding environmental resources. Six counties or portions thereof were selected for inclusion as FLAs pursuant in the original Program: Mendocino, Sonoma, San Mateo, Santa Cruz, Riverside and San Diego. Owners of forestland in FLAs can donate conservation easements – frequently for tax benefits – or the easements can be purchased with matching Federal and State funding sources. In order to participate in the program, however, a property must meet certain articulated eligibility criteria.

This Amendment

This Amendment to the AON allows for the expansion in scope of the California Forest Legacy Program to allow landowners in an additional 28 California counties to take advantage of the Program. While CDF decided to limit the Program's scope in its initial years, the analysis for the AON in 1995 supported the inclusion of many more areas based on the significance of forest resources and threats. Based on this original analysis, this Amendment will broaden the Program's reach to each of the counties then identified.

Upon completion of the Amendment, the program will designate Forest Legacy Areas in each of the following counties (in addition to the existing Forest Legacy Areas):

Amador	Madera	Santa Barbara
Butte	Mariposa	Shasta
Calaveras	Monterey	Sierra
El Dorado	Napa	Siskiyou
Fresno	Nevada	Tehama
Humboldt	Placer	Trinity
Lake	Plumas	Tulare
Lassen	Sacramento	Tuolumne
Los Angeles	San Bernardino	Yuba
	San Luis Obispo	

This Amendment document does not include all of the text of the 1995 AON, only those sections that are changing:

- _ The section titled "Operation of the State Program" describes the Program's goals and objectives, and discusses the details of how the Program functions, including its overall structure, the application and selection processes, and other key portions of the program including funding mechanisms. *The only changes in this section concern how the Program is structured based on a number of State and federal policy changes, and how it operates in terms of project selection and funding.* The Program's overall conservation goals and objectives, as well as parcel eligibility are not changing.
- _ The section titled "Selection Process for Forest Legacy Areas" lists which new FLAs are being included and why, and describes how the amendment process is being conducted.
- _ Last, a section is devoted to each new Forest Legacy Area. Each section defines the boundaries of the FLA; summarizes the FLA's key forest and forest habitat types; describes the threats to forest resources; establishes FLA specific conservation goals

and objectives; and describes how the Program would help private forest landowners voluntarily conserve their land.

V. OPERATION OF THE STATE PROGRAM

Introduction

California's Forest Legacy Program is designed to help protect California's environmentally important private forest resources. The Program facilitates the cooperative efforts of private forestland owners, land trusts and other non-profit organizations, local communities, State and local government agencies, and the Federal government. Under the Program, forest landowners have the opportunity, on a voluntary basis, to protect State-recognized important forest resources by selling or donating conservation easements or other interests in land in order to protect those resources through appropriate management goals and land use activities. (Section I of the 1995 AON describes conservation easements in detail.)

Because the Forest Legacy Program is a cooperative State-Federal program, it has basis in both Federal and State laws and guidelines. The Program's general authorities are derived from the Federal *Cooperative Forestry Assistance Act of 1990*, and by the *Forest Legacy Guidelines* for the national Program.¹ The California Forest Legacy Program has been established to work in coordination with the Federal Program "to the maximum amount possible," although the State Program expands upon the Federal Program in a number of ways.²

This section describes the overall structure and operation of the Forest Legacy Program in California including:

- General Program Structure, Outreach, and Reporting
- Project Application and Selection Process
- Parcel Eligibility Criteria and Selection Considerations
- The Program's Conservation Goals and Objectives
- Landowners and Resource Management

¹ 16 U.S.C. 2103c *et seq.*; USDA Forest Service, State and Private Forestry, Cooperative Forestry, Forest Legacy Program Implementation Guidelines, August 15, 1996. (Herein "Forest Legacy Guidelines"). This section describes the Program based on current State and Federal guidelines and statute. Any subsequent changes to Federal and State law or regulatory guidelines are incorporated by reference into this AON.

² As of this writing, specific authorizing legislation for the California Forest Legacy Program has been passed by the California Legislature and awaits the Governor's signature. SB 1832 (Chesbro), states that, "the state program shall be coordinated with the Federal program to the maximum amount possible." SB 1832 allows, however, that in cases where it does not rely on Federal funding, the California Forest Legacy Program may differ from the Federal Program, notably over the point that non-profit land trust organizations can hold title to easements acquired in part with government funds.

- Conservation Easement Monitoring
- Program Management and Funding

General Program Structure, Outreach, and Reporting

General Program Structure

The California Forest Legacy Program is coordinated by the California Department of Forestry and Fire Protection (CDF). CDF is recognized by the Federal Program as the State lead agency, and has primary responsibility for the overall operation of the Program, including Program development and outreach, soliciting and reviewing landowner applications, securing State matching funds (from various sources), and reporting. However, the Program is a collaborative one, where the CDF works closely with partner groups, including forest landowners, the USDA Forest Service (USFS), the State Forest Stewardship Coordinating Committee (SFSCC), other government agencies, land trust organizations, and others.

Under the Forest Legacy Program, forest landowners who hold land in a Forest Legacy Area can apply to have conservation easements established on their property, or have other interests in their land purchased by the State or USFS (Detailed elements of the application and easement requirements are described in following sections.) Federal and State funds are made available for purchasing easements, or for covering costs associated with facilitating the donation of easements from willing forest landowners.

Conservation easements acquired under the Program can be held by the State or a unit of State or local government.³ CDF may acquire conservation easements by entering into an agreement with the California Wildlife Conservation Board to administer the purchase of those easements. The State may also acquire conservation easements through other appropriate state, county or local government entities that are otherwise authorized to acquire and hold title to real property.

In addition, the State may request that the USFS hold title to a conservation easement on a specific parcel under the Program. The State also allows non-profit land trust organizations to hold title to easements under the California Forest Legacy Program, when funding comes from non-Federal sources.⁴

³ Because the State has adopted a “State Grant” approach to Forest Legacy acquisitions (pursuant to PL 104-127, *Forest Legacy Guidelines*, Part 3), the State, or a unit of State or local government will be the primary entity holding easements under the Program.

⁴ Under current Federal statute, if Federal funds are used for easement acquisition, only government agencies can hold title to the easement.

Additional details of how the Program will be implemented and managed in California may be established by the California Board of Forestry and Fire Protection, as well as in a Memorandum of Understanding (MOU) between CDF and the USFS pursuant to the *Forest Legacy Guidelines*. While the MOU is only required under the Federal Forest Legacy Program if easements are acquired and held by the USFS, the MOU can include a statewide Program management plan that clearly articulates the objectives and responsibilities for easement monitoring among landowners, the State, local government agencies, land trusts and the USFS. Additional MOUs addressing different parties' responsibilities also may be developed for each easement project, thereby becoming an amendment/addition to any statewide MOU.

Program Outreach

CDF will use a variety of communication strategies to inform forestland owners about the Program and how they can participate. CDF will work cooperatively with local agencies and other organizations which have compatible outreach programs, such as land trusts, Resource Conservation Districts (RCDs), University of California Cooperative Extension, county planning departments, and other organizations that support particular FLAs. CDF will also utilize its toll-free help line, newsletters, press releases, public meetings, articles, and field staff, as well as landowner mailing lists provided by participating counties. It is also expected that CDF will work with participating landowners who may be interested in promoting the Program to their peers.

Reporting

Because the State has adopted the optional "State Grant" approach to the California Forest Legacy Program, CDF is required by the *Forest Legacy Guidelines* to submit annual performance and financial status reports to the USFS. The State also is required to maintain complete, current financial records that meet Federal requirements (see the Federal Aid Manual and OMB Circular, Appendix B).⁵

In addition, CDF is required to report annually to the Governor and the Legislature various details of the Program activity during the previous year, including funding, applications, and easements acquired under the California Forest Legacy Program.⁶

Forest Legacy Project Application and Selection Process

Eligible forestland owners who want to participate in the Program may submit applications to CDF (eligibility requirements are described below). Applications

⁵ For details on State reporting requirements under the State Grant Option, see the *Forest Legacy Guidelines*, Part 3, Section I.

⁶ SB 1832 Section 12291.

provide information that enables CDF, the SFSCC, and the Forest Service to verify the parcel's eligibility for the Program, and to understand the landowner's conservation objectives and the parcel's environmental values – particularly its potential to protect the priority conservation values outlined below. (See the Draft Application Form in Appendix E.) Landowners should state whether they prefer to donate the easement to the Program, or are applying to have the easement purchased through the Program. Landowners also should indicate who they wish to hold the easement. Organizations eligible to hold easements under the Program include the USFS, State and local government agencies, and nonprofit land trusts, depending on fund sources.

Once received, CDF will review the applications to prioritize and select landowners for participation in the Program. CDF must complete its review of an application within 180 days of its receipt.⁷ Throughout its review process, CDF will consult with the SFSCC and USFS to facilitate efficient review and approval of parcel recommendations. The selection process will yield a list of landowner applications, in priority order, that qualify for inclusion in the Program. The specific steps in this process are:

1. CDF accepts and screens applications based on the Program's parcel eligibility criteria (discussed below);
2. CDF prioritizes eligible parcels for inclusion in the Program based upon the Program's selection criteria, the Program's conservation goals and objectives (discussed below), as well as FLA-specific conservation objectives discussed in Sections VII to XXXIX. CDF will involve the SFSCC in this review process, and consult with local, State, and Federal resource managers, forest and fisheries ecologists, and other experts if appropriate when evaluating the relative merits of the applicant parcels. Parcels will be prioritized for inclusion in the Program based on their relative merits across FLAs, and then across bioregions.⁸ CDF may also request additional information from applicants during this stage;
3. CDF then recommends the selected parcels for inclusion in the Program to the CDF Director, who subsequently reviews and approves the recommendations;
4. The recommended parcels are then submitted to the USFS Regional Office, with the Forest Service making a final determination about which conservation easements or other interests in lands will be acquired with Federal funds or, in the case of

⁷ SB 1832 Section 12263. CDF will promulgate guidelines detailing the schedule for accepting Forest Legacy applications and Departmental review. Those guidelines should ensure that: (1) landowners can know the status of their application in a timely way, (2) the State has sufficient time to evaluate the property for potential inclusion in the Program, and (3) the application and review cycles are compatible with State and Federal funding cycles.

⁸ For the purposes of the Program, projects will be prioritized within bioregions as defined by the California Environmental Resources Evaluation System (CERES). FLAs in this Amendment are grouped by bioregion. Where states lie within more than one bioregion, the principle bioregion is listed first (see Appendix S for a map of CERES bioregions).

donation or projects acquired solely with non-Federal funds, which parcels will be approved for inclusion in the Program under the cost-share agreements. The USFS will take into consideration Federal priorities for Forest Legacy, including the amount of non-Federal cost-share available for a particular acquisition.

Following the State prioritization of its acquisitions for a given year, and subject to fund availability, easements can be drafted on approved applications, and once completed, can be acquired by the appropriate government entity or non-profit land trust organization.

The specific terms of each conservation easement will be negotiated between the landowner and the easement holder, whether it be the State, a unit of State or local government, a nonprofit land trust, or the USFS. Easement terms will be site-specific and will provide for the permanent protection of the forest resources which have been targeted by the landowner for protection on that parcel. All easement acquisitions conducted by government agencies for the Program will follow established procedures and standards for negotiation, appraisal, title review and other requirements.

An easement's value will be determined by its appraised fair market value, whether it be acquired by Federal funds or other public monies, or by charitable donation. The appraisal will take into consideration the parcel's value before and after its encumbrance by the easement. Landowners should be prudent in hiring and instructing their appraisers. The Program encourages donations of conservation easements since forestland owners can realize significant charitable tax benefits available for both income and estate taxes, and because this will use the Program's resources most efficiently.

Parcel Eligibility Criteria and Selection Considerations

The Program's parcel eligibility criteria reflect the USDA *Forest Legacy Guidelines*, the SFSCC's objectives for the Program, and the need to focus the Program's resources on situations where conservation easements will be an appropriate and efficient conservation tool. To be eligible for participation in the Program, private forestland parcels must:

- Be located at least partially within one of the Program's Forest Legacy Areas (FLAs);⁹

⁹ Private forest landowners with forest land within the Congressionally-designated boundaries of public lands are only eligible for non-Federal ownership of conservation easements under the Program if that land is within a designated FLA.

- Be owned by landowners who are willing and interested in selling or donating conservation easements, reserved interest deeds, or fee title through the Program;
- Be forested with at least 10% canopy cover by conifer and/or hardwood species, or be capable of being so forested under natural conditions;
- Be subject to potential conversion;
- Have one or more environmental values of greatest concern to the public and the State: important fish and wildlife habitat, including areas which can help maintain habitat connectivity across landscapes; rare plants; biodiversity; riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages that are poorly represented across California; and lands which directly affect water quality and other watershed values;
- Provide for a continuity of one or more traditional forest uses, such as commodities production and/or habitat maintenance (traditional forest uses are defined in Appendix B); and
- Possess environmental values which can be protected and managed effectively through conservation easements at reasonable costs.

In judging whether a parcel has environmental values that can be protected and managed efficiently through conservation easements, CDF, the SFSCC, and the Forest Service should consider:¹⁰

- The nature of the environmental values proposed for protection, and whether they can be monitored efficiently and effectively;
- Whether the parcels are likely to become isolated from other areas maintained for key forest resources by development on adjacent parcels;
- Whether the landowners' management goals for their parcels are compatible with the resource protections they are proposing;
- Whether the landowner has developed or commits to developing by the time the easement is finalized a management plan equivalent to, or more comprehensive than, a forest stewardship plan that guides management on the parcel.
- Whether a non-profit land trust organization, public agency, or other suitable organization has expressed an interest in working with CDF and the landowner to establish, hold, and monitor the easement; and
- Whether other sources of funding for parcel acquisition, easement closing, monitoring, and other costs are available.

¹⁰ These considerations are set forth as selection criteria in SB 1832, Section 12260.

In addition, the Director of Forestry and Fire Protection may establish other relevant considerations to help judge whether a parcel's environmental values can be protected and efficiently managed through a conservation easement.

The Program's Conservation Goals and Objectives

CDF, the SFSCC, and the Forest Service will use the Program's conservation goals and their associated objectives to determine which eligible applicant parcels will receive priority for participation in the Program. The conservation goals and objectives also will provide guidance to participating landowners, CDF, the USFS, and easement holders by providing basic direction in easement design and resource management. It should be noted that landowners may still protect other traditional forest uses and forest resources through the Program if they so desire.

The Program's conservation goals focus on protecting those forest resource values that landowners and other members of California's public indicated are of greatest concern. In particular, the public has expressed concern that the Program not direct its resources to the protection of commercial timberland *per se*, but focus instead on the non-timber forest resources that are perceived to be most threatened.

The Program's conservation goals are the following:

- Prevent future conversions of forestland and forest resources;
- Protect wildlife habitat, rare plants, and biodiversity;
- Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions;
- Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity;
- Protect water quality, fisheries, and water supplies; and
- Maintain and restore natural ecosystem functions.

The following conservation objectives have been identified to help implement the Program's conservation goals:

In order to prevent future conversions of the parcel and its forest resources, priority will be given to:

- Parcels held by owners who will preclude parcel divisions and non-forest development projects on parcels included in the Program. Appropriate exemptions may be negotiated for maintaining compatible development.¹¹

In order to protect wildlife habitat, rare plants, and biodiversity, priority will be given to:

- Parcels that encompass rare natural communities; rare and endemic plants; and habitat for wildlife species of concern, including species that are considered sensitive, threatened, or endangered, species which function as ecological “umbrellas,” and species which are considered ecological “keystones.” (Umbrella and keystone species are defined in Appendix B.)
- Parcels held by owners who will identify and protect areas with species or communities of concern, and seek to manage for key habitats, including by minimizing fragmentation of forest habitats and maximizing interior forest habitats where appropriate.

In order to maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions, priority will be given to:

- Parcels which are located within areas given priority within scientifically based regional ecosystem management or biodiversity conservation plans.¹²
- Parcels located adjacent to public lands managed for wildlife habitat, in cases where conservation plans have not been developed for the region.
- Parcels held by landowners who will identify areas which currently provide habitat connectivity and corridors for wildlife movement on local and regional scales, or that could be managed to do so, such as riparian areas, ridgelines, and areas that connect different environmental gradients.¹³
- Parcels held by landowners who will maintain and/or restore forest cover and structure to provide habitat connectivity for the range of wildlife species which

¹¹ Types of development that should be precluded include transmission and utility corridors which fragment forest habitats and provide vectors for exotic species.

¹² Appropriate ecosystem management and conservation plans need to focus on biodiversity conservation and restoration, such as by establishing core habitat areas, multiple use buffer zones, and connectivity corridors and/or dispersal habitats based upon the needs of keystone species, umbrella species, sensitive species, and indicator species. Private lands are usually located within buffer zones or connectivity areas designated for multiple use.

¹³ Maintaining connectivity across gradients is important because some species require access to different elevations and habitat types during different seasons.

would normally populate the area, and who will prevent conversions and development projects in such areas.¹⁴

In order to protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages that are poorly represented across landscapes and regions, and that play a key role in supporting biodiversity, priority will be given to:

- Parcels that encompass riparian habitats, or which encompass or contribute to relatively large blocks of interconnected oak woodlands.
- Parcels that encompass significant stands of forest species and seral stages that are poorly represented across landscapes and regions, such as Engelman and valley oaks, and stands of ecological old growth and later seral stage forest.
- Parcels owned by landowners who will identify and protect sensitive riparian habitats, including stream banks and vernal pools.
- Parcels owned by landowners who will encourage regeneration of healthy stands of oak species in areas where they are naturally occurring, and of native tree species in riparian areas.

In order to protect water quality, fisheries, and water supplies, priority will be given to:

- Parcels on which land management directly affects streams and other waterways that support salmonids and other key aquatic species.
- Parcels owned by landowners who will identify and seek to minimize past and potential sources of non-point source pollution, including sedimentation, that have negative impacts on fisheries, other aquatic species, and water supplies.

In order to maintain and restore natural ecosystem functions, priority will be given to:

- Parcels that include healthy forests, including those with a natural species mix and a genetically-sound mix of trees within the species represented on the parcel.
- Parcels owned by landowners who will manage the parcel or key portions of it to restore a natural mix of forest species, structure, and seral stages across the landscape.
- Parcels owned by landowners who will identify and protect keystone species and their habitats.

¹⁴ Where possible, roading and fence-building should also be minimized and located to reduce impacts on wildlife movement.

- Parcels owned by landowners who will utilize prescribed burns or other practices to allow more natural fire regimes, where appropriate.

In prioritizing parcels for inclusion in the Program, the relative importance of each parcel's forest resources should be evaluated in the context of that parcel's ecoregion. Other factors that CDF, the SFSCC, and the Forest Service may wish to consider in selecting applicant parcels include the land's potential to provide key forest resource values if restoration work is undertaken, and whether the Program's resources can be used most efficiently by focusing on larger parcels.

Because of the diversity of California's forest resources, as well as differences in each landowners' own objectives, not all of these goals will be met in all cases. On the other hand, landowners may also protect other forest resources and traditional forest uses through the Program if they wish to do so. In ranking applicant parcels, CDF, the SFSCC, and the Forest Service will prioritize those parcels whose landowners seek to accomplish the Program's conservation goals and objectives. Applications that propose to protect other resources and traditional uses, such as public recreation, cultural resources, or scenic enjoyment, may also receive priority if the landowners seek to accomplish a sufficient number of the Program's conservation goals as well.

Additional FLA-specific conservation objectives are discussed in the sections describing each FLA. Site-specific objectives consistent with the Program goals may also be identified by landowners and CDF during the process of designing individual easements and resource management plans.

Landowners and Resource Management

CDF and the easement holders are responsible for working cooperatively with participating landowners to design their easements. However, it is expected that participating landowners will retain all responsibility for managing the forest resources on their parcel(s), subject to any restrictions established in their conservation easements.¹⁵

The *Cooperative Forestry Assistance Act of 1990* and the *Forest Legacy Guidelines* require that landowners participating in California's Program prepare a forest management plan for each easement acquired through the Program. The forest management plans created by the landowners will evaluate the natural resources of the parcel, clarify how they will manage their lands while ensuring the protection of the resources identified in their

¹⁵ Exceptions are possible for those landowners who may wish to sell or donate a reserved interest deed or fee title to the Forest Service, in which case the landowner could transfer management responsibilities. However, such transfers are not a focus of the Program, and are expected to be rare.

respective easements, and establish specific forest management objectives and strategies. Management plans must be completed before the conservation easement is finalized.

NIPF owners may develop their management plans through California's Forest Stewardship Program using the services of a professional resource specialist. The Stewardship Program was created by the *Cooperative Forestry Assistance Act of 1990*, and is managed in California by CDF. NIPF owners may also be eligible for financial assistance through the Stewardship Incentives Program, as well as other Forestry Assistance programs managed by CDF, to help develop their management plans. Industrial owners, which are ineligible for the Forest Stewardship Program, are required to develop a multi-resource management plan.

Easement Monitoring

As an important part of the Program's protection of forest resources, conservation easements established through the Program will require periodic monitoring to verify that the easement's terms are being upheld. Baseline resource descriptions developed as part of each conservation easement will be used to assess changes in resource conditions over time, including any desired changes, such as improvements in riparian habitats or age distributions of tree species.

Generally, easement monitoring will involve periodic visits to the parcel by the easement holder subject to monitoring protocols defined by the parties to the easement agreement. With the consent of all the parties, specific "day to day" monitoring duties can be assigned to a qualified entity other than the easement holder.¹⁶

For conservation easements purchased with Federal funds, monitoring and enforcement of easement terms will be the responsibility of the government entity acquiring the easement. The easement holder may delegate or assign monitoring and enforcement activities to other participating Federal, State or local government entities. While "day to day" monitoring activities may be further delegated to third parties, including land trusts and other qualified nonprofit organizations, ultimate responsibility for monitoring and enforcing easements remains with the easement holders.

¹⁶ Monitoring and management activities that are assigned to an entity other than the easement holder must be documented. The USFS may delegate its management and monitoring activities only to an entity of State or local government (although those entities can delegate those activities, in turn, to a qualified land-trust, subject to USFS approval). Details of monitoring and management responsibilities can be covered in a tract-specific MOU executed subsequent to the acquisition of lands (Forest Legacy Guidelines, Part 2, sections III and VI).

For conservation easements donated to land trusts, State agencies, or other non-Federal easement holders, monitoring and enforcement responsibilities will be retained by the respective easement holder, unless that easement is transferred to another qualified entity pursuant to an MOU. As with easements held by government entities, certain monitoring activities for easements donated to land trusts, the State, and other partners may also be assigned to other qualified organizations, such as local RCDs.

In all cases, monitoring must be conducted by individuals and/or organizations that are clearly qualified to assess the condition of the resources being protected pursuant to a given conservation easement.

Any MOU developed to cover monitoring and enforcement responsibilities for a specific easement also should clearly delineate responsibilities for subsequent monitoring and enforcement costs, as well as other cost sharing and funding arrangements. Funding options for on-going monitoring and enforcement costs include charitable donations by landowners, non-profit organizations, or other sources; and public appropriations for this purpose at the State or local level.

Program Management and Funding

As noted above, a statewide plan detailing how California's Program will be managed may be included in an "umbrella" Memorandum of Understanding under the Forest Legacy Program. This MOU can help coordinate the activities and clarify the responsibilities of the various parties involved in the operation of California's Program, including the USFS, CDF, and local partners for each FLA. In addition, if authorizing legislation is enacted, the Board of Forestry and Fire Protection may adopt rules providing more details about the Program's operation.

Funding: Federal Sources

The *Cooperative Forestry Assistance Act of 1990* and the *Forest Legacy Guidelines* establish a cost-sharing process for State Forest Legacy activities. The maximum Federal contribution for total Program costs cannot exceed 75 percent, and is subject to Federal budgetary constraints. Program costs that may be covered by the Federal cost share include the purchase by the USFS of conservation easements or other interests in land, as well as related project expenses for easements that are donated to the Forest Service or other easement holders, including activities such as inventories, mapping, baseline resource descriptions, title research, and drafting and discussion of easement terms. The costs of establishing and monitoring Forest Legacy easements can be cost-shared for up to five years for each easement project.

Federal Forest Legacy project funds are made available through annual appropriations (or other funding structures subsequently adopted by Congress that relate to Forest Legacy acquisitions). Annual project funds have typically been allocated in two ways: as base level funds to participating States, and as “other” funds that are allocated nationally to projects pursuant to a Federal scoring procedure based on equity among participating Forest Legacy States, forested areas in greatest need of protections, and other considerations.¹⁷

The remaining 25 percent of Program costs must be paid for by matching funds or in-kind contributions from State, local and non-governmental sources, as discussed below.

Funding: State Sources

Funding for the California Forest Legacy Program comes from a variety of sources, including State appropriations and the sale of general obligation bonds such as the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act of 2000 (Chapter 1.692 [commencing with Section 5096.350] of Division 5).

In addition to contributions of goods and services, the documented value of conservation easements accepted for donation to the Program can be a major part of the non-Federal match. Donated lands accepted by a non-profit land trust organization pursuant to the *Forest Legacy Guidelines* may also be counted toward the non-Federal cost share contribution, provided that the interests in lands permanently contribute to the goals of the Forest Legacy Area.

Particularly during times of limited funding, the State will seek to maximize the effectiveness of the Program by using funds as much as possible to pay for the costs associated with charitable donations of conservation easements. The State will also encourage the use of “bargain sales” by willing landowners. A bargain sale is an agreement wherein the landowner receives payment for a portion of the fair market value of the rights which are conveyed through conservation easements or other interests in land, and makes a charitable donation of the remainder of that value.

¹⁷ *Forest Legacy Guidelines* Part 1, Section VIII, “Fund Allocation Process”.

VI. SELECTION PROCESS FOR FOREST LEGACY AREAS

Function of Forest Legacy Areas

The California Forest Legacy Program identifies specific geographic areas known as Forest Legacy Areas (FLAs) in order to prioritize forestlands for voluntary protection through the Program. Privately-owned forestland parcels within the Program's FLAs are eligible for protection through the Program, and only owners of forested parcels wholly or partially within these FLAs may participate in the Program. The Program's application process, parcel eligibility criteria, and parcel selection process are described in Section V. Because participation in the Program is entirely voluntary, and because identification of the Program's FLAs was based upon existing public information, the designation of these FLAs will not impose any new regulatory burdens or obligations upon landowners located within them.

Selection of Initial Project Areas

The SFSCC's conservation goals (discussed in Section V) were the basis upon which CDF staff and the Task Force, in 1995, selected the Program's initial project areas, including the six areas that were proposed for FLA designation in the first draft AON. This selection process identified project areas which represented the state's extremely diverse forest types and forest resources, which were prioritized at a statewide level, and which were subsequently refined through public comment and other local input.

CDF staff and the Task Force first identified project areas containing privately owned conifer and hardwood forestlands that are experiencing population and development pressures.¹⁸ To provide an efficient unit of analysis, these threatened forestlands were identified by hydrological subareas (watersheds). Two indicators for population and development pressure were used: existing housing density and areas which had been identified by CDF as presenting severe fire hazard potential for residences. (Appendix C, Table V, discusses these indicators in more detail.) Forested subareas which contained both development pressure indicators were selected for further analysis, yielding forty-four project areas. These project areas are shown in Appendix C, Figure XI.

These forty-four project areas were then ranked against each other, based upon six indicators of how their significant environmental values reflected the Program's

¹⁸ The SFSCC defined forestland as land that can support 10% native tree cover, under natural conditions, and can be managed for resources including timber, aesthetics, fish and wildlife, biodiversity, water, recreation, and other public benefits.

conservation goals, and the likelihood that past management practices inadequately protected water quality and other key resources:

- The number of rare plants, animals, and natural communities listed in the State's Natural Diversity Data Base (NDDB) provided an indicator of habitat quality and a measure of biodiversity.
- The number of significant natural areas provided measures of habitat quality and biodiversity which are not covered by the NDDB. Significant natural areas contain particularly valuable examples of rare species, communities of rare species, undisturbed rare species habitat, and centers of high species diversity.
- The number of streams which provide suitable habitat for coho salmon, indicated areas with high water quality and fisheries habitat (coho salmon are particularly sensitive to water quality changes).
- The number of impaired waterways indicated existing water quality and watershed threats. Impaired waterways are designated by the State Water Resources Control Board and the U.S. Environmental Protection Agency pursuant to the *Clean Water Act* as watercourses which are experiencing point and/or nonpoint source pollution which technology based controls are unable to reduce to levels necessary to meet applicable water quality standards.
- The number of sub-basins with highly erodible soils indicated the likelihood that development activities will cause landslides, debris slides, and surface erosion, impacting both soil quality and watershed functions.
- The acreage of public and private lands which are managed for wildlife habitat and other public values, including public recreation and scenic resources, indicated the potential for forestlands in the project area to lie adjacent to lands where habitat connectivity is needed, where access to public recreation may be valued, or where scenic impacts are likely to be felt.

Appendix C, Figures V through X, show the distribution of these indicators across California, and Appendix C, Table V, lists their data sources.

The thirty-three highest-ranking project areas were then selected for further consideration and were presented to the public as the Program's proposed FLAs during the review process for the first draft AON. As shown in Appendix C, Figure XII, these areas were located on the west slope of the Sierra Nevada; along the north- and north-central coast; in scattered locations in southwestern California, including the San Gabriel Mountains, San Jacinto Mountains, and southern central coast; and in scattered locations in the Klamath and Cascade Mountains.

Selection of Forest Legacy Areas

As with previous public input on the Program, a number of comments on the first draft AON from local governments, landowners, conservation groups, and other members of the public proposed additional project areas and resources for protection through the Program. Appendix D lists these additional areas. Some comments also provided information on areas which are already developed, or are otherwise considered lower priority. These suggestions were augmented by information provided by CDF foresters.

After considering these public comments, CDF staff and members of the Task Force selected revised FLAs from the thirty-three project areas identified by the first draft AON, and from the additional areas identified by the public and CDF staff. Seven factors were considered during this selection process:

- The need to focus the Program on a manageable number of FLAs during its first few years;
- The importance of protecting a diversity of forest types through the Program;
- The level of landowner interest in each project area;
- The level of public support for each project area;
- Whether a local government or nonprofit organization is interested in helping to implement the Program in that area;
- The relative amount of forestland in the project area which is zoned TPZ; and,
- The degree of population growth and conversion pressure in the area.

This selection process yielded fourteen FLAs which were located in Sonoma, San Mateo, Santa Cruz, Riverside, and San Diego counties. Project areas in the Sierra Nevada and the Klamath-Cascade regions were dropped due to a relative lack of public support during the review period for the first draft AON. These FLAs were presented to the public in the second draft AON.

In reviewing the second draft AON, CDF staff and members of the Task Force selected three additional FLAs in Mendocino and San Diego Counties. In Mendocino County, a new county-wide FLA was identified at the request of the Mendocino County Board of Supervisors, landowners, and other members of the public who have found that development pressures are significant in both commercial and noncommercial

forestlands. These parties expressed strong interest in working with the Program to protect and restore the county's timberlands, watersheds, fisheries, and other forest-related resources. CDF staff and members of the Task Force determined that the significance of these threats and the level of public support were sufficient to warrant making the Program available to landowners in this county.

In San Diego County, two additional areas, De Luz and Boden Canyon, were originally proposed for inclusion in the second draft AON and met the criteria used by CDF staff and the Task Force in selecting the other San Diego FLAs; however, final maps for these areas could not be produced in time for that draft. These two areas were identified by the San Diego Association of Governments (SANDAG) as having key forest resources, high levels of biodiversity, and important wildlife corridors. Landowners within these areas are also likely to be interested in working with the Program. The Boden Canyon FLA was subsequently combined with the neighboring Rancho Guejito FLA to simplify administration of the Program.

The third draft AON was intended primarily for editorial review by the State, the Forest Service, and local program partners; no changes were made to the Program's FLAs on the basis of public comments on the third draft. Public comments on the third draft which pertained to the FLAs were limited to requests that the Program's FLAs include highly threatened forestlands in the Sierra Nevada, as well as some riparian sites in Los Angeles County.

Map I shows the location of the Program's sixteen FLAs. Sections VII through XI describe each of the FLAs in detail.

Areas That Were Proposed But Not Included

In addition to those located in the Program's FLAs in 1995, a number of forested areas across the state were recognized as containing environmentally-important forest resources which are threatened by non-forest development, parcelization, or historical management practices which inadequately protected the resources. These areas included the initial project areas not included in one of the Program's FLAs.

Public comments on the first and second draft AON also identified several areas throughout the state where forestlands were believed to be eligible for the Program. These areas are listed in Appendix D. A number of comments, including comments from one local government, also expressed concern that the Program does not provide opportunities to protect oak woodlands and other forestlands in the Sierra Nevada region, where development pressures are substantial. Appendix C discusses the distribution of public support for the Program among local governments and other publics.

In reviewing comments on the second draft AON, CDF staff and members of the Task Force in 1995 agreed to continue to exclude other areas at that time, based on the need to focus the Program on a manageable number of FLAs, and to focus on areas where public support was strongest. It was recognized, however, that the original AON could be amended to include additional FLAs should this be desired in the future.

AON Amendment Process – Proposed Inclusion of Additional FLAs

Since its inception in 1995, CDF and other partners have established the Program and have developed a successful track record for it. Based upon these successes, CDF and the Forest Service believe that the Program should be made available to forest landowners in other areas of the State. This is consistent with the USDA Forest Service *Forest Legacy Guidelines* which permit the State to amend California's AON, including for the incorporation of additional FLAs. The State has developed this AON and is now forwarding it to the Forest Service for approval.

This amendment proposes the addition of 28 counties to the Forest Legacy Program. Building on the extensive analysis of forest resources and threats conducted for the original AON, counties containing previously identified project areas are proposed to be included as new FLAs. Other forested areas of the state can be brought into the program under subsequent amendments as well. This amendment proposes to authorize the extension of the Program to landowners in the following counties:

Amador	Madera	Santa Barbara
Butte	Mariposa	Shasta
Calaveras	Monterey	Sierra
El Dorado	Nevada	Siskiyou
Fresno	Napa	Tehama
Humboldt	Placer	Trinity
Lassen	Plumas	Tulare
Lake	Sacramento	Tuolumne
Los Angeles	San Bernardino	Yuba
	San Luis Obispo	

In order to qualify as an additional FLA, a forestland area must meet three basic criteria. First, the area must encompass environmentally important forest resources that are threatened by non-forest development, by parcelization, or by past management practices that inadequately protected forest resources. In particular, the area should include forest resources that are of concern to the Program's general conservation goals, listed in Section V. Documentation of forest resources and threats should be commensurate with the documentation provided for other FLAs within the

AON. Further, each additional FLA within the Program should include proposed FLA-specific conservation objectives, maps showing proposed FLA boundaries, and other information to facilitate review of the proposal and possible development of an amendment. All of these elements are provided in this Amendment.

Second, local publics must have the opportunity to participate in the creation of the FLA. A public participation process for the proposed additions to the Program has been conducted in order to ensure that concerned publics were aware of the proposal and had reasonable opportunities to comment upon it. This public participation process and resulting comments have been summarized in this Amendment document.

Finally, the designation of the area as a FLA should be compatible with local policies, including the county's general plan and other policies adopted by the county planning department and/or board of supervisors. Therefore, CDF has reviewed the general plan for each proposed FLA, consulted with county planning departments where appropriate, and has ensured that each proposed FLA's county planning department received and had ample opportunity to comment on the draft Amendment.

The two following maps depict the Program's Forest Legacy Areas. The map entitled "Forest Legacy Areas California Forest Legacy Program 1995 Assessment of Need" depicts existing Forest Legacy Areas. The map entitled "Additional Forest Legacy Areas: California Forest Legacy Program," indicates the location of the 28 new FLAs.

XII. THE LAKE FOREST LEGACY AREA NORTH COAST-KLAMATH BIOREGION

FLA Location

The Map entitled “Lake County Forest Legacy Area” depicts the location of the Lake FLA and its boundaries.

Boundary Description

The FLA is defined as all the lands within Lake County, which is located in the North Coast-Klamath bioregion in northern California. The FLA is bounded to the north by Glenn County, to the east by Colusa County, to the south by Napa County, and to the west by Mendocino and Sonoma Counties.

As with other FLAs, any public lands – which make up about 15% of Lake County – or lands within incorporated areas are ineligible for participation in the Program. Specific public lands are listed in Appendix H, Table V. Urban land uses cover about 4% of the private lands in the Lake FLA. The urban boundaries in the Lake County FLA map are based on US Census TIGER data (US Census 1992). In the case that actual city boundaries are different from those depicted on the reference map, the actual city boundaries will constitute the FLA boundaries. The FLA also includes lands that are not likely to meet other Program eligibility requirements, including the requirement that applicant parcels must be forested with at least 10% canopy cover, or be capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be made available for viewing at CDF and USFS.

Summary

Lake County’s most prominent natural feature is Clear Lake, California's largest natural freshwater lake. The Clear Lake basin is located on a topographic divide between the Russian River system to the west and the Sacramento Valley to the east. The county encompasses the lake, and the inner foothills and the outer ridge of the coast range. Of the roughly 630 square miles (400,000 acres) of private lands in Lake County, about 70%, or 200,000 acres, is forested.

Rare species found in the county include 45 vascular plants, 1 amphibian, 9 birds, and 5 mammals (CA Dept. of Fish and Game 1999b). In addition, 24 Significant Natural Areas (SNAs) have all or a portion of their area on private lands within the FLA (CA Dept. of Fish and Game, 1999c). (SNAs with area in the FLA are listed in Appendix H Table IV.)

The California Department of Finance projects that Lake County's population will increase by 113% by 2040, from current levels of 60,000 to 128,000 people (CA Dept. of Finance 1998). Most of the residential development necessary to accommodate the projected population growth is zoned to occur in the oak woodland forest type, and transitional vegetation including ponderosa pine and chaparral. A limited amount of oak woodland conversion into vineyards is also occurring.

The goals of the Forest Legacy Program in the Lake FLA seek to maintain productive forests while promoting conservation of forested resources, associated habitats, and water quality.

Forest Resources

Of the privately owned forests, some 85 percent are dominated by hardwoods with occasional conifers, and 15% are covered with coniferous forests. The north central area of the county contains the majority of existing coniferous forests in the FLA, most of which is publicly owned. The predominant forest types in the FLA are discussed below:

The **valley oak woodland** forest type grows throughout the FLA except for those areas nearest to the coast, on almost 57,000 acres of private land at elevations below 2,000 feet. This forest type is composed almost exclusively of valley oaks in open or forest-like stands in the interior foothills. Associates include California sycamore, Hinds black walnut, interior live oak, boxelder and blue oak. In the Coast Range, common tree species are foothill pine and coast live oak (Mayer and Laudenslayer 1988, CA GAP).

65 federally and state recognized rare species have suitable habitat in the North Coast-Klamath bioregion's valley oak woodlands.¹⁹ These include the peregrine falcon, loggerhead shrike, and California vole which are federally endangered and the red-legged frog, striped racer, bald eagle, California thrasher, and California towhee which are listed as threatened. State-endangered northern flicker, savannah sparrow, and brush rabbit, the state fully-protected golden eagle, white-tailed kite, ringtail, and

¹⁹ CA Department of Fish and Game's *Wildlife Habitat Relationships Database* was used to describe the species that are predicted to occur within the forested habitat types in each FLA. The WHR database is a predictive model that describes where species' expected ranges and habitat conditions would be satisfied. The WHR may differ from other databases (such as the Natural Diversity Database) that are based upon positive sightings and thus likely under-report actual species associates (DFG 1999c). Conversely, the WHR may overstate rare species occurrences in any given county, since, if a subspecies is listed as rare in any portion of its range, the entire species will be reported as such wherever it appears (Parisi 2000).

mountain lion also find suitable habitat in this forest type (CA Dept. of Fish and Game 1999a).

Blue oak woodlands are found on almost 26,000 acres of privately owned land in the center of the county. These woodlands are mostly found in valleys and on lower slopes of the interior and western foothills at elevations of 500 to 2,000 feet. Blue oak woodland is dominated by the blue oak, which typically makes up more than 85 percent of the trees in the woodland, with the remainder made up by coast live oak and valley oak (Mayer and Laudenslayer 1988, CA GAP).

The **blue oak-foothill pine** type covers over 114,000 acres south of Clear Lake between 500 and 3,000 feet in elevation. Blue oak also dominates this forest type. Associated tree species are the foothill pine, coast live oak, valley oak, and California buckeye. Interior live oak can dominate at higher elevations (Mayer and Laudenslayer, 1988, CA GAP).

Sixty-four rare species find suitable habitat in the blue oak woodlands of the North Coast-Klamath bioregion. These include the peregrine falcon, loggerhead shrike, and California vole, which are on the federal endangered species list, and the red-legged frog, striped racer, bald eagle, California thrasher and California towhee, which are on the federal threatened species list. Also associated with the habitat are the northern flicker, savannah sparrow and brush rabbit from the state endangered species list, and the white-tailed kite, golden eagle, ringtail, and mountain lion which are listed as fully-protected by the state of California. At least 67 rare species are predicted to use the blue oak-foothill pine habitat type. Listed species are those for the blue oak woodlands, but also include the spotted owl, a federally endangered species (CA Dept. of Fish and Game 1999a).

The **montane hardwood** type is found in the central part of the FLA on roughly 20,000 acres of private land. In this forest type, canyon live oak often forms pure stands on steep canyon slopes and rocky ridgetops in this forest type. At higher elevations canyon live oak associates with huckleberry oak, ponderosa pine, Coulter pine, white fir, and Jeffrey pine. At middle elevations in combines with Douglas-fir, tanoak, Pacific madrone, California black oak and bristlecone fir. At lower elevation live oak associates with knobcone pine, foothill pine, and Oregon white oak (Mayer and Laudenslayer, 1988, CA GAP).

54 federal and state recognized rare species have suitable habitat in the montane hardwood forests of this bioregion. These include the peregrine falcon, loggerhead shrike, and California vole, which are federally endangered, and the red-legged frog, striped racer, bald eagle, spotted owl, California thrasher, and California towhee which are federally listed as threatened. The state-endangered northern flicker and brush rabbit, the state-threatened rubber boa, as well as several California fully-protected

species, including the golden eagle, ringtail, and mountain lion are predicted to occur in this habitat (CA Dept. of Fish and Game 1999a).

The **montane hardwood-conifer** forest type is found on approximately 12,000 acres of the private forestlands in the Lake FLA. This habitat is found throughout the FLA at elevations of 1,000 to 4,000 feet. Tree species found here include the California black oak, bigleaf maple, Pacific madrone, and tanoak along with ponderosa pine, white fir, incense cedar, Douglas-fir, and sugar pine (Mayer and Laudenslayer 1988, CA GAP).

Some 59 federal and state recognized rare species have suitable habitats in the montane hardwood-conifer forests. These include the peregrine falcon, loggerhead shrike, and California vole which are federally endangered, and the red-legged frog, striped racer, bald eagle, spotted owl, California thrasher, and California towhee which are federally listed as threatened. The state-endangered northern flicker and brush rabbit, the state-threatened rubber boa, red fox, as well as the golden eagle, ringtail, and mountain lion, which are California fully-protected species, also are associated with the montane hardwood-conifer habitat (CA Dept. of Fish and Game 1999a).

Ponderosa pine stands – made up both of pure ponderosa pine or a mix of white fir, incense-cedar, Coulter pine, Jeffrey pine, Douglas-fir, sugar pine, canyon live oak, California black oak, Oregon white oak, Pacific madrone, and tanoak – cover about 38,000 acres, or a tenth of the private forested lands in the Lake FLA. Ponderosa pine and its associates cover the ridges above Clear Lake directly above the oak woodland zone, at elevations between 800-5,000 feet (Mayer and Laudenslayer, 1988, CA GAP).

Fifty-seven state or federally recognized rare species are predicted to occur on the ponderosa pine habitat in the North Coast-Klamath bioregion. The peregrine falcon, loggerhead shrike, and California vole are federally-listed endangered species, while the federally-threatened species are the red-legged frog, striped racer, bald eagle, spotted owl, and California towhee. California endangered species include the northern flicker and brush rabbit, state threatened species include the rubber boa, and red fox, while state fully-protected species predicted to occur in the habitat include the golden eagle, ringtail and mountain lion (CA Dept. of Fish and Game 1999a).

Almost 2,500 acres of **closed-cone cypress** forest are found on private lands throughout the Lake FLA. In this forest type, MacNab or Sargent cypress trees occur in nearly pure stands, or associated with foothill pine, leather oak, and scrub oak. Elevations range up to 2,000 feet (Mayer and Laudenslayer 1988, CA GAP).

35 rare species are predicted to utilize the closed-cone cypress forests in the North Coast-Klamath bioregion. These include the peregrine falcon and loggerhead shrike, which are federally listed as endangered, and the red-legged frog and California towhee which are listed as threatened. From the state lists, the northern flicker

(endangered), rubber boa (threatened), ringtail, and mountain lion (fully protected) also are predicted to use the habitat (CA Dept. of Fish and Game 1999a).

Throughout the FLA, riparian forests provide water, thermal cover and migration corridors for rare species, including aquatic species (Mayer and Laudenslayer 1988, CA GAP).

Threats to Forest Resources

Residential development

Tourism and agriculture are important segments of the county's economy. A sizable tourist industry caters to recreation on Clear Lake. Agriculture consists of vineyards, fruit and nut crops including pears and walnuts, and livestock grazing. The California Department of Finance projects that Lake County's population will increase by 113% by 2040, from current levels of 60,000 to 128,000 people (CA Dept. of Finance 1998).

Lake County has two incorporated cities, Lakeport and Clearlake, and a number of small unincorporated communities including Kelseyville, Clearlake Oaks, Clearlake Park, Upper Lake, Finley, Nice, Lower Lake, Lucerne, and Middletown – all of which are located in oak woodlands or transitional zones. The small communities of Bartlett Springs and Cobb in the northern and southern part of the FLA are in the ponderosa pine forest type.

Residential development is currently occurring adjacent to urbanized areas, mostly on existing parcels. In rural areas, residential development is happening on larger lots. Growth is focused in the oak woodland zone near urban communities around Clear Lake, and the communities of Hidden Valley Lake and Middletown in the south county which are within commuting distance of urban centers in Napa and Sonoma counties. Bartlett Springs and Cobb in coniferous forest types are experiencing some development of recreational residences (Straessle 2000).

Most of the residential development necessary to accommodate the projected population growth is zoned to occur in the oak woodland forest type, and transitional vegetation including ponderosa pine and chaparral. A recent analysis of development suitability revealed large areas of vacant land of moderate and high development suitability, including 37,000 acres rated as high suitability, and 77,000 acres rated as medium suitability. The highest concentration of lands rated as highly suitable are located in the southeastern corner of the county around Clearlake Highlands, Lower Lake, Kelseyville and Clearlake Oaks (Lake County 1981).

Agricultural conversion and forest management

A small amount of conversion of oak woodlands into vineyards is occurring in the county. Several hundred acres of undeveloped land will be converted to vineyards in 2000. Conversion may not occur on lands with a slope greater than 30 percent (Straessle 2000).

About 23,000 acres is zoned Timber Production (TPZ) in the Lake FLA, almost all of which is dedicated to industrial forestry (FRAP 1998). TPZ zoning is concentrated in the coniferous forests in the north-central and southwestern parts of the county. As in other counties, TPZ-zoned parcels are subject to a rolling ten-year contract, and can be removed from protective TPZ by the landowner, subject to the requirements of the Z'berg-Warren-Keene Collier Forest Taxation Reform Act of 1976. Also, TPZ designation does not foreclose the possibility of future parcelization and housing development. Lake County TPZ regulations allow forest parcels of 40 acres and development of a single family residence if a management plan has been prepared.

Controversy has recently been generated by proposals to harvest timber in the Clear Lake basin. A decision will be made in summer 2000 on a county proposal to prohibit timber harvest along its scenic corridors. In addition, Lake County does not regulate removal of oak trees from private lands unless other activities are occurring which require a permit or project review. This leaves private lands vulnerable to loss of oaks, particularly from firewood harvesting which has been occurring in neighboring counties percent (Straessle 2000).

Watershed impairment

Lake County lies within three major watersheds: the Eel, Cache Creek, and Putah Creek. It also contains a small portion of the Stony Creek Watershed in the North.

A river segment (Cache Creek) and a lake (Clear Lake) in the Cache Creek Watershed are listed as impaired under the Clean Water Act. While conservation of forest resources through the Program has the potential to confer water quality benefits for all CWA-listed waterways, the primary sources of pollution currently recognized as impairing these river segments (resource extraction/toxicity) are not easily mitigated through private forestland conservation alone.

All watersheds in the Lake FLA are listed under the California Unified Watershed Assessment as Category I watersheds – watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems). (CA Unified Watershed Assessment, 1998). Helping stave off forestland conversion to other more intensive uses as well as limiting road building and other soil disturbances – particularly in riparian areas – could help mitigate impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation

Specific conservation objectives for the Lake FLA

The CDF, SFCC, and USFS will use the Program's conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program's conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners that wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program's conservation goals are applicable to the Lake FLA. As discussed in Section V, these goals translate into a number of conservation objectives. The following conservation objectives are particularly applicable to the Lake FLA:

1. Goal: *Prevent future conversions of forestland and forest resources, and maintain and restore natural ecosystem functions:*

Objective: Minimize the level of housing and non-forest development to reduce the risk of catastrophic fire to forest resources and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: *Protect water quality, fisheries, and water supplies*

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

3. Goal: *Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity*

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

4. Goal: *Protect wildlife habitat, rare plants, and biodiversity*

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

5. Goal: *Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions*

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration “corridors”.

Resource protection mechanisms for the Lake FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program’s tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program’s approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the Lake FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and wildlife habitat, listed and sensitive species habitat, and opportunities for the production of rest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the State Forest Stewardship Coordinating Committee such as public recreation, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the Lake FLA

(list not exhaustive)

USDA Forest Service

USDOJ Bureau of Land Management

California Department of Forestry and Fire Protection

California Department of Fish and Game

California Department of Parks and Recreation

State Lands Commission

Lake County

Other local government entities otherwise authorized to acquire and hold title to real property

XIII. THE HUMBOLDT FOREST LEGACY AREA NORTH COAST-KLAMATH BIOREGION

FLA Location

The map entitled "Humboldt County Forest Legacy Area" depicts the location of the Humboldt FLA and its boundaries.

Boundary Description

The FLA is defined as all the lands within the county, which is located in the North Coast-Klamath bioregion in far northern California on the Pacific Ocean. The FLA is bounded to the north by Del Norte County, to the east by Siskiyou and Trinity Counties, to the south by Mendocino County, and to the west by the Pacific Ocean.

As with other FLAs, any public lands – which make up over a quarter of Humboldt County – or lands within incorporated areas are ineligible for participation in the Program. Specific public lands within or proximate to the Humboldt FLA are listed in Appendix H, Table V. The urban boundaries on the map “Humboldt County Forest Legacy Area” are based on US Census TIGER data (US Dept. of Commerce 1992). In the case that actual city boundaries are different from those depicted on the reference map, the actual city boundaries will comprise the FLA’s boundaries. The FLA also includes lands that are not likely to meet other Program eligibility requirements, such as the requirement that applicant parcels must be forested with at least 10% canopy cover, or be capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be available for viewing at CDF and USFS.

Summary

Of the roughly 2,600 square miles (1.7 million acres) of private lands in Humboldt County, almost 90% are forested. Of the privately-held Native American lands in the county, the percentage is even higher, approximately 98%. Humboldt’s redwood forestlands rank among the most productive in the world, the moist conditions and temperate ocean climate combining to produce extensive stands of redwoods, which are the world’s tallest living things. These stands also grow to great volume, evidenced by one grove of redwoods in the county that contains the largest measured concentration of living material, or biomass, on earth (Olson et al, 1990).

The resource lands in Humboldt County shelter many rare species, including 41 vascular plants, 5 fish, 5 amphibians, 18 birds, and 4 mammals (CA Dept. of Fish and Game 1999b). In addition, 18 Significant Natural Areas (SNAs) – areas of biological richness identified by the California Department of Fish and Game – have all or a portion of their area on private lands within the FLA (CA Dept. of Fish and Game 1999c). (SNAs with area in the FLA are listed in Appendix H Table IV.)

These forests are also important to Humboldt County's economy. The county is the leading timber producer in the state and its industrial output is dominated by timber harvesting, although tourism, agriculture, and fisheries also are significant components of the economy. Despite recent downturns in the county's natural resource-based economy, population should continue to grow – with a 14% increase from today's population of 120,000 projected by the year 2040 (CA Dept. of Finance 1998).

The Humboldt FLA's privately-owned forests also are critical to maintaining water quality. Sections of the Mattole, Eel, Mad, Elk and South Fork Trinity Rivers and tributaries as well as Redwood and Freshwater Creeks currently are listed by the state as impaired waterways due to in part because of current and past forest management practices and the removal of riparian vegetation.

The goals of the Forest Legacy Program in the Humboldt FLA seek to maintain productive forests while promoting conservation of forested resources, associated habitats, and water quality.

Forest Resources

Roughly half of private forestlands in the Humboldt FLA are covered with hardwoods, or hardwoods in combination with softwood species, while another quarter is dominated by redwoods. The predominant forest types in the Forest Legacy Area are discussed below:

The **redwood** forest type covers 420,000 acres, or a quarter of the private forestlands in Humboldt County. It is found in the western half of the FLA along the Pacific Ocean, except for the southern third of the county where it is found further inland. Within two miles of the coast, redwoods are interspersed with Sitka spruce, grand fir, red alder, and Douglas-fir, along with occasional western redcedar and western hemlock. Somewhat farther from the coast, up to ten miles inland, redwood becomes more dominant over associated Douglas-fir, red alder, and grand fir. Further inland, Douglas-fir dominates tan oak and madrone (Mayer and Laudenslayer 1988, CA GAP).

Redwood forests in the North Coast-Klamath bioregion are provide potential habitat for 56 rare species, including the federally endangered peregrine falcon and California vole, and federally threatened bald eagle, marbled murrelet, northern spotted owl, and

red-legged frog (see note 19, page 20). State-listed rare species that are predicted to occur in the redwood habitat types include the northern flicker and brush rabbit (endangered), rubber boa (threatened), white-tailed kite, golden eagle, ringtail, and mountain lion (CA fully protected) (CA Dept. of Fish and Game 1999a).

Douglas-fir habitat covers almost 200,000 acres of the private lands in the Humboldt FLA. The habitat occurs at elevations from 500 to 2000 feet throughout the FLA. This type is found above the redwood type in the northern half of the county and above and below the redwood band in the southern half. Tree species associated with the Douglas-fir community include canyon live oak on the driest sites, tanoak, Pacific madrone, sugar pine, ponderosa pine, and black oak on more moist sites, and Pacific yew, Port-Orford cedar and western hemlock on the most moist sites (Mayer and Laudenslayer 1988, CA GAP).

Sixty rare species have potential habitat in the Douglas-fir forest in the North Coast-Klamath bioregion, including the peregrine falcon and California vole, which are listed as endangered on the federal list, the red-legged frog, striped racer, bald eagle, marbled murrelet, and northern spotted owl, which are listed as threatened. State-designated endangered species which are predicted to occur in the habitat include the northern flicker and brush rabbit, while state threatened species include the rubber boa and the wolverine. The golden eagle, ringtail, and mountain lion in the Douglas-fir habitat are listed as fully protected by the state of California (CA Dept. of Fish and Game 1999a).

Montane hardwood-conifer habitat covers over 690,000 acres, or forty percent of the private forestlands in the county. It is found throughout the FLA except along the northern half of the coastal edge of the county. The montane hardwood-conifer type occurs usually some distance inland from the coast above the rainier redwood and Douglas-fir bands. It includes such associated species as California black oak, Oregon white oak, golden chinquapin, canyon live oak, along with white fir, Douglas-fir, and ponderosa pine (Mayer and Laudenslayer 1988, CA GAP).

The **montane hardwood** habitat type is found in the eastern two-thirds of the FLA, as well as along the southern third. This type covers almost 120,000 acres of the total private lands in the county. The montane hardwood type is largely made up of canyon live oak on steep canyon slopes and rocky ridgetops. At lower elevations associated tree species include knobcone pine, foothill pine, Oregon white oak and coast live oak. At middle elevations it is associated with tanoak, Pacific madrone, California-laurel, California black oak and bristlecone fir (Mayer and Laudenslayer 1988, CA GAP).

Montane hardwood associates provide potential habitat for 58 rare species in the North Coast-Klamath bioregion, while montane hardwood-conifer is suitable habitat for 71 federal and state recognized rare species. For both habitat types, the peregrine falcon,

loggerhead shrike, and California vole are listed by the federal government as endangered. Both habitat types also provide likely habitat for the federally-threatened red-legged frog, striped racer, bald eagle, spotted owl, California thrasher, and California towhee. State-endangered northern flicker and brush rabbit, as well as state-threatened rubber boa are predicted to occur in this habitat. Only the montane hardwood-conifer provides habitat suitable for the California-threatened wolverine, although both forest types provide habitat for the state fully-protected golden eagle, mountain lion, and ringtail (CA Dept. of Fish and Game 1999a).

Other forest types

A number of other forest types are severely limited in extent in the Humboldt FLA. These include almost 20,000 acres of **white fir**, 13,000 acres of **coastal oak woodland**, and 2,500 acres of **ponderosa pine**. Klamath Mixed Conifer forests, which make up a relatively small percentage of all private lands in the county, account for about 5% of the habitat on Native American lands in the FLA. Also very important are privately-owned **montane riparian** forests, which cover number only 1,000 acres but are critically important because of their ability to protect aquatic resources, including a number of federally-listed and candidate salmonid evolutionarily significant units (ESUs) including the coho and Chinook salmon, and steelhead trout. (Mayer and Laudenslayer 1988, CA GAP).

Threats to Forest Resources

Residential development

Humboldt County continues to grow steadily despite changes in the local economy. The California Department of Finance projects that Humboldt County's population will increase by 14% by 2040, to 147,000 (CA Dept. of Finance 1998). About a third of the county's current population of 120,000 lives in the cities of Eureka and Arcata.

The chief growth areas of the County are around the communities of McKinleyville and the cities of Arcata and Fortuna (all within the redwood zone), as well as the community of Garberville, in the transition zone between redwood and Douglas-fir forest. Population in the rest of the unincorporated County has increased by only 3% percent since 1970. Approximately 6% of the county, or 131,000 acres, are zoned for remote rural residential development. Almost two-thirds of these projected rural growth areas are lands that were formerly large ranches that have been subdivided into parcels ranging in size from 20 to 100 acres over the last 20 years (Humboldt County General Plan 1995).

Almost a million acres of private forested land, or about two thirds of the private forestlands in the county, is zoned Timber Production (TPZ) (FRAP 1998). However, TPZ designation does not foreclose the possibility of parcelization and housing

development. Humboldt County TPZ regulations allow forest parcels of 40 acres and development of a single family residence if a management plan has been prepared (Humboldt County General Plan 1981). As in other counties, TPZ-zoned parcels are subject to a rolling ten-year contract, and can be removed from protective TPZ by the landowner, subject to a vote by the Humboldt County Board of Supervisors.

Watershed impairment

Humboldt county contains all or part of seven major river basins: the Kings Range, Eel River, Mad River, Redwood Creek, Patrick's Point and Klamath, as well as Humboldt Bay. Each of these watersheds include significant amounts of private forest land. A number of stream and river segments on watershed lands in the FLA have been listed as impaired under the federal Clean Water Act, the result of pollution from a number of sources. While conservation of forest resources through the Program has the potential to confer water quality benefits for all CWA-listed waterways, the following waterways have recognized impairments that could potentially be mitigated through private forest conservation easements:

- In the King Range, numerous stream segments in the Mattole and Upper Mattole watersheds are listed as impaired waterways under section 303(d) of the federal Clean Water Act in part due to sedimentation/siltation and elevated temperatures. Forest management activities and the removal of riparian vegetation have been cited by the state as sources of both sediment and temperature pollution (SWRCB 1999).
- In the Eel River watershed, numerous streams feeding the South Fork of the Eel as well as the Lower Eel also are listed under CWA section 303(d) because of pollutants that include sedimentation/siltation and elevated temperatures. The sources of the sedimentation includes forest management, while sources of elevated temperature include the removal of riparian vegetation (SWRCB 1999).
- In the Mad River watershed, the Mad and many of its tributaries are listed as impaired waterways under section 303(d) of the CWA, in part because of sedimentation/siltation pollution and excessive turbidity. Forest management activities have been cited by the state as a source of both types of pollution on the Mad River and its tributaries (SWRCB 1999).
- In the Redwood Creek watershed, Redwood Creek and many of its tributaries are listed as impaired waterways under section 303(d) of the CWA, in part because of sedimentation/siltation. Forest management activities have been cited by the state as a source of that pollution on Redwood Creek and its tributaries (SWRCB 1999).
- In the Humboldt Bay watershed, Freshwater Creek and its tributaries are listed as impaired waterways under section 303(d) of the CWA, in part because of

sedimentation/siltation. Forest management, harvesting, and erosion have been cited by the state as sources of the pollution (SWRCB 1999). Also in Humboldt Bay, the Elk River and its tributaries also are listed under section 303(d) of the CWA, also in part because of silvicultural practices, and because of the removal of riparian vegetation (SWRCB 1999).

— While numerous stream segments in the South Fork Trinity River watershed are listed as impaired under CWA Section 303(d), only a very small number of those streams (Spike Buck Creek, Cow Creek, Grouse Creek, and a number of unnamed creeks) in the western portion of the watershed are on private lands in Humboldt County. Tributaries of the South Fork Trinity River are listed as impaired, owing to sedimentation/siltation and temperature pollution. Forest management practices, and the removal of riparian vegetation have been cited by the state as contributors to that pollution (SWRCB 1999).

All watersheds in the Humboldt FLA are listed under the California Unified Watershed Assessment as Category I watersheds – watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems) (CA Unified Watershed Assessment 1998). Helping stave off forestland conversion to other more intensive uses as well as limiting road building and other soil disturbances – particularly in riparian areas – could help mitigate impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation

Specific conservation objectives for the Humboldt FLA

The CDF, SFSCC, and USFS will use the Program’s conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program’s conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners that wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program’s conservation goals are applicable to the Humboldt FLA. As discussed in Section V, these goals translate into a number of conservation objectives, broken out as follows:

1. Goal: *Prevent future conversions of forestland and forest resources; and maintain and restore natural ecosystem functions:*

Objective: Minimize parcel fragmentation and non-forest development to maintain the resource base for forest-related economies, to reduce impacts to forest ecosystems, to reduce the risk of catastrophic fires to forest resources, and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: *Protect water quality, fisheries, and water supplies*

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

3. Goal: *Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity*

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

4. Goal: *Protect wildlife habitat, rare plants, and biodiversity*

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

5. Goal: *Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions*

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration “corridors”.

Resource protection mechanisms for the Humboldt FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program’s tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program’s approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the Humboldt FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and wildlife habitat, listed and sensitive species habitat, and opportunities for the production of forest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the State Forest Stewardship Coordinating Committee such as public recreation, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the Humboldt FLA

(list not exhaustive)

USDA Forest Service

USDOJ Bureau of Land Management

US National Park Service

California Department of Forestry and Fire Protection

State Lands Commission

California Department of Parks and Recreation

California Department of Fish and Game

Humboldt County

Other local government entities otherwise authorized to acquire and hold title to real property

XIV. THE SISKIYOU FOREST LEGACY AREA NORTH COAST-KLAMATH BIOREGION

FLA Location

The map entitled "Siskiyou County Forest Legacy Area" depicts the location of the Siskiyou FLA and its boundaries.

Boundary Description

The FLA is defined as all the lands within the county, which is centrally located in the North Coast-Klamath bioregion in inland northern California, and bounded to the north by the Oregon border, to the west by Del Norte and Humboldt Counties, to the south by Trinity and Shasta Counties, and to the east by Modoc County.

As with other FLAs, any public lands – which make up more than 60% of Siskiyou County – or lands within incorporated areas – roughly 1% of the county – are ineligible for participation in the Program. Specific public lands located within or proximate to the Siskiyou FLA are listed in Appendix H, Table V. The urban boundaries on the map "Siskiyou County Forest Legacy Area" are based on US Census TIGER data (US Dept. of Commerce 1992). In the case that actual urban boundaries are different from those depicted on the reference map, the actual city boundaries will comprise the FLA boundaries. The designated boundaries of the FLA include lands that are unlikely to meet other Program eligibility requirements, including the requirement that parcels be forested with at least 10% tree canopy cover, or capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be available for viewing at CDF and USFS.

Summary

Because of its geography, climate, and species composition, the Siskiyou FLA is one of the richest biological regions in the country. Of the roughly 2,000 square miles (1.3 million acres) of private lands in Siskiyou County, just under half is forested. The forested lands that make up much of the vegetation in the county reflect this diversity. This diversity of forest types in turn provides habitat for a diverse array of species that depend on them. The California Natural Diversity Database, which catalogues state or federally rare species, has recorded some 90 vascular plants, 6 fish, 7 amphibians, 17 birds, and 4 mammals in Siskiyou County (CA Dept. of Fish and Game 1999b). In addition, 35 Significant Natural Areas (SNAs) have all or a portion of their area on

private lands within the FLA (CA Dept. of Fish and Game, 1999c). (SNAs with area in Siskiyou FLA are listed in Appendix H Table IV.)

The Siskiyou FLA contains five major river systems, but is dominated by the Klamath River. While much of the land in the county is federally-owned, private forest lands play a critical role in maintaining water quality and biodiversity, including providing habitat connectivity with other protected areas. Conserving forestlands helps provide for the needs of county residents by helping to maintain the productive forest landbase. The Forest Legacy objectives for the Siskiyou FLA thus help to promote both forest conservation and the protection of the productive forest resources.

Forest Resources

The predominant forest types in the Siskiyou Forest Legacy Area are discussed below:

Ponderosa pine habitats are found in the western and central portions of the FLA at moderate to higher mountain elevations (800-5,000 feet), and cover about 125,000 acres, roughly a tenth of private lands. These habitats include both pure stands of ponderosa pine as well as more diverse stands made up of white fir, incense cedar, Coulter pine, and Jeffrey pine (Mayer and Laudenslayer 1988, CA GAP).

Federally listed endangered species predicted to occur in the ponderosa pine forests include the peregrine falcon, loggerhead shrike, long-toed salamander, and California vole, while threatened species include the bald eagle, northern spotted owl, and California towhee. Numerous other state and federal rare species are predicted to occur in the Siskiyou FLA ponderosa pine habitat, including the northern flicker and brush rabbit (CA endangered), red fox, Swainson's hawk, and rubber boa (CA threatened), and the ringtail and mountain lion (CA fully protected). In all, some 67 recognized rare wildlife species are associated with the Siskiyou FLA's ponderosa pine habitat in the North Coast-Klamath bioregion (see note 19, page 20). (CA Dept. of Fish and Game 1999a).

Eastside pine habitats are located primarily in the eastern part of the county at 4,000-6,000 feet in elevation, and cover 133,000 acres, roughly a tenth of the private lands in the FLA. Associated species include of Ponderosa Pine, Jeffrey Pine, lodgepole pine, white fir, incense-cedar, Douglas-fir, California black oak and western juniper (Mayer and Laudenslayer 1988, CA GAP).

43 rare wildlife species have potential habitat in the eastside pine forests in the North Coast-Klamath bioregion. Federally listed endangered species include the loggerhead shrike, peregrine falcon, and California vole. Federally threatened species include the northern spotted owl and bald eagle. In addition, California endangered species in the eastside pine habitat include the northern flicker, while state threatened species include

the red fox and Swainson's hawk. State fully-protected species include the golden eagle, ringtail and mountain lion (CA Dept. of Fish and Game 1999a).

In the southern and central portions of the FLA, at middle mountain elevations of 2,500-4,000 feet, the **Sierran mixed conifer** forest covers roughly 170,000 acres of private lands in Siskiyou County. The Sierran mixed conifer associates tend to include five conifer and one hardwood species: the white fir, Douglas-fir, ponderosa pine, sugar pine, incense-cedar, and California black oak (Mayer and Laudenslayer 1988, CA GAP).

Sixty-one federal or state species have potential habitat in the Sierran mixed conifer forests in the bioregion. Federally listed endangered species include the long-toed salamander, Peregrine falcon, and California vole. Threatened species include the bald eagle, and northern spotted owl. State listed endangered species include the northern flicker and brush rabbit, while rubber boa, red fox, and wolverine are listed as threatened by the state (CA Dept. of Fish and Game 1999a).

Klamath mixed conifer species occupy some 122,000 acres of private land in Siskiyou County, on the steep slopes and serpentine soils ranging from 4,500-6,900 feet in altitude. Species associated with the Klamath mixed conifer habitat include many of the species typical of ponderosa pine forests, as well as Shasta red fir, mountain hemlock, western white pine, knobcone pine, Jeffrey pine, and brewer spruce (Mayer and Laudenslayer 1988, CA GAP).

Sixty-one rare species have potential habitat in the North Coast-Klamath mixed conifer habitat. The federally listed endangered species include the long-toed salamander, peregrine falcon, and California vole. The threatened spotted owl and bald eagle also are predicted to utilize Klamath mixed conifer habitat. California endangered species include the northern flicker and brush rabbit, while California threatened species include the Siskiyou mountains salamander, rubber boa, red fox, and wolverine (CA Dept. of Fish and Game 1999a).

The range of **montane hardwood** is relegated to the western portion of the FLA, while the **montane hardwood-conifer** is far more evenly distributed throughout the area. However, together these two forest types make up about 41,000 acres of private land in the FLA. Montane hardwood associates can be largely made up of Canyon live oak, although it also can be associated with tanoak, Pacific madrone, California-laurel, California black oak and bristlecone fir at the middle elevations (most of the montane hardwood habitat exists at this range in the FLA). Montane hardwood-conifer habitats run from 1,000-4,000 feet in elevation and include such associated species as Oregon white oak, tanoak, Pacific madrone, and red alder, as well as Douglas-fir, western red cedar, western hemlock, ponderosa pine, sugar pine, and knobcone pine (Mayer and Laudenslayer 1988, CA GAP).

Montane hardwood associates are predicted habitat for 58 rare species in the North Coast-Klamath bioregion, while montane hardwood-conifer is habitat for 71 federal and state recognized rare species. For both habitat types, the long-toed salamander, peregrine falcon, loggerhead strike, and California vole are federally endangered. Both habitat types also are predicted to provide habitat for the federally threatened bald eagle, spotted owl, California thrasher, and California towhee. State-endangered northern flicker and brush rabbit, as well as state-threatened rubber boa and Swainson's hawk are predicted for this habitat, while only the montane hardwood-conifer provides suitable habitat for the California-threatened red fox and wolverine. Both habitats are predicted to support CA fully-protected golden eagle, ringtail, and mountain lion (CA Dept. of Fish and Game 1999a).

Jeffrey pine habitats cover about 33,000 acres of private land in pockets in the west and south of the FLA. The stands are generally made up of primarily Jeffrey pine which can endure cold temperatures that other species cannot (Mayer and Laudenslayer 1988, CA GAP).

Forty-six federal- or state-recognized rare species are associated with the Jeffrey pine habitat in the North Coast-Klamath bioregion. Among the federally endangered species are the long-toed salamander, peregrine falcon, and loggerhead shrike, while the federally-listed threatened species include the bald eagle and spotted owl. California endangered northern flicker and threatened red fox, wolverine, and rubber boa, also are predicted to occupy the Jeffrey pine habitat in the FLA, as are the CA fully-protected golden eagle, ringtail, and mountain lion (CA Dept. of Fish and Game 1999a).

Montane riparian forests cover almost 5,000 acres of private land. These riparian forests are critically important habitat because of they provide water, thermal cover, migration corridors and diverse nesting and feeding opportunities for many species (Mayer and Laudenslayer 1988, CA GAP). In particular, riparian forests play a key role in providing habitat for the federally-threatened or candidate salmonid ESUs of coho and Chinook salmon, and steelhead trout.

Threats to Forest Resources

Residential development

A number of high-value forested areas within the Siskiyou FLA, particularly along the Interstate-5 corridor, are subject to growth and areas of increasing low-density development and parcelization. Particularly in the southern part of the FLA, significant residential development has been focused around the cities of Weed (particularly in Lake Shastina, north of Weed), Mt. Shasta (including McCloud, 10 miles or so east of the I-5 corridor on route 89) (Siskiyou County 1980, Virag 2000). A secondary spot for

development is further north along the I-5 corridor, in and around the county Capitol, Yreka (including the town of Montague). The California Department of Finance projects that Siskiyou County's population will increase by 37% by 2040. (CA Dept. of Finance 1998). This is in addition to the roughly 10,000 people that were added to the county between 1970 and 1998 (Siskiyou County 2000). Given the fact that less than 40% of the County's land base is in private hands, the pressure to develop those lands – including forestlands – will be increasing over the coming decades.

Some 570,000 acres of private forested land in the Siskiyou FLA is zoned Timber Production Zone (FRAP 1998). TPZ zoning thus applies to a little less than half of the private land in the county, and the vast majority of private forestlands. However, TPZ designation does not foreclose the possibility of parcelization and housing development. Siskiyou County TPZ regulations allow forest parcels of 40 acres, and for the development of a single family residence if a management plan has been prepared (Siskiyou County 1973). As in other counties, TPZ-zoned parcels in the Siskiyou FLA are to be zoned TPZ are subject to a rolling ten-year contract, but can be rezoned out of TPZ by the landowner, subject to the requirements of the Z'berg-Warren-Keene Collier Forest Taxation Reform Act of 1976.

Watershed impairment

Siskiyou County lies within five major watershed basins, but is dominated by the Klamath – the Middle Fork Applegate watershed comprises a portion of the northern portion of the county, while the northern segments of the Pit River, McCloud River, and Upper Sacramento River watersheds make up the southeastern quadrant of the County. Except for the Applegate, each watershed encompasses a significant amount of private lands. A number of stream and river segments on watershed lands in the FLA have been listed as impaired under section 303(d) of the federal Clean Water Act, the result of pollution from a number of sources. While conservation of forest resources through the Program has the potential to confer water quality benefits to all CWA-listed waterways, the following waterways have recognized impairments that could potentially be mitigated through private forest conservation easements:

Numerous stream segments in the Scott River watershed in the Klamath basin are listed as impaired under CWA Section 303(d), in part because of sedimentation, siltation, and elevated temperatures. Forest management activities and undisclosed non-point source pollution have been cited by the state as a source of siltation, while forest management, habitat modification, and removal of riparian vegetation have been cited as contributing to elevated temperatures (SWRCB 1999).

In the upper Klamath, numerous stream segments have been listed as impaired under section 303(d) of the CWA, owing in part to organic enrichment/low dissolved oxygen, and elevated temperatures. The state has cited undisclosed non-point source pollution and habitat modification, respectively, as sources of this pollution (SWRCB 1999).

All watersheds in the Siskiyou FLA (i.e. those with significant private lands) are listed under the California Unified Watershed Assessment as Category 1 watersheds – Watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems) (CA Unified Watershed Assessment 1998). Helping stave off forestland conversion to other more intensive uses as well as limiting road building and other soil disturbances – particularly in riparian areas – could help mitigate impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation

Specific conservation objectives for the Siskiyou FLA

CDF, the SFSCC, and the USFS will use the Program’s conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program’s conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners who wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program’s conservation goals are applicable to the Siskiyou FLA. As discussed in Section V, these goals translate into a number of conservation objectives as listed below.

1. Goal: *Prevent future conversions of forestland and forest resources; and maintain and restore natural ecosystem functions:*

Objective: Minimize parcel fragmentation and non-forest development to maintain the resource base for forest-related economies, to reduce impacts to forest ecosystems, to reduce the risk of catastrophic fires to forest resources, and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: *Protect wildlife habitat, rare plants, and biodiversity*

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

3. Goal: *Protect water quality, fisheries, and water supplies*

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

4. Goal: *Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions*

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration “corridors”.

5. Goal: *Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity*

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

Resource protection mechanisms for the Siskiyou FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program’s tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program’s approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the Siskiyou FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and wildlife habitat, listed and sensitive species habitat, and opportunities for the production of forest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the State Forest Stewardship Coordinating Committee such as public recreation, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the Siskiyou FLA

(list is not exhaustive)

USDA Forest Service

USDOJ Bureau of Land Management

California Department of Forestry and Fire Protection

California Department of Fish and Game

State Lands Commission

Siskiyou County, and other local government entities otherwise authorized to acquire and hold title to real property

XV. THE TRINITY FOREST LEGACY AREA NORTH COAST-KLAMATH BIOREGION

FLA Location

The Map entitled “Trinity County Forest Legacy Area” depicts the location of the Trinity FLA and its boundaries.

Boundary Description

The FLA is defined as all the lands within the county, which is located in the North Coast-Klamath bioregion in inland northern California, and bounded to the north by Siskiyou County, to the west by Humboldt County, to the south by Mendocino County, and to the east by Shasta and Tehama Counties.

As with other FLAs, any public lands – which make up more than 76% of Trinity County – or lands within incorporated areas are ineligible for participation in the Program. Specific public lands are listed in Appendix H, Table V. The urban boundaries in the Trinity County FLA map are based on US Census TIGER data (US Census 1992). In the case that actual urban boundaries are different from those depicted on the reference map, the actual city boundaries will comprise the FLA boundaries. The designated boundaries of the FLA include lands that are unlikely to meet other Program eligibility requirements, including the requirement that parcels be forested with at least 10% tree canopy cover, or capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be made available for viewing at CDF and USFS.

Summary

The Trinity FLA can be characterized as rugged, remote, sparsely populated and overwhelmingly forested. Of the roughly 450,000 acres of private lands in Trinity County, over 90% is forested. The rugged topography of the Klamath Mountains provides for a variety of climates that in turn support a diversity of forest types and associated species. Private forestlands are dominated by conifer species, although montane hardwood habitats exist at lower elevations on private lands.

The California Natural Diversity Database, which catalogues state and federally rare species, has recorded some 47 vascular plants, 2 fish, 5 amphibians, 5 birds, and 3 mammals in Trinity County (CA Dept. of Fish and Game 1999b). In addition, 5

Significant Natural Areas (SNAs) have all or a portion of their area on private lands within the FLA (CA Dept. of Fish and Game, 1999c). (SNAs with area in the Trinity FLA are listed in Appendix H Table IV.)

The remote location and relative lack of major highways, combined with the large public estate in the county has contributed to the county's relatively low population. Growth in Trinity County is concentrated in Weaverville and in recreational communities on the west side of the county nearest to Humboldt County urban areas in the mixed conifer and Douglas-fir forest types.

Industrial forestry has impacted water quality in the Trinity FLA. The South Fork Trinity River and the North and Middle Forks of the Eel River, which have significant amounts of private land, have been listed as impaired by the state of California.

The Forest Legacy goals and objectives for the Trinity FLA are to conserve the private forested land base, associated habitats, and water quality, while ensuring that productive forestland remains for current and future residents.

Forest Resources

Private forestlands are dominated by conifer species, although montane hardwood habitats exist at lower elevations on private lands. The predominant forest types in the Forest Legacy Area are discussed below:

Ponderosa pine habitats are found in the western and central portions of the FLA at moderate to higher mountain elevations (800-5,000 feet), and cover 108,000 acres or roughly a third of private lands. These habitats include both pure stands of ponderosa pine as well as more diverse stands made up of white fir, incense cedar, Coulter pine, and Jeffrey pine (Mayer and Laudenslayer 1988, CA GAP).

Federally listed endangered species predicted to occur in the ponderosa pine forests include the peregrine falcon, loggerhead shrike, long-tailed salamander and California vole, while threatened species include the bald eagle, northern spotted owl, and California towhee. Numerous other state and federal rare species are associated with the Trinity FLA ponderosa pine habitat, including the northern flicker and brush rabbit, (CA endangered), red fox rubber boa and striped racer (CA Threatened), and the ringtail, golden eagle and mountain lion (CA full protected). In all, some 67 recognized rare wildlife species are associated with the North Coast-Klamath ponderosa pine habitat (see note 17, Section XII) (CA Dept. of Fish and Game 1999a).

Klamath mixed conifer species occupy 47,000 acres, or roughly a sixth of the private lands in Trinity County, on the steep slopes and serpentine soils ranging from 4,500-6,900 feet in altitude. Species associated with the Klamath mixed conifer habitat

include many of the species typical of ponderosa pine forests, as well as Shasta red fir, mountain hemlock, western white pine, knobcone pine, Jeffrey pine and brewer spruce (Mayer and Laudenslayer 1988, CA GAP).

Sixty-four rare species have potential habitat in the Klamath mixed conifer forest type in the North Coast-Klamath bioregion. The federally listed endangered species expected to occur in the habitat include the long-toed salamander, peregrine falcon, and California vole, along with the spotted owl, bald eagle, and striped racer, which are listed as threatened species. California endangered species include the northern flicker and brush rabbit, while California threatened species include the rubber boa, red fox, and wolverine. CA fully-protected species in this habitat include the ringrail cat and mountain lion (CA Dept. of Fish and Game 1999a).

Douglas-fir habitat 20,000 acres of private land in the Trinity FLA. The habitat occurs at elevations from 1,000 to 4,000 feet throughout the FLA. Tree species associated with the Douglas-fir community include canyon live oak on the driest sites, tanoak, Pacific madrone, sugar pine, ponderosa pine, and black oak on more moist sites, and Pacific yew, Port-Orford cedar and western hemlock on the most moist sites (Mayer and Laudenslayer 1988, CA GAP).

Sixty rare species have potential habitat in the Douglas-fir forest in the North Coast-Klamath bioregion, including the long-toed salamander, peregrine falcon, and California vole which are federally endangered, the striped racer, bald eagle, and spotted owl which are listed as federally threatened. State designated endangered species which are predicted to utilize the habitat include the northern flicker and brush rabbit, while state threatened species are the rubber boa and the wolverine. The golden eagle, ringtail, and mountain lion found there are fully protected by the state of California (CA Dept. of Fish and Game 1999a).

The **montane hardwood-conifer** occupies 25,000 acres of private lands in the FLA. Montane hardwood-conifer habitats run from 1,000-4,000 feet in elevation and include such associated species as Oregon white oak, tanoak, Pacific madrone, and red alder, as well as Douglas-fir, western red cedar, western hemlock, ponderosa pine, sugar pine, and knobcone pine (Mayer and Laudenslayer, 1988, CA GAP).

The range of **montane hardwood** occupies 50,000 acres, or a sixth of the county's private lands. Montane hardwood associates can be largely made up of Canyon live oak, although it also can be associated with tanoak, Pacific madrone, California-laurel, California black oak and bristlecone fir at the middle elevations characterizing its range in the FLA (Mayer and Laudenslayer 1988, CA GAP).

Montane hardwood associates provide habitat for 58 rare species in the North Coast-Klamath bioregion, while montane hardwood-conifer is habitat for 71 federal and state

recognized rare species in the bioregion. For both habitat types, the long-toed salamander, peregrine falcon, loggerhead shrike, and California vole are federally endangered. Both habitat types also are expected to provide for the federally threatened striped racer, bald eagle, spotted owl, California thrasher, and California towhee. State-endangered northern flicker and brush rabbit, as well as state-threatened rubber boa. Only the montane hardwood-conifer type provides habitat for the California-threatened red fox and wolverine (CA Dept. of Fish and Game 1999a).

Other forest types in the FLA with very limited acreage include **blue oak** and **blue oak-foothill pine** at low elevations which together cover about 6,000 acres, and **red fir** at high elevations which covers around 3,000 acres (Mayer and Laudenslayer 1988, CA GAP). Moreover, riparian forests in the FLA provide critical canopy cover for stream reaches that provide spawning habitat for a number of federally-listed and candidate salmonid evolutionarily significant units (ESUs) including the coho and Chinook salmon, and steelhead trout.

Threats to Forest Resources

Residential development

The California Department of Finance projects that Trinity County's population to increase by 25% by 2040, which is an addition of 3,300 people to today's population of about 13,500 (CA Dept. of Finance 1998). Growth in Trinity County is concentrated in the county seat of Weaverville and in recreational communities on the west side of the county nearest to Humboldt Bay urban areas. Weaverville, located in the mixed conifer zones has been growing steadily, due to second home development, retirement community growth. The county has processed almost 20 subdivision requests in the last three years (Lancaster 2000).

Communities nearest Humboldt County urban areas to the west are experiencing some recreational and second home development. These include Salyer, Hawkin's Bar and Burnt Ranch along Highway 299 in the mixed conifer and Douglas-fir zones. Along Highway 36 the communities of Mad River, Ruth, Forest Glen are experiencing some recreation-related growth. The most remote areas of the county with little economic base are experiencing a decline in population. In addition, areas east of Weaverville along highway 299 are also losing population due to the closure of the Sierra Pacific Industry mill (Lancaster 2000).

Some 250,000 acres of industrial private forestland in the Trinity FLA is zoned for timber production (TPZ), about 90% of that TPZ land is held by Sierra Pacific Industries. As in other counties, TPZ-zoned parcels in the Trinity FLA are subject to a rolling ten-year contract and can be removed from TPZ zoning by the landowner, subject to the requirements of the Z'berg-Warren-Keene Collier Forest Taxation Reform Act of 1976. Parcels as small as 40 acres may be enrolled in TPZ zoning, however,

lands already in the program may not subdivide parcels below a 160 acres minimum. Another 150,000 acres of private forestland is owned by other small to large landholders. And 22,000 acres of private land is in agricultural preserve zoning (Lancaster 2000).

Watershed impairment

Trinity County lies within three major watershed basins – the Trinity, the Eel, and Mad River Basins. Of these, the Mad does not contain appreciable amounts of private lands in Trinity County. A number of stream and river segments on watershed lands in the FLA have been listed as impaired under the federal Clean Water Act, the result of pollution from a number of sources. While conservation of forest resources through the Program has the potential to confer water quality benefits for all CWA-listed waterways, the following waterways have recognized impairments that could potentially be mitigated through private forest conservation easements:

- The South Fork of the Trinity River, and many of its tributaries, are listed as impaired waterways under section 303(d) of the Clean Water Act because of sedimentation/siltation and temperature pollution. Forest management activities and removal of riparian vegetation have been cited by the state as contributors to that pollution (SWRCB 1999).
- The North and Middle Forks of the Eel River, and many of their tributaries, have been listed as impaired waterways under section 303(d) of the Clean Water Act because of sedimentation/siltation and temperature pollution. Forest management activities have been cited by the state as a source of this pollution (SWRCB 1999).
- The Mad River and its tributaries have been listed as impaired waterways under section 303(d) of the Clean Water Act because of sedimentation/siltation and turbidity. Forest management activities have been cited by the state as contributing to that pollution (SWRCB 1999).

All watersheds in the Trinity FLA are listed under the California Unified Watershed Assessment as Category I watersheds – watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems) (CA Unified Watershed Assessment 1998). Helping stave off forestland conversion to other more intensive uses as well as limiting road building and other soil disturbances – particularly in riparian areas – could help mitigate impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation

Specific conservation objectives for the Trinity FLA

CDF, the SFSCC, and the USFS will use the Program's conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program's conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners who wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program's conservation goals are applicable to the Trinity FLA. As discussed in Section V, these goals translate into a number of conservation objectives. The following conservation goals and objectives apply to the Trinity FLA:

1. Goal: *Prevent future conversions of forestland and forest resources; and maintain and restore natural ecosystem functions:*

Objective: Minimize parcel fragmentation and non-forest development to maintain the resource base for forest-related economies, to reduce impacts to forest ecosystems, to reduce the risk of catastrophic fires to forest resources, and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: *Protect water quality, fisheries, and water supplies*

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

3. Goal: *Protect wildlife habitat, rare plants, and biodiversity*

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

4. Goal: *Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity*

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

5. Goal: *Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions*

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration "corridors".

Resource protection mechanisms for the Trinity FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program’s tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program’s approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the Trinity FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and wildlife habitat, listed and sensitive species habitat, and opportunities for the production of rest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the SFSCC, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the Trinity FLA

(list not exhaustive)

USDA Forest Service

USDOJ Bureau of Land Management

California Department of Forestry and Fire Protection

California Department of Fish and Game

Trinity County

Other local government entities otherwise authorized to acquire and hold title to real property

XVI. THE SHASTA FOREST LEGACY AREA NORTH COAST-KLAMATH, MODOC, AND SACRAMENTO VALLEY BIOREGIONS

FLA Location

The Map entitled “Shasta County Forest Legacy Area” depicts the location of the Shasta FLA and its boundaries.

Boundary Description

The FLA is defined as all the lands within the county, which is located in the North Coast-Klamath, Modoc, and Sacramento Valley bioregions in inland northern California, and bounded to the north by Siskiyou and Modoc Counties, to the west by Trinity County, to the south by Tehama and Plumas Counties, and to the east by Lassen County.

As with other FLAs, any public lands – which make up roughly 46 percent of Shasta County – or lands within incorporated areas are ineligible for inclusion in the Program. Specific public lands are listed in Appendix H, Table V. Almost three percent of the county is urban. The urban boundaries in the Shasta County FLA map are based on US Census TIGER data (US Census 1992). In the case that actual urban boundaries are different from those depicted on the reference map, the actual city boundaries will comprise the FLA boundaries. The designated boundaries of the FLA include lands that are unlikely to meet other Program eligibility requirements, including the requirement that parcels be forested with at least 10% tree canopy cover, or capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be made available for viewing at CDF and USFS.

Summary

The Shasta FLA is mountainous on the east (Cascades), west (Coast Range), and north (Klamath Mountains) sides and then slopes down in the Central Valley in the south to elevations of 400 and 700 feet, where the largest city, Redding, is located. Of the roughly 2,000 square miles (1.3 million acres) of private lands in Shasta County, over a million acres is forested. About half of this is dominated by hardwoods, while the other is coniferous.

The California Natural Diversity Database (CNDDDB), which catalogues state and federally rare species, has recorded some 49 vascular plants, 6 fish, 4 amphibians, 10

birds, and 5 mammals in Shasta County (CA Dept. of Fish and Game 1999b). In addition, 36 Significant Natural Areas (SNAs) have all or a portion of their area on private lands within the FLA (CA Dept. of Fish and Game, 1999c). (SNAs with area in the FLA are listed in Appendix H Table IV.)

While traditional industries such as forest products are a mainstay of the county economy, employment in non-agricultural industries continues to expand, and along with it, the county's population. Shasta County is projected to increase by two-thirds by the year 2040 to over 300,000 people (California Dept. of Finance 1998). Although the majority of future growth will occur in the non-forested cities in the Central Valley, a moderate amount of residential development is occurring in the hardwood covered foothills and the ponderosa pine belts above them, areas within commuting distance of Central Valley cities.

The goals of the Shasta Forest Legacy Program will be to conserve the county's forest resources and associated habitats that are facing increasing residential and industrial development pressures throughout the area.

Forest Resources

About half of private forestlands in the Shasta FLA are covered by hardwoods, primarily oak woodlands, while the other half is covered by coniferous forests (mostly at higher elevations). The predominant forest types in the FLA are discussed below:

Almost one-third of the FLA's private forestland, or about 410,000 acres is in the **blue oak-foothill pine** habitat type. This forest type rings the foothills of the Central Valley (between 500 and 3,000 feet) and is therefore found at the eastern, northern, and western ends of the FLA. Blue oak is usually more abundant than foothill pine in this forest type. Associated tree species include the interior live oak and California buckeye to the east in the Sierra Nevada. In the Coast Range in the west, species include coast live oak, valley oak, and California buckeye (Mayer and Laudenslayer 1988, CA GAP).

At least 70 rare species have potential habitat in the blue oak-foothill pine forest types in the North Coast-Klamath, Modoc, and Sacramento Valley bioregions (see note 19, page 20). These include the peregrine falcon, loggerhead shrike, and California vole, which are on the federal endangered species list, and the red-legged frog, striped racer, western aquatic garter snake, bald eagle, spotted owl, California thrasher and California towhee on the federal threatened species list. Also predicted to occur in the habitat is the northern flicker, savannah sparrow and brush rabbit from the state endangered species list, and the Shasta salamander and Swainson's hawk from the state threatened species list. The California protected species utilizing this habitat include

the white-tailed kite, golden eagle, ringtail, and mountain lion (CA Dept. of Fish and Game 1999a).

Another 92,000 acres of private forestland is in the **blue oak woodland** type. These woodlands are found in the southernmost portion of the county (at between 500 and 2,000 feet in elevation). Blue oak woodland is dominated by the blue oak, which typically makes up more than 85 percent of the tree species present. Other trees in the habitat may include the coast live oak in the Coast Range, interior live oak in the Sierra Nevada, and valley oak where soils are suitable (Mayer and Laudenslayer 1988, CA GAP).

Sixty seven rare species have potential habitat in the blue oak woodland forests in the bioregions. Federally listed species are the same as those for the blue oak-foothill pine type, with the addition of the long-toed salamander to the endangered list. The state listed species predicted to occur in this habitat type are the same save for the absence of the Shasta salamander (CA Dept. of Fish and Game 1999a).

Sierran mixed conifer is found in the eastern and northern halves of the FLA, at middle mountain elevations of 2,500-4,000 feet. It covers over a quarter of the private lands in the Shasta FLA, or about 340,000 acres. The Sierran mixed conifer associates include five conifer species - white fir, Douglas-fir, ponderosa pine, sugar pine, and incense cedar; and one hardwood species - California black oak (Mayer and Laudenslayer 1988, CA GAP).

Sixty-one federal or state species have potential habitat in the Sierran mixed conifer forest type in the North Coast-Klamath, Modoc, and Sacramento Valley bioregions. Federally-listed endangered species include the long-toed salamander, peregrine falcon and California vole. Threatened species include the striped racer, bald eagle, and northern spotted owl. State listed endangered species associated with the Sierran mixed conifer type include the northern flicker and brush rabbit, while the Shasta salamander, rubber boa, red fox, and wolverine, state threatened species, are predicted to use this habitat. State fully protected species include the ringtail, golden eagle and mountain lion (CA Dept. of Fish and Game 1999a).

Ponderosa pine habitats are found throughout the FLA except in the higher elevation eastern portion, where Sierran mixed conifer is predominant, and the southern portion where oak woodlands are the most prevalent species. The ponderosa pine type is found at moderate to higher mountain elevations (800-5,000 feet), and covers roughly 110,000 acres of private lands. These habitats include both pure stands of ponderosa pine as well as more diverse stands made up of white fir, incense cedar, Coulter pine, and Jeffrey pine (Mayer and Laudenslayer 1988, CA GAP).

Federally-listed endangered species having potential habitat in the ponderosa pine forests include the peregrine falcon, long-toed salamander, loggerhead shrike, and California vole, while threatened species include the bald eagle, western aquatic garter snake, northern spotted owl, red-legged frog, and California towhee. Numerous other state and federal rare species are associated with the FLA's ponderosa pine habitat, including the northern flicker and brush rabbit (CA endangered), red fox, rubber boa, striped racer, and Swainson's hawk (CA Threatened), and the ringtail, golden eagle, and mountain lion (CA full protected). In all, some 67 recognized rare wildlife species are associated with the ponderosa pine habitat in the North Coast-Klamath, Modoc, and Sacramento Valley bioregions (CA Dept. of Fish and Game 1999a).

Eastside pine habitats exist primarily in the eastern part of the county at 4,000-6,000 feet in elevation, and cover around 30,000 acres of the private lands in the FLA. This forest type is dominated by ponderosa pine. Associated tree species include Jeffrey pine, lodgepole pine, white fir, incense-cedar, Douglas-fir, California black oak and western juniper (Mayer and Laudenslayer 1988, CA GAP).

43 rare wildlife species are associated with the eastside pine habitats in the bioregions. Federally listed endangered species include the loggerhead shrike, peregrine falcon and California vole. Federally threatened species include the sage sparrow, northern spotted owl, and bald eagle. In addition, California endangered species in the eastside pine habitat include the northern flicker, while state threatened species include the red fox and Swainson's hawk. State fully-protected species include the golden eagle, ringtail, and mountain lion (CA Dept. of Fish and Game 1999a).

Other forest types found on private land in the FLA include **valley oak woodland** (9,000 acres), **montane hardwood** (10,000 acres), **montane hardwood-conifer** (6,000 acres), **Douglas-fir** (10,000 acres), **Klamath mixed conifer** (1,500 acres), and **white fir** at high elevations (16,000 acres). About 4,000 acres of **valley foothill riparian** habitat is found on private lands. Such riparian forests are critically important habitat because they provide food, water, migration and dispersal corridors, as well as and thermal cover for many species, including aquatic species such as the endangered ESU of Chinook salmon, and other rare Chinook salmon and rough sculpin communities (Mayer and Laudenslayer 1988, CA GAP).

Threats to Forest Resources

Residential development

The California Department of Finance projects that Shasta County's population will increase from its present level of 175,000 to almost 300,000 by 2040, an increase 67% (CA Dept. of Finance 1998). Major urban developments in Shasta County are likely to continue to be concentrated in non-forested areas in the Sacramento River Valley along

the transportation corridor provided by Interstate 5, Highway 273 and the Southern Pacific Railroad in and around the incorporated cities of Anderson and Redding, and unincorporated Cottonwood.

Development in the upland areas takes the form of agriculture, grazing, and timber operations, with small rural community centers and individual homesites dispersed throughout. Some residential development is occurring in outlying forested communities including Shingletown, Whitmore, Round Mountain, Montgomery Creek, and Big Bend, which are located in the ponderosa pine belt at around 2,000 feet in elevation. The community of Oak Run, located between the oak and pine belts has also experienced noteworthy growth. Most of these communities are less than an hour from the county seat of Redding, making commuting a possibility (Shasta County 1998).

Since the timber industry has historically been a large contributor to Shasta County's economy, the county wishes to avoid conversion of private forested lands to residential uses which are often incompatible with timber operations and management. Parcelization into smaller lot sizes limits flexibility in timber management, and can create situations where management for wildland fires is much more difficult both for adjacent timberlands and within forested rural residential areas (Shasta County 1998).

In order to address this concern, Shasta County General Plan establishes two zoning classifications to protect lands covered by coniferous forests from conversion to other uses. Timber Production Zoning covers 530,000 acres owned by commercial forest industries, 40,000 acres owned by tree farmers, and another 136,000 acres owned by others (Shasta County General Plan 1998). The minimum parcel size for lands zoned TPZ is 40 to 80 acres depending on the productivity of the site. A residence may be built on these parcels with a use permit. The other classification is Timberland (TL) Zoning which requires minimum parcel sizes of 40 acres but allows residential development without a use permit. Both TPZ and Timberland Zoning apply primarily to lands at higher elevations covered by coniferous forests (Gonzalez 2000).

Watershed impairment

Shasta County lies within six major watersheds – principally the Lower Cottonwood-Enterprise Flat, Whiskeytown-Cottonwood Creek, Upper Sacramento River, McCloud River, Battle Creek, Pit River – all of which contain significant amounts of private lands. The county also contains small portions of the Feather River and Mill Creek Watersheds, neither of which contain significant amounts of private lands in Shasta County. The lower Sacramento River and lower Clear, Cottonwood, and Battle Creeks are important salmon and steelhead areas. Excellent trout streams include the Sacramento below Keswick Dam, McCloud, Pit, Fall and Rising Rivers and Squaw, Kosk, Cow, Hat, Hatchet and Battle Creeks.

Numerous river and stream segments – as well as Shasta Lake – in the Shasta FLA are listed as impaired under section 303(d) of the Clean Water Act. While conservation of forest resources through the Program has the potential to confer water quality benefits for all CWA-listed waterways, the primary sources of pollution currently recognized as impairing these river segments (principally from resource extraction/mining, agriculture, and to a lesser extent, sewage disposal) are not easily mitigated through forest conservation alone. The premier trout fishery and habitat corridor of the upper Sacramento River will take a number of years to heal as a result of the July, 1991 herbicide spill from a Southern Pacific train, assuming that no further major spills occur which seriously pollute this section of river. (Shasta County General Plan 1993). However, conserving forest resources – particularly riparian resources – can help mitigate some of the effects of non-point source pollution.

All watersheds in the Shasta FLA are listed under the California Unified Watershed Assessment as Category I watersheds – Watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems). (CA Unified Watershed Assessment 1998). Helping stave off forestland conversion to other more intensive uses as well as limiting road building and other soil disturbances – particularly in riparian areas – could help mitigate impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation

Specific conservation objectives for the Shasta FLA

CDF, the SFSCC, and the USFS will use the Program's conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program's conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners who wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program's conservation goals are applicable to the Shasta FLA. As discussed in Section V, these goals translate into a number of conservation objectives. The following conservation goals and objectives are apply to the Shasta FLA:

1. Goal: *Prevent future conversions of forestland and forest resources; and maintain and restore natural ecosystem functions:*

Objective: Minimize parcel fragmentation and non-forest development to maintain the resource base for forest-related economies, to reduce impacts to forest ecosystems, to reduce the risk of catastrophic fires to forest resources, and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: *Protect wildlife habitat, rare plants, and biodiversity*

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

3. Goal: *Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity*

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

4. Goal: *Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions*

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration “corridors”.

5. Goal: *Protect water quality, fisheries, and water supplies*

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

Resource protection mechanisms for the Shasta FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program’s tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program’s approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the Shasta FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and wildlife habitat, listed and sensitive species habitat, and opportunities for the production of rest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the State Forest Stewardship Coordinating Committee such as public recreation, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the Shasta FLA :

(List not exhaustive)

USDA Forest Service

USDOJ Bureau of Land Management

USDOJ National Park Service

US Fish and Wildlife Service

California Department of Forestry and Fire Protection

California Department of Fish and Game

California Department of Parks and Recreation

Shasta County

Other local government entities otherwise authorized to acquire and hold title to real property

XVII. THE LASSEN FOREST LEGACY AREA MODOC AND SIERRA BIOREGIONS

FLA Location

The map entitled "Lassen County Forest Legacy Area," depicts the location of the Lassen FLA and its boundaries.

Boundary Description

The FLA is defined as all the lands within the county, which is located in the Modoc and Sierra bioregions in northeastern California, and bounded to the east by the state of Nevada, to north by Modoc County, to the west by Shasta County, and to the south by Plumas and Sierra Counties.

Public lands within the FLA – nearly two-thirds of Lassen County – or lands within incorporated areas are ineligible for participation in the Program. Specific public lands located within or proximate to the Lassen FLA are listed in Appendix H, Table V. The urban boundaries on the map "Lassen County Forest Legacy Area" are based on US Census TIGER data (US Dept. of Commerce 1992). In the case that actual incorporation boundaries are different from those depicted on the reference map, the actual boundaries of incorporated areas will comprise the FLA boundaries. The FLA also includes lands that are not likely to meet other Program eligibility requirements, namely the requirement that applicant parcels must be forested with at least 10% canopy cover, or be capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be available for viewing at CDF and USFS.

Summary

The Lassen FLA is comprised of over 900,000 acres (1,400 square miles) of private land, roughly a quarter of which is covered in coniferous forests. These forests are located predominately along the western third of the county, which extends into the northern Sierra Nevada near Mt. Lassen. A section of the Warner Range extends into the northeast of the FLA. The eastern two-thirds of the county is nearly arid, supporting sagebrush and juniper rangeland.

Although two-thirds of Lassen County is publicly owned, private forestlands are important for the maintenance of wildlife habitat and biodiversity. A number of rare species are found in the FLA. The California Natural Diversity Database has recorded 52 vascular plants, 4 fish, 16 birds, and 4 mammals (CA Dept. of Fish and Game 1999b).

In addition, 7 Significant Natural Areas (SNAs) have all or a portion of their area on private lands within the FLA (CA Dept. of Fish and Game 1999c). (SNAs with area in the Lassen FLA are listed in Appendix H Table IV.)

Private forestlands play an integral role in the rural communities and economies of Lassen FLA, the residents of which rely on timber harvesting, livestock grazing, and forest related tourism. In particular, the productivity of private forestlands has become increasingly important economically as harvesting on public lands has decreased. Private forestlands also play an important role in protecting the county's important watersheds, particularly Eagle Lake and its associated stream systems.

Although the FLA is remote, rural, and sparsely populated, it is currently experiencing substantial growth in population and residential development due to the expanding state prison system (Lassen County 1999). The goals for the Forest Legacy Program in the Lassen FLA are to maintain and preserve the forested environment and associated habitat values, while protecting the productive forestlands for use by current and future county residents.

Forest Resources

Private forested lands, which cover the crest of the Sierra Nevada and extend down the east side of the range, are dominated by conifers in mixed stands. The predominate forest types are discussed below:

Sierran mixed conifer is found in the southwestern corner of the FLA in the Sierra Nevada, at middle elevations of 2,500 to 4,000 feet. It occupies roughly 109,000 acres of private lands in Lassen FLA. The Sierran mixed conifer associates include five conifer species – white fir, Douglas-fir, ponderosa pine, sugar pine, and incense cedar; and one hardwood species – California black oak (Mayer and Laudenslayer 1988, CA GAP). This habitat is a major timber producing zone, including biomass removal for electric generation (Lassen County 1999).

Sixty-four federal- or state-listed rare species are associated with the Sierran mixed conifer forest type in the Modoc and Sierra bioregions (see note 17, Section XII). Federally-listed endangered species include the long-toed salamander and peregrine falcon. Threatened species include the bald eagle and northern spotted owl. The state-listed endangered northern flicker is predicted to occupy the Sierran mixed conifer type, as well as the state-threatened rubber boa, red fox, and wolverine. The State fully protected species include the ringtail, mountain lion, and golden eagle (CA Dept. of Fish and Game 1999a).

Jeffrey pine habitats are located in pockets in the western portion of the Lassen FLA above 5,000 feet. Roughly 63,000 acres of private lands in the county are covered in stands dominated by Jeffrey pine, which can flourish under colder temperatures than other mixed conifer species. Associated tree species include ponderosa pine, sugar pine, white fir and red fir. On dry sites, California black oak, pinyon pine, and juniper may be found (Mayer and Laudenslayer 1988, CA GAP). These areas are important for livestock grazing in early summer and fall (Lassen County 1999).

Forty-seven federal or state-recognized rare species are predicted to occur in the Jeffrey pine habitat in the Modoc and Sierra bioregions. Among the federally endangered species are the long-toed salamander, peregrine falcon, and loggerhead shrike, while the federally-listed threatened species are the bald eagle and spotted owl. California endangered northern flicker and threatened red fox, wolverine, and rubber boa, also are predicted to occupy the Jeffrey pine habitat in this FLA. The state fully-protected golden eagle, mountain lion and ringtail also find suitable habitat in this regional forest type (CA Dept. of Fish and Game 1999a).

Eastside pine habitats exist primarily in the western half of the county, on the east slope of the Sierra Nevada at 4,000-6,000 feet in elevation, and make up about 18,000 acres of private lands in the FLA. This forest type is dominated by ponderosa pine. Associated tree species include Jeffrey pine, lodgepole pine, white fir, incense-cedar, Douglas-fir, California black oak and western juniper (Mayer and Laudenslayer 1988, CA GAP).

Forty-five federal- or state-listed rare wildlife species are predicted to occur in the eastside pine habitats in the Lassen FLA. Federally listed endangered species include the loggerhead shrike and peregrine falcon. Federally threatened species include the sage sparrow, spotted owl, and bald eagle. In addition, California endangered species in the eastside pine habitat include the northern flicker, while state threatened species include the red fox and Swainson's hawk (CA Dept. of Fish and Game 1999a).

A number of other forest types are severely limited in extent in the Lassen FLA. These include the **red fir** (roughly 9,000 acres of private forestland), **montane hardwood** (roughly 9,000 acres of private forests), **montane hardwood-conifer**, and **white fir** habitats (which make up about 3,600 acres, and 1,800 acres of private forestlands, respectively, in the FLA). Also very important are **montane riparian** resources, which comprise less than 500 acres of the private forests in the FLA, but are critically important owing to their ability to protect aquatic resources and species, including the federally-listed Endangered Modoc sucker (Mayer and Laudenslayer 1988, CA GAP, CA Dept. of Fish and Game 1999b).

Threats to Forest Resources

Residential development

Lassen County is sparsely populated, with about 35,000 residents, over half of which reside in Susanville, the county seat and only incorporated city. However, the county's population is projected by the California Department of Finance to grow by 71% by the year 2040 to a total of 62,000 (CA Dept. of Finance 1998). Growth has been stimulated by the expansion of the state prison in Susanville to accommodate almost 10,000 inmates, nearly half the city's population. Development of residential parcels to accommodate new prison staff has been centered in the Susanville area and the Honey Lake Valley. Growth in forested areas has been centered in and around Janesville and Milford, with limited growth in Westwood, Clear Creek, and Lake Forest Estates (Lassen County 1999, Simon 2000).

About a third of the Lassen FLA – 310,000 acres – is zoned for timber production (FRAP 1998). TPZ-zoned parcels in the Lassen FLA are subject to a rolling ten-year contract and can be removed from TPZ zoning by the landowner, subject to the requirements of the Z'berg-Warren-Keene Collier Forest Taxation Reform Act of 1976. TPZ designation does not foreclose the possibility of parcelization and limited housing development. Lassen County TPZ regulations allow forest parcels of 40 acres, and for the development of a single family residence if a management plan has been prepared. Residential development in forested areas can increase ignition sources in areas of high fuel accumulation and increase likelihood of catastrophic fire, as well as interfering with fire suppression efforts.

Watershed impairment

The major watersheds in Lassen County are the Pit River, Susan River, and Madeline Plains watersheds. The county also includes small portions of the Cottonwood Mountains, Rush Creek, Surprise Valley, and Feather River watersheds. Each of these watersheds, with the exception of Cottonwood Mountains, contain significant amounts of private lands. A number of water bodies in Lassen FLA are listed as impaired under section 303(d) of the Clean Water Act. While conservation of forest resources through the Program has the potential to confer water quality benefits for all CWA-listed waterways, the primary sources of pollution currently recognized as impairing these river segments (high coliform levels, toxicity) are not easily mitigated through private forest conservation alone. However, since Lassen County's available water supply is nearing total sustainable usage according to the California Department of Water Resources, impairment of watershed function threatens both the natural community and human populations (Lassen County 1999). In particular, Eagle Lake, in the Susan river watershed in the FLA – has high recorded dissolved oxygen, caused in part by land development, according to the state (SWRCB 1999). Forest conservation through

the Forest Legacy Program can help reduce the potential impacts of conversion on impaired water bodies.

In addition, most watersheds in the County are listed under the California Unified Watershed Assessment as Category I watersheds – watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems) (CA Unified Watershed Assessment 1998). Three watersheds in the northeastern portion of the county – the Cottonwood Mountain, Madeline Plains, and Rush Creek – are listed as Category II watersheds – Watersheds with good water quality that, through regular program activities, can be sustained and improved (CA Unified Watershed Assessment 1998). Helping stave off forestland conversion to other more intensive uses as well as limiting road building and other soil disturbances – particularly in riparian areas – could help mitigate impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation

Specific conservation objectives for the Lassen FLA

The CDF, SFCC, and USFS will use the Program's conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program's conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners that wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program's conservation goals are applicable to the Lassen FLA. As discussed in Section V, these goals translate into a number of conservation objectives. The following conservation goals and objectives apply to the Lassen FLA:

1. Goal: *Prevent future conversions of forestland and forest resources; and maintain and restore natural ecosystem functions:*

Objective: Minimize parcel fragmentation and non-forest development to maintain the resource base for forest-related economies, to reduce impacts to forest ecosystems, to reduce the risk of catastrophic fires to forest resources, and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: *Protect water quality, fisheries, and water supplies*

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

3. Goal: *Protect wildlife habitat, rare plants, and biodiversity*

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

4. Goal: *Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity*

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

5. Goal: *Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions*

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration “corridors”.

Resource protection mechanisms for the Lassen FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program’s tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program’s approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the Lassen FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and wildlife habitat, listed and sensitive species habitat, and opportunities for the production of forest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the State Forest Stewardship Coordinating Committee such as public recreation, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the Lassen FLA

(List is not exhaustive)

USDA Forest Service

USDOJ Bureau of Land Management

California Department of Forestry and Fire Protection

California Department of Fish and Game

State Lands Commission

Lassen County

Other local government entities otherwise authorized to acquire and hold title to real property

XVIII. THE TEHAMA FOREST LEGACY AREA MODOC AND SACRAMENTO VALLEY BIOREGIONS

FLA Location

The map entitled "Tehama County Forest Legacy Area," depicts the location of the Tehama FLA and its boundaries.

Boundary Description

The FLA is defined as all the lands within the county, which is located in the Modoc and Sacramento Valley bioregions in inland northern California, and bounded to the north by Shasta County, to the west by Trinity and Mendocino Counties, to the south by Glenn and Butte Counties, and to the east by Plumas County.

As with other FLAs, any public lands – which make up more than 30% of Tehama County, or lands within incorporated areas – less than 1% of the county – are ineligible for participation in the Program. Specific public lands located within or proximate to the Tehama FLA are listed in Appendix H, Table V. The urban boundaries on the map "Tehama County Forest Legacy Area" are based on US Census TIGER data (US Dept. of Commerce 1992). In the case that actual urban boundaries are different from those depicted on the reference map, the actual city boundaries will comprise the FLA boundaries. The designated boundaries of the FLA include lands that are unlikely to meet other Program eligibility requirements, including the requirement that parcels be forested with at least 10% tree canopy cover, or capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be available for viewing at CDF and USFS.

Summary

The Tehama FLA spans California's Central Valley and climbs up into the Coast Range on the west and the Sierra Nevada in the east. Most of the land in the county is privately owned. Of the roughly 2,000 square miles (1.3 million acres) of private lands in Tehama County, approximately two-thirds is forested. The FLA has one of the highest concentrations of the blue oak woodlands in the state with almost half of all private forestlands covered in hardwoods. Coniferous forests cover lands at higher elevations.

The California Natural Diversity Database, which catalogues state and federally rare species, has recorded some 45 vascular plants, 2 fish, 3 amphibians, 16 birds, and 2

mammals in Tehama County (CA Dept. of Fish and Game 1999b). Significant fish streams include the Sacramento River and Deer, Antelope, Mill, South Fork Battle, Cottonwood, Thomes, and Elder Creeks. In addition, 48 Significant Natural Areas (SNAs) have all or a portion of their area on private lands within the FLA (CA Dept. of Fish and Game, 1999c). (SNAs with area in the Tehama FLA are listed in Appendix H Table IV.)

Agricultural and forest products have traditionally been a mainstay of the county economy, however, employment in non-agricultural industries continues to expand, with the county's population projected to double by the year 2040 to over 100,000 people (CA Dept. of Finance 1998). Residential developments along the "1-5 Corridor" in the Sacramento River Valley in the city and non-incorporated urban areas of Red Bluff, Corning, and Tehama are projected to continue growing. A majority of the residential development in the county is occurring in these oak woodland areas at lower elevations.

The goals of the Forest Legacy Program in the Tehama FLA will be to protect the county's forest resources and associated habitats, particularly in the face of residential and industrial development pressures in the area.

Forest Resources

The predominant forest types in the Forest Legacy Area are discussed below:

Over 330,000 acres, or roughly one quarter of the FLA's private land, is in the **blue oak-foothill pine** habitat type. This forest type rings the foothills of the Central Valley (between 500 and 3,000 feet) and is therefore found at both the eastern and western ends of the FLA. Blue oak is usually more abundant than foothill pine in this forest type. Associated tree species include the interior live oak and California buckeye to the east in the Sierra Nevada. In the Coast Range in the west, species include coast live oak, valley oak, and California buckeye (Mayer and Laudenslayer 1988, CA GAP).

At least 70 rare species are predicted to occur in the blue oak foothill pine habitat forests in the Modoc and Sacramento Valley bioregions (see note 19, page 20). These include the peregrine falcon, loggerhead shrike, and California vole, which are listed as federal endangered species, and the red-legged frog, striped racer, western aquatic garter snake, bald eagle, spotted owl, California thrasher, and California towhee on the federal threatened species list. Also predicted to occur in the habitat is the northern flicker, savannah sparrow and brush rabbit from the state endangered species list, and the Swainson's hawk from the state threatened species list. Also likely to utilize this habitat are the white-tailed kite, golden eagle, ringtail, and mountain lion, which are listed as fully protected by the state (CA Dept. of Fish and Game 1999a).

Over one fifth of the remaining private land, or 270,000 acres, is in the **blue oak woodland** type. These woodlands are found in the eastern portion of the county in the Sierra Nevada foothills (500 to 2,000 feet in elevation) and in the western portion of the county in the Coast Range (between 250 and 3,000 feet). Blue oak woodland is dominated by the blue oak, which typically makes up more than 85 percent of the tree species in the habitat. Other trees present may include the coast live oak in the Coast Range, interior live oak in the Sierra Nevada, and valley oak where soils are deep (Mayer and Laudenslayer 1988, CA GAP).

Sixty seven rare species are predicted to occur in the blue oak woodland habitat across the FLA's bioregions. Those species are the same as those for the blue oak foothill pine type, with the single addition of the federally endangered long-toed salamander to the list of predicted species (CA Dept. of Fish and Game 1999a).

The **montane hardwood** habitat type is found in the eastern portion of the county in the Sierra Nevada foothills as well as in the western portion of the county, on the edge of the Coast Range. This type covers roughly 28,000 acres of private lands in the county. The montane hardwood type can be largely made up of Canyon live oak, although it also can be associated with tanoak, Pacific madrone, California-laurel, California black oak and bristlecone fir at middle elevations (Mayer and Laudenslayer 1988, CA GAP).

Montane hardwood forests provide suitable habitat for 58 rare species in the Modoc and Sacramento Valley bioregions. The long-toed salamander, peregrine falcon, loggerhead strike, and California vole are listed as federally endangered, and the red-legged frog, striped racer, western aquatic garter snake, bald eagle, spotted owl, California thrasher, and California towhee are the listed threatened species likely to occur in the habitat. State-listed species predicted to occur in the Montane hardwood habitat include the endangered northern flicker and brush rabbit, as well as state-threatened rubber boa and Swainson's hawk. California fully protected species including the white-tailed kite, golden eagle, ringtail, and mountain lion are also likely to use the montane hardwood habitat (CA Dept. of Fish and Game 1999a).

Ponderosa pine habitats are found in the western edge and central portions of the FLA at moderate to higher mountain elevations (800-5,000 feet), and cover roughly 104,000 acres of private lands. These habitats include both pure stands of ponderosa pine as well as more diverse stands made up of white fir, incense cedar, Coulter pine, and Jeffrey pine (Mayer and Laudenslayer 1988, CA GAP).

Federally listed endangered species associated with the ponderosa pine forests of the bioregion include the peregrine falcon, loggerhead shrike, California vole, and long-toed salamander, while threatened species include the bald eagle, red-legged frog, striped racer, western aquatic garter snake, northern spotted owl, and California

towhee. Numerous other state and federal rare species are associated with the Tehama FLA ponderosa pine habitat, including the northern flicker, brush rabbit (CA endangered), red fox, rubber boa, and Swainson's hawk (CA Threatened), and the ringtail and mountain lion and golden eagle (CA full protected). In all, some 67 recognized rare wildlife species are associated with the ponderosa pine habitats of the Modoc and Sacramento Valley bioregions (CA Dept. of Fish and Game 1999a).

Sierran mixed conifer is found in the far eastern portion of the FLA, at middle mountain elevations of 2,500-4,000 feet, and covers 97,000 acres of private lands in Tehama County. The Sierran mixed conifer associates include five conifer species – white fir, Douglas-fir, ponderosa pine, sugar pine, and incense cedar; and one hardwood species – California black oak (Mayer and Laudenslayer 1988, CA GAP).

Sixty-one federal or state species are predicted to occur in the Sierran mixed conifer forest type in the bioregions. Federally listed endangered species include the long-toed salamander, peregrine falcon and California vole. Threatened species include the striped racer, bald eagle, and northern spotted owl. State listed endangered species associated with the Sierran mixed conifer type include the northern flicker and brush rabbit, while the rubber boa, red fox, and wolverine are listed by the state as threatened species (CA Dept. of Fish and Game 1999a).

Two other forest types are found in the Tehama FLA. These are the **valley oak woodland** which covers nearly 20,000 acres of low elevation land, and the **valley foothill riparian forest** which covers nearly 16,000 acres. These riparian forests are critically important habitat because of they provide food, migration and dispersal corridors, as well as thermal cover for many species, including aquatic species such as the federal endangered or candidate Chinook salmon ESUs with runs extending into the county (Mayer and Laudenslayer 1988, CA GAP, CA Dept. of Fish and Game 1999b).

Threats to Forest Resources

Residential development

Tehama's economic growth has and will likely continue to be dependent upon manufacturing, timber and agriculture, with an expanding service sector. The California Department of Finance projects that Tehama County's population will double by 2040, increasing from roughly 57,000 to reach 114,000 (CA Dept. of Finance 1998).

The majority of future growth is expected to occur in areas along the "1-5 Corridor," and in areas serviced by the Southern Pacific Railroad, State Highway 99 and County Road 99W. Current population is concentrated in several cities including Red Bluff, Corning and Tehama (Tehama County 1983). Because these growth areas are interspersed with

oak woodlands, a majority of the residential development in the county is occurring in the oak woodland zones at lower elevations.

Only three small communities in the county – Manton, Mineral, and Platina – are located in coniferous forest zones, and they are not currently experiencing growth pressures (Stoefer 2000). Virtually all of the county's privately-owned pine and mixed conifer forests are protected in the near term from conversion to other uses and from adjacent potential land use conflicts under the TPZ provisions (Tehama County 1983). Some 245,000 acres of private forested land in the Tehama FLA is zoned Timber Production. TPZ zoning thus applies to about 30 percent of the private forestlands in the county.

However, as in other counties, TPZ-zoned parcels in the Tehama FLA are subject to a rolling ten-year contract and can be removed from TPZ zoning by the landowner, subject to the requirements of the Z'berg-Warren-Keene Collier Forest Taxation Reform Act of 1976. Also, TPZ designation does not foreclose the possibility of parcelization and housing development. Tehama County TPZ regulations allow forest parcels of 40 acres, and for the development of a single family residence if a management plan has been prepared.

Watershed impairment

Tehama County lies within 7 major watershed basins – the Red Bluff, Lower Cottonwood-Enterprise Flat, Upper Thomas Creek, Stoney Creek, Whiskeytown-Cottonwood Creek, Battle Creek, and Mill Creek-Deer Creek-Dye Creek. Significant fish streams (warm water, anadromous, and resident trout areas) include the Sacramento River and Deer, Antelope, Mill, South Fork Battle, Cottonwood, Thomes, and Elder Creeks (Tehama County 1983). Each of these basins contain significant amounts of private land.

The Sacramento River (Red Bluff to Delta segment) in the Red-Bluff watershed is listed as an impaired waterway under section 303(d) of the Clean Water Act (SWRCB 1999). While conservation of forest resources through the Program has the potential to confer water quality benefits for all CWA-listed waterways, the primary sources of pollution currently recognized as impairing these river segments (principally from resource extraction/mining and agricultural activities) are not easily mitigated through forest conservation alone.

All watersheds in the Tehama FLA are listed under the California Unified Watershed Assessment as Category I watersheds – watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems) (CA Unified Watershed Assessment 1998). Helping stave off forestland conversion to other more intensive uses as well as limiting

road building and other soil disturbances – particularly in riparian areas – could help mitigate impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation

Specific conservation objectives for the Tehama FLA

CDF, the SFSCC, and the USFS will use the Program’s conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program’s conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners who wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program’s conservation goals are applicable to the Tehama FLA. As discussed in Section V, these goals translate into a number of conservation objectives. The following conservation goals and objectives apply to the Tehama FLA:

1. Goal: *Prevent future conversions of forestland and forest resources; and maintain and restore natural ecosystem functions:*

Objective: Minimize parcel fragmentation and non-forest development to maintain the resource base for forest-related economies, to reduce impacts to forest ecosystems, to reduce the risk of catastrophic fires to forest resources, and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: *Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity*

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

3. Goal: *Protect water quality, fisheries, and water supplies*

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

4. Goal: *Protect wildlife habitat, rare plants, and biodiversity*

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

5. Goal: *Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions*

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration “corridors”.

Resource protection mechanisms for the Tehama FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program’s tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program’s approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the Tehama FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and wildlife habitat, listed and sensitive species habitat, and opportunities for the production of forest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the State Forest Stewardship Coordinating Committee such as public recreation, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the Tehama FLA

(List is not exhaustive)

USDA Forest Service

USDOJ Bureau of Land Management

California Department of Forestry and Fire Protection

California Department of Fish and Game

State Lands Commission

Tehama County

Other local government entities otherwise authorized to acquire and hold title to real property

XIX. THE PLUMAS FOREST LEGACY AREA SIERRA BIOREGION

FLA Location

The map entitled "Plumas County Forest Legacy Area," depicts the location of the Plumas FLA and its boundaries.

Boundary Description

The FLA is defined as all the lands within the county, which is located in the Sierra bioregion in the northern Sierra Nevada of California, and bounded to the east by Lassen County, to north by Lassen and Shasta Counties, to the west by Tehama and Butte Counties, and to the south by Yuba and Sierra Counties.

As with other FLAs, any public lands – which make up roughly 84% of Plumas County, or lands within incorporated areas are ineligible for participation in the Program. Specific public lands located within or proximate to the Plumas FLA are listed in Appendix H, Table V. Urban lands make up 2% of the FLA's private land. The urban boundaries on the map "Plumas County Forest Legacy Area" are based on US Census TIGER data (US Dept. of Commerce 1992). In the case that actual incorporation boundaries are different from those depicted on the reference map, the actual city boundaries will comprise the FLA boundaries. The designated boundaries of the FLA include lands that are unlikely to meet other Program eligibility requirements, including the requirement that parcels be forested with at least 10% tree canopy cover, or capable of achieving 10% tree canopy under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be available for viewing at CDF and USFS.

Summary

The Plumas FLA straddles the northern Sierra Nevada range, ranging from the moist west slope of the Sierra at middle elevations of 2,000 feet, continuing over the crest up to 8,000 feet, and into the pine covered east slope at around 5,000 feet. About 84% of the FLA is publicly owned. Of the roughly 430 square miles (275 thousand acres) of private land in the Plumas FLA, over 80 percent is forested, almost exclusively by conifers.

The California Natural Diversity Database, which catalogues state and federally rare species, has recorded some 37 vascular plants, 7 birds, and 3 mammals in Plumas County. (CA Dept. of Fish and Game 1999b). In addition, 16 Significant Natural Areas

(SNAs) have all or a portion of their area on private lands within the FLA (CA Dept. of Fish and Game 1999c). (SNAs with area in the FLA are listed in Appendix H Table IV.)

The Plumas FLA is sparsely populated. Rugged mountain roads make commuting from Plumas County to Central Valley communities infeasible. However, growth and recreational development is occurring along the eastern edge of the FLA which is within commuting distance of Reno, Nevada. The Forest Legacy goals and objectives for the Plumas FLA seek to maintain and preserve the forested environment and associated habitats, while protecting the productive forest land base for current and future county residents.

Forest Resources

The predominant forest types in the Forest Legacy Area are discussed below:

Sierran mixed conifer is found in the western half of the FLA on the moist west slope of the Sierra Nevada, at middle elevations of 2,500-4,000 feet. It occupies over a quarter of the private lands in Plumas County, roughly 88,000 acres. The Sierran mixed conifer associates include five conifer species – white fir, Douglas-fir, ponderosa pine, sugar pine, and incense cedar; and one hardwood species – California black oak (Mayer and Laudenslayer 1988, CA GAP).

Sixty-four federal or state rare species are associated with the Sierran mixed conifer forest type in the Sierra bioregion (see note 19, page 20). Federally listed endangered species include the long-toed salamander, and peregrine falcon. Threatened species include the striped racer, bald eagle, and northern spotted owl. State listed endangered species associated with the Sierran mixed conifer type include the northern flicker and brush rabbit, while the rubber boa, red fox, and wolverine species are listed by the state as threatened species (CA Dept. of Fish and Game 1999a).

White fir forests are found in the southeastern portion of the county at elevations between 5,000 and 6,000 feet, typically just above the Sierran mixed conifer belt. These forests cover nearly 46,000 acres of private land in the Plumas FLA. While white fir dominates this forest type, white fir forests also include Jeffrey pine, and occasional sugar pine, red fir, and incense cedar (Mayer and Laudenslayer 1988, CA GAP).

Rare species found in white fir forests number at least 62 in the Sierra bioregion. The long-toed salamander, common garter snake, peregrine falcon, and mountain beaver are listed as federally endangered, while the bald eagle, striped racer, and spotted owl are listed as threatened. Of the state-listed species, the northern flicker is listed as endangered, and the rubber boa, red fox, and wolverine are listed as threatened (CA Dept. of Fish and Game 1999a).

Jeffrey pine habitats are located in pockets in the central and eastern portion of the Plumas FLA above 5,000 feet. Roughly ten percent of the private land in the county, or 32,000 acres, is dominated by Jeffrey pine, which can flourish under colder temperatures than other mixed conifer species. Associated tree species include ponderosa pine, sugar pine, white fir and red fir. On dry sites, California black oak, pinyon pine, and juniper may be found (Mayer and Laudenslayer 1988, CA GAP).

Forty-seven federal or state-recognized rare species are associated with the Jeffrey pine habitat in the Sierra bioregion. Among the federally endangered species are the long-toed salamander, peregrine falcon, and loggerhead shrike, while the federally-listed threatened species are the bald eagle and spotted owl. California endangered northern flicker and threatened red fox, wolverine, and rubber boa, also occupy the Jeffrey pine habitat in this FLA (CA Dept. of Fish and Game 1999a).

Eastside pine habitats, primarily in the eastern third of the county, occupy the east slope of the Sierra Nevada at 4,000-6,000 feet in elevation, and make up a little over 7,000 privately owned acres in the FLA. This forest type is dominated by ponderosa pine. Associated tree species include Jeffrey pine, lodgepole pine, white fir, incense-cedar, Douglas-fir, California black oak and western juniper (Mayer and Laudenslayer 1988, CA GAP).

Forty-five rare wildlife species are associated with the eastside pine habitats in the Sierra bioregion. Federally listed endangered species include the loggerhead shrike, and peregrine falcon. Federally threatened species include the sage sparrow, spotted owl, and bald eagle. In addition, California endangered species in the eastside pine habitat include the northern flicker, while state threatened species include the red fox and Swainson's hawk (CA Dept. of Fish and Game 1999a).

Other forest types in the FLA with very limited acreage include **Douglas-fir** at almost 3,000 acres, **red fir** at 1,000 acres, **ponderosa pine** at 500 acres, **montane hardwood conifer** at 500 acres, and **montane hardwood** at 2,500 acres. In addition, around 2,700 acres of **montane riparian** habitat is in private ownership in the FLA. These riparian forests are critically important habitat because of they provide water, thermal cover, migration corridors and diverse nesting and feeding opportunities for many species (Mayer and Laudenslayer 1988, CA GAP).

Threats to Forest Resources

Residential development

Very modest population growth is expected in the Plumas FLA compared to many other California counties. The California Department of Finance projects that Plumas County's population will increase by 18% from present levels of 21,000 to almost 25,000

by the year 2040 (CA Dept. of Finance 1998). Processing of lumber and forest products continues to be a mainstay of the economy despite recent reduction in harvesting on federal timberlands. Growth sectors include tourism, retail, health and social services, and construction (Plumas County 1993).

Current population is centered on five main communities, all in forested zones: Portola, Mohawk/Graeagle, Greenville, Chester, and Quincy, the county seat. Growth is currently occurring in the eastern portion of the county along the Highway 89/70 corridor, as well as the Lake Almanor basin. Communities affected by this development include Lake Almanor and Mohawk/Graeagle both of which are in the mixed conifer zone where new golf resorts and recreational homes have been built in the last five years. Areas around the City of Portola, in the eastside pine zone, have also experienced growth due to Portola's commuting distance from Reno, Nevada. Residential development in forestland areas can increase ignition sources in areas of high fuel accumulation and increase the likelihood of catastrophic fire, as well as interfering with fire suppression efforts (FRAP 1999a).

Of the roughly 275,000 acres of private land in the Plumas FLA, over eighty percent is zoned Timber Production (TPZ). As in other counties, TPZ-zoned parcels in the Plumas FLA are subject to a rolling ten-year contract and can be removed from TPZ zoning by the landowner, subject to the requirements of the Z'berg-Warren-Keene Collier Forest Taxation Reform Act of 1976. Also, TPZ designation does not foreclose the possibility of future parcelization and housing development.

Watershed impairment

Plumas County is contained principally within one major river drainage – the Feather River basin. The southern portion of the county contains a small portion of the Yuba River Basin.

A number of stream segments in the Feather River watershed – primarily on public lands – are listed as impaired under section 303(d) of the Clean Water Act. While conservation of forest resources through the Program has the potential to confer water quality benefits for all CWA-listed waterways, the primary sources of pollution currently recognized as impairing these river segments (principally from resource extraction/mining) are not easily mitigated through private forestland conservation alone (SWRCB 1999).

The Feather River and Yuba River watersheds are listed under the California Unified Watershed Assessment as Category I watersheds – watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems). (CA Unified Watershed Assessment, 1998). Helping stave off forestland conversion to other more intensive uses as well as limiting road building and other soil disturbances – particularly in

riparian areas – could help mitigate impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation

Specific conservation objectives for the Plumas FLA

CDF, the SFSCC, and USFS Service will use the Program’s conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program’s conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners who wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program’s conservation goals are applicable to the Plumas FLA. As discussed in Section V, these goals translate into a number of conservation objectives. The following conservation goals and objectives apply to the Plumas FLA:

1. Goal: *Prevent future conversions of forestland and forest resources; and maintain and restore natural ecosystem functions:*

Objective: Minimize parcel fragmentation and non-forest development to maintain the resource base for forest-related economies, to reduce impacts to forest ecosystems, to reduce the risk of catastrophic fires to forest resources, and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: *Protect water quality, fisheries, and water supplies*

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

3. Goal: *Protect wildlife habitat, rare plants, and biodiversity*

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

4. Goal: *Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity*

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

5. Goal: *Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions*

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration “corridors”.

Resource protection mechanisms for the Plumas FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program’s tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program’s approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the Plumas FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and wildlife habitat, listed and sensitive species habitat, and opportunities for the production of forest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the State Forest Stewardship Coordinating Committee such as public recreation, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the Plumas FLA

(List is not exhaustive)

USDA Forest Service

USDOJ Bureau of Land Management

California Department of Forestry and Fire Protection

California Department of Fish and Game

State Lands Commission

Plumas County

Other local government entities otherwise authorized to acquire and hold title to real property

XX. THE BUTTE FOREST LEGACY AREA SIERRA AND SACRAMENTO VALLEY BIOREGIONS

FLA Location

The map entitled "Butte County Forest Legacy Area" depicts the location of the Butte FLA and its boundaries.

Boundary Description

The FLA is defined as all the lands within the county, which is located in the Sierra and Sacramento Valley bioregions in inland northern California, and bounded to the north by Tehama County, to the west by Glenn and Colusa Counties, to the south by Sutter and Yuba Counties, and to the east by Plumas County.

As with other FLAs, any public lands – which make up roughly 25% of Butte County – or lands within incorporated areas, are ineligible for participation in the Program. Specific public lands located within or proximate to the Butte FLA are listed in Appendix H, Table V. Urban uses are dominant on about four percent of the county's land. The urban boundaries on the map "Butte County Forest Legacy Area" are based on US Census TIGER data (US Dept. of Commerce 1992). In the case that actual incorporation boundaries are different from those depicted on the reference map, the actual city boundaries will comprise the FLA boundaries. The FLA also includes lands that are not likely to meet other Program eligibility requirements, including the requirement that applicant parcels must be forested with at least 10% canopy cover, or be capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be available for viewing at CDF and USFS.

Summary

The Butte FLA is made up of approximately 830,000 acres (1,300 square miles) of private land, of which half is covered with hardwood and coniferous forests. About half of Butte County is located in the relatively flat Sacramento Valley, which ranges from 60 to 200 feet. Another quarter of the county extends eastward into the foothills between 200 to 2,100 feet, while another third extends into the Sierra Nevada range, reaching elevations up to 6,000 above sea level. Hardwoods cover the valley and foothill sections, while conifers dominate at higher mountain elevations.

This diversity of vegetation types accounts for the numerous rare species recorded in Butte County by the California Natural Diversity Database, including 41 vascular

plants, 1 fish, 2 amphibians, and 13 birds, and one mammal (CA Dept. of Fish and Game 1999b). In addition, 34 Significant Natural Areas (SNAs) have all or a portion of their area on private lands within the FLA (CA Dept. of Fish and Game, 1999c). (SNAs with area in the Butte FLA are listed in Appendix H Table IV.)

Agricultural products are a mainstay of the county economy, however, employment in non-agricultural industries continues to expand, with the county's population projected to double by the year 2040 to over 400,000 people (CA Dept. of Finance 1998). Human populations are concentrated in the incorporated and unincorporated urban areas around Chico, Oroville, and Paradise. Although Butte County General Plan policies will focus the majority of future growth in these areas, a moderate amount of residential development is anticipated in forested areas within commuting distance of these cities in the hardwood-covered foothills and the ponderosa pine belt above it.

The goals of the Forest Legacy Program in the Butte FLA will be to protect the county's forest resources and associated habitats, particularly in the face of residential and industrial development pressures in the area.

Forest Resources

Of the private forestland in the Butte FLA, just under half is dominated by hardwoods while the other half is coniferous at higher elevations in the eastern edge of the FLA. The predominant forest types are discussed below:

Almost 135,000 acres of the Butte FLA's private forest land is in the **blue oak-foothill pine** forest type which occurs in a band from north to south in the center of the county as the foothill elevations reach between 500 and 3,000 feet. Blue oak dominates this forest type with associated tree species including the foothill pine, California buckeye, and interior live oak (Mayer and Laudenslayer 1988, CA GAP). Butte County oak woodlands are also critical winter ranges for migrating deer herds, which travel to higher altitudes on the National Forests for their summer ranges (Butte County 1979).

In the Sierra and Sacramento Valley bioregions, the blue oak-foothill pine habitat type provides suitable habitat for some 79 federal- or state-listed rare species (see note 19, page 20). These include the peregrine falcon, loggerhead shrike and California vole, which are on the federal endangered species list. The red-legged frog, striped racer, western aquatic garter snake, bald eagle, spotted owl, California thrasher and California towhee are on the federal threatened species list. Also predicted to occur in the habitat is the northern flicker, savannah sparrow and brush rabbit from the state endangered species list, and the Swainson's hawk from the state threatened species list (CA Dept. of Fish and Game 1999a).

The **montane hardwood** forest habitat type is found in the eastern half of the county in the Sierra Nevada foothills and covers about 53,000 acres of the total private lands in Butte County. The montane hardwood type grows on steep rocky south slopes of major river canyons where it consists mostly of canyon live oak and Douglas fir. At higher elevations canyon live oak associates with Sierran mixed conifer species, while at lower elevation live oak associates with foothill pine, and California laurel (Mayer and Laudenslayer 1988, CA GAP).

The montane hardwood forest provides suitable habitat for 63 federal- or state-listed rare species in the Sacramento Valley and Sierra bioregion. These include the long-toed salamander, peregrine falcon, California vole, and loggerhead shrike, listed federally endangered, and the red-legged frog, striped racer, western aquatic garter snake, bald eagle, spotted owl, California thrasher, and California towhee which are listed as threatened. State-endangered northern flicker and brush rabbit, as well as state-threatened rubber boa, and Swainson's hawk also are predicted to occur in this habitat type (CA Dept. of Fish and Game 1999a).

Ponderosa pine habitats are found in the eastern half of the Butte FLA at moderate to higher mountain elevations (1,500-3,500 feet) in a band along the west slope of the Sierra Nevada range. This type covers about 83,000 acres of the private lands in the county. These habitats include both pure stands of ponderosa pine as well as more diverse stands made up of white fir, incense cedar, sugar pine, Jeffrey pine, Douglas-fir, California black oak, and Oregon white oak (Mayer and Laudenslayer 1988, CA GAP).

Federally listed endangered species associated with the ponderosa pine forests include the long-toed salamander, peregrine falcon, loggerhead shrike, and California vole, while threatened species include the bald eagle, spotted owl, California towhee, striped racer, western aquatic garter snake, and red-legged frog. State-listed rare species include the northern flicker, and brush rabbit (CA endangered), red fox, Swainson's hawk, and rubber boa (CA Threatened), and the ringtail, golden eagle and mountain lion (CA protected). In total, the ponderosa pine habitats in the Sacramento Valley and Sierra bioregions provide suitable habitat for some 67 federally and state recognized rare wildlife species (CA Dept. of Fish and Game 1999a).

Sierran mixed conifer is found on the eastern edge of the FLA on the moist west slope of the Sierra Nevada, at middle elevations of 3,500-5,000 feet. It occupies another 150,000 acres of the private lands in the Butte FLA. The Sierran mixed conifer associates include five conifer species – white fir, Douglas-fir, ponderosa pine, sugar pine, and incense cedar; and one hardwood species – California black oak (Mayer and Laudenslayer 1988, CA GAP).

Sixty-four federal- or state-listed species are associated with the Sierran Mixed conifer forest type in the Sacramento Valley and Sierra bioregions. Federally listed

endangered species include the long-toed salamander, peregrine falcon, and California vole. Threatened species include the striped racer, bald eagle, and spotted owl. State listed endangered species associated with the Sierran mixed conifer type include the northern flicker and brush rabbit, while the rubber boa, red fox, and wolverine are species listed by the state as threatened (CA Dept. of Fish and Game 1999a).

Valley foothill riparian forests cover only about 9,000 acres of the county's private land, primarily in the lower elevation western portion of the county. These stands are characterized by cottonwood, California sycamore and valley oak associated with white alder, boxelder and Oregon ash. Although this habitat is relatively small, it provides critical wildlife habitat in the form of food, water, migration and dispersal corridors, escape, nesting, and thermal cover for an abundance of species (Mayer and Laudenslayer 1988, CA GAP).

Over 79 rare species find suitable habitat in the valley foothill riparian forest type including federally listed endangered species such as the long-toed salamander, peregrine falcon, willow flycatcher, loggerhead shrike, and California vole. Federally threatened species include the bald eagle, spotted owl, California thrasher, California towhee, striped racer, western aquatic garter snake, giant garter snake, and red-legged frog. State rare species include the endangered northern flicker, savannah sparrow, yellow-billed cuckoo, and brush rabbit, and the threatened Swainson's hawk, rubber boa, bank swallow, and sandhill crane (CA Dept. of Fish and Game 1999a).

Valley oak woodland, montane hardwood-conifer, and blue oak woodlands together make up less 7,000 acres of the private lands in the county (Mayer and Laudenslayer 1988, CA GAP).

Threats to Forest Resources

Residential development

Agricultural products continue to be a mainstay of the county economy, with diverse crops produced including fruit, nuts, rice, livestock and poultry. Processing of logs from the foothills and Sierra Nevada is concentrated in the valley communities of Chico and Oroville (Butte County 1979). In addition, employment in non-agricultural industries continues to expand, particularly in service, retail, wholesale trade, government services. Expansion of California State University, Chico has particularly stimulated growth in the county.

The California Department of Finance projects that Butte County's population will double by the year 2040, increasing from roughly 200,000 people today to over 400,000 people (CA Dept. of Finance 1998). Established Butte County land use policies focus most residential development around established urban areas. Currently, almost 50%

of the County's population resides within the limits of the four incorporated cities, namely Chico, Oroville, Gridley, and Paradise, while another 30% live in unincorporated areas surrounding those cities. The County's unincorporated areas have received the largest volume of residential growth in recent years (Butte County 1979, Sander 2000).

Residential development is occurring in forested areas, which can increase ignition sources in areas of high fuel accumulation and increase likelihood of catastrophic fire, as well as interfering with fire suppression efforts. Residential growth in forested areas of the Butte FLA is primarily occurring in the foothills between 1,800 and 2,500 feet in elevation, close enough to the major urban areas of the county to allow residents to commute. Areas experiencing growth include Cohasset, Concow-Yankee Hill, Bald Rock, and lands above Lake Oroville (Sander 2000). Some of these areas also provide important winter range for deer.

In the ponderosa pine belt, the city of Paradise and surrounding unincorporated areas continue to experience "infill" development. Communities such as Cohasset, Forest Ranch, Berry Creek have experienced a moderate amount of development on larger 5-10 acre lots (Sander 2000). Most of the remainder of the private forested land is zoned for parcels which are 40 acres or larger. Butte County has a number of different land use zones including the Timber Mountain Zone, which encompasses about 25% of the county (about 335,000 acres). In these zones, some residential development may occur at a very low density.

Over 170,000 acres of private land in Butte County is zoned as Timber Production (TPZ), primarily the holdings of large private timber companies (Sander 2000). As in other counties, TPZ-zoned parcels in the Butte FLA are subject to a rolling ten-year contract and can be removed from TPZ zoning by the landowner, subject to the requirements of the Z'berg-Warren-Keene Collier Forest Taxation Reform Act of 1976. Also, TPZ designation does not foreclose the possibility of future parcelization and housing development. Butte County TPZ regulations allow forest parcels of 40 acres with a joint management plan, and development of a single family residence if a management plan has been prepared, although most TPZ parcels are currently at least 160 acres.

Watershed impairment

Surface water bodies cover 30 square miles of the County. Butte County contains seven major watersheds – Red Bluff, Mill Creek-Deer Creek-Dye Creek, West Branch Feather River, Feather River, Butte-Sutter-Colusa, Lower Feather, and Yuba River – all of which contain significant amounts of private lands. Salmon streams are Butte, Big Chico, Feather. Residential developments are occurring in the upper reaches of these watersheds, far from streams themselves (Sander 2000).

Several stream segments in the Feather, Lower Feather, Red Bluff, and Butte-Sutter-Colusa watersheds are listed as impaired under section 303(d) of the Clean Water Act (SWRCB 1998). While conservation of forest resources through the Program has the potential to confer water quality benefits for all CWA-listed waterways, the primary sources of pollution currently recognized as impairing these river segments (largely agriculture and resource extraction/mining) are not easily mitigated through private forestland conservation alone. However, all watersheds in the Butte FLA are listed under the California Unified Watershed Assessment as Category I watersheds – watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems). (CA Unified Watershed Assessment, 1998). Helping stave off forestland conversion to other more intensive uses as well as limiting road building and other soil disturbances – particularly in riparian areas – could help mitigate impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation

Specific conservation objectives for the Butte FLA

The CDF, SFCC, and USFS will use the Program's conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program's conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners that wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program's conservation goals are applicable to the Butte FLA. As discussed in Section V, these goals translate into a number of conservation objectives. The following conservation goals objectives apply to the Butte FLA:

1. Goal: *Prevent future conversions of forestland and forest resources; and maintain and restore natural ecosystem functions:*

Objective: Minimize parcel fragmentation and non-forest development to maintain the resource base for forest-related economies, to reduce impacts to forest ecosystems, to reduce the risk of catastrophic fires to forest resources, and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: *Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions*

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration "corridors".

3. Goal: *Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity*

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

4. Goal: *Protect water quality, fisheries, and water supplies*

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

5. Goal: *Protect wildlife habitat, rare plants, and biodiversity*

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

Resource protection mechanisms for the Butte FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program's tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program's approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the Butte FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and wildlife habitat, listed and sensitive species habitat, and opportunities for the production of forest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the State Forest Stewardship Coordinating Committee such as public recreation, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the Butte FLA

(List is not exhaustive)

USDA Forest Service
USDOJ Bureau of Land Management

California Department of Forestry and Fire Protection

California Department of Fish and Game

State Lands Commission

Butte County

Other local government entities otherwise authorized to acquire and hold title to real property

XXI. THE SIERRA FOREST LEGACY AREA SIERRA BIOREGION

FLA Location

The Map entitled “Sierra County Forest Legacy Area” depicts the location of the Sierra FLA and its boundaries.

Boundary Description

The FLA is defined as all the lands within the county, which is located in the northern Sierra bioregion (Sierra Nevada range), and bounded to the east by the state of Nevada, to north by Lassen and Plumas Counties, to the west by Yuba County, and to the south by Nevada County.

As with other FLAs, any public lands – which make up roughly 88 percent of Sierra County – or lands within incorporated areas, less than 1% of the county, are ineligible for voluntary participation in the Program. Specific public lands are listed in Appendix H, Table V. The urban boundaries in the Sierra FLA map are based on US Census TIGER data (US Census 1992). In the case that actual urban boundaries are different from those depicted on the reference map, the actual city boundaries will comprise the FLA boundaries. The designated boundaries of the FLA include lands that are unlikely to meet other Program eligibility requirements, including the requirement that parcels be forested with at least 10% tree canopy cover, or capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be made available for viewing at CDF and USFS.

Summary

The Sierra FLA is a small, sparsely populated, and predominately forested area straddling the northern Sierra Nevada range. It includes lands on the moist west slope of the Sierra at middle elevations of 2,000 feet, continues over the crest up to 8,000 feet, into the pine covered east slope at around 5,000 feet and to nearly arid sagebrush and juniper rangeland in the far eastern portion.

Only about 3,400 people live in Sierra County, which covers almost 1,000 square miles. About 84% of the FLA is publicly owned. Over 85,000 acres of private land in the FLA is forested. The California Natural Diversity Database, which catalogues state and federally rare species, has recorded some 18 vascular plants, 2 amphibians, 1 fish, 6 birds, and 3 mammals in Sierra County (CA Dept. of Fish and Game 1999b). In

addition, 5 Significant Natural Areas (SNAs) have all or a portion of their area on private lands within the FLA (CA Dept. of Fish and Game, 1999c). (SNAs with area in the FLA are listed in Appendix H Table IV.)

Timber harvesting, lumber processing, ranching, and mining are the mainstays of the county economy, in addition to recreation and tourism, retail, services, and government employment. The California Department of Finance anticipates the population of Sierra County to remain stable until the year 2040, although the general plan allows for growth of up to 1.4% around existing communities if growth pressures begin, as they have in neighboring Plumas County, the eastern portion of which shares commuting proximity to Reno, Nevada.

The Forest Legacy goals and objectives for the Sierra FLA seek to maintain the forested landbase and the associated habitat values, while protecting the County's productive forestlands for use by current and future residents.

Forest Resources

Of the private forested land, nearly 11,000 acres is covered by the Jeffrey pine forest habitat type, while eastside pine and Sierran mixed conifer together cover only about 1,000 acres. These forest types are discussed below:

Jeffrey pine habitats cover 11,000 acres of private land along the eastern portion of the county in the Sierra FLA. Stands are found above 5,000 feet and are dominated by Jeffrey pine, which can flourish under colder temperatures than other mixed conifer species. Associated tree species include ponderosa pine, sugar pine, white fir and red fir. On dry sites, California black oak, pinyon pine, and juniper may be found (Mayer and Laudenslayer 1988, CA GAP).

Forty-seven federal or state-recognized rare species are associated with the Jeffrey pine habitat in the Sierra bioregion (see note 19, page 20). Among the federally endangered species are the long-toed salamander, common garter snake, peregrine falcon, and loggerhead shrike, while the federally-listed threatened species are the bald eagle and spotted owl. California endangered northern flicker and threatened red fox, wolverine, and rubber boa, also are predicted to inhabit the Jeffrey pine habitat in this region (CA Dept. of Fish and Game 1999a).

Eastside pine habitats exist primarily in the eastern half of the county, on the east slope of the Sierra Nevada at 4,000-6,000 feet in elevation, and constitute roughly 600 privately owned acres. This forest type is dominated by ponderosa pine. Associated

tree species include Jeffrey pine, lodgepole pine, white fir, incense-cedar, Douglas-fir, California black oak and western juniper (Mayer and Laudenslayer 1988, CA GAP).

Forty-five rare wildlife species are associated with the eastside pine habitats in the Sierra bioregion. Federally listed endangered species include the loggerhead shrike, peregrine falcon, common garter snake, and mountain beaver. Federally threatened species include the sage sparrow, spotted owl, and bald eagle. In addition, California endangered species in the eastside pine habitat include the northern flicker, while state threatened species include the red fox and Swainson's hawk (CA Dept. of Fish and Game 1999a).

Sierran mixed conifer is found in the western half of the FLA on the moist west slope of the Sierra Nevada, at middle elevations of 2,500-4,000 feet. It covers around 500 acres of private land in the FLA. The Sierran mixed conifer associates include five conifer species – white fir, Douglas-fir, ponderosa pine, sugar pine, and incense cedar; and one hardwood species – California black oak (Mayer and Laudenslayer 1988, CA GAP).

Sixty-four federal or state rare species are associated with the Sierran mixed conifer forest type in the Sierra bioregion. Federally listed endangered species include the long-toed salamander, and peregrine falcon. Threatened species include the striped racer, bald eagle, and northern spotted owl. State listed endangered species associated with the Sierran mixed conifer type include the northern flicker, while the rubber boa, red fox, and wolverine are listed by the state as threatened (CA Dept. of Fish and Game 1999a).

Throughout the FLA, riparian forests provide water, thermal cover and migration corridors for rare species, including aquatic species such as the federally threatened Lahontan cutthroat trout (Mayer and Laudenslayer 1988, CA Dept. of Fish and Game 1999b)

Threats to Forest Resources

Residential development

No net population growth is predicted for Sierra County in the coming year. The California Department of Finance projects that Sierra County's population will remain at its current level of 3,500 people in the year 2040 (CA Dept. of Finance 1998). Current population is divided into two locations, two thirds of which live in the eastern half of the county in and around the city of Loyalton, and communities of Calpine and Sierraville. The other third lives in the western portion of the county in and around the communities of Downieville and Sierra City.

Although no appreciable growth is predicted in the county, the 1996 Sierra County General Plan allows for 1.4% growth rate around existing communities. Analysis in the plan anticipates that the county can accommodate a total population of nearly 10,000 if areas currently zoned for growth are built out – more than 4,600 acres zoned for residential development are currently vacant (Sierra County 1996). However, adjacent regions of neighboring counties are growing, including the Highway 89 corridor and City of Portola in Plumas County near the Sierra County communities of Loyalton, Verdi, and Calpine which are within commuting distance to Reno, Nevada. Current General Plan zoning virtually precludes growth or development outside of existing communities in order to maintain existing forest, agricultural and mineral lands (Griffith 2000).

Over 85,000 acres of private land in the Sierra FLA is forested and zoned Timber Production (TPZ) (Sierra County 1992). As in other counties, TPZ-zoned parcels in the Sierra FLA are subject to a rolling ten-year contract and can be removed from TPZ zoning by the landowner, subject to the requirements of the Z'berg-Warren-Keene Collier Forest Taxation Reform Act of 1976. Also, TPZ designation does not foreclose the possibility of parcelization and housing development on parcels with a minimum size of 40 acres. Residential development in forestland areas can increase ignition sources in areas of high fuel accumulation and increase the likelihood of catastrophic fire, as well as interfering with fire suppression efforts (FRAP 1999a).

Watershed impairment

Sierra County encompasses five major watersheds – the Susan, Lower Truckee, and the Feather, which contain significant amounts of private lands, and the Yuba and Little Truckee Rivers, which contain no appreciable private lands. While conservation of forest resources through the Program has the potential to confer water quality benefits for all waterways listed as impaired under section 303(d) of the Clean Water Act, the single CWA-listed waterway that has recognized impairments that could potentially be mitigated through private forest conservation easements is listed below:

A segment of the Truckee River in the Lower Truckee watershed, in watershed lands in the FLA, has been listed as impaired under the section 303(d) of the CWA, owing to sedimentation/siltation. The state has listed cited the sources of pollution including urban development and silvicultural activities, in the highly erosive watershed lands (SWRCB 1999).

All watersheds in the Sierra FLA are listed under the California Unified Watershed Assessment as Category I watersheds – watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems) (CA Unified Watershed Assessment 1998). Helping stave off forestland conversion to other more intensive uses – particularly in

riparian areas – could help improve impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation

Specific conservation objectives for the Sierra FLA

CDF, the SFSCC, and the USFS will use the Program’s conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program’s conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners who wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program’s conservation goals are applicable to the Sierra FLA. As discussed in Section V, these goals translate into a number of conservation objectives. The following conservation goals and objectives apply to the Sierra FLA:

1. Goal: *Prevent future conversions of forestland and forest resources; and maintain and restore natural ecosystem functions:*

Objective: Minimize parcel fragmentation and non-forest development to maintain the resource base for forest-related economies, to reduce impacts to forest ecosystems, to reduce the risk of catastrophic fires to forest resources, and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: *Protect water quality, fisheries, and water supplies*

Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

3. Goal: *Protect wildlife habitat, rare plants, and biodiversity*

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

4. Goal: *Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity*

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

5. Goal: *Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions*

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration “corridors”.

Resource protection mechanisms for the Sierra FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program’s tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program’s approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the Sierra FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and wildlife habitat, listed and sensitive species habitat, and opportunities for the production of forest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the SFSCC such as public recreation, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the Sierra FLA

(List not exhaustive)

USDA Forest Service

USDOJ Bureau of Land Management

California Department of Forestry and Fire Protection

California Department of Fish and Game

Sierra County

Other local government entities otherwise authorized to acquire and hold title to real property

XXII. THE YUBA FOREST LEGACY AREA SIERRA AND SACRAMENTO VALLEY BIOREGIONS

FLA Location

The map entitled "Yuba County Forest Legacy Area," depicts the location of the Yuba FLA and its boundaries.

Boundary Description

The FLA is defined as all the lands within the county, which is located in the Sierra and Sacramento Valley bioregions in inland northern California, and bounded to the north by Butte and Plumas Counties, to the east by Sierra County, south by Nevada and Placer Counties, and to the west by Sutter County.

As with other FLAs, any public lands – which make up around than 25% of Yuba County – or lands within incorporated areas are ineligible for participation in the Program. Specific public lands located within or proximate to the Yuba FLA are listed in Appendix H, Table V. The urban boundaries on the map "Yuba County Forest Legacy Area" are based on US Census TIGER data (US Dept. of Commerce 1992). In the case that actual urban boundaries are different from those depicted on the reference map, the actual city boundaries will comprise the FLA boundaries. The designated boundaries of the FLA include lands that are unlikely to meet other Program eligibility requirements, including the requirement that parcels be forested with at least 10% tree canopy cover, or capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be available for viewing at CDF and USFS.

Summary

Yuba County is a primarily rural and agricultural county located in the eastern Sacramento Valley. The county is bounded to the west by the Feather River, and extends east into the foothills and higher elevations of the Sierra Nevada range. Of the roughly 300,000 acres of private lands in Yuba County, about one half is forested. Of the forestlands, roughly two-thirds is dominated by hardwoods while the other third is in coniferous forest at higher elevations in the eastern edge of the FLA.

The California Natural Diversity Database, which catalogues state and federally listed rare species, has recorded 4 vascular plants, 1 fish, and 6 birds in Yuba County (CA Dept. of Fish and Game 1999b). In addition, 8 Significant Natural Areas (SNAs) have all

or a portion of their area on private lands within the FLA (CA Dept. of Fish and Game, 1999c). (SNAs with area in the Yuba FLA are listed in Appendix H Table IV.)

Agriculture, livestock grazing, and government service are a mainstay of the county economy, however, employment in non-agricultural industries and occupations continues to expand, with the county's population projected to double by the year 2040 to over 110,000 people. Over a third of the county's work force commuted outside the county for jobs in 1990, many to Sacramento (Yuba County 1996).

Growth has occurred and future growth is likely to be centered along the "1-5 Corridor" in the Sacramento Valley urban areas of Marysville and Wheatland. In addition, however, some growth is occurring in small foothill communities in the oak woodland and hardwood-conifer zones. Goals of the Forest Legacy Program in the Yuba FLA will be to protect the county's forest resources and associated habitats despite increasing residential development in the area (Yuba County 1996).

Forest Resources

The predominant forest types in the Forest Legacy Area are discussed below:

The **montane hardwood** type is found in the eastern half of the county in the Sierra Nevada foothills and covers about 55,000 acres, or a fifth of the total private lands in Yuba County. Montane hardwood forests grow on steep rocky south slopes of major river canyons and consist mostly of canyon live oak and Douglas fir. At higher elevations, canyon live oak associates with Sierran mixed conifer species, while at lower elevation live oak associates with foothill pine, California laurel, knobcone pine, tanoak, and Pacific madrone (Mayer and Laudenslayer 1988, CA GAP).

63 federal and state recognized rare species have suitable habitat in the montane hardwood forest in the Sacramento Valley and Sierra bioregions (see note 19, page 20). These include the peregrine falcon, California vole and loggerhead shrike, which are federally endangered, and the red-legged frog, striped racer, western aquatic garter snake, bald eagle, spotted owl, California thrasher, and California towhee which are federally listed as threatened. State-listed species include the endangered northern flicker and brush rabbit, as well as state-threatened rubber boa, and Swainson's hawk (CA Dept. of Fish and Game 1999a).

Over a tenth of the FLA's private land, or about 33,000 acres, is covered by the **blue oak-foothill pine** and the **blue oak woodland** forest types combined. **Blue oak woodlands** are found in the west central portion of the county as the terrain above the Central Valley in the Sierra Nevada foothills at 500 to 2,000 feet in elevation. Blue oak woodland is dominated by the blue oak, which typically makes up more than 85

percent of tree species present with the remainder consisting of interior live oak and valley oak. The **blue oak-foothill pine** type occurs above the blue oak woodlands in the foothills at the center of the FLA between 500 and 3,000 feet. Blue oak also dominates this forest type. Associated tree species are the foothill pine, California buckeye, and interior live oak, which can dominate at higher elevations (Mayer and Laudenslayer 1988, CA GAP).

At least 79 rare species find suitable habitat in the blue oak-foothill pine forest type in the Sacramento Valley and Sierra bioregions. These include the peregrine falcon, loggerhead shrike, and California vole, which are on the federal endangered species list. The red-legged frog, striped racer, western aquatic garter snake, bald eagle, spotted owl, California thrasher and California towhee are on the federal threatened species list. Also predicted to occur in the habitat is the northern flicker, savannah sparrow and brush rabbit from the state endangered species list, and the Swainson's hawk from the state threatened species list. Seventy-eight rare species are likely to occur in the blue oak woodland habitat in the Yuba FLA. Listed species are those for the blue oak foothill pine type, with the exception that the spotted owl does not find suitable habitat there. (CA Dept. of Fish and Game 1999a).

Ponderosa pine habitats are found in the eastern half of the Yuba FLA at moderate to higher mountain elevations (1,500-5,000 feet) on the west slope of the Sierra Nevada range. This type covers about 10,000 acres of private land in the county. These habitats include both pure stands of ponderosa pine as well as more diverse stands made up of white fir, incense cedar, sugar pine, Jeffrey pine, Douglas-fir, California black oak, and Oregon white oak (Mayer and Laudenslayer, 1988, CA GAP).

Federally listed endangered species associated with the ponderosa pine forests include the peregrine falcon, loggerhead shrike, and California vole, while threatened species include the bald eagle, spotted owl, California towhee, striped racer, western aquatic garter snake, and red-legged frog. Numerous other state and federal rare species are associated with the Nevada FLA ponderosa pine habitat, including the northern flicker, and brush rabbit (CA endangered), red fox, Swainson's hawk, and rubber boa (CA Threatened), and the ringtail and mountain lion and golden eagle (CA protected). In all, some 67 recognized rare wildlife species are associated with the Sacramento Valley and Sierra bioregions' ponderosa pine habitat (CA Dept. of Fish and Game 1999a).

Sierran mixed conifer is found on the eastern edge of the FLA on the moist west slope of the Sierra Nevada, at middle elevations of 3,500-5,000 feet. This habitat occupies almost 35,000 acres, roughly a tenth of the private lands in Yuba County. The Sierran mixed conifer associates include five conifer species – white fir, Douglas-fir, ponderosa pine, sugar pine, and incense cedar; and one hardwood species – California black oak (Mayer and Laudenslayer 1988, CA GAP).

Sixty-four federal or state species are associated with the Sierran mixed conifer forest type in the Sacramento Valley and Sierra bioregions. Federally listed endangered species include the long-toed salamander, peregrine falcon, California condor, and California vole. Threatened species include the striped racer, bald eagle, and spotted owl. State listed endangered species associated with the Sierran mixed conifer type include the great gray owl, northern flicker, Shasta salamander, and brush rabbit, while the rubber boa, red fox, and wolverine, listed as threatened by the state, are predicted to utilize the Sierran mixed conifer habitat (CA Dept. of Fish and Game 1999a).

Other forest types with very limited acreage in the Yuba FLA include **montane hardwood-conifer** at around 2,000 acres, and **valley oak woodland** at around 500 acres. In addition, around 400 acres of **valley foothill riparian** habitat is in private ownership in the FLA. These riparian forests are critically important habitat because of they provide water, thermal cover, migration corridors and diverse nesting and feeding opportunities for many species, including aquatic species such as the federal and state candidate spring run Chinook salmon (Mayer and Laudenslayer 1988, CA GAP, CA Dept. of Fish and Game 1999b).

Threats to Forest Resources

Residential development

The California Department of Finance projects that Yuba's County's population will increase by over 70% by the year 2040, increasing from roughly 65,000 to reach almost 110,000 people (CA Dept. of Finance 1998). The Yuba County general plan focuses growth on current population centers including Marysville and Wheatland, as well as in unincorporated communities of Linda and Olivehurst on the valley floor. Some growth is occurring in small foothill communities in the oak woodland and hardwood-conifer zone in the eastern part of the FLA, including Loma Rica, Smartville, Browns Valley, Brownsville, Oregon House, and Dobbins. Communities in the coniferous mountain region including Challenge and Camptonville currently are experiencing very little growth (Yuba County 1996).

Agriculture is a mainstay of Yuba County's economy, including tree and field crops, and livestock grazing. Regional trade, services, recreation and tourism, and jobs associated with Beale Air Force Base are also important segments of the economy. Over a third of Yuba County's population worked outside county boundaries in 1990, a substantial number of residents commuting to jobs in Sacramento, 45 miles to the south.

Of the 150,000 acres of private forested land in the Yuba FLA, about 30,000 acres, or a fifth is zoned Timber Production (TPZ) (FRAP 1998). This amount is three quarters of the 40,000 acres of privately owned coniferous forest. As in other counties, TPZ-zoned parcels in the Yuba FLA are subject to a rolling ten-year contract and can be removed from TPZ by the landowner, subject to the requirements of the Z'berg-Warren-Keene Collier Forest Taxation Reform Act of 1976. Also, TPZ designation does not foreclose the possibility of parcelization and housing development since TPZ regulations allow forest parcels of 40 acres, and for the development of a single family residence if a management plan has been prepared (Yuba County 1996).

Watershed impairment

Yuba County lies within 5 major watersheds, including portions of the Lower Feather River, Yuba River, Lower American River, Lower Bear River, and the Bear River basins, each of which contain significant amounts of private lands. While conservation of forest resources through the Program has the potential to confer water quality benefits for all waterways listed as impaired under section 303(d) of the Clean Water Act, the single river segment on private lands listed as impaired (in the FLA) with degradation that could potentially be mitigated in part through private forest conservation is the Lower Feather River.

Draining the Lower Feather, Lower American, and Lower Bear Watersheds, the Lower Feather River has been listed as impaired under the section 303(d) of the CWA. The state has listed cited the sources of pollution including urban runoff, a source not easily mitigated through private forestland conservation alone (SWRCB 1999). However, conserving forest resources – particularly riparian resources – can help avoid some non-point source pollution.

All watersheds in the Yuba FLA are listed under the California Unified Watershed Assessment as Category I watersheds – watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems) (CA Unified Watershed Assessment 1998). Helping stave off forestland conversion to other more intensive uses as well as limiting road building and other soil disturbances – particularly in riparian areas – could help mitigate impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation

Specific conservation objectives for the Yuba FLA

CDF, the SFSCC, and the USFS will use the Program’s conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program’s conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners who wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program’s conservation goals are applicable to the Yuba FLA. As discussed in Section V, these goals translate into a number of conservation objectives. The following conservation goals and objectives apply to the Yuba FLA:

1. Goal: *Prevent future conversions of forestland and forest resources; and maintain and restore natural ecosystem functions:*

Objective: Minimize parcel fragmentation and non-forest development to maintain the resource base for forest-related economies, to reduce impacts to forest ecosystems, to reduce the risk of catastrophic fires to forest resources, and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: *Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity*

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

3. Goal: *Protect wildlife habitat, rare plants, and biodiversity*

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

4. Goal: *Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions*

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration “corridors”.

5. Goal: *Protect water quality, fisheries, and water supplies*

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

Resource protection mechanisms for the Yuba FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program’s tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program’s approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the Yuba FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and wildlife habitat, listed and sensitive species habitat, and opportunities for the production of forest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the State Forest Stewardship Coordinating Committee such as public recreation, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the Yuba FLA

(List is not exhaustive)

USDA Forest Service
USDOJ Bureau of Land Management

California Department of Forestry and Fire Protection

California Department of Fish and Game

State Lands Commission

Yuba County

Other local government entities otherwise authorized to acquire and hold title to real property

XXIII. THE NEVADA FOREST LEGACY AREA SIERRA BIOREGION

FLA Location

The map entitled "Nevada County Forest Legacy Area" depicts the location of the Nevada FLA and its boundaries.

Boundary Description

The FLA is defined as all the lands within the county, which is located in the northern Sierra bioregion (Sierra Nevada range) and is bounded to the east by the state of Nevada, to north by Sierra County, to the west by Yuba County, and to the south by Placer County.

As with other FLAs, any public lands – which make up roughly 53 percent of Nevada County – or lands within incorporated areas are ineligible for participation in the Program. Specific public lands located within or proximate to the Nevada FLA are listed in Appendix H, Table V. Urban lands make up about four percent of the county's private lands. The urban boundaries on the map "Nevada County Forest Legacy Area" are based on US Census TIGER data (US Dept. of Commerce 1992). In the case that actual urban boundaries are different from those depicted on the reference map, the actual city boundaries will comprise the FLA boundaries. The designated boundaries of the FLA include lands that are unlikely to meet other Program eligibility requirements, including the requirement that parcels be forested with at least 10% tree canopy cover, or capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be available for viewing at CDF and USFS.

Summary

Of the roughly 450 square miles (290 thousand acres) of private lands in the Nevada FLA, almost 90% percent, or about 250,000 acres is forested. Nevada County straddles northern Sierra Nevada range, with elevations in the west ranging from 300 feet with 60 inches of annual precipitation, to elevations of over 9,000 feet, with annual precipitation of 30 inches in the east. Generally, the FLA can be characterized by gently rolling oak woodlands in the west transitioning to coniferous forest and then to an almost arid, sagebrush and juniper rangeland on the eastern slope of the Sierras (Nevada County 1995).

The California Natural Diversity Database, which catalogues state and federally rare species, has recorded some 15 vascular plants, 2 amphibians, 2 fish, 5 birds, and 3 mammals in Nevada County (CA Dept. of Fish and Game 1999b). In addition, 10 Significant Natural Areas (SNAs) have all or a portion of their area on private lands within the FLA (CA Dept. of Fish and Game 1999c). (SNAs with area in the Nevada FLA are listed in Appendix H Table IV.)

Over the past 20 years, Nevada County has been in transition from a traditional, predominantly resource-based rural county, to a more varied and diverse population and economic base. Agriculture and wood products continue to be an important sector of the economy, while service and retail related to tourism are expected to continue to increase (Nevada County 1995)

Population in the Nevada FLA continues to increase as does forestland conversion to accommodate residential uses. The California Department of Finance projects that Nevada County's population will increase by more than 70 percent from its current level of almost 100,000 people to 166,000 people in the year 2040 (CA Dept. of Finance 1998). Growth on the western side of the county, within commuting distance of Sacramento and outlying suburbs, has been stimulated by continuing in-migration of commuters, retirees, and former city dwellers residents seeking natural and social amenities. On the east side of the county, recreational developments in the Donner Lake and Truckee areas continues to spur growth and residential conversion (Nevada County 1995).

The goals of the Forest Legacy Program in the Nevada FLA will be to help conserve the county's private forest resources and associated habitats that are under increasing pressure from residential and industrial development throughout the area.

Forest Resources

Private lands in the Forest Legacy Area is concentrated in the western and eastern edge of the county, with public land at higher elevations in between. Woodlands are located throughout the FLA including many scattered parcels of less than 100 acres in size, as well as larger tracts located primarily north of Highway 20. Coniferous forests are located in the middle and eastern portions of the county from 1,200 to 9,000 feet in elevation (Nevada County 1995). The predominant forest types in the FLA are discussed below:

The **valley oak woodland** forest type grows at the far western edge of the FLA in the Sierra Nevada foothills below 1,000 feet in elevation. It occupies almost 14,000 acres of private land in the Nevada FLA. This forest type is composed almost exclusively of valley oaks in open or forest like stands, except for occasional California sycamore,

Hinds black walnut, interior live oak, boxelder and blue oak (Mayer and Laudenslayer 1988, CA GAP).

79 federally and state recognized rare species find suitable habitat in the valley oak woodland (see note 19, page 20). These include the long-toed salamander, peregrine falcon, loggerhead shrike, and California vole, which are federally-listed as endangered, and the red-legged frog, striped racer, western aquatic garter snake, bald eagle, California thrasher, and California towhee, which are listed as threatened on the federal endangered species list. State-listed species include the state-endangered northern flicker, savannah sparrow, and brush rabbit, as well as state-fully-protected mountain lion golden eagle, ringtail, and white tailed kite (CA Dept. of Fish and Game 1999a).

Almost a quarter of the FLA's private land, 65,000 acres, is in the **blue oak-foothill pine habitat type**. This forest type rings the foothills of the Central Valley (between 500 and 3,000 feet) and is found at the western end of the FLA. Blue oak is usually more abundant than foothill pine in this forest type. Associated tree species include the interior live oak and California buckeye (Mayer and Laudenslayer 1988, CA GAP).

79 rare species are predicted to occur in the blue oak foothill pine habitat type in the Sierra bioregion. These include the federal endangered peregrine falcon, loggerhead shrike, and California vole. The red-legged frog, striped racer, western aquatic garter snake, bald eagle, spotted owl, California thrasher, and California towhee are on the federal threatened species list. Also predicted to occupy this habitat is the northern flicker, savannah sparrow and brush rabbit from the state endangered species list, and the mountain lion, ringtail, golden eagle, and white-tailed kite, listed by the state as fully protected (CA Dept. of Fish and Game 1999a).

Another ten percent of the remaining private land, or 25,000 acres, is in the **blue oak woodland type**. These woodlands are found in the western portion of the county in the Sierra Nevada foothills (500 to 2,000 feet in elevation). Blue oak woodland is dominated by the blue oak, which typically makes up more than 85 percent of the tree species present, while other trees in this habitat type may include interior live oak in the Sierra Nevada, and valley oak where soils are deep (Mayer and Laudenslayer 1988, CA GAP).

Seventy-eight rare species have suitable habitats in the blue oak woodland forests in the Sierra bioregion. Listed species are those for the blue oak foothill pine type, with two changes: the spotted owl is not predicted to occupy the blue oak woodland habitat, while the federally endangered long-toed salamander is expected to be found in the habitat (CA Dept. of Fish and Game 1999a).

The **montane hardwood** type is found in the western two-thirds of the FLA, on 19,000 acres of private land. The montane hardwood type grows on steep rocky south slopes of major river canyons where it consists mostly of canyon live oak and Douglas fir. At higher elevations canyon live oak associates with Sierran mixed conifer species, while at lower elevation live oak associates with foothill pine, California laurel, knobcone pine, tanoak, and Pacific madrone (Mayer and Laudenslayer 1988, CA GAP).

In the montane hardwood forest, 63 federal and state recognized rare species find suitable habitat. These include the long-toed salamander, peregrine falcon, California vole, and loggerhead shrike, which are federally endangered, and the red-legged frog, striped racer, western aquatic garter snake, bald eagle, spotted owl, California thrasher, and California towhee which are federally listed as threatened. State-endangered northern flicker and brush rabbit, as well as state-threatened rubber boa also are predicted to occupy the montane hardwood habitat (CA Dept. of Fish and Game 1999a).

The **montane hardwood-conifer** forest type is found in the western two-thirds of the county and in a band along the eastern edge of the county. The habitat covers almost 23,000 acres of the private land in the county at elevations from 1,000 to 4,000. Included are associated tree species such as California black oak, bigleaf maple, white alder, dogwood, incense cedar, and ponderosa pine. This habitat covers over eight percent of the private land in Nevada County (Mayer and Laudenslayer 1988, CA GAP).

Montane hardwood-conifer associates provide likely habitat for 68 rare species in the Sierra bioregion. These include the long-toed salamander, peregrine falcon, loggerhead shrike, and California vole which are federally endangered, and the red-legged frog, striped racer, western aquatic garter snake, bald eagle, spotted owl, California thrasher, and California towhee which, are federally-listed threatened species. State-listed species predicted to occur in this habitat include the endangered northern flicker and brush rabbit, as well as state-threatened rubber boa, and California-threatened red fox and wolverine (CA Dept. of Fish and Game 1999a).

Ponderosa pine habitats are found in the western half of the FLA at moderate to higher mountain elevations (1,500-3,500 feet) on the west slope of the Sierra Nevada range. This type covers over 75,000 acres, or about a quarter of the private lands in the county. These habitats include both pure stands of ponderosa pine as well as more diverse stands made up of white fir, incense cedar, sugar pine, Jeffrey pine, Douglas-fir, California black oak, and Oregon white oak (Mayer and Laudenslayer 1988, CA GAP).

Federally listed endangered species associated with the ponderosa pine forests include long-toed salamander, the peregrine falcon, loggerhead shrike, and California vole, while threatened species include the bald eagle, spotted owl, California towhee, striped racer, western aquatic garter snake, and red-legged frog. Numerous other state

and federal rare species are associated with the ponderosa pine habitat, including the northern flicker, and brush rabbit (CA endangered), red fox and rubber boa (CA Threatened), and the ringtail, golden eagle, and mountain lion (CA protected). In all, some 67 recognized rare wildlife species are associated with the Sierra bioregion's ponderosa pine habitat (CA Dept. of Fish and Game 1999a).

Sierran mixed conifer is found in the central third of the FLA on the moist western slope of the Sierra Nevada, at middle elevations of 3,500-5,000 feet. It occupies over 25,000 acres of private lands in Nevada County. The Sierran mixed conifer associates include five conifer species - white fir, ponderosa pine, sugar pine, and incense cedar; and one hardwood species - California black oak (Mayer and Laudenslayer 1988, CA GAP).

Sixty-four federal or state-listed rare species are associated with the Sierran mixed conifer forest type in the Sierra bioregion. Federally listed endangered species include the long-toed salamander, peregrine falcon and California vole. Threatened species include the striped racer, bald eagle, and spotted owl. State listed endangered species associated with the Sierran mixed conifer type include the northern flicker and brush rabbit, while the rubber boa, red fox, and wolverine, state-listed threatened species, also are found in this habitat (CA Dept. of Fish and Game 1999a).

Throughout the FLA, riparian forests provide water, thermal cover and migration corridors for rare species, including aquatic species such as the federally threatened Lahontan cutthroat trout, and state and federal candidate Spring-run Chinook salmon (Mayer and Laudenslayer 1988, CA Dept. of Fish and Game 1999b)

Threats to Forest Resources

Residential development

Population in the Nevada FLA continues to increase as does forestland conversion to accommodate residential uses. The California Department of Finance projects that Nevada County's population will increase by over 70 percent from its current level of almost 100,000 people to 166,000 people in the year 2040 (CA Dept. of Finance 1998). This is in addition to the nearly 200 percent growth in the county between 1970 and 1990 (Nevada County 1995).

The Grass Valley-Nevada City area has been the focal point of most of the County's commercial, industrial and residential growth and development. Over 12,000 new dwelling units were added in the 1980s, with Grass Valley and Nevada City experiencing a combined increase of nearly 3,000 residences between 1975 and 1995. New residential development outside the Grass Valley/ Nevada City area are predominantly located in the Alta Sierra area, Lake Wildwood, and Lake of the Pines areas in the ponderosa pine belt. This residential growth has consisted of urban- sized lots, as well as three- to five-acre ranchette parcels. Considerable land has been converted for residential, commercial and industrial uses to accommodate this growth (Nevada County 1995).

Residential growth in eastern Nevada County is more consolidated than in the western portion. East side growth has been concentrated around Donner Lake, in the large Tahoe-Donner development in the sub-alpine zone, in the Glenshire area and the Prosser subdivisions to the north on Highway 89 in the mixed conifer/eastside pine zone. The population of the Truckee area, in the mixed conifer zone, doubled to 10,000 between 1980 and 1990 (Nevada County 1995).

Future population growth is likely to continue to fuel parcelization and land use development. While a recent study of development in the Sierra Nevada found that 80% of privately owned parcels in Nevada County were already at or above allowable densities, a significant amount of land was able to be subdivided. 12% of private parcels were divisible into two or three additional parcels, 7% were into four to forty more parcels, while nearly 300 existing parcels were divisible into 41 to 640 or more lots (SNEP 1997). Residential development in forestland areas can increase ignition sources in areas of high fuel accumulation and increase the likelihood of catastrophic fire, as well as interfering with fire suppression efforts (FRAP 1999a).

About 90% of the nearly 300,000 acres of private land in Nevada County is forested. A third of this, nearly all the coniferous forestland, is currently zoned Timber Production (TPZ). As in other counties, TPZ-zoned parcels in the Nevada FLA are subject to a rolling ten-year contract and can be removed from TPZ zoning by the landowner, subject to the requirements of the Z'berg-Warren-Keene Collier Forest Taxation Reform

Act of 1976. TPZ designation does not foreclose the possibility of parcelization down to 40 acres minimum and housing development if a management plan has been prepared.

Watershed impairment

Nevada County lies within 4 major watersheds – the Bear, the Yuba, the Lower Truckee, and the Little Truckee. With the exception of Little Truckee, each watershed contains significant amounts of private lands. A number of stream and river segments on watershed lands in the FLA have been listed as impaired under the federal Clean Water Act, the result of pollution from a number of sources. While forestland conservation easements could be expected to help mitigate impairments in all CWA-listed waterways, two the stream reaches with impairments that might particularly lend themselves to such mitigation through the Forest Legacy Program have been listed below:

- In the Bear River Watershed, French Ravine is listed as an impaired waterway under section 303(d) of the Clean Water Act, because of bacteria concentrations, which the state has attributed in part to land development (SWRCB 1999).
- In the Lower Truckee Watershed in the Nevada FLA, the Truckee River is listed as an impaired waterway under section 303(d) of the Clean Water Act, in part because of sedimentation/siltation that the state has attributed in part to watershed disturbance, including residential development and silvicultural activities (SWRCB 1999).

All watersheds in the Nevada FLA are listed under the California Unified Watershed Assessment as Category I watersheds – watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems) (CA Unified Watershed Assessment 1998). Helping stave off forestland conversion to other more intensive uses as well as limiting road building and other soil disturbances – particularly in riparian areas – could help mitigate impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation

Specific conservation objectives for the Nevada FLA

CDF, the SFSCC, and the USFS will use the Program's conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program's conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners that wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program's conservation goals are applicable to the Nevada FLA. As discussed in Section V, these goals translate into a number of conservation objectives. The following conservation objectives are particularly applicable to the Nevada FLA:

1. Goal: *Prevent future conversions of forestland and forest resources; and maintain and restore natural ecosystem functions:*

Objective: Minimize parcel fragmentation and non-forest development to maintain the resource base for forest-related economies, to reduce impacts to forest ecosystems, to reduce the risk of catastrophic fires to forest resources, and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: *Protect wildlife habitat, rare plants, and biodiversity*

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

3. Goal: *Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity*

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

4. Goal: *Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions*

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration "corridors".

5. Goal: *Protect water quality, fisheries, and water supplies*

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

Resource protection mechanisms for the Nevada FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program's tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program's approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the Nevada FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and wildlife habitat, listed and sensitive species habitat, and opportunities for the production of forest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the State Forest Stewardship Coordinating Committee such as public recreation, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the Nevada FLA

(List is not exhaustive)

USDA Forest Service
USDOJ Bureau of Land Management
California Department of Forestry and Fire Protection
California Department of Fish and Game
State Lands Commission
Nevada County, and other local government entities otherwise authorized to acquire and hold title to real property

XXIV. THE PLACER FOREST LEGACY AREA SIERRA AND SACRAMENTO VALLEY BIOREGIONS

FLA Location

The Map entitled “Placer County Forest Legacy Area” depicts the location of the Placer FLA and its boundaries.

Boundary Description

The FLA is defined as all the lands within the county, which is located in the Sierra and Sacramento Valley bioregions. It is bounded to the east by the state of Nevada, to north by Nevada County, to the west by Sutter and Yuba Counties, and to the south by Sacramento and El Dorado Counties.

As with other FLAs, any public lands – which make up roughly 60 percent of Placer County – or lands within incorporated areas are ineligible for participation in the Program. Specific public lands are listed in Appendix H, Table V. Urban lands make up about six percent of the county’s private lands. The urban boundaries in the Placer County FLA map are based on US Census TIGER data (US Census 1992). In the case that actual urban boundaries are different from those depicted on the reference map, the actual city boundaries will comprise the FLA boundaries. The designated boundaries of the FLA include lands that are unlikely to meet other Program eligibility requirements, including the requirement that parcels be forested with at least 10% tree canopy cover, or capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be made available for viewing at CDF and USFS.

Summary

Placer County reaches from California's Sacramento Valley in the west to the high Sierra and Lake Tahoe in the east. The FLA spans numerous types of vegetation from annual grasslands in the west, foothill oak woodlands on the west slope of the Sierra, mixed conifer forests, sub alpine, and alpine forests at the crest of the Sierras, to sagebrush rangelands on the far eastern edge of the FLA. Of the over 610 square miles (390,000 acres) of private lands in the Placer FLA, about 45% percent, or 175,000, acres is forested.

The California Natural Diversity Database, which catalogues state and federally rare species, has recorded some 22 rare vascular plants, 3 rare amphibians, 1 rare fish, 8 rare birds, and 4 rare mammals in Placer County (CA Dept. of Fish and Game 1999b).

Eleven Significant Natural Areas (SNAs) have all or a portion of their area within the FLA (CA Dept. of Fish and Game 1999c). (SNAs with area in the FLA are listed in Appendix H Table IV.)

Placer County is one of the fastest growing counties in California. The California Department of Finance projects that Placer County's population will increase by over 114 percent from its current level of almost 245,000 people to 525,000 people in the year 2040 (CA Dept. of Finance 1998). The county's fastest growing cities, Rocklin and Roseville, are both located in Sacramento Valley grass and agricultural lands. However, significant growth is also occurring in the foothill communities of Auburn in the oak woodland zone, Foresthill and Colfax in the montane hardwood-conifer and ponderosa pine zones, as well as the east side communities of Martis Valley, Squaw Valley, and Alpine Meadows, in the mixed conifer and eastside pine zones (Placer County General Plan, 1994).

In addition, a number of waterways including the Upper Truckee, including Blackwood Creek and Lake Tahoe have been listed by the state as impaired in part due to residential development.

In an effort to conserve dwindling open space and biological resources during this period of dramatic growth, the Placer County Planning Department has recently implemented the Placer Legacy Open Space and Agricultural Conservation Program. A major goal of this program will be to avoid conversion of rural lands to urban and residential uses through land acquisition and conservation easements. This program has prioritized the conservation of low elevation oak woodlands.

The operation of the Forest Legacy Program in the Placer FLA will complement recent planning efforts including the Placer Legacy Open Space and Agricultural Conservation Program (Placer County 2000) and help county residents conserve their forest resources and associated habitats despite dramatic residential and industrial development throughout the area.

Forest Resources

Private land in the Forest Legacy Area is concentrated in the western edge of the county dominated by grasslands and oak woodlands. Public lands are mostly located at higher elevations at the crest of the Sierra in the mixed conifer, sub-alpine, and alpine zones. Over 70% of private forestlands are dominated by hardwoods, while 30% is covered in coniferous forest. The predominant forest types in the FLA are discussed below:

Roughly 65,000 acres of the FLA is covered by the **blue oak-foothill pine** forest type. This forest type rings the foothills of the Central Valley (between 500 and 3,000 feet)

and so is found at the western end of the FLA. Blue oak is usually more abundant than foothill pine in this forest type. Associated tree species include the interior live oak and California buckeye (Mayer and Laudenslayer, 1988, CA GAP).

At least 79 rare species find suitable habitat in the blue oak foothill pine habitat type in the Sierra and Sacramento Valley bioregions (see note 19, page 20). These include the peregrine falcon, loggerhead shrike, and California vole which are on the federal endangered species list. The red-legged frog, striped racer, western aquatic garter snake, bald eagle, spotted owl, California thrasher and California towhee are on the federal threatened species list. Also expected to use the habitat is the northern flicker, savannah sparrow and brush rabbit from the state endangered species list (CA Dept. of Fish and Game 1999a).

About 15,000 acres of private land in the FLA is in the **blue oak woodland** type. These woodlands are found in small pockets in the western portion of the county in the Sierra Nevada foothills (500 to 2,000 feet in elevation). Blue oak woodland is dominated by the blue oak, which typically makes up 85 to 100 percent of the trees present. Other trees present may include interior live oak in the Sierra Nevada, and valley oak where soils are deep (Mayer and Laudenslayer 1988, CA GAP).

Seventy-eight rare species are predicted to use blue oak woodland habitat in the Sierra and Sacramento Valley bioregions. Listed species are the same as those for the blue oak-foothill pine type, with two changes: the spotted owl does not find the blue oak woodland habitat suitable, while the long-toed salamander (federal endangered species) is predicted to utilize this habitat (CA Dept. of Fish and Game 1999a).

At least 90% of oak woodlands are privately owned in Placer County. A recent Placer County planning effort ranked the oak woodlands vegetation types at a priority of 3.2 on a 4.0 point scale (four being the highest) of open space areas needing conservation and protection from development pressures (Placer County 2000).

The **montane hardwood** type is found in the center of the FLA, on 40,000 acres of private land. Over half of this forest type in the Placer FLA is privately owned (Placer County 2000). The montane hardwood type grows mostly west of the crest of the Sierra Nevada, but it also found in isolated pockets on the east side of the crest in the Placer FLA. It is found on steep rocky south slopes of major river canyons where it consists primarily of canyon live oak. At higher elevations canyon live oak associates with Sierran mixed conifer species, while at lower elevation live oak associates with foothill pine, California laurel, knobcone pine, tanoak, and Pacific madrone (Mayer and Laudenslayer 1988, CA GAP).

In the montane hardwood forest, 63 federal and state recognized rare species are predicted to occur. These include the long-toed salamander, peregrine falcon, California vole, and the loggerhead strike, which are federally endangered and the red-legged frog, striped racer, western aquatic garter snake, bald eagle, spotted owl, California thrasher, and California towhee which are federally listed as threatened. State-endangered species include the northern flicker and brush rabbit, as well as state-threatened rubber boa, and Swainson's hawk (CA Dept. of Fish and Game 1999a).

Ponderosa pine habitats are found in the center portion of the FLA at moderate mountain elevations (1,500-3,500 feet) on the west slope of the Sierra Nevada range. This type covers over 48,000 acres of the private land in the county. These habitats include both pure stands of ponderosa pine as well as more diverse stands made up of white fir, incense cedar, sugar pine, Jeffrey pine, California black oak, and Oregon white oak (Mayer and Laudenslayer 1988, CA GAP).

Federally listed endangered species associated with the ponderosa pine forests include long-toed salamander, the peregrine falcon, loggerhead shrike, and California vole, while threatened species include the bald eagle, spotted owl, California towhee, striped racer, western aquatic garter snake, and red-legged frog. Numerous other state and federal rare species are associated with the Sierra and Sacramento Valley bioregions' ponderosa pine habitat, including the northern flicker, and brush rabbit (CA endangered), red fox, Swainson's hawk, and rubber boa (CA Threatened), and the ringtail, golden eagle, and mountain lion (CA protected). In all, some 67 recognized rare wildlife species are associated with the Sierra bioregion's ponderosa pine habitat (CA Dept. of Fish and Game 1999a).

Sierran mixed conifer is found in the east central portion of the FLA on the moist west slope of the Sierra Nevada, at middle elevations of 3,500-5,000 feet. It occupies over 3,300 acres of private lands in Placer County. The Sierran mixed conifer associates include five conifer species - white fir, Douglas-fir, ponderosa pine, sugar pine, and incense cedar; and one hardwood species - California black oak (Mayer and Laudenslayer 1988, CA GAP).

Sixty-four federal or state species are associated with the Sierran mixed conifer forest type in the Sierra and Sacramento Valley bioregions. Federally listed endangered species include the long-toed salamander, peregrine falcon, and California vole. Threatened species include the striped racer, bald eagle, and spotted owl. State listed endangered species associated with the Sierran mixed conifer type include the northern flicker and brush rabbit, while the rubber boa, red fox, and wolverine - on the state threatened list - are found on the Sierran mixed conifer habitat (CA Dept. of Fish and Game 1999a).

A recent Placer County planning effort ranked west slope conifer forests at priority of 2.5 on a 4.0 point scale (four being the highest) for open space areas needing conservation and protection from development pressures (Placer County 2000).

Other forest types found in the Placer FLA on extremely limited acreage include the **valley foothill riparian** forest which covers nearly 900 acres of private land in the western thirds of the county. Over 90% of this forest type is privately owned in the Placer FLA. These riparian forests are critically important habitat because of they provide food, water, migration and dispersal corridors, escape, nesting and thermal cover for many species. A recent Placer County planning effort ranked this vegetation type as a 3.3 on a 4.0 point scale (four being the highest priority) of open space areas needing conservation and protection from development pressures (Placer County 2000).

Also present is **valley oak woodland** forest type which grows at the far western edge of the FLA on 1,100 acres of private land. The **montane hardwood-conifer** is found in the center of the county on 3,000 acres. Jeffrey pine is found in small pockets in the northeastern part of the Placer FLA on 1,000 acres of private land. (Mayer and Laudenslayer 1988, CA GAP).

Threats to Forest Resources

Residential development

In 1998, the California Department of Finance projections indicated that Placer County among the fastest growing county in California. The Department projects that Placer County's population will increase by over 214 percent from its current level of almost 245,000 people to 525,000 people in the year 2040. This is in addition to the addition of 70,000 people to the county between 1990 and 2000 (CA Dept. of Finance 1998). Employment growth has been the greatest in the services, manufacturing, and construction sectors. Computer and technology support firms are expanding rapidly, as well as data processing, accounting, law, lobbying and engineering (Placer County 2000).

Current population is split between incorporated and unincorporated areas. The majority of growth has occurred in south Placer near interstate 80 and State Route 65 in the non-forested communities of Roseville, Rocklin and Lincoln. Growth has also occurred in the foothill communities of Auburn in the oak woodlands, and Foresthill and Colfax in the montane hardwood-conifer and ponderosa pine zones. On the east side of the county the communities of Martis Valley, Squaw Valley, and Alpine Meadows, in the mixed conifer/eastside pine zones have undergone considerable growth. Dispersed residential development is also occurring throughout the county in areas not associated with particular communities on lots of one to ten acres. Over 1,000

units per year on average were constructed in the unincorporated county between 1984 and 1994 (Placer County 1994).

This level of growth translates into a large conversion of existing “open space,” including forestland, into urban and rural residential developments. The cities’ and county general plans account for this growth by designating 48,000 acres of land for new commercial, industrial and residential use. Most of this future growth will continue to be focused in the south Placer area. However, about 30,000 acres of foothill woodland type is zoned for rural residential and about 2,500 acres is zoned urban (Placer County 2000).

Less than half of the private land in Placer County, or 175,000 acres, is forested. Two-thirds of this or 120,000 acres of this, is currently zoned Timber Production (TPZ) (FRAP 1998). As in other counties, TPZ-zoned parcels in the Placer FLA are subject to a rolling ten-year contract and can be removed from TPZ zoning by the landowner, subject to the requirements of the Z’berg-Warren-Keene Collier Forest Taxation Reform Act of 1976. Also, TPZ designation does not foreclose the possibility of parcelization down to 160 acres minimum and housing development if a management plan has been prepared.

Other zoning designations in areas designated as timberland by the Placer County General Plan included residential forestry zoning which permits development of one principal dwelling per lot on minimum parcel sizes of 10 acres (Placer County 1994). Of the lands designated as timberland by the plan, 7,200 acres are zoned for 10 acre lot minimums, 4,000 acres are zoned for 20 acre lot minimums, and 8,700 acres are zoned for 40 acre lot minimums (Clark 2000).

Watershed impairment

Placer County lies within 7 major watersheds – the Lower American, Lower Bear River, Bear River, American, each with significant amounts of private lands, and the Yuba and Lower Truckee, which lack significant amounts of private land. A number of stream and river segments on watershed lands in the FLA have been listed as impaired under the federal Clean Water Act, the result of pollution from a number of sources. While conservation of forest resources through the Program has the potential to confer water quality benefits for all CWA-listed waterways, the following waterways have recognized impairments that could potentially be mitigated through private forest conservation easements:

- Within the Lower American watershed, Arcade Creek is listed as an impaired waterway under section 303(d) of the Clean Water Act, in part because of pollutants caused by urban runoff and storm sewers according to the state (SWRCB 1999). While urban runoff is a source not easily mitigated through private forestland

conservation alone, conserving forest resources – particularly riparian resources – can help mitigate some of the effects of non-point source pollution.

- In the Lower Truckee watershed, the Truckee River is listed as an impaired waterway under section 303(d) of the Clean Water Act, owing to sedimentation/siltation, which the state has attributed in part to forest management activities (SWRCB 1999).
- Also in the Lower Truckee watershed, Bear Creek has been listed as an impaired waterway under the CWA because of sedimentation/siltation, although the state did not specify a specific source of this pollution beyond general non-point sources (SWRCB 1999).
- In the Upper Truckee watershed, a number of water bodies have been listed as impaired under section 303(d) of the Clean Water Act. Ward Creek has been listed as impaired owing to sedimentation/siltation which the state has attributed to land development in the watershed.
- Also in the Upper Truckee watershed, Blackwood Creek has been listed as impaired under section 303(d) of the CWA, which the state has attributed to forest management activities, land development, and construction, as well as other non-specific non-point sources in the watershed (SWRCB 1999).
- Also within the Upper Truckee Basin, Lake Tahoe also has been listed as an impaired waterway under section 303(d) of the CWA, because of nutrient pollution and sedimentation/siltation. Numerous activities have been cited by the state as contributing to this pollution, including forest management activities, land development/construction, and urban runoff (SWRCB 1999).

In addition, all watersheds in the Placer FLA are listed under the California Unified Watershed Assessment as Category I watersheds – watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems). (CA Unified Watershed Assessment, 1998). Helping stave off forestland conversion to other more intensive uses as well as limiting road building and other soil disturbances – particularly in riparian areas – could help mitigate impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation

Specific conservation objectives for the Placer FLA

CDF, the SFSCC, and the USFS will use the Program's conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program's conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners who wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program's conservation goals are applicable to the Placer FLA. As discussed in Section V, these goals translate into a number of conservation objectives. The following conservation objectives apply to the Placer FLA:

1. Goal: *Prevent future conversions of forestland and forest resources; and maintain and restore natural ecosystem functions:*

Objective: Minimize parcel fragmentation and non-forest development to maintain the resource base for forest-related economies, to reduce impacts to forest ecosystems, to reduce the risk of catastrophic fires to forest resources, and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: *Protect wildlife habitat, rare plants, and biodiversity*

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

3. Goal: *Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity*

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

4. Goal: *Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions*

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration "corridors".

5. Goal: *Protect water quality, fisheries, and water supplies*

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

Resource protection mechanisms for the Placer FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program's tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program's approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the Placer FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and wildlife habitat, listed and sensitive species habitat, and opportunities for the production of forest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the SFSCC such as public recreation, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the Placer FLA

(List not exhaustive)

USDA Forest Service

USDOJ Bureau of Land Management

California Department of Forestry and Fire Protection

California Department of Fish and Game

State Lands Commission

Placer County

Other local government entities otherwise authorized to acquire and hold title to real property

XXV. THE EL DORADO FOREST LEGACY AREA SIERRA BIOREGION

FLA Location

The map entitled "El Dorado County Forest Legacy Area," depicts the location of the El Dorado FLA and its boundaries.

Boundary Description

The FLA is defined as all the lands within the county, which is located in the central Sierra bioregion (Sierra Nevada range), and is bounded to the east by the state of Nevada, to north by Placer County, to the west by Sacramento County, and to the south by Amador and Alpine Counties.

As with other FLAs, any public lands – which make up roughly 63 percent of El Dorado County – or lands within incorporated areas, are ineligible for participation in the Program. Specific public lands located within or proximate to the El Dorado FLA are listed in Appendix H, Table V. Urban lands make up almost two percent of the county's private lands. The urban boundaries on the map "El Dorado County Forest Legacy Area" are based on US Census TIGER data (US Dept. of Commerce 1992). In the case that actual urban boundaries are different from those depicted on the reference map, the actual city boundaries will comprise the FLA boundaries. The designated boundaries of the FLA include lands that are unlikely to meet other Program eligibility requirements, including the requirement that parcels be forested with at least 10% tree canopy cover, or capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be available for viewing at CDF and USFS.

Summary

El Dorado County, site of California's first gold rush, straddles California's central Sierra Nevada mountains from a few miles east of Sacramento to Lake Tahoe. Elevations range from a few hundred feet in the west to over 9,000. Of the roughly 660 square miles (425,000 acres) of private lands in the Nevada FLA, almost 80% percent, or 335,000 acres, is forested. Generally, the FLA can be characterized by gently rolling oak woodlands in the west, transitioning to coniferous forest and ending on the shores of Lake Tahoe.

The California Natural Diversity Database, which catalogues state and federally rare species, has recorded some 25 vascular plants, 3 amphibians, 1 fish, 7 birds, and 5

mammals in El Dorado County (CA Dept. of Fish and Game 1999b). In addition, 8 Significant Natural Areas (SNAs) have all or a portion of their area on private lands within the FLA (CA Dept. of Fish and Game 1999c). (SNAs with area in the El Dorado FLA are listed in Appendix H Table IV.)

The California Department of Finance projects that El Dorado County's population will increase by over 205 percent from its current level of 165,000 to 335,000 by the year 2040. Growth on the western side of the county has been stimulated by proximity to Sacramento and outlying suburbs. Recently, although concentrated development has continued in the foothills, large lot, low-density residential development has transformed rural areas into areas characterized with dispersed residential uses. Forestland conversion has been concentrated in the oak woodland and ponderosa pine belt closest to the Sacramento Valley.

The goals of the Forest Legacy Program in the El Dorado FLA will be to conserve forest resources and associated habitats that are under increasing residential and industrial development pressure in the area.

Forest Resources

About 45% of the private forestland in the El Dorado FLA is dominated by hardwoods, while 55% is covered by coniferous forests. The predominant forest types in the FLA are discussed below:

The **valley oak woodland** forest type grows at the far western edge of the FLA in the Sierra Nevada foothills below 1,000 feet in elevation. It occupies almost 1,800 acres of private land in the El Dorado FLA. This forest type is composed almost exclusively of valley oaks in open or forest like stands, except for occasional California sycamore, Hinds black walnut, interior live oak, boxelder and blue oak (Mayer and Laudenslayer 1988, CA GAP).

79 federally and state recognized rare species have suitable habitat in the valley oak woodlands of the Sierra bioregion (see note 19, page 20). These include the long-toed salamander, peregrine falcon, loggerhead shrike, and California vole, which are federally endangered, and the red-legged frog, striped racer, western aquatic garter snake, bald eagle, California thrasher, and California towhee which are federally threatened species. State-listed species include the endangered northern flicker, savannah sparrow, and brush rabbit, as well as state-threatened Swainson's hawk (CA Dept. of Fish and Game 1999a).

Almost a quarter of the FLA's private forestland, 105,000 acres, is in the **blue oak-foothill pine** habitat type. This forest type rings the foothills of the Central Valley

(between 500 and 3,000 feet) and is found at the western end of the FLA. Blue oak is usually more abundant than foothill pine in this forest type. Associated tree species include the interior live oak and California buckeye (Mayer and Laudenslayer 1988, CA GAP).

At least 79 rare species are predicted to occur in the blue oak foothill pine habitat type. These include the peregrine falcon, loggerhead shrike, California vole, which are on the federal endangered species list. The red-legged frog, striped racer, western aquatic garter snake, bald eagle, spotted owl, California thrasher and California towhee are federally-listed threatened species. Also predicted to use this habitat is the northern flicker, savannah sparrow and brush rabbit from the state endangered species list, and the Swainson's hawk from the state threatened species list (CA Dept. of Fish and Game 1999a).

Another ten percent of the remaining private land, or 50,000 acres, is in the **blue oak woodland** type. These woodlands are found in the western portion of the county in the Sierra Nevada foothills (500 to 2,000 feet in elevation). Blue oak woodland is dominated by the blue oak, which typically makes up more than 85 percent of the tree species present. Other associated tree species in this habitat type may include interior live oak in the Sierra Nevada, and valley oak where soils are deep (Mayer and Laudenslayer 1988, CA GAP).

Seventy-eight rare species find suitable habitat in the blue oak woodland habitat in the Sierra bioregion. Listed species are those for the blue oak foothill pine type, with two changes: the spotted owl does not find suitable habitat in the bioregion, and the long toed salamander (a federal endangered species) does (CA Dept. of Fish and Game 1999a).

The **montane hardwood** type is found in the western two-thirds of the FLA, on 22,000 acres of private land. The montane hardwood type grows on steep rocky south slopes of major river canyons where it consists mostly of canyon live oak and Douglas fir. In the El Dorado FLA, it is also found east of the Sierra Nevada crest in localized areas. At higher elevations, canyon live oak associates with Sierran mixed conifer species, while at lower elevation live oak associates with foothill pine, California laurel, knobcone pine, tanoak, and Pacific madrone (Mayer and Laudenslayer 1988, CA GAP).

In the montane hardwood forest, 63 federal and state recognized rare species have suitable habitat. These include the long-toed salamander, peregrine falcon, California vole, and loggerhead shrike, which are federally endangered, and the red-legged frog, striped racer, western aquatic garter snake, bald eagle, spotted owl, California thrasher, and California towhee, which are federally listed as threatened. State-endangered northern flicker and brush rabbit, as well as state-threatened rubber boa, Swainson's

hawk also are predicted to occur in the montane hardwood habitat (CA Dept. of Fish and Game 1999a).

Ponderosa pine habitats are found in the central third of the FLA at moderate to higher mountain elevations (2,500-5,500 feet) on the west slope of the Sierra Nevada range. This type covers over 128,000 acres, or 30% of the private lands in the county. These habitats include both pure stands of ponderosa pine as well as more diverse stands made up of white fir, incense cedar, sugar pine, Jeffrey pine, Douglas-fir, California black oak, and Oregon white oak (Mayer and Laudenslayer 1988, CA GAP).

Federally listed endangered species associated with the ponderosa pine forests include the long-toed salamander, the peregrine falcon, loggerhead shrike, and California vole, while threatened species include the bald eagle, spotted owl, striped racer, western aquatic garter snake, and red-legged frog. Numerous other state and federal rare species are associated with the ponderosa pine habitat, including the northern flicker, and brush rabbit (CA endangered), red fox, Swainson's hawk, and rubber boa (CA Threatened), and the ringtail, golden eagle, and mountain lion (CA protected). In all, some 67 recognized rare wildlife species are associated with the ponderosa pine habitat in the Sierra bioregion (CA Dept. of Fish and Game 1999a).

Sierran mixed conifer is found in the central third of the FLA on the moist west slope of the Sierra Nevada, at middle elevations of 3,500-5,000 feet. It occupies about five percent, or 21,000 acres, of private lands in El Dorado County. The Sierran mixed conifer associates include a number of conifer species including white fir, ponderosa pine, sugar pine, and incense cedar; and one hardwood species: California black oak (Mayer and Laudenslayer 1988, CA GAP).

Sixty-four federal or state species are associated with the Sierran mixed conifer forest type in the Sierra bioregion. Federally listed endangered species include the long-toed salamander, peregrine falcon, and California vole. Threatened species include the striped racer, bald eagle, and spotted owl. State listed endangered species associated with the Sierran mixed conifer type include the northern flicker and brush rabbit, while the rubber boa, red fox, and wolverine – state threatened species – are predicted to occur in the Sierran mixed conifer habitat type (CA Dept. of Fish and Game 1999a).

Other forest types with very limited acreage in the El Dorado FLA include **valley oak woodland** at around 1,800 acres, **Jeffrey pine** 1,750 acres, **Douglas-fir** 1,400 acres, and **lodgepole pine** at 1,200 acres. In addition, around 225 acres of **valley foothill riparian** habitat and 1,100 acres of **montane riparian** habitat are in private ownership in the FLA. These riparian forests are critically important habitat because of they provide water, thermal cover, migration corridors and diverse nesting and feeding opportunities for

many species, including aquatic species such as the Lahontan cutthroat trout (Mayer and Laudenslayer 1988, CA GAP, CA Dept. of Fish and Game 1999b).

Threats to Forest Resources

Residential development

Population in the El Dorado FLA is growing dramatically, and is in turn driving land conversion to accommodate residential uses. The California Department of Finance projects that El Dorado County's population will increase by over 205 percent from its current level of almost 165,000 people to 335,000 people in the year 2040 (CA Dept. of Finance 1998). Of El Dorado County's population, less than 10% live in the two incorporated cities of South Lake Tahoe and Placerville. Over 90% live in unincorporated communities within the county. Major economic sectors include services, trade manufacturing, construction, and government. Communities on the western edge of the FLA are within commuting distance to Sacramento, while those on the eastern edge are oriented towards tourism, including large ski resorts in the Lake Tahoe area (El Dorado County 1996).

Historically, growth in El Dorado County resulted in compact development patterns around communities such as Cool, Georgetown, Mt. Aukum, and Placerville. Recently, although urban like development has continued in the foothills, large lot, low-density residential development have slowly transformed rural areas into areas characterized with dispersed residential uses (El Dorado County 1996).

Residential development is expected to continue around communities in the western edge of the FLA along the Highway 50 and Interstate 80 corridors. El Dorado Hills and Cameron Park, in the grassland zone, are growing very quickly. Shingle Springs and Placerville, in the transition zone between oak woodlands and the ponderosa pine belt, are expected to grow substantially, both by about 150% in the next 15 years. In the ponderosa pine belt, recent planned communities have been developed near the community of Cool (El Dorado County 1996).

Current land use regulations in El Dorado County attempt to reduce impacts of development on oak woodlands by requiring mitigation for development on oak woodlands that have at least 10% canopy cover. The El Dorado County General Plan requires a sliding percentage of the existing canopy to be retained or replaced. Standards range from 90% tree retention on parcels having less than 20% canopy cover down to 60% retention for trees with over 80% canopy cover (El Dorado County 1996).

Nevertheless, county zoning policies allow subdivision of land to accommodate on-going population growth. A recent study of development in the Sierra Nevada found that 93% of privately owned parcels in El Dorado County were already at or above

allowable densities, no further subdivision was possible. However, 4% were divisible into two or three additional parcels, 3% were into four to twenty or more parcels, while nearly 300 existing parcels were divisible into 21 to 640 or more lots (SNEP 1997). Residential development in forestland areas can increase ignition sources in areas of high fuel accumulation and increase the likelihood of catastrophic fire, as well as interfering with fire suppression efforts (FRAP 1999a).

About 150,000 acres, or 45% of the 250,000 acres of privately forested land in El Dorado County are zoned Timber Production (TPZ). TPZ zoning covers nearly all the privately owned coniferous forests in the FLA. As in other counties, TPZ-zoned parcels in the El Dorado FLA are subject to a rolling ten-year contract and can be removed from TPZ zoning by the landowner, subject to the requirements of the Z'berg-Warren-Keene Collier Forest Taxation Reform Act of 1976. Lands in TPZ designation must maintain a 160 acre minimum parcel size. However, lands zoned as Natural Resource under the El Dorado General Plan located below 3,000 feet in elevation have a 40-acre minimum parcel size (El Dorado County 1996).

Watershed impairment

El Dorado County lies within three major water basins – the Cosumnes-Mokelumne, the American, and the Upper Truckee, each of which contain significant amounts of private forestland. A number of stream and river segments on watershed lands in the FLA have been listed as impaired under the federal Clean Water Act, the result of pollution from a number of sources. While conservation of forest resources through the Program has the potential to confer water quality benefits for all CWA-listed waterways, the following waterways have recognized impairments that could potentially be mitigated through private forest conservation easements:

Within the Upper Truckee Basin, Lake Tahoe has been listed as an impaired waterway under section 303(d) of the CWA, because of nutrient pollution and sedimentation/siltation. Numerous activities have been cited by the state as contributing to this pollution, including forest management activities, land development/construction, and urban runoff (SWRCB 1999).

Also within the Upper Truckee Watershed, Heavenly Valley Creek has been listed as impaired under section 303(d) of the Clean Water Act because of sedimentation/siltation pollution. A number of sources – including construction and land development – have been cited by the state as sources of the pollution (SWRCB 1999).

In addition, all watersheds in the El Dorado FLA are listed under the California Unified Watershed Assessment as Category I watersheds – watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems) (CA Unified Watershed

Assessment 1998). Helping stave off forestland conversion to other more intensive uses as well as limiting road building and other soil disturbances – particularly in riparian areas – could help mitigate impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation

Specific conservation objectives for the El Dorado FLA

CDF, the SFSCC, and the USFS will use the Program’s conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program’s conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners who wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program’s conservation goals are applicable to the El Dorado FLA. As discussed in Section V, these goals translate into a number of conservation objectives. The following conservation objectives are particularly applicable to the El Dorado FLA:

1. Goal: *Prevent future conversions of forestland and forest resources; and maintain and restore natural ecosystem functions:*

Objective: Minimize parcel fragmentation and non-forest development to maintain the resource base for forest-related economies, to reduce impacts to forest ecosystems, to reduce the risk of catastrophic fires to forest resources, and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: *Protect wildlife habitat, rare plants, and biodiversity*

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

3. Goal: *Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity*

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

4. Goal: *Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions*

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration “corridors”.

5. Goal: *Protect water quality, fisheries, and water supplies*

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

Resource protection mechanisms for the El Dorado FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program's tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program's approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the El Dorado FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and wildlife habitat, listed and sensitive species habitat, and opportunities for the production of forest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the State Forest Stewardship Coordinating Committee such as public recreation, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the El Dorado FLA

(List is not exhaustive)

USDA Forest Service

USDOJ Bureau of Land Management

California Department of Forestry and Fire Protection

California Department of Fish and Game

State Lands Commission

El Dorado County

Other local government entities otherwise authorized to acquire and hold title to real property

XXVI. AMADOR FOREST LEGACY AREA SIERRA BIOREGION

FLA Location

The Map entitled “Amador County Forest Legacy Area” depicts the location of the Amador FLA and its boundaries.

Boundary Description

The Amador FLA is defined as all the lands within Amador County, which is located in the central Sierra bioregion, (Sierra Nevada range), and bounded to the north by El Dorado County, to the west by Sacramento and San Joaquin Counties, to the south by Calaveras County, and to the east by Alpine County.

As with other FLAs, any public lands – which make up 24% of Amador County - or lands within incorporated areas are ineligible for participation in the Program. Specific public lands are listed in Appendix H, Table V. Urban lands make up less than one percent of the county. The urban boundaries in the Amador County FLA map are based on US Census TIGER data (US Dept. of Commerce 1992). In the case that actual urban boundaries are different from those depicted on the reference map, the actual city boundaries will comprise the FLA boundaries. Lands included within the external boundaries of the FLA include lands that are unlikely to meet other Program eligibility requirements, including the requirement that parcels be forested with at least 10% tree canopy cover, or capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be made available for viewing at CDF and USFS.

Summary

Amador County covers 568 square miles and encompasses gently rolling slopes in the west to rugged mountain terrain in the east. Elevations range from 200 to 9,000 feet. Of the roughly 290,000 acres of private land in Amador FLA, approximately two-thirds is forested. Of this 200,000 acres of forestland, roughly 60% is dominated by hardwood forests while the remainder is primarily coniferous.

The California Natural Diversity Database which catalogues state and federally rare species has recorded some 9 vascular plants, 2 amphibians, 2 birds, and 2 mammals in Amador County (CA Dept. of Fish and Game 1999b). In addition, 8 Significant Natural Areas (SNAs) have all or a portion of their area on private lands within the FLA (CA

Dept. of Fish and Game, 1999c). (SNAs with area in the FLA are listed in Appendix H Table IV.)

Amador County is rural and sparsely populated, but is experiencing steady growth. The California Department of Finance projects that Amador County's population will increase by 24% from its current level of 35,000, to reach 43,000 in the year 2040. The majority of future growth within the county is likely to be focused in the oak woodland and ponderosa pine forest types east of Highway 49 and north of Highway 88. Although the western end of the county is within commuting distance to major cities in the Sacramento Valley, growth there has been limited due to agricultural zoning designations which require 40 acre minimum parcel sizes west of Highway 49.

The Forest Legacy goals and objectives for the Amador FLA seek to maintain and preserve the private forestlands and associated habitats, while ensuring the protection of the productive forest landscape for present and future generations of county residents.

Forest Resources

The primary forest types in the FLA are discussed below:

Blue oak woodlands cover nearly 60,000 acres, or a fifth of the private forested lands in the Amador FLA, and occupy an elevation range from 250-3,000 feet. Blue oaks typically comprise 85-100% of the vegetative species in blue oak woodlands, with the balance of tree associates generally comprised of interior live oak (Mayer and Laudenslayer 1988, CA GAP).

Seventy-eight state or federally listed threatened or endangered species are predicted to occur in the blue oak woodland habitat in the Sierra bioregion (see note 19, page 20). Federally listed endangered species include the long-toed salamander, peregrine falcon, loggerhead shrike, Heermann's kangaroo rat, and California vole. Federal threatened species include the red-legged frog, striped racer, western aquatic garter snake, bald eagle, California thrasher, and California towhee. California endangered species include the northern flicker, savannah sparrow, and brush rabbit, while the state threatened species predicted to occur in the region is the Swainson's hawk (CA Dept. of Fish and Game 1999a).

Blue oak-foothill pine associates typically exist at the 500-3,000 foot elevation band, and cover about 42,000 acres of the private land in the Sierra foothills and mountains of the Amador FLA. Blue oaks tend to be more abundant in this habitat, albeit co-dominant with foothill pines, with interior live oak and California Buckeye associated species (Mayer and Laudenslayer 1988, CA GAP).

Seventy-nine rare species are associated with the blue oak-foothill pine habitat. Federally endangered species in the habitat include the peregrine falcon, loggerhead shrike, Heermann's kangaroo rat, California vole, and Kit Fox. Federally listed threatened species include the Red-legged frog, striped racer, western aquatic garter snake, bald eagle, spotted owl, California thrasher, and California towhee. State-recognized endangered species are the northern flicker, savannah sparrow and brush rabbit, while the California threatened species in the habitat is the Swainson's hawk (CA Dept. of Fish and Game 1999a).

Montane hardwood forests cover about 18,500 acres of the private forestland in the FLA, where typical associated species include mixed conifer species, California Black oak, and Pacific madrone. Elevation ranges from 300-9,000 feet (Mayer and Laudenslayer 1988, CA GAP).

Sixty-three federal- or state-recognized rare species are predicted to occur in the montane hardwood habitat. Federally listed endangered species include the long-toed salamander, California vole, peregrine falcon, loggerhead shrike, Heermann's kangaroo rat. The red-legged frog, striped racer, western aquatic garter snake, bald eagle, spotted owl, California thrasher, and California towhee are threatened species. California endangered species include the northern flicker and brush rabbit, while California threatened species include the rubber boa and Swainson's hawk (CA Dept. of Fish and Game 1999a).

Ponderosa pine stands – made up both of pure ponderosa pine or a mix of white fir, incense-cedar, Jeffrey pine, and sugar pine – cover 66,500 acres, roughly a quarter private forested lands in the Amador FLA. Ponderosa pine and its associates typically exist in the foothill and mountain regions between 2,000-6,500 feet in elevation (Mayer and Laudenslayer 1988, CA GAP).

Sixty-seven state or federally recognized rare species find suitable habitat in the ponderosa pine habitat in the Sierra bioregion. The long-toed salamander, peregrine falcon, loggerhead shrike, and California vole are federally-listed endangered species, while the federally-threatened species are the red-legged frog, striped racer, western aquatic garter snake, bald eagle, spotted owl, and California towhee. California endangered species include the northern flicker and brush rabbit, state threatened species include the rubber boa, Swainson's hawk, and red fox, while other California recognized rare species predicted to use the habitat include the golden eagle, ringtail, and mountain lion (CA Dept. of Fish and Game 1999a).

Sierran mixed conifer associates, which include white fir, ponderosa pine, sugar pine, Jeffrey pine, and California black oak, cover about 12,000 acres of private forestland in

the FLA. Sierran mixed conifer forests occur mostly between 3,000-7,000 in the central portion of the Sierra (Mayer and Laudenslayer 1988, CA GAP).

Sixty-four rare species have suitable habitat in the Sierran mixed conifer forest, including the federally- listed endangered species such as the long toed salamander, peregrine falcon, California vole. Federally listed threatened species include the striped racer, bald eagle, and spotted owl. The great gray owl, northern flicker, and brush rabbit are California endangered species in the habitat, while California threatened species include the wolverine, red fox, and rubber boa (CA Dept. of Fish and Game 1999a).

Another forest type in the Amador FLA with very limited private ownership is the **valley oak woodland**, which occurs on only around 450 acres of private land. In addition, throughout the FLA, riparian forests provide water, thermal cover and migration corridors for rare species. (Mayer and Laudenslayer 1988)

Threats to Forest Resources

Residential development

Amador County is rural and sparsely populated. However, the county has been experiencing steady growth to its relatively small population. Between 1970 and 1980, population increased by 63%, and between 1980 and 1990, it grew another 55 %. The California Department of Finance projects that Amador County's population will increase by 24% from its current level of 35,000, to reach 43,000 in the year 2040 (CA Dept. of Finance 1998).

State correctional facilities are the largest employers in the county, followed by tourism, government, health care and retail. A substantial number of residents commute to the valley cities of Sacramento and Stockton, 45 miles to the east of the western edge of Amador County.

Currently only 30% of county residences are located in the five incorporated cities in of the county, Ione, Amador City, Plymouth, Sutter Creek, and Jackson. Of these, only Plymouth is located in a transitional zone to oak woodlands. The other 70% of the population live within unincorporated areas. Over 2000 housing units have been added in the county in the last 10 years. While population growth in coniferous zones has been limited, development is occurring around the communities of Pine Grove, Pioneer, and Buckhorn, in the ponderosa pine forest type (Grijaiva 2000).

The majority of growth within the county will be focused in the oak woodland and ponderosa pine forest types east of Highway 49 and north of Highway 88. Although the western end of the county is within commuting distance to major cities in the

Sacramento Valley, growth there has been limited due to agricultural zoning designations which require 40 acre minimum parcel sizes west of Highway 49 (Grijaiva, 2000).

Of the county's private lands, 95,000 acres, or 38%, are enrolled in Williamson Act contracts, which precludes near-term residential development. Another 28,000 acres is zoned as Timber Production (TPZ) (FRAP 1998). This applies to nearly all the coniferous forests which are eligible under the criteria of the Z'berg-Warren-Keene Collier Forest Taxation Reform Act of 1976 (Grijaiva, 2000). As in other counties, TPZ-zoned parcels in the Amador FLA are subject to a rolling ten-year contract and can be removed from TPZ zoning by the landowner, subject to the requirements of the Z'berg-Warren-Keene Collier Forest Taxation Reform Act of 1976. Also, TPZ designation does not foreclose the possibility of parcelization and housing development on parcels with a minimum size of 40 acres.

Watershed impairment

Amador County is made up of 3 major watershed basins – including the Lower Mokelumne, and the Cosumnes-Mokelumne, the latter of which makes up the majority of the county, both of which contain significant amounts of private lands. (The county also contains a small portion of the American River watershed.)

All watersheds in the Amador FLA are listed under the California Unified Watershed Assessment as Category I watersheds – watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems) (CA Unified Watershed Assessment 1998). Helping stave off forestland conversion to other more intensive uses as well as limiting road building and other soil disturbances – particularly in riparian areas – could help mitigate impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation

Specific conservation objectives for the Amador FLA

CDF, the SFSCC, and the USFS will use the Program's conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program's conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners that wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program's conservation goals are applicable to the Amador FLA. As discussed in Section V, these goals translate into a number of conservation objectives. The following conservation goals and objectives apply to the Amador FLA:

1. Goal: *Prevent future conversions of forestland and forest resources; and maintain and restore natural ecosystem functions:*

Objective: Minimize parcel fragmentation and non-forest development to maintain the resource base for forest-related economies, to reduce impacts to forest ecosystems, to reduce the risk of catastrophic fires to forest resources, and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: *Protect water quality, fisheries, and water supplies*

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

3. Goal: *Protect wildlife habitat, rare plants, and biodiversity*

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

4. Goal: *Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity*

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

5. Goal: *Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions*

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration “corridors”.

Resource protection mechanisms for the Amador FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program’s tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program’s approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the Amador FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and wildlife habitat, listed and sensitive species habitat, and opportunities for the production of forest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the State Forest Stewardship Coordinating Committee such as public recreation, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the Amador FLA

(List not exhaustive)

USDA Forest Service

USDOJ Bureau of Land Management

California Department of Forestry and Fire Protection

California Department of Fish and Game

State Lands Commission

Amador County

Other local government entities otherwise authorized to acquire and hold title to real property

XXVII. THE CALAVERAS FOREST LEGACY AREA SIERRA BIOREGION

FLA Location

The Map entitled “Calaveras County Forest Legacy Area” depicts the location of the Calaveras FLA and its boundaries.

Boundary Description

The Calaveras FLA is defined as all the lands within the county, which is located central California’s Sierra bioregion, and is bounded to the east by Alpine County, to north by Amador County, to the west by Stanislaus and San Joaquin Counties, and to the south by Tuolumne County.

As with other FLAs, any public lands – which make up roughly 17 percent of Calaveras County – or lands within incorporated areas are ineligible for participation in the Program. Specific public lands are listed in Appendix H, Table V. Urban lands make up over one percent of the county’s private lands. The urban boundaries in the Calaveras County FLA map are based on US Census TIGER data (US Census 1992). In the case that actual urban boundaries are different from those depicted on the reference map, the actual city boundaries will comprise the FLA boundaries. The designated boundaries of the FLA include lands that are unlikely to meet other Program eligibility requirements, including the requirement that parcels be forested with at least 10% tree canopy cover, or capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be made available for viewing at CDF and USFS.

Summary

Calaveras County extends from nearly sea-level in the Sacramento Valley to 8,200 feet in the eastern part of the county at the crest of the central Sierra Nevada. Major rivers, the Mokelumne and the Stanislaus, form the north and south borders of the county. Of the roughly 860 square miles (550,000 acres) of private lands in the Calaveras FLA, almost 80% percent, or 440,000 acres is forested. About two-thirds of this is dominated by hardwoods, while one third is covered by coniferous forests.

The California Natural Diversity Database, which catalogues state and federally rare species, has recorded some 10 vascular plants, 2 amphibians, 4 birds, and 3 mammals in Calaveras County (CA Dept. of Fish and Game 1999b). In addition, 10 Significant Natural Areas (SNAs) have all or a portion of their area on private lands within the FLA

(CA Dept. of Fish and Game 1999c). (SNAs with area in the FLA are listed in Appendix H Table IV.)

Despite being predominantly rural, Calaveras County is experiencing significant growth and development. The California Department of Finance projects that Calaveras County's population will increase by more than 90 percent from its current level of 42,000 people to over 80,000 people by the year 2040 (CA Dept. of Finance 1998). Growth in the County is being spurred by proximity to major urban centers in the Sacramento Valley, and recreational development.

The goals of the Forest Legacy Program in the Calaveras FLA are to conserve the private forested land, and associated habitats, that are facing increasing residential and industrial development pressure in the county.

Forest Resources

About two-thirds of the private forestland in the Calaveras FLA is dominated by hardwoods, while one third is covered by coniferous forests. Annual precipitation ranges from 20 inches a year in the western region to 60 inches in the higher elevation northeastern portion of the county. Giant sequoia trees grow at higher elevations on public lands. The predominant forest types in the FLA are discussed below:

About 30% of the Calaveras FLA's private land, roughly 168,000 acres, is covered by the **blue oak-foothill pine** habitat type. This forest type rings the foothills of the Central Valley (between 500 and 3,000 feet) and so is found at the western half of the FLA. Blue oak is usually more abundant than foothill pine in this forest type. Associated tree species include the interior live oak and California buckeye (Mayer and Laudenslayer 1988, CA GAP).

At least 79 rare species find suitable habitat in the blue oak foothill pine woodlands (see note 19, page 20). These include the peregrine falcon, loggerhead shrike, California vole, and Heermann's kangaroo rat, which are on the federal endangered species list. The red-legged frog, striped racer, western aquatic garter snake, bald eagle, spotted owl, California thrasher and California towhee are on the federal threatened species list. California state endangered species in the habitat include the northern flicker, savannah sparrow and brush rabbit, and the Swainson's hawk from the state threatened species list (CA Dept. of Fish and Game 1999a).

Another thirteen percent of the FLA's private land, or about 72,000 acres, is in the **blue oak woodland** type. These woodlands are found in the western edge of the county in the Sierra Nevada foothills (500 to 2,000 feet in elevation). Blue oak woodland is dominated by the blue oak, which typically makes up more than 85 percent of the tree

species in the habitat, while other tree species may include interior live oak in the Sierra Nevada, and valley oak where soils are deep (Mayer and Laudenslayer 1988, CA GAP).

Seventy-eight rare species are predicted to occur in blue oak woodland habitat in the Sierra bioregion. Listed species are the same as those for the blue oak foothill pine type, with two changes: the long-toed salamander (a federal endangered species) also finds suitable habitat in the blue oak woodlands, while the spotted owl does not (CA Dept. of Fish and Game 1999a).

The **montane hardwood** type is found throughout the eastern two-thirds of the FLA, on five percent, or 30,000 acres, of private land. The montane hardwood type grows on steep rocky south slopes of major river canyons where it consists mostly of canyon live oak. At higher elevations canyon live oak associates with Sierran mixed conifer species, while at lower elevation live oak associates with foothill pine, California laurel, knobcone pine, tanoak, and Pacific madrone (Mayer and Laudenslayer 1988, CA GAP).

The montane hardwood forest provides suitable habitat for 63 federal and state recognized rare species in the Sierra bioregion. These include the long-toed salamander, peregrine falcon, California vole, loggerhead strike, and Heermann's kangaroo rat, which are federally endangered and the red-legged frog, striped racer, western aquatic garter snake, bald eagle, spotted owl, California thrasher, and California towhee, which are federally listed as threatened. State-endangered northern flicker and brush rabbit, as well as state-threatened rubber boa, Swainson's hawk, and Kern Canyon slender salamander (CA Dept. of Fish and Game 1999a).

Ponderosa pine habitats are found in the central portion of the FLA at moderate to higher mountain elevations (2,500-5,500 feet) on the west slope of the Sierra Nevada range. This type covers over 127,000 acres, almost a quarter of the private lands in the county. These habitats include both pure stands of ponderosa pine as well as more diverse stands made up of white fir, incense cedar, sugar pine, Jeffrey pine, Douglas-fir, California black oak, and Oregon white oak (Mayer and Laudenslayer 1988, CA GAP).

Federally listed endangered species associated with the ponderosa pine forests in the Sierra bioregion include long-toed salamander, the peregrine falcon, loggerhead shrike, and California vole, while threatened species include the bald eagle, spotted owl, California towhee, striped racer, western aquatic garter snake, and red-legged frog. Numerous other state and federal rare species are associated with the bioregion's ponderosa pine habitat, including the northern flicker, and brush rabbit (CA endangered), Swainson's hawk, and rubber boa (CA Threatened), and the golden eagle, ringtail, and mountain lion (CA protected). In all, some 67 recognized rare wildlife

species are associated with the Calaveras FLA's ponderosa pine habitat (CA Dept. of Fish and Game 1999a).

Sierran mixed conifer is found in the central third of the FLA on the moist west slope of the Sierra Nevada, at middle elevations of 3,500-6,000 feet. It occupies about 25,000 acres of private lands in Calaveras FLA. The Sierran mixed conifer associates include a number of conifer species, including white fir, ponderosa pine, sugar pine, and incense cedar; and one hardwood species: California black oak (Mayer and Laudenslayer 1988, CA GAP).

Sixty-four federal or state species are associated with the Sierran mixed conifer forest type in the bioregion. Federally listed endangered species include the long-toed salamander, peregrine falcon, and California condor. Threatened species include the striped racer, bald eagle, and spotted owl. State listed endangered species associated with the Sierran mixed conifer type include the great gray owl, northern flicker and brush rabbit, while the rubber boa, and wolverine, listed as state threatened are found in this habitat type (CA Dept. of Fish and Game 1999a).

White fir forests are found in the eastern edge of the county at elevations above 5,500 feet, typically just above the Sierran mixed conifer belt. These forests cover nearly 15,000 acres of private land in the Calaveras FLA. White fir dominates in this forest type, but is associated with Jeffrey pine, and occasionally sugar pine, red fir, and incense cedar (Mayer and Laudenslayer 1988, CA GAP).

Rare species finding suitable habitat in the white fir forests of the Sierra bioregion number at least 62. The long-toed salamander, common garter snake, peregrine falcon, and mountain beaver are listed as federal endangered species, while the bald eagle, striped racer, and spotted owl are listed as threatened. On the state lists, the great gray owl and northern flicker are listed as endangered, and the rubber boa, and wolverine are listed as threatened (CA Dept. of Fish and Game 1999a).

Other forest types with very limited acreage on private lands in the Calaveras FLA include **montane hardwood-conifer** with 1,500 acres and **valley foothill riparian** forests with 1,000 acres. These riparian forests are critically important habitat because of they provide water, thermal cover, migration corridors and diverse nesting and feeding opportunities for many species (Mayer and Laudenslayer 1988, CA GAP).

Threats to Forest Resources

Residential development

The California Department of Finance projects that Calaveras County's population will increase by over 90 percent from its current level of 42,000 people to over 80,000 people

by the year 2040 (CA Dept. of Finance 1998). This increase is in addition to the population growth of about 10,000 in the 1980s and 1990s. Growth in the county has been stimulated by proximity to Sacramento and outlying suburbs along the I-5 corridor. Communities on the western edge of the county are 60 miles southeast of Sacramento, and 50 miles east of Stockton (Hendricks 2000).

Residential development is expected along the major transportation corridors including Highway 49, 4, and 26. The majority of growth is likely to be concentrated along Highway 4, which leads to Calaveras Big Trees State Park and the Bear Valley Ski Resort. Approximately 10,000 people live in this corridor in the communities of Copperopolis, Angels Camp, Murphys, Arnold, Avery, and Hathaway Pines. Development is occurring from the lowest elevation at Copperopolis (including homes and golf courses), up to Angels Camp in the transition zone between oak woodland and ponderosa pine, and Murphys, Arnold, Avery, Hathaway Pines in the ponderosa pine belt. Most of the growth is occurring through conversion of summer dwellings to full time residences, as well as infill on vacant parcels. New subdivisions are being developed along Highway 26 near Valley Springs in the grassland and oak woodland zones and south of Highway 4 to the Tuolumne County line (Hendricks 2000).

Resource use and zoning

Agriculture, including fruit and nut crops, field and vegetable crops, and livestock, is an important part of the economy, as is timber harvesting and processing. Private lands in Calaveras County are estimated as capable of producing about 40 million board feet of lumber per year (Calaveras County 1996). The eastern third of the county is largely publicly owned land administered by the U.S. Forest Service.

Timber Production Zoning applies to 75,000 acres, or 17% of the 440,000 acres of privately forested land in Calaveras County. This zoning covers about half of the privately owned coniferous forests in the FLA. The vast majority of lands zoned TPZ are owned by one large owner, Sierra Pacific Industries. As in other counties, TPZ-zoned parcels in the Calaveras FLA are subject to a rolling ten-year contract and can be removed from TPZ zoning by the landowner, subject to the requirements of the Z'berg-Warren-Keene Collier Forest Taxation Reform Act of 1976. Lands in TPZ designation must maintain a 160 acre minimum parcel size, or 40 acre if a management plan has been developed (Hendricks 2000).

The Calaveras General Plan also allows for timberland zoning which requires a 20 acre minimum parcel for each residential dwelling. However, a large portion of the undeveloped land in the county, much of it along highways or near communities, is currently unclassified. Classification typically occurs when a development proposal is made for a parcel. Most of these unclassified lands are in large lots over 100 acres, with one dwelling allowed per acre (Hendricks 2000). Residential development in forestland areas can increase ignition sources in areas of high fuel accumulation and increase the

likelihood of catastrophic fire, as well as interfering with fire suppression efforts (FRAP 1999a).

Watershed impairment

Calaveras County lies within 4 major watersheds – the Lower Mokelumne, Calaveras, Stanislaus, and Cosumnes-Mokelumne – all of which contain significant amounts of private lands.

Each of the watersheds in the Calaveras FLA are listed under the California Unified Watershed Assessment as Category I watersheds – watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems) (CA Unified Watershed Assessment 1998). Helping stave off forestland conversion to other more intensive uses as well as limiting road building and other soil disturbances – particularly in riparian areas – could help mitigate impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation

Specific conservation objectives for the Calaveras FLA

CDF, the SFSCC, and the USFS will use the Program’s conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program’s conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners that wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program’s conservation goals are applicable to the Calaveras FLA. As discussed in Section V, these goals translate into a number of conservation objectives. The following conservation objectives are particularly applicable to the Calaveras FLA:

1. Goal: *Prevent future conversions of forestland and forest resources; and maintain and restore natural ecosystem functions:*

Objective: Minimize parcel fragmentation and non-forest development to maintain the resource base for forest-related economies, to reduce impacts to forest ecosystems, to reduce the risk of catastrophic fires to forest resources, and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: *Protect wildlife habitat, rare plants, and biodiversity*

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

3. Goal: *Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity*

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

4. Goal: *Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions*

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration “corridors”.

5. Goal: *Protect water quality, fisheries, and water supplies*

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

Resource protection mechanisms for the Calaveras FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program’s tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program’s approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the Calaveras FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and wildlife habitat, listed and sensitive species habitat, and opportunities for the production of forest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the Stewardship Forest Coordinating Committee such as public recreation, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the Calaveras FLA

(List not exhaustive)

USDA Forest Service

USDOJ Bureau of Land Management

California Department of Forestry and Fire Protection

California Department of Fish and Game

California Department of Parks and Recreation

State Lands Commission

Calaveras County

Other local government entities otherwise authorized to acquire and hold title to real property

XXVIII. THE TUOLUMNE FOREST LEGACY AREA SIERRA BIOREGION

FLA Location

The map entitled "Tuolumne County Forest Legacy Area" depicts the location of the Tuolumne FLA and its boundaries.

Boundary Description

The FLA is defined as all the lands within the county, which is located in the central Sierra bioregion (Sierra Nevada range), and is bounded to north by Calaveras County, to the east by Alpine and Mono Counties, to the south by Mariposa, and to the west by Stanislaus County.

As with other FLAs, any public lands – which make up roughly 77 percent of Tuolumne County – or lands within incorporated areas are ineligible for participation in the Program. Specific public lands located within or proximate to the Tuolumne FLA are listed in Appendix H, Table V. Urban lands make up about three percent of the county's private lands. The urban boundaries on the map "Tuolumne County Forest Legacy Area" are based on US Census TIGER data (US Dept. of Commerce 1992). In the case that actual urban boundaries are different from those depicted on the reference map, the actual city boundaries will comprise the FLA boundaries. The designated boundaries of the FLA include lands that are unlikely to meet other Program eligibility requirements, including the requirement that parcels be forested with at least 10% tree canopy cover, or capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be available for viewing at CDF and USFS.

Summary

Tuolumne County ranges from gently rolling grasslands at elevations of 400 feet in the west to an elevation of 13,500 feet at the crest of the Sierra Nevada in the east. Between, lie the rugged canyons of the Tuolumne, Stanislaus, and Clavey Rivers. Roughly 22% percent, or 330,000 of the county's 1.5 million acres is privately owned. Of this, about 80% or 260,000 acres, is forested.

The California Natural Diversity Database, which catalogues state and federally rare species, has recorded some 30 vascular plants, 4 amphibians, 2 fish, 6 birds, and 8 mammals in the Tuolumne FLA (CA Dept. of Fish and Game 1999b). In addition, 9

Significant Natural Areas (SNAs) have all or a portion of their area on private lands within the FLA (CA Dept. of Fish and Game, 1999c). (SNAs with area in the FLA are listed in Appendix H Table IV.)

The California Department of Finance projects that Tuolumne County's population will increase by 65 percent from its current level of almost 56,000 people to 95,000 people in the year 2040 (CA Dept. of Finance 1998). Agriculture, lumber processing, government, health care, and tourism (in part due to Yosemite National Park) are mainstays of the economy. While nearly all of the county's privately-owned coniferous forests are afforded a special zoning designation (TPZ) that provides a measure of protection to those forests, much of the projected growth and residential development are currently being focused in areas covered by oak woodlands.

The goals of the Forest Legacy Program in the Tuolumne FLA are to maintain and preserve the forested landscape and its associated habitats, while ensuring that the productive forest landbase is maintained for present and future generations of residents.

Forest Resources

Over two-thirds of the private forestlands in the Tuolumne FLA are dominated by hardwoods, while almost a third is covered by coniferous forest. The predominant forest types in the FLA are discussed below:

Over a fifth of the FLA's private land, or 65,000 acres, is in the **blue oak woodland** type. These woodlands are found in the far western edge of the county in the Sierra Nevada foothills (500 to 2000 feet in elevation). Blue oak woodland is dominated by the blue oak, which typically makes up more than 85% of the tree species, although other associated species may include interior live oak in the Sierra Nevada, and valley oak where soils are deep (Mayer and Laudenslayer 1988, CA GAP).

Seventy-eight rare species find suitable habitat on the blue oak woodland habitat in the Sierra bioregion (see note 19, page 20). These include the peregrine falcon, loggerhead shrike, California vole, kit fox, long-toed salamander, and Heermann's kangaroo rat which are on the federal endangered species list. The red-legged frog, striped racer, western aquatic garter snake, bald eagle, California thrasher, and California towhee are on the federal threatened species list. Also using the habitat is the northern flicker, savannah sparrow and brush rabbit from the state endangered species list, and the Swainson's hawk from the state threatened species list (CA Dept. of Fish and Game 1999a).

Almost 30% of the FLA's private land, about 94,000 acres, is in the **blue oak-foothill pine** habitat type. This forest type rings the foothills of the Central Valley (between 500 and 3000 feet) and so is found at the western end of the FLA. Blue oak is usually more abundant than foothill pine in this forest type. Associated tree species include the interior live oak and California buckeye (Mayer and Laudenslayer 1988, CA GAP).

At least 79 rare species use the blue oak foothill pine habitat types. Listed species are the same as those for the blue oak, with two changes: the long-toes salamander is not predicted to have suitable habitat in the blue oak foothill pine habitat, while the federal-threatened spotted owl is predicted to utilize the habitat (CA Dept. of Fish and Game 1999a).

The **montane hardwood** type is found in the western two-thirds of the FLA, on 13,000 acres of private land. The montane hardwood type grows on steep rocky south slopes of major river canyons where it consists mostly of canyon live oak and Douglas fir. At higher elevations canyon live oak associates with Sierran mixed conifer species, while at lower elevation live oak associates with foothill pine, California laurel, knobcone pine, tanoak, and Pacific madrone (Mayer and Laudenslayer 1988, CA GAP).

63 federal and state recognized rare species have suitable habitat in the montane hardwood forests of the Sierra bioregion. These include the long-toed salamander, peregrine falcon, California vole, loggerhead strike, and Heermann's kangaroo rat, which are federally endangered, and the red-legged frog, striped racer, western aquatic garter snake, bald eagle, spotted owl, California thrasher, and California towhee, which are federally listed as threatened. State-endangered northern flicker and brush rabbit, as well as state-threatened rubber boa, and Swainson's hawk also are predicted to utilize the montane hardwood habitat (CA Dept. of Fish and Game 1999a).

Ponderosa pine habitats are found in the west central part of the FLA at moderate to higher mountain elevations (3,500-4,500 feet) on the west slope of the Sierra Nevada range. This type covers over 60,000 acres, or a fifth of the private lands in the county. These habitats include both pure stands of ponderosa pine as well as more diverse stands made up of white fir, incense cedar, sugar pine, Jeffrey pine, California black oak, and Oregon white oak (Mayer and Laudenslayer, 1988, CA GAP).

Federally listed endangered species associated with the ponderosa pine forests in the Sierra bioregion include long-toed salamander, the peregrine falcon, loggerhead shrike, and California vole, while threatened species include the bald eagle, spotted owl, California towhee, striped racer, western aquatic garter snake, and red-legged frog. Numerous other state and federal rare species are associated with the ponderosa pine habitat, including the northern flicker, and brush rabbit (CA endangered), red fox, Swainson's hawk, and rubber boa (CA Threatened), and the golden eagle, ringtail, and mountain lion (CA protected). In all, some 67 recognized rare wildlife species are

associated with the Sierra bioregion's ponderosa pine habitat (CA Dept. of Fish and Game 1999a).

Sierran mixed conifer is found in the center third of the FLA on the moist west slope of the Sierra Nevada, at middle elevations of 3,500-6,500 feet. It occupies about five percent, or 4,500 acres, of private lands in Tuolumne County. The Sierran mixed conifer associates include several conifer species, including white fir, Douglas-fir, ponderosa pine, sugar pine, and incense cedar; and one hardwood species: California black oak (Mayer and Laudenslayer 1988, CA GAP).

Sixty-four federal or state rare species are associated with the Sierran mixed conifer forest type in the Sierra bioregion. Federally listed endangered species include the long-toed salamander, peregrine falcon, and California vole. Threatened species include the striped racer, bald eagle, and spotted owl. State listed endangered species associated with the Sierran mixed conifer type include the great gray owl, northern flicker and brush rabbit, while the rubber boa, red fox, and wolverine, listed as threatened by the state, also are predicted to utilize this habitat (CA Dept. of Fish and Game 1999a).

White fir forests are found in the eastern edge of the county at elevations above 5,500 feet, typically just above the Sierran mixed conifer belt. It covers nearly 15,000 acres, or five percent of private land in the Tuolumne FLA. White fir dominates in this forest type, but is associated with Jeffrey pine, and occasional sugar pine, red fir, and incense cedar (Mayer and Laudenslayer 1988, CA GAP).

Rare species with suitable habitat in white fir forests of the Sierra bioregion number at least 62. The long-toed salamander, common garter snake, peregrine falcon, and mountain beaver are federally listed as endangered, while the bald eagle, striped racer, and spotted owl are listed as threatened. On the state lists, the great gray owl and northern flicker are listed as endangered, and the rubber boa, red fox, and wolverine are listed as threatened (CA Dept. of Fish and Game 1999a).

Montane hardwood-conifer is also found in the Tuolumne FLA include on very limited acreage totaling 1,500 acres (CA GAP). In addition, throughout the FLA, riparian forests provide water, thermal cover and migration corridors for rare species, including aquatic species such as the federally threatened Lahontan cutthroat trout and Paiute cutthroat trout (Mayer and Laudenslayer 1988, CA Dept. of Fish and Game 1999b)

Threats to Forest Resources

Residential development

Population in Tuolumne County is growing steadily. The California Department of Finance projects that Tuolumne County's population will increase by 65 percent from its current level of almost 56,000 people to 95,000 people in the year 2040 (CA Dept. of Finance 1998). Important sectors of the economy include lumber processing, government, health care and tourism.

Land uses throughout the county have been centered on mining, timber, agriculture and tourism. Tuolumne County has only one incorporated city, Sonora. The county's population is generally dispersed throughout small town communities of mixed use development surrounded by large areas of agriculture, native vegetation, and low density development. Development has been limited on agricultural and grazing lands in the western part of the county below 2,000 feet.

Population and development is concentrated in the central portion of the county from Jamestown eastward to Twain Harte. These are urbanized areas with agricultural operations and rural development at the edges including year-round and second residences on lots of up to 5 acres. Areas targeted for growth in this region include Jamestown, Sonora, Columbia, East Sonora, in the transition zone between hardwoods and ponderosa pine, and Tuolumne in the pine belt. A new community is proposed near Lime Kiln to provide a new area for accommodating part of the County's anticipated population growth (Tuolumne 1996). Areas in the south county that are targeted for growth include Groveland and Big Oak Flat in the ponderosa pine belt, and Lake Don Pedro in the transition zone between oaks and pine.

Timber Production Zoning applies to 85,000 acres, or a third of the 260,000 acres of privately forested land in Tuolumne County. Most of the TPZ zoned lands are located in the northeast portion of the county above 3,000 feet from Twain Harte to Sonora Pass along the Highway 108 corridor where tourist-oriented and residential development is concentrated in communities including Twain Harte, Sugar Pine/Mi-Wuk Village, Cedar Ridge, and Strawberry. TPZ zoning covers nearly all the privately owned coniferous forests in the FLA and is interspersed with federally owned land within the Stanislaus National Forest and Yosemite National Park.

As in other counties, TPZ-zoned parcels in the Tuolumne FLA are subject to a rolling ten-year contract and can be removed from TPZ zoning by the landowner, subject to the requirements of the Z'berg-Warren-Keene Collier Forest Taxation Reform Act of 1976. TPZ regulations require a minimum parcel size of 160 acres but allow residential development a density of one dwelling unit per 37 acres. About 1,300 acres of TPZ lands have been converted to other uses since 1980, including almost 160 acres rezoned to allow subdivisions near Confidence and Sugar Pine (Tuolumne 1996).

Watershed impairment

Tuolumne County lies within 4 major watershed basins – primarily within the Tuolumne and Stanislaus, and with small amounts of land in Dunn Creek, and Mantica-Merced-Turlock watersheds. River segments in the Dunn Creek and Mantica-Merced-Turlock Watersheds are listed as impaired under section 303(d) of the Clean Water Act. While conservation of forest resources through the Program has the potential to confer water quality benefits for all CWA-listed waterways, the primary sources of pollution currently recognized as impairing these river segments (agriculture, resource extraction/mining) are not easily mitigated through private forestland conservation alone. A small segment of the Stanislaus River in the Stanislaus Watershed also is listed primarily due to the effects agriculture (SWRCB 1999).

All watersheds in the Tuolumne FLA are listed under the California Unified Watershed Assessment as Category I watersheds – watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems) (CA Unified Watershed Assessment, 1998). Helping stave off forestland conversion to other more intensive uses as well as limiting road building and other soil disturbances – particularly in riparian areas – could help mitigate impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation***Specific conservation objectives for the Tuolumne FLA***

CDF, the SFSCC, and the USFS will use the Program’s conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program’s conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners who wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program’s conservation goals are applicable to the Tuolumne FLA. As discussed in Section V, these goals translate into a number of conservation objectives. The following conservation objectives are particularly applicable to the Tuolumne FLA:

1. Goal: *Prevent future conversions of forestland and forest resources; and maintain and restore natural ecosystem functions:*

Objective: Minimize parcel fragmentation and non-forest development to maintain the resource base for forest-related economies, to reduce impacts to forest ecosystems, to reduce the risk of catastrophic fires to forest resources, and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: *Protect wildlife habitat, rare plants, and biodiversity*

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

3. Goal: *Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity*

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

4. Goal: *Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions*

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration “corridors”.

5. Goal: *Protect water quality, fisheries, and water supplies*

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

Resource protection mechanisms for the Tuolumne FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program’s tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program’s approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the Tuolumne FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and

wildlife habitat, listed and sensitive species habitat, and opportunities for the production of rest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the State Forest Stewardship Coordinating Committee such as public recreation, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the Tuolumne FLA

(List is not exhaustive)

USDA Forest Service

USDOJ Bureau of Land Management

California Department of Forestry and Fire Protection

California Department of Fish and Game

State Lands Commission

Tuolumne County

Other local government entities otherwise authorized to acquire and hold title to real property

XXIX. THE MARIPOSA FOREST LEGACY AREA SIERRA BIOREGION

FLA Location

The Map entitled “Mariposa County Forest Legacy Area” depicts the location of the Mariposa FLA and its boundaries.

Boundary Description

The FLA is defined as all the lands within the county, which is located in the Sierra bioregion (central Sierra Nevada range), and is bounded to north and east by Tuolumne County, to the south by Madera, and to the west by Merced County.

As with other FLAs, any public lands – which make up roughly 57 percent of Mariposa County, or lands within incorporated areas are ineligible for voluntary participation in the Program. Specific public lands are listed in Appendix H, Table V. Urban lands make up less than one percent of the county’s private lands. The urban boundaries in the Mariposa County FLA map are based on US Census TIGER data (US Census 1992). In the case that actual urban boundaries are different from those depicted on the reference map, the actual city boundaries will comprise the FLA boundaries. The designated boundaries of the FLA include lands that are unlikely to meet other Program eligibility requirements, including the requirement that parcels be forested with at least 10% tree canopy cover, or capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be made available for viewing at CDF and USFS.

Summary

Mariposa County is located in central California on the western slope of the Sierra Nevada Range. The county’s elevation ranges from about 300 feet along the western boundary to 12,120 at Parson’s Peak on the eastern border at the crest of the Sierra Nevada in the east. Rainfall is influenced by elevation and varies from 15 inches on the western boundary to 50 inches between 6,000 to 7,000 feet, above this region snowfall becomes dominant. Vegetation grades from the valley grassland community on the western county boundary through oak woodlands, chaparral and various conifer communities to alpine conditions on the eastern border at the Sierra Crest.

Roughly 43 percent of the county’s 940,000 acres – about 400,000 acres – is privately owned. Of this, 80% or 260,000 acres is forested. Over 95% of this is dominated by

hardwoods, while only 5% is covered by coniferous forest. The California Natural Diversity Database, which catalogues state and federally rare species, has recorded some 28 vascular plants, 1 fish, 5 birds, and 12 mammals in the Mariposa FLA (CA Dept. of Fish and Game 1999b). In addition, 9 Significant Natural Areas (SNAs) have all or a portion of their area on private lands within the FLA (CA Dept. of Fish and Game, 1999c). (SNAs with area in the FLA are listed in Appendix H Table IV.)

Population in Mariposa County continues to grow slowly but steadily. The California Department of Finance projects that Mariposa County's population will increase by 71 percent from its current level of almost 17,000 people to 29,000 people in the year 2040. Growth has been stimulated by recreational development, commuters, and the retirement community. Opening of the University of California at Merced in 2005, only four miles from the Mariposa county line, is expected to spur some growth in the non-forested western part of the county. Communities farther up the slope of the Sierras located in oak woodlands and the ponderosa pine zone are also experiencing limited growth.

The goals of the Forest Legacy Program in the Mariposa FLA are to maintain the private forested landscape and associated habitats, while conserving productive forestlands for present and future county residents.

Forest Resources

Over 95% of the private forestlands in the Mariposa FLA are dominated by hardwoods, while only 5% is covered by coniferous forest. The predominant forest types in the FLA are discussed below:

The **valley oak woodland** forest type grows along the northwestern edge of the FLA in the Sierra Nevada foothills below 1,000 feet in elevation. It occupies almost 1,900 acres of private land in the Mariposa FLA. This forest type is composed almost exclusively of valley oaks in open or forest like stands, except for occasional California sycamore, Hinds black walnut, interior live oak, boxelder and blue oak (Mayer and Laudenslayer 1988, CA GAP).

79 federally and state recognized rare species have suitable habitat in the Sierra bioregion's valley oak woodland (see note 19, page 20). These include the peregrine falcon, loggerhead shrike, Heermann's kangaroo rat, kit fox, and California vole, which are federally endangered, and the red-legged frog, striped racer, western aquatic garter snake, bald eagle, California thrasher, and California towhee, which are federally listed as threatened. State-endangered northern flicker, savannah sparrow, and brush rabbit, as well as state-threatened Swainson's hawk utilize the forest type (CA Dept. of Fish and Game 1999a).

Over 30% of the Mariposa FLA's private land, or 120,000 acres, is in the **blue oak woodland** type. These woodlands are found in the far western edge of the county in the Sierra Nevada foothills (500 to 2,000 feet in elevation). Blue oak woodland is dominated by the blue oak, which typically makes up more than 85 percent of the tree species in the forest type. Other trees present may include interior live oak in the Sierra Nevada, and valley oak where soils are deep (Mayer and Laudenslayer 1988, CA GAP).

Seventy-eight rare species are predicted to use blue oak woodland habitat in the Sierra bioregion. These include the peregrine falcon, loggerhead shrike, California vole, kit fox, and Heermann's kangaroo rat which are on the federal endangered species list. The red-legged frog, striped racer, western aquatic garter snake, bald eagle, California thrasher and California towhee are on the federal threatened species list. Also predicted to use the habitat is the northern flicker, savannah sparrow and brush rabbit from the state endangered species list, and the limestone salamander, and Swainson's hawk from the state threatened species list (CA Dept. of Fish and Game 1999a).

Almost 65,000 acres of the FLA's private land is in the **blue oak-foothill pine** habitat type. This forest type rings the foothills of the Central Valley (between 500 and 3,000 feet) and so is found at the western end of the FLA. Blue oak is usually more abundant than foothill pine in this forest type. Associated tree species include the interior live oak and California buckeye (Mayer and Laudenslayer 1988, CA GAP).

At least 79 rare species find suitable habitat in the blue oak foothill pine habitat types. Listed species are the same as those for the blue oak woodland, with two changes: the long-toed salamander does not utilize this habitat, while the federally threatened spotted owl is predicted to occur in this habitat (CA Dept. of Fish and Game 1999a).

The **montane hardwood** type is found in the eastern two-thirds of the FLA, on 63,000 acres of private land. The montane hardwood type grows on steep rocky south slopes of major river canyons where it consists mostly of canyon live oak. At higher elevations, canyon live oak associates with Sierran mixed conifer species, while at lower elevation live oak associates with foothill pine, California laurel, knobcone pine, tanoak, and Pacific madrone (Mayer and Laudenslayer 1988, CA GAP).

63 federal and state recognized rare species are predicted to occur in the montane hardwood forest in the Sierra bioregion. These include the long-toed salamander, peregrine falcon, California vole, loggerhead shrike, and Heermann's kangaroo rat, which are federally endangered and the red-legged frog, striped racer, western aquatic garter snake, bald eagle, spotted owl, California thrasher, and California towhee which are federally listed as threatened. State-listed species include the endangered northern

flicker and brush rabbit, as well as state-threatened rubber boa, and Swainson's hawk (CA Dept. of Fish and Game 1999a).

Ponderosa pine habitats are found in the central third of the FLA at moderate to higher mountain elevations (3,500-4,500 feet) on the west slope of the Sierra Nevada range. This type covers almost 12,500 acres of private lands in the county, with forests including both pure stands of ponderosa pine as well as more diverse stands made up of white fir, incense cedar, sugar pine, Jeffrey pine, Douglas-fir, California black oak, and Oregon white oak (Mayer and Laudenslayer 1988, CA GAP).

Federally listed endangered species associated with the ponderosa pine forests include the peregrine falcon, loggerhead shrike, and California vole, while threatened species include the bald eagle, spotted owl, California towhee, striped racer, western aquatic garter snake, and red-legged frog. Numerous other state and federal rare species are associated with the ponderosa pine habitat, including the northern flicker, and brush rabbit (CA endangered), red fox, Swainson's hawk, and rubber boa (CA Threatened), and the golden eagle, ringtail and mountain lion (CA protected). In all, some 67 recognized rare wildlife species are associated with the Sierra bioregion's ponderosa pine habitat (CA Dept. of Fish and Game 1999a).

Threats to Forest Resources

Residential development

Population in Mariposa County continues to grow slowly but steadily. The California Department of Finance projects that Mariposa County's population will increase by 71 percent from its current level of almost 17,000 people to 29,000 people in the year 2040.

Business activity in Mariposa County is based on trade and service transactions that support a fluctuating tourist population, local livestock, timber and mining operations and, increasingly urban refugees looking for recreation and vacation activities, country living and retirement (Mariposa County 1980).

The largest community and only city in the county is Mariposa, population 1,900. Communities within the grassland and shrublands include Mariposa, Hornitos and Catheys Valley and Bear Valley. Mt. Bullion and Bootjack are in oak woodlands, Coulterville and El Portal are in the transition zone from manzanita shrublands to ponderosa pine, Midpines and Fish Camp are in the ponderosa pine zone, and Wawona is in the mixed conifer zone.

Some Mariposa communities are experiencing limited growth. Opening of the University of California at Merced in 2005, only four miles from the Mariposa county line, is expected to spur some growth in Catheys Valley. In forested areas, the community of Bootjack in oak woodlands is growing, as is Ponderosa Basin in the ponderosa pine zone. The communities of Foresta, Wawona, and El Portal in the mixed conifer zone may also experience growth as a result of development around Yosemite National Park. However, most residential development is scattered throughout the rural areas (Clark 2000).

Less than 5% of the 260,000 acres of private forestland (about 12,000 acres), is zoned as Timber Production (TPZ) in Mariposa County. This zoning is covers nearly all the privately owned coniferous forests in the FLA and is interspersed with federally owned land within the Stanislaus and Sierra National Forests and Yosemite National Park. As in other counties, TPZ-zoned parcels in the Mariposa FLA are subject to a rolling ten-year contract and can be removed from TPZ zoning by the landowner, subject to the requirements of the Z'berg-Warren-Keene Collier Forest Taxation Reform Act of 1976.

Watershed impairment

Mariposa County lies primarily within 3 major watershed basins – the Merced River , Guadalupe Mountains, and Fresno River, although it has a small portion of a 4th, the Manteca-Merced-Turlock. All basins in the county contain significant amounts of private lands. One river – the Merced – is listed as impaired under section 303(d) of the Clean Water Act. While conservation of forest resources through the Program has

the potential to confer water quality benefits for such CWA-listed waterways, the primary sources of pollution currently recognized as impairing the Merced (agricultural activities) are not easily mitigated through private forestland conservation alone.

All watersheds in the Mariposa FLA are listed under the California Unified Watershed Assessment as Category I watersheds – watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems) (CA Unified Watershed Assessment 1998). Helping stave off forestland conversion to other more intensive uses as well as limiting road building and other soil disturbances – particularly in riparian areas – could help mitigate impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation

Specific conservation objectives for the Mariposa FLA

CDF, the SFSCC, and the USFS will use the Program’s conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program’s conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners that wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program’s conservation goals are applicable to the Mariposa FLA. As discussed in Section V, these goals translate into a number of conservation objectives. The following conservation objectives apply to the Mariposa FLA:

1. Goal: *Prevent future conversions of forestland and forest resources; and maintain and restore natural ecosystem functions:*

Objective: Minimize parcel fragmentation and non-forest development to maintain the resource base for forest-related economies, to reduce impacts to forest ecosystems, to reduce the risk of catastrophic fires to forest resources, and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: *Protect wildlife habitat, rare plants, and biodiversity*

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

3. Goal: *Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity*

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

4. Goal: *Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions*

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration “corridors”.

5. Goal: *Protect water quality, fisheries, and water supplies*

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

Resource protection mechanisms for the Mariposa FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program’s tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program’s approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the Mariposa FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and wildlife habitat, listed and sensitive species habitat, and opportunities for the production of forest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the SFSCC such as public recreation, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the Mariposa FLA

(List not exhaustive)

USDA Forest Service
USDOI Bureau of Land Management
USDOI National Park Service
California Department of Forestry and Fire Protection

California Department of Fish and Game

State Lands Commission

Mariposa County

Other local government entities otherwise authorized to acquire and hold title to real property

XXX. THE MADERA FOREST LEGACY AREA SAN JOAQUIN VALLEY AND SIERRA BIOREGIONS

FLA Location

The map entitled "Madera County Forest Legacy Area" depicts the location of the Madera FLA and its boundaries.

Boundary Description

The FLA is defined as all the lands within the county, which is located in the San Joaquin and Sierra bioregions in central California, and is bounded to north by Mariposa and Merced Counties, to the east by Mono County, to the south and west by Fresno County.

As with other FLAs, any public lands – which make up roughly 38 percent of Madera County – or lands within incorporated areas are ineligible for participation in the Program. Specific public lands located within or proximate to the Madera FLA are listed in Appendix H, Table V. Urban lands make up four percent of the county's private lands. The urban boundaries on the map "Madera County Forest Legacy Area" are based on US Census TIGER data (US Dept. of Commerce 1992). In the case that actual urban boundaries are different from those depicted on the reference map, the actual city boundaries will comprise the FLA boundaries. The designated boundaries of the FLA include lands that are unlikely to meet other Program eligibility requirements, including the requirement that parcels be forested with at least 10% tree canopy cover, or capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be available for viewing at CDF and USFS.

Summary

Madera County is located in the geographic center of California. The western third of the county occupies the flat lowlands of the San Joaquin Valley while the foothills and rugged mountainous terrain of the Sierra Nevada characterize the eastern two thirds of the county. The FLA is bounded by the Chowchilla River on the northwestern edge, the San Joaquin River to the west and south, and the crest of the Sierra Nevada to the east.

Roughly 62 percent of the county's 1.4 million acres is privately owned, totaling 850,000 acres (1,300 square miles). Of this about 32% or 270,000 acres is forested. Of the privately owned forested lands, 98% are dominated by hardwoods in the form of valley

oak and blue oak woodlands encompassed by blue oak-foothill pine forests. Only 2% is covered by coniferous forest in the ponderosa pine type.

The California Natural Diversity Database, which catalogues state and federally rare species, has recorded some 29 vascular plants, 3 fish, 4 amphibians, 10 birds, and 6 mammals in the Madera FLA (CA Dept. of Fish and Game 1999b). In addition, 24 Significant Natural Areas (SNAs) have all or a portion of their area on private lands within the FLA (CA Dept. of Fish and Game, 1999c). (SNAs with area in the Madera FLA are listed in Appendix H Table IV.)

Population and development in Madera County continues to boom. The California Department of Finance projects that Madera County's population will increase by 274 percent from its current level of almost 127,000 people to 350,000 people by the year 2040 (CA Dept. of Finance 1998). Much of the development of eastern Madera County has occurred in oak woodland areas. Growth is fueled by retirees from more urbanized regions of California, and workers who commute to jobs in the greater Fresno area. The recreational opportunities, relatively low land and housing costs, and "rustic" wooded environment are attractions for settlement in the foothills (Madera County 1995).

The goals of the Forest Legacy Program in the Madera FLA are to conserve the forested environment and its associated habitats, while protecting the productive forest landbase for current and future generations of residents.

Forest Resources

Many of the slopes in the Madera FLA are covered with chaparral. Of the privately owned forested lands, some 98% are dominated by hardwoods in the form of valley oak and blue oak woodlands and blue oak-foothill pine forests. Only about 2% is covered by coniferous forest in the ponderosa pine type. Mixed conifer forests at upper elevations in the northeast portion of the FLA are publicly owned. The predominant forest types in the FLA are discussed below:

The **valley oak woodland** forest type grows along the north edge of the FLA in the Sierra Nevada foothills below 1,000 feet in elevation. It occupies roughly 1,800 acres of private land in the Madera FLA. This forest type is composed almost exclusively of valley oaks in open or forest like stands, except for occasional California sycamore, Hinds black walnut, interior live oak, boxelder and blue oak (Mayer and Laudenslayer 1988, CA GAP).

79 federally and state recognized rare species have suitable habitat in the valley oak woodland of the San Joaquin Valley and Sierra bioregions (see note 19, page 20). These include the blunt-nosed leopard lizard, peregrine falcon, loggerhead shrike, Fresno

kangaroo rat, Heermann's kangaroo rat, kit fox, and California vole which are federal-listed endangered species, and the red-legged frog, striped racer, western aquatic garter snake, giant garter snake, bald eagle, California thrasher, and California towhee, which are federal listed threatened species. State-endangered northern flicker, savannah sparrow, and brush rabbit, as well as state-threatened Swainson's hawk also are predicted to utilize the valley oak woodland habitat (CA Dept. of Fish and Game 1999a).

About 11% of the Madera FLA's private land, or 92,000 acres, is in the **blue oak woodland** type. These woodlands are found in a band through the center of the FLA in the Sierra Nevada foothills (400 to 1,500 feet in elevation). Blue oak woodland is dominated by the blue oak, which typically makes up more than 85 percent of the tree species in the habitat, although other trees in this forest type may include interior live oak and California buckeye (Mayer and Laudenslayer 1988, CA GAP).

Seventy-eight rare species use blue oak woodland habitat in the San Joaquin Valley and Sierra bioregions. These include the peregrine falcon, loggerhead shrike, California vole, kit fox, blunt-nosed leopard lizard, Fresno kangaroo rat and Heermann's kangaroo rat, which are on the federal endangered species list. The red-legged frog, striped racer, western aquatic garter snake, bald eagle, California thrasher and California towhee are on the federal threatened species list. Also predicted to use the habitat is the northern flicker, savannah sparrow and brush rabbit from the state endangered species list, and the Swainson's hawk from the state threatened species list (CA Dept. of Fish and Game 1999a).

Almost a sixth, or about 137,000 acres of the FLA's private land, is in the **blue oak-foothill pine** habitat type. This forest type rings the foothills of the Central Valley (between 1,500 and 3000 feet) above the blue oak woodlands a north-south band through the center of the FLA. Blue oak is usually more abundant than foothill pine in this forest type. Associated tree species include the interior live oak and California buckeye (Mayer and Laudenslayer 1988, CA GAP).

Some 79 rare species are predicted to use the blue oak foothill pine habitat type. Listed species are the same as those for the blue oak forest type, with the following changes: the Fresno kangaroo rat is not predicted to find suitable habitat in the forest, while the federally-threatened spotted owl is predicted to occur in the blue oak foothill pine (CA Dept. of Fish and Game 1999a).

The **montane hardwood** type is found in the eastern half of the Madera FLA, on about 32,000 acres or five percent of private lands at elevations between 3,500 and 6,000 feet. The montane hardwood type grows on steep rocky south slopes of major river canyons where it consists mostly of canyon live oak. At higher elevations canyon live oak

associates with Sierran mixed conifer species, while at lower elevation live oak associates with foothill pine, and California laurel (Mayer and Laudenslayer 1988, CA GAP). These habitats are located along the lower reaches of Lewis Creek below Corlieu Falls and south-facing slopes north of Bass Lake (Madera County 1995).

63 federal and state recognized rare species have suitable habitat in the montane hardwood forest of the Sierra bioregion. These include the peregrine falcon, loggerhead shrike, California vole, and Heermann's kangaroo rat which are federally endangered and the red-legged frog, striped racer, western aquatic garter snake, bald eagle, spotted owl, California thrasher, and California towhee which are federally listed as threatened. State-endangered northern flicker and brush rabbit, as well as state-threatened rubber boa, and Swainson's hawk also are predicted to inhabit the montane hardwood forest type in this bioregion (CA Dept. of Fish and Game 1999a).

Ponderosa pine habitats are found in the central third of the FLA at moderate to higher mountain elevations (4,000-7,000 feet) on the west slope of the Sierra Nevada range. This type covers only about one percent, or 6,000 acres, of private lands in the county. These habitats include both pure stands of ponderosa pine as well as more diverse stands made up of white fir, incense cedar, sugar pine, Jeffrey pine, California black oak, and Oregon white oak (Mayer and Laudenslayer 1988, CA GAP).

Federally listed endangered species associated with the ponderosa pine forests include the peregrine falcon, loggerhead shrike, and California vole, while threatened species include the bald eagle, California spotted owl, California towhee, striped racer, western aquatic garter snake, and red-legged frog. Numerous other state and federal rare species are associated with the ponderosa pine habitat, including the northern flicker, and brush rabbit (CA endangered), red fox, Swainson's hawk, and rubber boa (CA Threatened), and the ringtail and mountain lion (CA fully-protected). In all, some 67 recognized rare wildlife species are associated with the Sierra bioregion's ponderosa pine habitat (CA Dept. of Fish and Game 1999a).

Other forest types with very limited acreage on private lands in the Madera FLA include **montane hardwood-conifer** with 1,700 acres and **valley foothill riparian** forests with roughly 250 acres. Riparian forests are critically important habitat because of they provide water, thermal cover, migration corridors and diverse nesting and feeding opportunities for many species, including rare aquatic species such as the federally threatened Lahontan and Paiute cutthroat trout species (Mayer and Laudenslayer 1988, CA GAP). Riparian habitats are found along the San Joaquin, Fresno, and Chowchilla Rivers, Coarsegold Creek, Finegold Creek, Miami Creek, and Lewis Creek (Madera County General Plan Background Report, 1995).

Threats to Forest Resources

Residential development

Population growth and residential and commercial development are occurring rapidly in Madera County. The California Department of Finance projects that Madera County's population will increase by 274 percent from its current level of almost 127,000 people to 350,000 people in the year 2040 (CA Dept. of Finance, 1998). From 1990 to 1993, population in Madera's two incorporated cities, Chowchilla and Madera, increased at an average annual rate of 4.0 percent, while the average annual population increase in unincorporated Madera County was 6.2 percent (Madera County 1995). During the last few years, Madera County has been among the fastest growing counties in the state.

Economic activity differs by region in the Madera FLA. Important segments of the Madera County economy are professional, education, health and related services, agriculture and forestry, manufacturing and retail trade, although some observers have indicated that forestry is no longer a viable industry in the county. The valley cities are oriented towards intensive agriculture (field, seed, vegetable, fruit and nut crops). Livestock ranching has been the primary focus in foothill areas, although recent advances in technology have allowed intensive agriculture to move into the foothills. Urban uses in the foothills are concentrated in and adjacent to the unincorporated communities of Raymond, Oakhurst, Coarsegold, and Yosemite Lakes. No major urban settlements are located in the mountains. Smaller mountain communities, including North Fork and Bass Lake have traditionally been linked to timber production, but are now embracing tourism.

Much of the growth and development in eastern Madera County has occurred in oak woodland areas. Growth is occurring in the communities of Raymond, Knowles and O'Neals, located in the blue oak woodland and Coarsegold, Oakhurst and North Fork in the blue-oak foothill pine region. Much of the new development is fueled by retirees from more urbanized regions of California, and workers who commute to jobs in the greater Fresno area. State Route 41 provides access to and from the Fresno metropolitan area for the foothills and mountains of Madera County. That same Route 41 passes through the communities of Coarsegold and Oakhurst and is the major southern route into Yosemite National Park. The recreational opportunities, relatively low land and housing costs, and "rustic" wooded environment are attractions for settlement in the foothills (Madera County 1995).

Improved efforts at managing oak stands may be reducing the loss of oaks to urban development, to some extent. Between 1990 and 1995, oak stands in the county have shown marked improvement due to changed management practices, spearheaded by the cooperative efforts of the county and the Coarsegold Resource Conservation

District, according to research by University of California Satellite Imagery Surveys (Madera County 1995).

Less than 5% of the 270,000 acres of private forested land in Madera County is zoned Timber Production Zone. This zoning covers an undetermined amount of the privately owned coniferous forests in the FLA, having been part of a recent land exchange with the USFS and Calaveras County. As in other counties, parcels zoned TPZ in the Madera FLA are subject to a rolling ten-year contract and can be removed from TPZ zoning by the landowner, subject to the requirements of the Z'berg-Warren-Keene Collier Forest Taxation Reform Act of 1976. The TPZ Preserve District permits agriculture, barns and corrals, forestry, and one single-family dwelling per lot on a minimum parcel size of 160 acres. Residential development in forestland areas can increase ignition sources in areas of high fuel accumulation and increase the likelihood of catastrophic fire, as well as interfering with fire suppression efforts (FRAP 1999a).

Watershed impairment

Madera County lies within 4 major watersheds – the Chowchilla, Fresno, San Joaquin, and Merced – as well as a small piece of the Guadalupe Mountains hydrologic unit. Only one of these watersheds, the Merced, contains no appreciable amount of private land. One river – the San Joaquin – is listed as impaired under section 303(d) of the Clean Water Act. While conservation of forest resources through the Program has the potential to confer water quality benefits for this CWA-listed waterway, the primary sources of pollution currently recognized as impairing this river segment (agricultural activities) are not easily mitigated through private forest conservation alone.

All watersheds in the Madera FLA are listed under the California Unified Watershed Assessment as Category I watersheds – watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems) (CA Unified Watershed Assessment 1998). Helping stave off forestland conversion to other more intensive uses as well as limiting road building and other soil disturbances – particularly in riparian areas – could help mitigate impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation

Specific conservation objectives for the Madera FLA

CDF, the SFSCC, and the USFS will use the Program's conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program's conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners that wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program's conservation goals are applicable to the Madera FLA. As discussed in Section V, these goals translate into a number of conservation objectives. The following conservation objectives apply to the Madera FLA:

1. Goal: *Prevent future conversions of forestland and forest resources; and maintain and restore natural ecosystem functions:*

Objective: Minimize parcel fragmentation and non-forest development to maintain the resource base for forest-related economies, to reduce impacts to forest ecosystems, to reduce the risk of catastrophic fires to forest resources, and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: *Protect wildlife habitat, rare plants, and biodiversity*

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

3. Goal: *Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity*

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

4. Goal: *Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions*

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration "corridors".

5. Goal: *Protect water quality, fisheries, and water supplies*

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

Resource protection mechanisms for the Madera FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program's tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program's approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the Madera FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and wildlife habitat, listed and sensitive species habitat, and opportunities for the production of forest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the State Forest Stewardship Coordinating Committee such as public recreation, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the Madera FLA

List is not exhaustive)

USDA Forest Service

USDOJ Bureau of Land Management

California Department of Forestry and Fire Protection

California Department of Fish and Game

State Lands Commission

Madera County

Other local government entities otherwise authorized to acquire and hold title to real property

XXXI. THE FRESNO FOREST LEGACY AREA SAN JOAQUIN VALLEY, SIERRA, AND CENTRAL COAST BIOREGIONS

FLA Location

The map entitled "Fresno County Forest Legacy Area" depicts the location of the Fresno FLA and its boundaries.

Boundary Description

The FLA is defined as all the lands within the county, which is located in the San Joaquin, Sierra, and Central Coast bioregions of central California, and is bounded to north by Madera and Merced Counties, to the east by Inyo County, to the south by Tulare and Kings Counties, and to the west by Monterey and San Benito Counties.

As with other FLAs, any public lands – which make up roughly 40 percent of Fresno County – or lands within incorporated areas, are ineligible for participation in the Program. Specific public lands located within or proximate to the Fresno FLA are listed in Appendix H, Table V. Urban lands make up three percent of the county's private lands. The urban boundaries on the map "Fresno County Forest Legacy Area" are based on US Census TIGER data (US Dept. of Commerce 1992). In the case that actual urban boundaries are different from those depicted on the reference map, the actual city boundaries will comprise the FLA boundaries. The designated boundaries of the FLA include lands that are unlikely to meet other Program eligibility requirements, including the requirement that parcels be forested with at least 10% tree canopy cover, or be capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be available for viewing at CDF and USFS.

Summary

The Fresno FLA is a geographically diverse and densely populated region in central California, which encompasses the foothills and crest of the Sierra Nevada mountains in the east, the expansive Central valley, and a small portion of the inner Coast Range in the west. Roughly 60 percent of the county's 3.9 million acres is privately owned, totaling 2.3 million acres (3,600 square miles). Of this, about 15% or 345,000 acres, is forested. Of the privately owned forested lands, 95% are dominated by hardwoods in the form of valley oak and blue oak woodlands, blue oak-foothill pine forests, and montane hardwoods. Only 5% is covered by coniferous forest.

The California Natural Diversity Database which catalogues state and federally rare species has recorded some 55 vascular plants, 3 fish, 7 amphibians, 14 birds, and 14 mammals in the Fresno FLA (CA Dept. of Fish and Game 1999b). In addition, 40 Significant Natural Areas (SNAs) have all or a portion of their area on private lands within the FLA (CA Dept. of Fish and Game, 1999c). (SNAs with area in the Fresno FLA are listed in Appendix H Table IV.)

Fresno County is growing at a rapid rate, currently averaging three percent per year. Between 1980 and 1996, the county's population grew by 49 percent. The California Department of Finance projects that Fresno County's population will increase by 88 percent from its current level of almost 812,000 people to 1.5 million people in the year 2040 (CA Dept. of Finance, 1998). Although growth is primarily occurring in non-forested communities in the Central Valley, populations in the forested foothills and mountains are expanding as well. A recent analysis of the county's future economic output and population predicted that populations in the Sierra foothills, most of which is forested by oak woodlands, would increase by two to six times by the year 2020 (Fresno County 1998).

The goals of the Forest Legacy Program for the Fresno FLA will be to help county residents conserve their forest resources and associated habitat despite residential and industrial development throughout the area.

Forest Resources

Of the 345,000 acres of privately owned forestlands in the Fresno FLA, 95% are dominated by hardwoods in the form of valley oak and blue oak woodlands, blue oak-foothill pine forests, and montane hardwoods. Only 5% is covered by coniferous forest including the ponderosa pine and juniper types. High elevation forests, including mixed conifer, giant sequoia and sub-alpine forests, are largely in public ownership. The predominant forest types in the FLA are discussed below:

The **valley oak woodland** forest type grows along the far western edge of the FLA below 2,000 feet in elevation. It occupies almost 11,000 acres of private land in the Fresno FLA. This forest type is composed almost exclusively of valley oaks in open or forest like stands, except for coast live oak and foothill pine (Mayer and Laudenslayer 1988, CA GAP).

68 federally and state recognized rare species have suitable habitat the San Joaquin, Sierra, and Central Coast bioregions' valley oak woodland habitats (see note 19, page 20). These include the federally-listed endangered peregrine falcon, Fresno kangaroo rat, Heermann's kangaroo rat, loggerhead strike, kit fox, and California vole, and the federally-listed threatened striped racer, western aquatic garter snake, giant garter

snake, red legged frog, bald eagle, California thrasher, and California towhee. State-listed species include the endangered northern flicker, savannah sparrow, and brush rabbit, and the threatened Swainson's hawk. California fully-protected species found in the habitats include the white-tailed kite, golden eagle, ringtail, and mountain lion (CA Dept. of Fish and Game 1999a).

About 7% of the Fresno FLA's private land, or 165,000 acres, is in the **blue oak woodland** forest type. These woodlands are found in pockets in the east central portion in the Sierra Nevada foothills (400 to 1,500 feet in elevation) and in the far western portion of the FLA in the central coast range at 250 to 3,000 feet. Blue oak woodland is dominated by the blue oak, which typically makes up more than 85 percent of the tree species present. Other trees present may include interior live oak and California buckeye in the Sierra, and coast live oak in the coast range (Mayer and Laudenslayer 1988, CA GAP).

Sixty-seven rare species have suitable habitat in the San Joaquin, Sierra, and Central Coast bioregions' blue oak woodland habitats. These include the peregrine falcon, Fresno kangaroo rat, Heermann's kangaroo rat, blunt-nosed leopard lizard, loggerhead shrike, California vole, and kit fox, which are on the federal endangered species list. Federally-listed threatened species include the striped racer, western aquatic garter snake, bald eagle, California thrasher and California towhee, and red-legged frog. Also predicted to use the habitat is the northern flicker, savannah sparrow and brush rabbit from the state endangered species list, and Swainson's hawk listed by the state as threatened species. California fully-protected species found in the blue oak woodland habitat include the white-tailed kite, golden eagle, ringtail, and mountain lion (CA Dept. of Fish and Game 1999a).

Almost 130,000 acres of the FLA's private land is in the **blue oak-foothill pine** habitat type. This forest type rings the foothills of the Central Valley (between 1,500 and 3,000 feet) above the blue oak woodlands and so is found in the central portion of the FLA in the Sierra Nevada foothills and in the far western portion of the FLA in the central coast range at elevations between 500 and 3,000 feet. Blue oak is usually more abundant than foothill pine in this forest type. Associated tree species in the Sierra foothills include the interior live oak and California buckeye. In the Coast range, coast live oak, valley oak and California buckeye are also found (Mayer and Laudenslayer 1988, CA GAP).

At least 70 rare species have suitable habitat in the blue oak-foothill pine habitat types. Listed species are the same as those for the blue oak woodland habitats, with the addition of the spotted owl, a federally threatened species (CA Dept. of Fish and Game 1999a).

The **montane hardwood** type is found on about 26,000 acres or five percent of private lands in the eastern third of the FLA, in the Sierra Nevada at elevations between 3,500 and 6,000 feet. The montane hardwood type grows on steep and rocky south facing slopes where it consists mostly of canyon live oak and California black oak. At higher elevations canyon live oak associates with ponderosa pine, incense cedar, and white fir, while at lower elevation live oak associates with foothill pine, California laurel, knobcone pine, tanoak, and Pacific madrone (Mayer and Laudenslayer, 1988) (CA GAP).

65 federal and state recognized rare species have suitable habitat in the montane hardwood forest. These include the peregrine falcon, loggerhead shrike, California vole, and Heermann's kangaroo rat which are listed as federally endangered, and the red-legged frog, striped racer, western aquatic garter snake, bald eagle, spotted owl, California thrasher, and California towhee which are listed as federally threatened. State-endangered species with suitable habitat in the bioregions' montane hardwood habitats include the northern flicker and brush rabbit, as well as state-threatened rubber boa, Swainson's hawk. California fully-protected species expected to occur in this habitat are the golden eagle, ringtail, and mountain lion (CA Dept. of Fish and Game 1999a).

Ponderosa pine habitats are found in the east-central part of the FLA in a band of elevation between 3,000-5,000 feet on the west slope of the Sierra Nevada range above the blue oak woodland and blue oak-foothill pine type. This type covers only 9,000 acres of private lands in the county. These habitats include both pure stands of ponderosa pine as well as more diverse stands made up of white fir, incense cedar, sugar pine, Jeffrey pine, California black oak, and canyon live oak (Mayer and Laudenslayer 1988, CA GAP).

Federally listed endangered species associated with the ponderosa pine forests include the peregrine falcon, loggerhead shrike, and California vole, while threatened species include the red-legged frog, bald eagle, spotted owl, California towhee, striped racer, and western aquatic garter snake. State rare species include the northern flicker and brush rabbit (endangered), Swainson's hawk, red fox, and rubber boa (threatened), and the golden eagle, ringtail, and mountain lion (full-protected). In all, some 60 recognized rare wildlife species are associated with the ponderosa pine habitat in the San Joaquin, Sierra, and Central Coast bioregions (CA Dept. of Fish and Game 1999a).

Juniper habitat covers 10,000 acres of private land in the northeastern portion of the FLA. This habitat is dominated by junipers, with associated white fir, Jeffrey, ponderosa and whitebark pine, and single leaf pinyon depending on soil and moisture conditions. Juniper forests are common on gently rolling topography at 4,000 to 6,000 feet on north facing slopes, and 6,000 to 8,000 feet on south facing slopes.

Another forest type with very limited acreage on private lands in the Fresno FLA is the **valley foothill riparian** forest which covers about 7,000 acres. These riparian forests are critically important habitat because of they provide water, thermal cover, migration corridors and diverse nesting and feeding opportunities for many species, including rare aquatic species such as the federal threatened Lahontan and Paiute cutthroat trout (Mayer and Laudenslayer 1988, CA GAP). The majority of riparian forests in the Fresno FLA is found along the San Joaquin and Kings Rivers, the Fresno Slough and other tributaries (Fresno County 2000).

Threats to Forest Resources

Residential development

The economy of Fresno County continues to boom. Fresno is California's top ranked agricultural producing county and the country's leading agricultural region with an annual crop production value of over three billion dollars (Fresno County 1998). Other sectors of the economy, including services, government, and trade also continue are expanding.

Fresno County is also growing at a relatively rapid rate, averaging three percent growth per year. Over the 1980-1996 period, the county grew 49 percent. The California Department of Finance projects that Fresno County's population will increase by 88 percent from its current level of almost 812,000 people to 1.5 million people in the year 2040 (CA Dept. of Finance, 1998).

The combined population of the cities of Fresno and Clovis makes up 61 percent of the total county population, and nearly 80 percent of the population of all incorporated cities. Urban growth is putting pressure on prime agricultural land on the valley floor and on valuable agricultural and natural resources in the foothills. The majority of population growth between 1980 and 1996 occurred in non-forested valley communities, including Parlier, which grew 250%, Huron (102%) Clovis (100%), and Kingsburg (67%).

However, growth is also occurring in forested foothill and mountain communities. A 1998 report on the county's economy and population analyzed the environmental impacts of future growth by region through the year 2020. The analysis – based on a number of growth scenarios and economic/demographic assumptions – projected that populations in the Sierra foothills will increase by two to six times their current size by the year 2020, and in the Sierra Nevada mountains by two-thirds to three times the current size of 6,000 people (Fresno County 1998). Residential development in forestland areas can increase ignition sources in areas of high fuel accumulation and increase the likelihood of catastrophic fire, as well as interfering with fire suppression efforts (FRAP 1999a).

The implementation of the Forest Legacy Program in Fresno County will help implement a number of goals of the Fresno County General Plan's Open Space and Conservation Element, including Goal OS-B, which seeks to maintain healthy sustainable forests, conserve forest resources, and enhance the quality of forest ecosystems, among other things. In addition, the Program will help meet the General Plan's goal OS-K, which seeks to protect and maintain the scenic quality of the county and discourage development that degrades areas of scenic quality (Fresno County 1998).

Currently, about 60% of the private land (200,000 acres) in the Sierra Nevada foothills planning area is enrolled in Agricultural Land Conservation Contracts through the Williamson Act. These contracts require lands to be retained in a minimum of 40 acres parcel sizes. The remaining 125,000 acres is subject to diverse development pressures, primarily homesites of 2 to 5 acres. Private lands in the high mountain areas in the county are located primarily in the Shaver Lake-Meadow Lakes area. The county's general plan policies zone these lands as mountain residential (Fresno County 2000). 1,500 acres - less than one percent of the private forested land in the Fresno FLA - is zoned as Timber Production Zone (FRAP 1998).

Watershed impairment

Fresno County lies within 8 watersheds - the Lower Kings River, Kings River Basin, the San Joaquin, the Los Banos-Patterson, the Los Banos Creek, and the Los Gatos Creek-Kreyenhagen Hills. All of these watersheds contain significant amounts of private lands. A number of stream segments in the San Joaquin, Los Banos-Patterson, and Lower Kings River Watershed are listed as impaired under section 303(d) of the Clean Water Act. While conservation of forest resources through the Program has the potential to confer water quality benefits for all CWA-listed waterways, the primary sources of pollution currently recognized as impairing these river segments (agriculture) are not easily mitigated through private forestland conservation alone.

All watersheds in the Fresno FLA are listed under the California Unified Watershed Assessment as Category I watersheds - watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems). (CA Unified Watershed Assessment, 1998). Helping stave off forestland conversion to other more intensive uses as well as limiting road building and other soil disturbances - particularly in riparian areas - could help mitigate impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation

Specific conservation objectives for the Fresno FLA

CDF, the SFSCC, and the USFS will use the Program's conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program's conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners that wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program's conservation goals are applicable to the Fresno FLA. As discussed in Section V, these goals translate into a number of conservation objectives. The following conservation objectives apply to the Fresno FLA:

1. Goal: *Prevent future conversions of forestland and forest resources, and maintain and restore natural ecosystem functions*

Objective: Minimize the level of housing and non-forest development to reduce the risk of catastrophic fire to forest resources and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: *Protect wildlife habitat, rare plants, and biodiversity*

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

3. Goal: *Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity*

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

4. Goal: *Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions*

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration "corridors".

5. Goal: *Protect water quality, fisheries, and water supplies*

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

Resource protection mechanisms for the Fresno FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program's tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program's approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the Fresno FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and wildlife habitat, listed and sensitive species habitat, and opportunities for the production of forest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the State Forest Stewardship Coordinating Committee such as public recreation, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the Fresno FLA

(List is not exhaustive)

USDA Forest Service

USDOJ Bureau of Land Management

California Department of Forestry and Fire Protection

California Department of Fish and Game

State Lands Commission

Fresno County

Other local government entities otherwise authorized to acquire and hold title to real property

XXXII. THE TULARE FOREST LEGACY AREA SAN JOAQUIN VALLEY AND SIERRA BIOREGIONS

FLA Location

The map entitled "Tulare County Forest Legacy Area" depicts the location of the Tulare FLA and its boundaries.

Boundary Description

The FLA is defined as all the lands within Tulare county, which is located in the San Joaquin Valley and Sierra bioregions in south central California, and is bounded to north by Fresno County, to the east by Inyo County, to the south by Kern County, and to the west by Kings County.

As with other FLAs, any public lands – which make up roughly 51 percent of Tulare County – or lands within incorporated areas are ineligible for participation in the Program. Specific public lands located within or proximate to the Tulare FLA are listed in Appendix H, Table V. Urban lands make up three percent of the county's private lands. The urban boundaries on the map "Tulare County Forest Legacy Area" are based on US Census TIGER data (US Dept. of Commerce 1992). In the case that actual urban boundaries are different from those depicted on the reference map, the actual city boundaries will comprise the FLA boundaries. The designated boundaries of the FLA include lands that are unlikely to meet other Program eligibility requirements, including the requirement that parcels be forested with at least 10% tree canopy cover, or capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be available for viewing at CDF and USFS.

Summary

The Tulare FLA, located in central California, is geographically diverse. It ranges from the extensively cultivated and very fertile valley floor lands in the western half, up the Sierra Nevada foothills, culminating in the eastern part of the county in mountain peaks reaching 14,000 feet. Roughly 49 percent, or 1.5 million of the county's 3 million acres is privately owned, totaling 1.5 million acres (2,400 square miles). Of this, 29% or 440,000 acres, is forested. Of the privately owned forested lands, 95% are dominated by hardwoods in the form of valley oak and blue oak woodlands, blue oak-foothill pine forests, and montane hardwoods. Only 5% is covered by coniferous forest.

The California Natural Diversity Database which catalogues state and federally rare species has recorded some 59 vascular plants, 2 fish, 6 amphibians, 10 birds, and 9 mammals in the Tulare FLA (CA Dept. of Fish and Game 1999b). In addition, 29 Significant Natural Areas (SNAs) have all or a portion of their area on private lands within the FLA (CA Dept. of Fish and Game, 1999c). (SNAs with area in the FLA are listed in Appendix H Table IV.)

Tulare County is experiencing dramatic population growth. The California Department of Finance projects an increase of 220 percent from the current level of almost 380,000 people to 837,000 people in the year 2040 (CA Dept. of Finance, 1998). Although the majority of this growth is occurring in non-forested valley areas, lands covered in oak woodlands along the major transportation routes of the county have been designated as growth corridors under county planning documents.

The goals of the Forest Legacy Program in Tulare FLA will be to conserve the county's forest resources and associated habitats that are under increasing residential and industrial development pressure in the area.

Forest Resources

Of the 440,000 acres of privately owned forestlands in the Tulare FLA, 95% are dominated by hardwoods in the form of valley oak and blue oak woodlands, blue oak-foothill pine forests, and montane hardwoods. Only 5% is covered by coniferous forest including the ponderosa pine types. The primary forest types in the FLA are discussed below:

The **valley oak woodland** forest type grows in the center of the FLA below 2,000 feet in elevation. It occupies almost 13,000 acres of private land in the Tulare FLA. This forest type is composed almost exclusively of valley oaks in open or forest like stands, except for coast live oak and foothill pine (Mayer and Laudenslayer 1988, CA GAP).

68 federally and state recognized rare species have suitable habitat in the San Joaquin Valley bioregion's valley oak woodlands (see note 19, page 20). These include the peregrine falcon, California condor, loggerhead strike, Heermann's kangaroo rat, Fresno kangaroo rat, blunt-nosed leopard lizard, little pocket mouse, kit fox, and California vole, which are federally endangered, and the striped racer, western aquatic garter snake, bald eagle, California thrasher, and California towhee, which are federally listed as threatened. State-listed species include the endangered northern flicker, savannah sparrow, and brush rabbit, as well as state fully-protected white-tailed kite, golden eagle, ringtail, and mountain lion (CA Dept. of Fish and Game 1999a).

Almost a quarter of the Tulare FLA's private land, or 370,000 acres, is in the **blue oak woodland** type. These woodlands are found in a north-south band through the central portion in the Sierra Nevada foothills (400 to 1,500 feet in elevation) and in the far western portion of the FLA in the central coast range at 250 to 3,000 feet. Blue oak woodland is dominated by the blue oak, which typically makes up more than 85 percent of the tree species present. Other trees present may include interior live oak and California buckeye in the Sierra, and coast live oak in the coast range (Mayer and Laudenslayer 1988, CA GAP).

Sixty-seven rare species have suitable habitat in the bioregions' blue oak woodland habitats. These include the peregrine falcon, California condor, loggerhead shrike, California vole, Heermann's kangaroo rat, Fresno kangaroo rat, blunt-nosed leopard lizard, and kit fox which are listed as federal endangered species. The striped racer, western aquatic garter snake, bald eagle, California thrasher and California towhee are on the federal threatened species list. Also using the habitat is the northern flicker, savannah sparrow and brush rabbit from the state fully-protected white-tailed kite, golden eagle, ringtail, and mountain lion (CA Dept. of Fish and Game 1999a).

Almost 9,000 acres of the FLA's private land is in the **blue oak-foothill pine habitat type**. This forest type rings the foothills of the Central Valley (between 1,500 and 3,000 feet) and is found in the south central portion of the FLA in the Sierra Nevada foothills. Blue oak is usually more abundant than foothill pine in this forest type. Associated tree species in the Sierra foothills include the interior live oak and California buckeye. (Mayer and Laudenslayer 1988, CA GAP).

At least 70 rare species use the blue oak-foothill pine habitat types. Listed species are the same as those for the blue oak woodland habitats, with one exception: the spotted owl (federal threatened species) also is predicted to occur in the blue oak-foothill pine habitats (CA Dept. of Fish and Game 1999a).

The **montane hardwood** type is found on about 23,000 acres, or one percent, of private lands in the FLA, in the Sierra Nevada at elevations between 3,500 and 6,000 feet. The montane hardwood type grows on steep and rocky south-facing slopes where it consists mostly of canyon live oak and California black oak. At higher elevations, canyon live oak associates with ponderosa pine, incense cedar, and white fir while at lower elevation live oak associates with foothill pine, California laurel, knobcone pine, tanoak, and Pacific madrone (Mayer and Laudenslayer 1988, CA GAP).

65 federal and state recognized rare species are associated with the montane hardwood forest in the bioregions. These include the peregrine falcon, California condor, loggerhead strike, California vole, and Heermann's kangaroo rat, which are federally endangered and the striped racer, western aquatic garter snake, bald eagle, spotted

owl, California thrasher, and California towhee, which are federally-listed as threatened. State-listed species include the endangered northern flicker and brush rabbit, as well as state-threatened rubber boa, while California fully-protected species expected to be found there include the golden eagle, ringtail, and mountain lion (CA Dept. of Fish and Game 1999a).

Ponderosa pine habitats are found in the central part of the FLA in a band of elevation between 3,000-5,000 feet on the west slope of the Sierra Nevada range above the blue oak woodland and blue oak-foothill pine forest type. This forest habitat type covers only about 19,000 acres of private lands in the county, and includes both pure stands of ponderosa pine and more diverse stands made up of white fir, incense cedar, sugar pine, Jeffrey pine, California black oak, and canyon live oak (Mayer and Laudenslayer 1988, CA GAP).

Federally listed endangered species associated with the ponderosa pine forests in the bioregions include the peregrine falcon, California condor, loggerhead shrike, and California vole, while threatened species include the bald eagle, spotted owl, California towhee, striped racer, and western aquatic garter snake. State rare species include the northern flicker and brush rabbit (endangered), red fox, and rubber boa (threatened), and the golden eagle, ringtail, and mountain lion (protected). In all, some 60 recognized rare wildlife species are predicted to find suitable habitats San Joaquin Valley and Sierra ponderosa pine forests (CA Dept. of Fish and Game 1999a).

Another forest type with very limited acreage on private lands in the Tulare FLA is the **valley foothill riparian** forest which covers an estimated 6,300 acres. These riparian forests are critically important habitat because of they provide water, thermal cover, migration corridors and diverse nesting and feeding opportunities for many species, including aquatic species such as the federal threatened little Kern golden trout (Mayer and Laudenslayer 1988, CA GAP, CA Dept. of Fish and Game 1999b).

Threats to Forest Resources

Residential development

Tulare County's economy and population is are both expanding rapidly. Tulare County is the second-leading producer of agricultural commodities in the United States. With more than 250 crops, the county's agribusiness alone produces over 2.9 billion each year. Also important to the economy are trade, manufacturing, health and government employment. The California Department of Finance projects that Tulare County's population will increase by 220 percent from its current level of almost 380,000 people to 837,000 people in the year 2040 (CA Dept. of Finance 1998).

Growth has been concentrated in the non-forested valley in the western part of the FLA. Valley communities have experienced substantial growth including Visalia which has grown 25% in the last 10 years to 100,000, Dinuba (which has grown by 24%) Woodlake (18%) and Orosi (21%). Communities in oak woodlands, which include Springville, Badger, and Three Rivers, have experienced lower growth rates (Chapin 2000).

The county's foothill growth management plan covers much of the county's privately owned oak woodland. The majority of the lands in this vegetation type are designated for extensive agriculture (livestock grazing), with minimum parcel sizes of 160 acres. However, several growth development corridors have been designated within the oak woodland zone, primarily around the communities of Springville, Pleasantville, Lake Success, Three Rivers, and Tule River along the main transportation routes within the foothills (Chapin 2000).

Only 11,000 acres, or less than 3% of the 440,000 acres of privately forested land in Tulare County is zoned as Timber Production (TPZ). As in other counties, TPZ-zoned parcels in the Tulare FLA are subject to a rolling ten-year contract and can be removed from TPZ zoning by the landowner, subject to the requirements of the Z'berg-Warren-Keene Collier Forest Taxation Reform Act of 1976.

Watershed impairment

Tulare County lies within six watersheds, the Tulare, Lower Kings River, Kaweah River, Greenhorn Mountains, which contain significant amounts of private land, and Kings River Kern River, which have no appreciable amount of private land. One river – the Kings – is listed as impaired under section 303(d) of the Clean Water Act. While conservation of forest resources through the Program has the potential to confer water quality benefits for this CWA-listed waterway, the primary sources of pollution currently recognized as impairing the Kings (agricultural activities) are not easily mitigated through private forestland conservation alone.

However, all watersheds in the Tulare FLA are listed under the California Unified Watershed Assessment as Category I watersheds – watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems) (CA Unified Watershed Assessment, 1998). Helping stave off forestland conversion to other more intensive uses as well as limiting road building and other soil disturbances – particularly in riparian areas – could help mitigate impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation

Specific conservation objectives for the Tulare FLA

CDF, the SFSCC, and the USFS will use the Program's conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program's conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners who wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program's conservation goals are applicable to the Tulare FLA. As discussed in Section V, these goals translate into a number of conservation objectives. The following conservation objectives apply to the Tulare FLA:

1. Goal: *Prevent future conversions of forestland and forest resources, and maintain and restore natural ecosystem functions:*

Objective: Minimize the level of housing and non-forest development to reduce the risk of catastrophic fire to forest resources and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: *Protect wildlife habitat, rare plants, and biodiversity*

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

3. Goal: *Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity*

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

4. Goal: *Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions*

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration "corridors".

5. Goal: *Protect water quality, fisheries, and water supplies*

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

Resource protection mechanisms for the Tulare FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program's tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program's approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the Tulare FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and wildlife habitat, listed and sensitive species habitat, and opportunities for the production of forest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the State Forest Stewardship Coordinating Committee such as public recreation, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the Tulare FLA

(List is not exhaustive)

USDA Forest Service

USDOJ Bureau of Land Management

California Department of Forestry and Fire Protection

California Department of Fish and Game

State Lands Commission

Tulare County

Other local government entities otherwise authorized to acquire and hold title to real property

XXXIII. THE SAN BERNARDINO FOREST LEGACY AREA MOJAVE AND SOUTH COAST BIOREGIONS

FLA Location

The map entitled " San Bernardino County Forest Legacy Area" depicts the location of the San Bernardino FLA and a portion of its boundaries (given the size of the county, space constraints in this publication prohibited printing of a map of the entire county that would convey ample details).

Boundary Description

The FLA is defined as all the lands within San Bernardino County, which is located in the Mojave and South Coast bioregions in southern California, and is bounded to east by the state of Nevada, to the north by Inyo County, to the south by Riverside and Orange Counties, and to the west by Kings Counties.

As with other FLAs, any public lands – which make up roughly 88 percent of San Bernardino County, or lands within incorporated areas are ineligible for participation in the Program. Specific public lands located within or proximate to the San Bernardino FLA are listed in Appendix H, Table V. Urban lands make up 35% of the county's private lands. The urban boundaries on the map " San Bernardino County Forest Legacy Area" are based on US Census TIGER data (US Dept. of Commerce 1992). In the case that actual urban boundaries are different from those depicted on the reference map, the actual city boundaries will comprise the FLA boundaries. The designated boundaries of the FLA include lands that are unlikely to meet other Program eligibility requirements, including the requirement that parcels be forested with at least 10% tree canopy cover, or capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be available for viewing at CDF and USFS.

Summary

One of the largest counties in the United States, San Bernardino is very geographically diverse. It ranges from the extensively cultivated and very fertile valley floor in the west, over the San Gabriel and San Bernardino Mountains reaching up to 11,000 feet, and into the Mojave Desert in the east. Vegetation ranges from agricultural, grasslands, oaks, chaparral and coniferous forests at higher elevations, to Joshua trees and desert scrub lands in the far eastern portion of the county.

Roughly 12 percent of the county's 12.9 million acres is privately owned, totaling 1.5 million acres (2,300 square miles). Of this, less than one percent, or 3,000 acres, is forested in the pinyon-juniper, montane hardwood-conifer types, along with limited amounts of valley-foothill riparian forests and oak woodlands. Coniferous forests of ponderosa pine and mixed conifer types occur at higher elevations, mainly on publicly-owned lands.

A great number of rare species utilize the habitats in the San Bernardino FLA. The California Natural Diversity Database, which catalogues state and federally rare species, has recorded some 165 vascular plants, 7 fish, 2 amphibians, 32 birds, and 20 mammals in the San Bernardino FLA (CA Dept. of Fish and Game 1999b). In addition, 33 Significant Natural Areas (SNAs) have all or a portion of their area on private lands within the FLA (CA Dept. of Fish and Game, 1999c). (SNAs with area in the FLA are listed in Appendix H Table IV.)

Increasing urbanization, and residential encroachment into previously rural areas is impacting many of the County's biological resources. Housing demand has spurred growth in all areas of the county, affecting many species directly through habitat loss (San Bernardino 1989). According to the California Department of Finance, San Bernardino County's population will continue to grow in the foreseeable future, increasing by an estimated 243 percent from its current level of 1.7 million to 4.2 million people in the year 2040 (CA Dept. of Finance 1998). As urbanization of the valley, mountain and desert regions continue, the loss of areas capable of supporting both common and rare species is accelerating. Although growth has thus far focused on non-forested valley areas, population expansion in the higher elevation forested areas of the county is expected to be substantial.

The goal of the Forest Legacy Program in the San Bernardino FLA is to help county residents conserve their forest resources and associated habitats that are under increasing residential and industrial development pressure.

Forest Resources

The roughly 3,000 acres of privately-owned forestlands in the San Bernardino FLA are covered primarily in the montane hardwood-conifer, pinyon juniper, and valley-foothill riparian types. These are discussed below:

The **montane hardwood-conifer** forest type covers over 1,500 acres of private land in the San Bernardino FLA. It is found in isolated patches in the eastern part of the county at elevations from 2,000 to 6,000 feet. Common tree associates include canyon live oak, coast live oak, and occasional California black oak, ponderosa pine, sugar pine, and

incense cedar (Mayer and Laudenslayer 1988, CA GAP). On county private lands above 5,000 feet in the San Bernardino Mountains, the mixed conifer forest is the most common type.

Some 59 rare species are predicted to occur in montane hardwood-conifer habitat type in the Mojave and South Coast bioregions (see note 19, page 20). Those on the federally endangered list include the California vole, peregrine falcon, and loggerhead shrike, while those on the federal threatened list are the bald eagle, California towhee, California thrasher, striped racer, spotted owl, and red-legged frog. Species on the state endangered list predicted to occur in the montane hardwood-conifer habitat include the northern flicker and brush rabbit. State threatened species include the rubber boa and Swainson's hawk, while fully-protected species include the golden eagle, ringtail, and mountain lion which are listed as protected by the state are found in the montane hardwood-conifer habitat (CA Dept. of Fish and Game 1999a).

The **pinyon-juniper** forest type covers over 1,400 privately owned acres in the northeastern portion of the FLA. This forest type is typically found on dry or rocky east-facing slopes between 4,000 and 8,000 feet in the Mojave Desert, but is also found in the San Bernardino National Forest around Big Bear Lake. Pinyon-juniper habitat is an open forest type composed of pinyon pine either in pure stands or in combination with juniper, live oaks or Mojave yucca. At higher elevations, ponderosa and Jeffrey pine may also be found (Mayer and Laudenslayer 1988, CA GAP).

15 state and federal listed endangered, threatened or fully-protected species are predicted to occur on the pinion-juniper habitats of the San Bernardino FLA. These include the federally endangered desert tortoise, Merriam's kangaroo rat, southwestern toad, kit fox, loggerhead shrike, and peregrine falcon, as well as the federally threatened bald eagle and sage sparrow. Also finding suitable habitat in the Mojave's pinion juniper are the state-endangered northern flicker, and savannah sparrow, and state-threatened Swainson's hawk, as well as state fully-protected golden eagle, mountain lion, and ringtail (CA Dept. of Fish and Game 1999a).

Another forest type with very limited acreage on private lands in the San Bernardino FLA is the **valley foothill riparian** type which covers a limited amount of acres near watercourses in the populated southwestern part of the county. These riparian forests are critically important habitat because of they provide water, thermal cover, migration corridors and diverse nesting and feeding opportunities for many species (Mayer and Laudenslayer 1988, CA GAP). In addition, small pockets of oak woodlands exist locally in the Yucaipa and Chino Hills (San Bernardino 1989).

More than 27 state and federally recognized threatened, endangered or fully-protected species are predicted to occur on the valley foothill riparian habitats in the San Bernardino FLA. These include the federally listed endangered peregrine falcon, Bell's

vireo, kit fox, willow flycatcher, loggerhead shrike, California vole, southwestern toad, unarmored threespine stickleback, Mohave tui chub, and razorback sucker. Federally threatened species include the California gnatcatcher, bald eagle, spotted owl, California thrasher, California towhee, striped racer, and red-legged frog. State rare species include the endangered northern flicker, savannah sparrow, yellow-billed cuckoo, and brush rabbit, and the threatened Swainson's hawk, rubber boa, bank swallow, and sandhill crane. State fully-protected species include the golden eagle, mountain lion, ringtail, and white-tailed kite (CA Dept. of Fish and Game 1999a).

Threats to Forest Resources

Residential development

San Bernardino County's population is growing rapidly. Population has grown remarkably since 1970 at an annual rate of 5 to 6% during the mid- and late- 1980's and into the 1990's. Most of the population increase occurred in areas adjacent to Los Angeles and Orange Counties, or within commuting distance urban areas. The Southern California Association of Governments estimates that by the year 2010 there will be an increase of 146% and 272% of daily work commutes originating in San Bernardino County into Los Angeles and Orange Counties, respectively. San Bernardino County's population is projected continue to increase by 243 percent from its current level of almost 1.7 million people to 4.2 million people in the year 2040 (CA Dept. of Finance 1998). Growth by 2010 will account for over one sixth of the anticipated southern California regional population growth.

The San Bernardino FLA encompasses the heavily urbanized areas in the west and east valley areas, resort communities in the mountains and desert, retirement communities in Yucaipa, Yucca Valley, Morongo Valley, Joshua Tree, Apple Valley, and Needles, farming and mining communities. The non-forested west valley is the most heavily developed with most of future growth expected in the cities of Chino, Fontana, Montclair, Ontario, Rancho Cucamonga and Upland.

The San Bernardino mountains are relatively urbanized with one incorporated city, Big Bear Lake in the pinyon juniper zone, and five unincorporated communities, Bear Valley, Crest Forest, Hilltop, Lake Arrowhead and Lytle Creek (pinyon-juniper). Population in the mountains is expected to increase 120% between 1988 and 2010, from 53,500 to 117,000 people. The overwhelming majority of lands around mountain communities are designated as Resource Conservation areas under the county general plan. This land use designation limits housing development to one dwelling for every forty acres. Most of the uses in the mountain region have been single-family residential developments. However, growth is expected to continue particularly in the Crest Forest and Hilltop areas (San Bernardino County 1989).

San Bernardino County's General Plan details a number of elements, including design concepts that seek to retain the sylvan character of its remaining forestlands. In addition, the goals of the Program are compatible with species conservation efforts in the county, including those of the County-sponsored San Bernardino Valley Multi-Species Habitat Conservation Plan (San Bernardino County 1990, Scott 2000). Nearly 36,000 acres of land in the county are in agricultural preserves, about a third of the total (agriculture is the second largest industry in the county).

Watershed impairment

San Bernardino County lies within numerous major watersheds. However, only a relative minority – eleven watersheds, including the Mojave, Warren-Cooper Mountain, Dale-Twenty-nine Palms, Emerson, Lacif, Means, Johnson, Santa Ana, Claremont, Whitewater, and Colorado – contain appreciable amounts of private lands.

A number of stream segments – primarily in the Mojave and Santa Ana Basins – are listed as impaired under section 303(d) of the Clean Water Act. While conservation of forest resources through the Program has the potential to confer water quality benefits for all CWA-listed waterways, the primary sources of pollution currently recognized as impairing these river segments (agriculture, land disposal, grazing, and unknown non-point source pollution) are not easily mitigated through private forestland conservation alone (SWRCB 1999). Helping stave off forestland conversion to other more intensive uses as well as limiting road building and other soil disturbances – particularly in riparian areas – could help mitigate impaired water quality, and help restore the vitality of aquatic systems.

Most watersheds in the San Bernardino FLA are listed under the California Unified Watershed Assessment as Category I watersheds – watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems). (Those that are listed as Category II, are made up predominately of public lands in the eastern portion of the county, and include Havasu-Mohave Lakes, Piute Wash, Ivanpah-Pahump Valleys, Mesquite, and Death Valley) (CA Unified Watershed Assessment 1998).

FLA Implementation

Specific conservation objectives for the San Bernardino FLA

CDF, the SFSCC, and the USFS will use the Program's conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program's conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to

CDF and to landowners who wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program's conservation goals are applicable to the San Bernardino FLA. As discussed in Section V, these goals translate into a number of conservation objectives. The following conservation objectives apply to the San Bernardino FLA:

1. Goal: *Prevent future conversions of forestland and forest resources, and maintain and restore natural ecosystem functions:*

Objective: Minimize the level of non-forest development to conserve forested landscapes and reduce the risk of catastrophic wildfire, while maintaining opportunities to implement prescribed fire in forest management.

2. Goal: *Protect wildlife habitat, rare plants, and biodiversity*

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

3. Goal: *Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity*

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

4. Goal: *Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions*

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration "corridors".

5. Goal: *Protect water quality, fisheries, and water supplies*

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

Resource protection mechanisms for the San Bernardino FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program's tool of preference for protecting environmental values and for establishing site specific conservation and

management objectives in cooperation with willing landowners. The Program's approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the San Bernardino FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and wildlife habitat, listed and sensitive species habitat, and opportunities for the production of rest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the State Forest Stewardship Coordinating Committee such as public recreation, cultural resources, or scenic enjoyment. In many cases, the public benefits of such forest conservation can be achieved while continuing to support the local tax base.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the San Bernardino FLA

(List is not exhaustive)

USDA Forest Service
USDOI Bureau of Land Management
US National Park Service
California Department of Forestry and Fire Protection
California Department of Fish and Game
State Lands Commission
San Bernardino County
Other local government entities otherwise authorized to acquire and hold title to real property

XXXIV. THE LOS ANGELES FOREST LEGACY AREA SOUTH CAOST AND MOJAVE BIOREGIONS

FLA Location

The Map entitled “Los Angeles County Forest Legacy Area” depicts the location of the Los Angeles FLA and its boundaries.

Boundary Description

The FLA is defined as all the lands within Los Angeles County, which is located in the South Coast and Mojave bioregions in southern California, and is bounded to the north by Kern County, to east by San Bernadino County, to the south by Orange County, and to the west by Santa Barbara County and the Pacific Ocean.

As with other FLAs, any public lands – which make up roughly 31 percent of Los Angeles County - or lands within incorporated areas are ineligible for participation in the Program. Specific public lands are listed in Appendix H, Table V. Urban lands make up more than 48% of the county’s private lands. The urban boundaries in the Los Angeles County FLA map are based on US Census TIGER data (US Census 1992). In the case that actual urban boundaries are different from those depicted on the reference map, the actual city boundaries will comprise the FLA boundaries. The designated boundaries of the FLA include lands that are unlikely to meet other Program eligibility requirements, including the requirement that parcels be forested with at least 10% tree canopy cover, or capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be made available for viewing at CDF and USFS.

Summary

Geographically diverse Los Angeles FLA includes coastline and coastal zone, hill and mountain ranges, desert, lowlands and inland valleys – and nearly 10 million people. Vegetation ranges from agricultural, grasslands, and oaks and low and moderate elevations, to chaparral and coniferous forests at higher elevations. Regions include the San Gabriel Mountains, Santa Clarita and Antelope Valleys. Roughly 69 percent of the county’s 2.5 million acres is privately owned, totaling 1.7 million acres (2,700 square miles). Of this, less than one percent, or about 3,300 acres, is forested in oak woodlands and riparian forests.

A great number of rare species utilize the habitats in the Los Angeles FLA. The California Natural Diversity Database, which catalogues state and federally rare

species, has recorded some 108 vascular plants, 6 fish, 5 amphibians, 18 birds, and 8 mammals in the Los Angeles FLA (CA Dept. of Fish and Game 1999b). In addition, 56 Significant Natural Areas (SNAs) have all or a portion of their area in the county's private lands (CA Dept. of Fish and Game, 1999c). (SNAs with area in the FLA are listed in Appendix H Table IV.)

Los Angeles County has the second largest metropolitan area in the nation and one of the largest markets for goods and services in the world. The California Department of Finance estimates that population will continue to grow, increasing by and estimated 41 percent to 14 million people in the year 2040 (CA Dept. of Finance 1998). Urban uses cover at least half of the FLA. Despite a recent increase in in-fill development within urban areas, detached development, single family homes, and other low-intensity uses in outlying urban fringe areas has continued to be the dominant form of new development countywide, constituting over 75% of new urban expansion.

As urbanization of the valley, mountain, and desert regions continue, the loss of oak woodlands and other native vegetative communities is accelerating. The goals of the Forest Legacy Program in the Los Angeles FLA are to help residents conserve forest resources threatened with conversion to other uses in the face of intense conversion pressure from rapid residential and agricultural development in the county.

Forest Resources

The Los Angeles County General Plan counts 14,000 acres of privately owned open space (or undeveloped) lands in the county (Los Angeles County 1993). The roughly 3,300 acres of privately-owned forestlands in the Los Angeles FLA are covered in coastal oak woodland, valley-foothill riparian, and montane riparian types. These are discussed below:

Coastal oak woodlands are found throughout the center of the Los Angeles FLA on 1,200 acres of private land. Clusters of this forest type are found in the Santa Monica mountains in unincorporated areas, and around the cities of Malibu, Calabasas, and Agoura Hills along the Ventura Highway corridor (Malone 2000). Dominant trees are the Engelmann oak, coast live oak, interior live oak, and California walnut. They occur at elevations from just above sea level near the immediate coast to about 5,000 feet of elevation in the interior mountains (Mayer and Laudenslayer 1988, CA GAP).

A total of 75 rare wildlife species are predicted to find suitable habitat in the south coast bioregion's coastal oak woodlands (see note 19, page 20). These include the California condor, peregrine falcon, California vole, kit fox, loggerhead shrike, and the little pocket mouse which are on the federal endangered species list, and the bald eagle, California towhee, California thrasher, red-legged frog, island night lizard,

striped racer, spotted owl, and California gnatcatcher from the federal threatened list. On the state endangered list, the northern flicker, savannah sparrow and brush rabbit, are predicted to use coastal oak woodland habitat, as well as the Swainson's hawk, island gray fox, and Tehachapi slender salamander from the state threatened list. In addition, several California fully protected species, including the white-tailed kite, golden eagle, ringtail, and mountain lion find suitable habitat in coastal oak woodlands of the bioregion (CA Dept. of Fish and Game 1999a).

Other forest types with very limited acreage on private lands in the Los Angeles FLA include riparian forests including **montane riparian** forests on 700 acres of privately owned land. Common tree species in this type include the bigleaf maple and California bay, as well as the Fremont cottonwood. These habitats can occur as alder or willow stringers along streams or seeps (Mayer and Laudenslayer 1988, CA GAP).

19 federal and state recognized threatened, endangered or fully protected species are predicted to occur on Los Angeles FLA's montane riparian forests. These include the peregrine falcon, California vole, and loggerhead shrike, which are federally endangered, and the red-legged frog, striped racer, western aquatic garter snake, bald eagle, spotted owl, California thrasher, and California towhee, which are federally listed as threatened. State-endangered northern flicker and brush rabbit, as well as state-threatened bank swallow, rubber boa and red fox, along with state fully-protected ringtail, golden eagle, and mountain lion, are predicted to occur in the south coast bioregion's montane riparian habitats (CA Dept. of Fish and Game 1999a).

The **valley foothill riparian** type is found on about 300 acres of private land along stream courses found in the southwestern part of the county. Common tree species include the cottonwood, California sycamore and valley oak (Mayer and Laudenslayer 1988, CA GAP). These riparian forests are more important than their small acreage would imply because of they provide water, thermal cover, migration corridors and diverse nesting and feeding opportunities for many species (CA Dept. of Fish and Game 1999a).

More than 26 state and federally recognized threatened, endangered or fully-protected species are predicted to occur on the valley foothill riparian habitats in the Los Angeles FLA. These include the federally listed endangered Bell's vireo, peregrine falcon, kit fox, loggerhead shrike, and California vole, southwestern toad, mohave tui chub, unarmored threespine stickleback, and southern steelhead. Federally threatened species include the bald eagle, spotted owl, California thrasher, California gnatcatcher, California towhee, striped racer, western aquatic garter snake, and red-legged frog. State rare species include the endangered northern flicker, savannah sparrow, and brush rabbit, and the threatened Swainson's hawk, rubber boa, Tehachapi slender salamander, and bank swallow. State fully-protected species include the golden eagle,

mountain lion, ringtail, and white-tailed kite (CA Dept. of Fish and Game 1999a, CA Dept. of Fish and Game 199b).

Valley oaks are also found in the interior Santa Clarita Valley, west of I-5, the Puente Hills, and along the foothills of San Gabriel Mountains near Altadena, and Sierra Madre (Malone 2000). Naturally occurring groves of walnut and sycamore occur in clusters in Santa Mountains and San Gabriel Mountains and foothills.

Threats to Forest Resources

Residential development

Los Angeles County's large population and development footprint continues to expand. The California Department of Finance estimates that population will increase by 41 percent from its current level of almost 9.8 million people to 13.9 million people in the year 2040 (CA Dept. of Finance 1998). The county has the second largest metropolitan economy in the nation and one of the largest markets for goods and services in the world. Major sectors of the economy include the high technology industry, advanced research and educational institutions, services, manufacturing, trade sectors including international business and finance, communication (television and movies), transportation, and electronics and aerospace industries.

Population growth has caused residential development to expand to most of the county, with urban uses covering 48% of the private lands in the County. Despite a recent increase in in-fill development within urban areas, detached development, single family homes, and other low-intensity uses in outlying urban fringe areas continue to be the dominant form of new development countywide, constituting over 75% of new urban expansion. Much of this development has been in the eastern San Gabriel Valley, northwestern San Fernando Valley, Santa Clarita Valley, Cerritos, Agoura, and Calabasas. Of these, the Santa Clarita Valley, Agoura, and Calabasas have remnant areas of oak woodland. Ninety percent of the uncommitted open land is located in the Santa Monica and Santa Susana Mountains, the Puente Hills, the Santa Clarita Valley and the relatively flat lands of the Antelope Valley (Los Angeles County 1993).

The county also maintains primary responsibility in terms of land use regulation for nearly 40,000 acres of privately owned "inholdings" within the Los Padres and Angeles National Forests. For these areas, non-urban residential development is limited to a maximum residential density of one dwelling per five acres except within established residential communities where higher densities are already present. A few settlements exist in these areas, Green Valley and Wrightwood, in the ponderosa pine forest type, but their potential for growth is limited by lack of water supply (Malone 2000).

County regulations require a permit for removal of qualifying oak trees (greater than six inches in diameter) which is granted if removal is necessary for the development. Removal must be mitigated by replace of two trees for every one removed or payment into an oak mitigation fund. This regulation may be expanded to cover other types of trees including sycamore and walnut (Malone 2000).

Watershed impairment

Los Angeles County lies within three major watersheds, the Los Angeles-San Gabriel River, the Antelope Valley, and the Santa Clara River. The County also contains a small portion of the Mojave River watershed in the Northeastern portion of the county

Numerous stream segments – primarily in the highly urbanized Los Angeles-San Gabriel River, and Santa Clara River – are listed as impaired under section 303(d) of the Clean Water Act. While conservation of forest resources through the Program has the potential to confer water quality benefits for all CWA-listed waterways, the primary sources of pollution currently recognized as impairing these river segments (urban point and non-point source pollution) are not easily mitigated through forest conservation alone.

The three watersheds in Los Angeles FLA are listed under the California Unified Watershed Assessment as Category I watersheds – watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems) (CA Unified Watershed Assessment 1998). Helping stave off forestland conversion to other more intensive uses as well as limiting road building and other soil disturbances – particularly in riparian areas – could help mitigate impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation

Specific conservation objectives for the Los Angeles FLA

CDF, the SFSCC, and the USFS will use the Program's conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program's conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners that wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program's conservation goals are applicable to the Los Angeles FLA. As discussed in Section V, these goals translate into a number of conservation objectives. The following conservation objectives apply to the Los Angeles FLA:

1. Goal: Prevent future conversions of forestland and forest resources, and maintain and restore natural ecosystem functions:

Objective: Minimize the level of housing and non-forest development to reduce the risk of catastrophic fire to forest resources and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: Protect wildlife habitat, rare plants, and biodiversity

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

3. Goal: Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

4. Goal: Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration “corridors”.

5. Goal: Protect water quality, fisheries, and water supplies

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

Resource protection mechanisms for the Los Angeles FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program’s tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program’s approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the Los Angeles FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and wildlife habitat, listed and sensitive species habitat, and opportunities for the

production of forest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the State Forest Stewardship Coordinating Committee such as public recreation, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the Los Angeles FLA

(list not exhaustive)

USDA Forest Service

USDOJ Bureau of Land Management

California Department of Forestry and Fire Protection

California Department of Fish and Game

California Department of Parks and Recreation

State Lands Commission

Los Angeles County

Other local government entities otherwise authorized to acquire and hold title to real property.

XXXV. THE SANTA BARBARA FOREST LEGACY AREA CENTRAL COAST BIOREGION

FLA Location

The Map entitled “Santa Barbara County Forest Legacy Area” depicts the location of the Santa Barbara FLA and its boundaries.

Boundary Description

The FLA is defined as all the lands within Santa Barbara County, which is located in the central coast bioregion on the Pacific Ocean. The FLA is bounded to the north by San Luis Obispo County, to the east by Ventura County, to the south and west by the Pacific Ocean.

As with other FLAs, any public lands – which make up about 51% of Santa Barbara County – or lands within incorporated areas are ineligible for participation in the Program. Specific public lands are listed in Appendix H, Table V. Urban land uses cover about 8% of the private lands in the Santa Barbara FLA. The urban boundaries in the Santa Barbara County FLA map are based on US Census TIGER data (US Census 1992). In the case that actual city boundaries are different from those depicted on the reference map, the actual city boundaries will constitute the FLA boundaries. The FLA also includes lands that are not likely to meet other Program eligibility requirements, including the requirement that applicant parcels must be forested with at least 10% canopy cover, or be capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be made available for viewing at CDF and USFS.

Summary

Located at the southern end of the central coast region, Santa Barbara County is geographically diverse with coastline, hills and lowlands, and inland valleys. The FLA has a wide diversity of habitat types, including chaparrals, oak woodlands, wetlands and beach dunes. Of the roughly 1,200 square miles (790,000 acres) of private lands in Santa Barbara County, about 15%, or 120,000 acres, is forested. This forestland is predominately covered in oak woodlands, although a variety of rare forest types have been mapped by the county.

Rare species found in these forests include 84 vascular plants, 4 fish, 4 amphibians, 17 birds, and 9 mammals (CA Dept. of Fish and Game 1999b). In addition, 18 Significant Natural Areas (SNAs) have all or a portion of their area on private lands within the FLA

(CA Dept. of Fish and Game 1999c). (SNAs with area in the FLA are listed in Appendix H Table IV.)

Privately owned forests in Santa Barbara face a number of threats including residential development as a result of population growth, livestock grazing (which can interfere with oak reproduction), and conversion of oak woodlands into vineyards. The expansion of new vineyards into extensive tracts of previously uncultivated land creates the possibility of loss of thousands of acres of woodlands and tens of thousands of specimen and rare oaks (Santa Barbara 1998). The California Department of Finance projects that Santa Barbara County's population will increase by 90% by 2040, from current levels of 410,000 to 780,000 people (CA Dept. of Finance 1998). A collaborative process involving agriculturists, environmentalists, and other county citizens was completed in April 1999 and produced a set of recommendations to help conserve threatened oak woodlands. The recommendations included financial incentives to landowners to preserve and replant oaks, continued oak mapping, and continued public outreach, among others.

The goal of the Forest Legacy Program in the Santa Barbara FLA is to help residents conserve the forest resources and associated habitats threatened by rapid residential and agricultural development in the county.

Forest Resources

The 120,000 acres of privately owned forestlands in the Santa Barbara FLA are overwhelmingly covered in oak woodlands. These forest types in the Santa Barbara Forest Legacy Area are discussed below:

Coastal oak woodlands are found along the western two-thirds of the Santa Barbara FLA on 76,000 acres of private land. Dominant trees are the coast live oak, with associated California bay, madrone, tanbark oak and canyon live oak on moist sites, and valley oak, blue oak, and foothill pine on drier interior sites. These woodlands occur at elevations from just above sea level near the immediate coast to about 5,000 feet at higher elevations in the interior mountains (Mayer and Laudenslayer 1988, CA GAP). Stands on Miramonte Hill, west of downtown Santa Barbara are among the best examples of this forest type in the FLA (Santa Barbara County 1998).

Some of 72 rare wildlife species find suitable habitat in the coastal oak woodlands in this bioregion (see note 19, page 20). These include the California condor, peregrine falcon, California vole, loggerhead shrike, Heermann's kangaroo rat and the kit fox, which are federally-listed as endangered. Also in the habitat are the federally-threatened island night lizard, bald eagle, California towhee, California thrasher, red-legged frog, striped racer, spotted owl. On the state endangered list, the northern

flicker, savannah sparrow and brush rabbit, are predicted to utilize the coastal oak woodland habitat, as well as the island gray fox from the state threatened list. The white-tailed kite, golden eagle, ringtail, and mountain lion, California fully-protected species, also are predicted to occur in the habitat (CA Dept. of Fish and Game 1999a).

The **valley oak woodland** forest type grows throughout the center of the FLA on 32,000 acres of private land, at elevations below 2,000 feet. This forest type is composed almost exclusively of valley oaks in open or forest like stands. Tree associates include coast live oak and foothill pine (Mayer and Laudenslayer 1988, CA GAP). Valley Oak Woodlands are widely distributed in the Santa Ynez and Los Alamos Valleys (in addition to more limited populations in the Lompoc, Santa Maria, and Cuyama Valleys), including areas such as Happy Canyon. The woodland also occurs in an open savannah stand adjacent to the Santa Ynez River between Solvang and Lake Cachuma (Santa Barbara County 1998).

At least 72 federally and state recognized rare species are predicted to occur in the valley oak woodland habitats in the central coast bioregion. These include the blunt-nosed leopard lizard, peregrine falcon, California condor, loggerhead shrike, Heermann's kangaroo rat, California vole, and kit fox, which are federally endangered, and the red-legged frog, striped racer, bald eagle, California thrasher, and California towhee, which are listed as threatened. State-endangered northern flicker, savannah sparrow, and brush rabbit, the state-threatened island gray fox, as well as the fully-protected golden eagle, white-tailed kite, ringtail, and mountain lion also are predicted to utilize this habitat (CA Dept. of Fish and Game 1999a).

Blue oak woodlands are found on 7,000 acres of privately owned land in the isolated patches in the north-central portion of the FLA. Blue Oak Woodlands are primarily found in valleys and at lower slopes of the interior and western foothills at elevations of 250 to 2,000 feet. Blue oak woodlands are dominated by the blue oak, which typically makes up more than 85 percent of the tree species present, with the remainder made up by coast live oak and valley oak. In some areas California juniper is also present (Mayer and Laudenslayer 1988, CA GAP).

Seventy-two rare species have suitable habitat in the blue oak woodlands of the central coast bioregion. These include the peregrine falcon, California condor, loggerhead shrike, California vole, kit fox, blunt-nosed leopard lizard, and Heermann's kangaroo rat, which are on the endangered species list. The red-legged frog, striped racer, bald eagle, California thrasher and California towhee are on the federal threatened species list. Also predicted to occur in the habitat are the northern flicker, savannah sparrow, and brush rabbit, from the state endangered species list, the Swainson's hawk from the state threatened species list, as well as the white-tailed kite, golden eagle, ringtail, and mountain lion which are listed as fully-protected by the state of California (CA Dept. of Fish and Game 1999a).

Other forest types severely limited in size in the Santa Barbara FLA include the **blue oak-foothill pine type**, found in the central portion of the county on 400 acres of privately- owned forestland. Some of the best examples of this forest type are located on the lower slopes of the Figueroa Mountains (Santa Barbara County 1994). Also found in the FLA is the **valley-foothill riparian** forest, which covers only 4,500 acres but is critically important because of its ability to protect aquatic resources, including the federal endangered unarmored three spine stickleback and southern steelhead (Mayer and Laudenslayer 1988, CA GAP).

In addition, Santa Barbara County has mapped a number of more rare forest types that occur in isolated areas of the county. These include **pinyon-juniper woodlands, Sierran mixed conifer, montane-hardwood, closed cone Bishop pine, Douglas-fir,** southern oak woodland, interior cypress forest, and Coulter pine forests (Santa Barbara County 1994).

Threats to Forest Resources

Privately owned forests in Santa Barbara face a number of threats including residential development stemming from population growth, livestock grazing, which can interfere with oak reproduction, and conversion of oak woodlands into vineyards. A recent Santa Barbara County planning effort made a suite of recommendations with measures to protect oak woodlands. These are discussed below in concert with the specific threat they are proposed to address.

Agricultural conversion

The wine industry is Santa Barbara County's leading agricultural industry. Due to the county's excellent conditions for growing premium wine grapes and the strong market, the amount of acreage being converted to vineyards is growing rapidly. Privately owned oak woodlands in the county that were formerly used for grazing are being converted to grape production. For example, some 12,000 to 13,000 vineyards were planted in 1998, about 25-30% of which were newly-planted. Local experts predict that vineyard acreage could triple within a decade. Most of the conversions have occurred in the Los Alamos, Santa Ynez, and Santa Rita Valleys (Santa Barbara County 1998).

Removal of oaks for agriculture is currently not regulated by the county. According to the Santa Barbara Planning Department, vineyard development has removed more oak trees since 1996 alone than had all urban development and rural subdivisions in the county's unincorporated areas during the preceding decade. Although smaller vineyard operations can and do leave oaks in place, larger tracts tend to be thoroughly cleared. A proposed tree protection ordinance was rejected by the Santa Barbara County Planning Commission in 1991, but a recently-completed collaborative process of agriculturists, environmentalists, and other county citizens and officials has made recommendations to the Board of Supervisors for that body to consider in January 2001. The recommendations included financial incentives to landowners to preserve and replant oaks, continued oak mapping, and continued public outreach, among others (Santa Barbara County 1999).

Residential development

The California Department of Finance projects that Santa Barbara County's population will increase by 90% by 2040, from current levels of 410,000 to 780,000 people (CA Dept. of Finance 1998). Growth has been accompanied by residential development throughout the county and in areas of oak woodland, particularly in the Santa Ynez valley. The Santa Barbara County General Plan recommends the prohibition of unregulated and haphazard development in Santa Ynez Valley canyon communities, including non expansion of roads and control of cattle grazing prohibition of urban development along Rincon Creek (Santa Barbara County 1994).

Livestock grazing

Available evidence strongly suggests that valley oak woodlands in the central Ynez Valley are not regenerating adequately to maintain their numbers due to intensive cattle grazing. The County's Conservation Element recommends seedling protection in the Santa Ynez Valley and restriction of grazing to appropriate areas (Santa Barbara County 1994).

Watershed impairment

Santa Barbara County lies within 4 major watersheds – the Santa Maria River, San Antonio Creek, Santa Ynez River, and Gaviota watersheds – as well as a small piece of the Ventura Watershed. Each of the four primary watersheds contain significant amounts of private land. Water bodies in the Santa Ynez watershed, and creeks in the Gaviota basin, have been listed as impaired under section 303(d) of the Clean Water Act. While conservation of forest resources through the Program has the potential to confer water quality benefits for all CWA-listed waterways, the primary sources of pollution currently recognized as impairing these river segments (nutrients and pathogens from urban runoff, sedimentation/siltation from agricultural activities) are not easily mitigated through private forestland conservation alone.

All watersheds in the Santa Barbara FLA are listed under the California Unified Watershed Assessment as Category I watersheds – watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems (CA Unified Watershed Assessment 1998). Helping stave off forestland conversion to other more intensive uses as well as limiting road building and other soil disturbances – particularly in riparian areas – could help mitigate impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation***Specific conservation objectives for the Santa Barbara FLA***

The CDF, SFCC, and USFS will use the Program's conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program's conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners who wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program's conservation goals are applicable to the Santa Barbara FLA. As discussed in Section V, these goals translate into a number of conservation objectives. The following conservation objectives are particularly applicable to the Santa Barbara FLA:

1. Goal: Prevent future conversions of forestland and forest resources, and maintain and restore natural ecosystem functions

Objective: Minimize the level of housing and non-forest development to reduce the risk of catastrophic fire to forest resources and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

3. Goal: Protect wildlife habitat, rare plants, and biodiversity

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

4. Goal: Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration “corridors”.

5. Goal: Protect water quality, fisheries, and water supplies

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

Resource protection mechanisms for the Santa Barbara FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program’s tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program’s approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the Santa Barbara FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and

wildlife habitat, listed and sensitive species habitat, and opportunities for the production of rest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the Stewardship Forest Coordinating Committee such as public recreation, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the Santa Barbara FLA (List not exhaustive)

USDA Forest Service

USDOJ Bureau of Land Management

US Fish and Wildlife Service

California Department of Forestry and Fire Protection

California Department of Fish and Game

California Department of Parks and Recreation

State Lands Commission

Santa Barbara County

Other local government entities otherwise authorized to acquire and hold title to real property

XXXVI. THE SAN LUIS OBISPO FOREST LEGACY AREA CENTRAL COAST BIOREGION

FLA Location

The Map entitled “San Luis Obispo County Forest Legacy Area” depicts the location of the San Luis Obispo FLA and its boundaries.

Boundary Description

The FLA is defined as all the lands within San Luis Obispo County, which is located in the central coast bioregion on the Pacific Ocean. The FLA is bounded to the north by Monterey County, to the east by Kern County, to the south by Santa Barbara County, and to the west by the Pacific Ocean.

As with other FLAs, any public lands – which make up about 25% of San Luis Obispo County – or lands within incorporated areas are ineligible for participation in the Program. Urban land uses cover about 3% of the private lands in the San Luis Obispo FLA. Specific public lands are listed in Appendix H, Table V. The urban boundaries in the San Luis Obispo County FLA map are based on US Census TIGER data (US Census 1992). In the case that actual city boundaries are different from those depicted on the reference map, the actual city boundaries will define the FLA boundaries. The FLA also includes lands that are not likely to meet other Program eligibility requirements, including the requirement that applicant parcels must be forested with at least 10% canopy cover, or be capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be made available for viewing at CDF and USFS.

Summary

San Luis Obispo County occupies the central portion in the southern coast range complex, containing portions of five mountain ranges including the Santa Lucia, Temblor, Caliente, La Panza, and San Luis Ranges, which are generally oriented along a NW-SE axis. Peaks exceeding 3,000 feet are found in the Santa Lucia and Caliente Ranges, and 1,600 feet in the San Luis Range.

This geographic complexity supports a rich assemblage of plant and animal species. Rare species found in the San Luis Obispo FLA include 82 vascular plants, 3 fish, 3 amphibians, 12 birds, and 9 mammals (CA Dept. of Fish and Game 1999b). In addition, 45 Significant Natural Areas (SNAs) have all or a portion of their area on private lands

within the FLA (CA Dept. of Fish and Game 1999c). (SNAs with area in the FLA are listed in Appendix H Table IV.)

About half of San Luis Obispo County is covered in grassland or wooded grassland, with another fourth in chaparral or coastal scrub. Of the roughly 2,500 square miles (1.6 million acres) of private lands in San Luis Obispo County, about a quarter, or 400,000 acres, is forested. Three-quarters of this is oak woodland, while the rest is dominated by forests with a combination of hardwoods and softwoods. These lands include one the last three native Monterey pine forests in California.

Oak woodlands in the San Luis Obispo FLA are threatened by residential development and agricultural conversion. Growth is occurring in the north and south county to accommodate the 110% increase in population expected by 2040, from current levels of 250,000 to 530,000 people. The conversion of agricultural parcels to vineyards has been occurring on the east side of the county, east side of highway 101. Although a substantial amount of vineyard development has occurred on parcels which were already in agricultural uses, a substantial amount oak woodlands have been converted to agricultural uses.

The goals of the Forest Legacy Program in the San Luis Obispo FLA are to seek to help residents promote conservation of forested resources and associated habitats that are facing rapid residential and agricultural development pressure in the county.

Forest Resources

About half of San Luis Obispo County is covered in grassland or wooded grassland, with another fourth in chaparral or coastal scrub. Three-quarters of this is oak woodland, while the rest is dominated by forests with a combination of hardwoods and softwoods. The predominant forest types in the Forest Legacy Area are discussed below:

Coastal oak woodlands are found along the western two-thirds of the San Luis Obispo FLA on 140,000 acres of private land. Dominant trees are the coast live oak, with associated California bay, madrone, tanbark oak and canyon live oak on moist sites, and valley oak, blue oak, and foothill pine on drier interior sites. These woodlands occur at elevations from just above sea level near the immediate coast to about 5,000 feet at higher elevations in the interior mountains (Mayer and Laudenslayer 1988, CA GAP).

Some 72 rare wildlife species have suitable habitat in the central coast bioregion's coastal oak woodlands (see note 19, page 20). These include the California condor, peregrine falcon, California vole, loggerhead shrike, Heermann's kangaroo rat and the

kit fox which are on the federal endangered list. The bald eagle, California towhee, California thrasher, red-legged frog, striped racer, spotted owl which are predicted to use the habitat, are on the federal threatened list. On the state-endangered list, the northern flicker, savannah sparrow and brush rabbit, are associated with coastal oak woodland habitats, as well as the Swainson's hawk from the state threatened list. In addition, California fully-protected species, including the white-tailed kite, golden eagle, ringtail, and mountain lion are found in the coastal oak woodland habitat (CA Dept. of Fish and Game 1999a).

The **valley oak woodland** forest type grows throughout the center of the FLA on about 57,000 acres of private land, at elevations below 2,000 feet. This forest type is composed almost exclusively of valley oaks in open or forest like stands. Tree associates include coast live oak and foothill pine (Mayer and Laudenslayer 1988, CA GAP).

72 federally and state recognized rare species are predicted to occur in the bioregion's valley oak woodlands. These include the long-toed salamander, blunt-nosed leopard lizard, peregrine falcon, California condor, loggerhead shrike, Heermann's kangaroo rat, California vole, and kit fox, which are federally endangered, and the red-legged frog, striped racer, bald eagle, California thrasher, and California towhee which are listed as threatened. State-endangered northern flicker, savannah sparrow, and brush rabbit, the state-threatened Swainson's hawk, fully protected species including the golden eagle, white-tailed kite, ringtail, and mountain lion are also predicted to occur in this habitat type (CA Dept. of Fish and Game 1999a).

Blue oak woodlands are found on almost 73,000 acres of privately owned land in the isolated patches in the center of the FLA. This habitat is primarily found in valleys and at lower slopes of the interior and western foothills at elevations of 250 to 2,000 feet. Blue oak woodland is dominated by the blue oak, which typically makes up more than 85 percent of the tree species in the habitat, the remainder made up by coast live oak and valley oak as well as California juniper (Mayer and Laudenslayer, 1988, CA GAP).

The **blue oak-foothill pine** type covers over 74,000 acres in the central portion of the FLA between 500 and 3,000 feet in elevation. Blue oak also to dominates this forest type. Associated tree species are the foothill pine, coast live oak, valley oak, and California buckeye. Interior live oak can dominate at higher elevations (Mayer and Laudenslayer, 1988, CA GAP).

At least 74 rare species find suitable habitat in the blue oak-foothill pine habitat type. These include the peregrine falcon, California condor, loggerhead shrike, California vole, kit fox, blunt-nosed leopard lizard, and Heermann's kangaroo rat, which are on the federal endangered species list. The red-legged frog, striped racer, bald eagle, spotted owl, California thrasher and California towhee are on the federal threatened

species list. Also predicted to use the habitat is the northern flicker, savannah sparrow and brush rabbit from the state endangered species list, the Swainson's hawk from the state threatened species list, and the white-tailed kite, golden eagle, ringtail, and mountain lion, which also are protected by the state of California (CA Dept. of Fish and Game 1999a).

Seventy-two rare species are associated with the blue oak woodland habitat in the San Luis Obispo FLA. Listed species are the same as those for the blue oak foothill pine type, with one exception: the spotted owl is not predicted to occur in the blue oak woodland (CA Dept. of Fish and Game 1999a).

The **montane hardwood** forest type is found in the western half of the FLA on about 14,000 acres of private land. Canyon live oak often forms pure stands on steep canyon slopes and rocky ridgetops in this forest type. At higher elevations, canyon live oak it associates with huckleberry oak, ponderosa pine, Coulter pine, white fir, and Jeffrey pine. At middle elevations in combines with Douglas-fir, tanoak, Pacific madrone, California black oak and bristlecone fir. At lower elevation live oak associates with knobcone pine, foothill pine, and Oregon white oak (Mayer and Laudenslayer, 1988, CA GAP).

57 federal and state recognized rare species have suitable habitat on the montane hardwood forests in the bioregion. These include the peregrine falcon, California condor, loggerhead strike, California vole, and Heermann's kangaroo rat, which are federally endangered and the red-legged frog, striped racer, bald eagle, spotted owl, California thrasher, and California towhee which are federally listed as threatened. The state-endangered northern flicker and brush rabbit, as well as state-threatened rubber boa and Swainson's hawk also are predicted to use the habitat, as do several California fully protected species including the golden eagle, ringtail, and mountain lion (CA Dept. of Fish and Game 1999a).

Other forest types with limited ranges on private forestlands in the FLA include the **closed-cone cypress** forest (4,000 acres), **montane hardwood-conifer** (3,200) acres and **ponderosa pine** (3,300 acres). Large groves of **eucalyptus** trees have been planted in the South on the Nipomo Mesa and a few other locations (San Luis Obispo County 1974). Also found in the FLA is the **valley-foothill riparian** forest, which covers only 7,900 acres but is critically important because of its ability to protect aquatic resources, including the federal endangered southern steelhead (Mayer and Laudenslayer 1988, CA GAP). In addition, one of three remaining natural stands of **monterey pine** in the world is found in the northern coastal section of the FLA (San Luis Obispo 2000).

Threats to Forest Resources

Residential development

Population is growing rapidly in the San Luis Obispo FEA. The California Department of Finance projects that San Luis County's population will increase by 110% by 2040, from current levels of 250,000 to 530,000 people (CA Dept. of Finance 1998). Most of the urban population is concentrated in the coastal communities including San Luis Obispo, which make up 77 percent of the total urban population. Important sectors of the economy include agriculture, tourism, trade, government, and California Polytechnic State University (San Luis Obispo County 1997). Growth in the county is being spurred by proximity to major population centers, including Los Angeles (4 hours), San Francisco (4 hours), and Fresno (2 hours) (Hofschroer 2000).

Only three native Monterey pine forests exist in California, one of which grows in San Luis Obispo County. Because this stand is one of the most genetically diverse of the remnant stands, it is critically important to the effort to find genetic resistance to the pine pitch canker infecting most Monterey pines in California. Part of this stand covers 2,500 acres within the urban boundaries of Cambria, the second fastest growing community in the county between 1980 and 1990. The community currently contains 5,400 people but has another 12,000 potential home sites (De Lasaux et al 1994). However, new development may be slowed or limited by water shortages (San Luis Obispo County 1993).

Residential development is concentrated in north county in Paso Robles, which has grown at a rate of 2-3% a year, Templeton, and Atascadero. In the south end of the county, development concentrated around Arroyo Grande is more dispersed, occurring on one to twenty acre ranchette type lots on the Nipomo Mesa. All of these areas are within the oak woodland zone (Hofschroer 2000).

Agricultural conversion

The conversion of agricultural parcels to vineyards has been occurring on the east side of the county, east side of highway 101 within the oak woodland zone. A substantial amount of vineyard development has occurred on parcels which were already agricultural, used for dryland grain cultivation and grazing. However, a substantial amount oak removal has occurred as well. Current conversions are focused to the east of the community of Santa Margarita. Grading and tree removal operations conducted with vineyard conversion is exempt from the county's grading and tree removal regulations. A resolution was passed in 1997 for voluntary standards and recommendations designed to help maintain healthy trees without burdening the landowner and encourage native tree management plans using public and private expert assistance (Santa Barbara 1998).

Watershed impairment

San Luis Obispo County is made up of 4 major watersheds – the Salinas, Carrizo Plain, Morro Bay, and Santa Monica River – all of which contain significant amounts of private lands. A number of stream and river segments on watershed lands in the FLA have been listed as impaired under the federal Clean Water Act, the result of pollution from a number of sources. While conservation of forest resources through the Program has the potential to confer water quality benefits for all CWA-listed waterways, the following waterways have recognized impairments that could potentially be mitigated through private forest conservation easements:

In the Salinas River Watershed, the Salinas River has been listed as impaired under section 303(d) of the CWA, in part because of sedimentation/siltation, the result of a number of sources, including land development and non-specified non-point sources according to the state (SWRCB 1999).

In the Morro Bay Watershed, Chorro Creek has been listed as impaired under section 303(d) of the CWA, in part because of sedimentation/siltation, the result of a number of sources cited by the state, including construction, land development, erosion, and other non-specified non-point sources (SWRCB 1999).

Also in the Morro Bay watershed, Los Osos Creek has been listed as impaired under 303(d) of the CWA, in part because of sedimentation/siltation, the sources of which, according to the state, includes habitat modification, removal of riparian vegetation, and erosion (SWRCB 1999).

All watersheds in the San Luis Obispo FLA are listed under the California Unified Watershed Assessment as Category I watersheds – watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems) (CA Unified Watershed Assessment 1998). Helping stave off forestland conversion to other more intensive uses – particularly in riparian areas – could help improve impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation

Specific conservation objectives for the San Luis Obispo FLA

The CDF, SFCC, and USFS will use the Program's conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program's conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners who wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program's conservation goals are applicable to the San Luis Obispo FLA. As discussed in Section V, these goals translate into a number of conservation objectives. The following conservation objectives are particularly applicable to the San Luis Obispo FLA:

1. Goal: *Prevent future conversions of forestland and forest resources, and maintain and restore natural ecosystem functions*

Objective: Minimize the level of housing and non-forest development to reduce the risk of catastrophic fire to forest resources and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: *Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity*

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

3. Goal: *Protect wildlife habitat, rare plants, and biodiversity*

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

4. Goal: *Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions*

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration "corridors".

5. Goal: *Protect water quality, fisheries, and water supplies*

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

Resource protection mechanisms for the San Luis Obispo FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program's tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program's approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the San Luis Obispo FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and wildlife habitat, listed and sensitive species habitat, and opportunities for the production of rest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the Stewardship Forest Coordinating Committee such as public recreation, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the San Luis Obispo FLA

(List not exhaustive)

USDA Forest Service

USDOJ Bureau of Land Management

California Department of Forestry and Fire Protection

California Department of Fish and Game

California Department of Parks and Recreation

State Lands Commission

San Luis Obispo County

Other local government entities otherwise authorized to acquire and hold title to real property

XXXVII. THE MONTEREY FOREST LEGACY AREA CENTRAL COAST BIOREGION

FLA Location

The Map entitled “Monterey County Forest Legacy Area” depicts the location of the Monterey FLA and its boundaries.

Boundary Description

The FLA is defined as all the lands within Monterey County, which is located in the central coast bioregion on the Pacific Ocean. The FLA is bounded to the north by Santa Cruz County, to the east by San Benito, Fresno, and Kings Counties, to the south by San Luis Obispo County, and to the west by the Pacific Ocean.

As with other FLAs, any public lands – which make up about 28% of Monterey County – or lands within incorporated areas are ineligible for participation in the Program. Specific public lands are listed in Appendix H, Table V. Urban land uses cover about 4% of the private lands in the Monterey FLA. The urban boundaries in the Monterey County FLA map are based on US Census TIGER data (US Census 1992). In the case that actual city boundaries are different from those depicted on the reference map, the actual city boundaries will define the FLA boundaries. The FLA also includes lands that are not likely to meet other Program eligibility requirements, including the requirement that applicant parcels must be forested with at least 10% canopy cover, or be capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be made available for viewing at CDF and USFS.

Summary

Monterey county encompasses the Santa Lucia and Gabilan Mountain Ranges, the Salinas and Carmel Valleys, and 100 miles of California's central coast including Monterey and Carmel Bays, the Monterey Peninsula and the Big Sur coast. This geographic diversity supports a rich diversity of plant and animal life. Plants representative of almost all parts of California are found in Monterey County, with an uncommonly high number of plant species native only to Monterey County and plant species that find either their northern or southern limits there. Rare species found in these forests include 72 vascular plants, 2 fish, 6 amphibians, 15 birds, and 4 mammals (CA Dept. of Fish and Game 1999b). In addition, 41 Significant Natural Areas (SNAs) have all or a portion of their area on private lands within the FLA (CA Dept. of Fish and Game, 1999c). (SNAs with area in the FLA are listed in Appendix H Table IV.)

Of the roughly 2,400 square miles (1.5 million acres) of private lands in Monterey County, about 22%, or 340,000 acres, is forested. About half the private forestlands in the FLA are dominated by oaks, while the remainder are covered in forests with a combination of hardwoods and conifers.

The county's economy and population are both expanding rapidly. The California Department of Finance projects that Monterey County's population will increase by 113% by 2040, from current levels of 400,000 to 855,000 people. The County's major economic sectors are agriculture, manufacturing-especially food processing, tourism, and the military. This growth is being accompanied by residential, recreational development, much of which is occurring on forest and woodlands. Another major impact on the county's woodlands is the conversion of formerly grazed lands to vineyards.

The goals of the Forest Legacy Program in the Monterey FLA seek to help local citizens promote conservation of forested resources despite rapid residential and agricultural development occurring in the county.

Forest Resources

Eight major forest types are found in Monterey County including oak woodland, redwood forest, closed cone pine forest, and mixed conifer forest, and the relatively rare Monterey pine forest. Many of these forest communities are limited in their range and extent, either by natural conditions or by land use. About half the private forestlands in the FLA are dominated by oaks, while the remainder are covered in forests with a combination of hardwoods and conifers. The predominant forest types in the Forest Legacy Area are discussed below:

Coastal oak woodlands are found along the Pacific ocean influenced western edge of the Monterey FLA on roughly 64,000 acres of private land. Dominant trees are the coast live oak, with associated California bay, madrone, tanbark oak and canyon live oak on moist sites, and valley oak, blue oak, and foothill pine on drier interior sites. These woodlands occur at elevations from just above sea level near the immediate coast to about 5000 feet at higher elevations in the interior mountains (Mayer and Laudenslayer 1988, CA GAP).

A total of 72 rare wildlife species are predicted to occur in coastal oak woodlands in the central coast bioregion (see note 19, page 20). These include the peregrine falcon, California vole, loggerhead shrike, the long-toed salamander, Heermann's kangaroo rat and the kit fox which are on the federal endangered list. The bald eagle, California towhee, California thrasher, red-legged frog, striped racer, spotted owl are federally

listed as threatened. State endangered northern flicker, savannah sparrow and brush rabbit, as well as the Swainson's hawk from the state threatened list are predicted to use the coastal oak woodland habitat. In addition, the California fully-protected species, the white-tailed kite, golden eagle, ringtail, and mountain lion are predicted to be found in the Coastal oak woodland habitat (CA Dept. of Fish and Game 1999a).

The **valley oak woodland** forest type grows throughout the FLA except for those areas primarily on the coast, on almost 40,000 acres of private land. It is found at elevations below 2,000 feet, except for an isolated stand on a ridgetop at 5,000 feet in the Santa Lucia Range. This forest type is composed almost exclusively of valley oaks in open or forest like stands. Associates include coast live oak and foothill pine, as well as Coulter pine and canyon live oak in the Santa Lucia Range (Mayer and Laudenslayer 1988, CA GAP).

72 federally and state recognized rare species have suitable habitat in the bioregion's valley oak woodlands. These include the long-toed salamander, peregrine falcon, loggerhead shrike, Heermann's kangaroo rat, California vole, and kit fox which are federally endangered and the red-legged frog, striped racer, bald eagle, California thrasher, and California towhee which are listed as threatened. State-endangered northern flicker, savannah sparrow, and brush rabbit, the state-threatened Swainson's hawk, and state fully-protected species including the golden eagle, white-tailed kite, ringtail, and mountain lion are also predicted to find suitable habitat in the valley oak woodlands (CA Dept. of Fish and Game 1999a).

Blue oak woodlands are found on almost 37,000 acres of privately owned land in the center and southern portion of the county. These woodlands are found primarily in valleys and on lower slopes of the interior and western foothills at elevations of 250 to 2,000 feet. Blue oak woodland is dominated by the blue oak, which typically makes up more than 85 percent of the trees in the woodland with the remainder made up by coast live oak and valley oak (Mayer and Laudenslayer, 1988, CA GAP).

The **blue oak-foothill pine** type covers over 155,000 acres in a north-south band in the center of the FLA between 500 and 3,000 feet in elevation. Blue oak also dominates this forest type. Associated tree species are the foothill pine, coast live oak, valley oak, and California buckeye. Interior live oak can dominate at higher elevations (Mayer and Laudenslayer, 1988, CA GAP).

At least 74 rare species are predicted to occur in the blue oak-foothill pine habitat type. These include the peregrine falcon, loggerhead shrike, California vole, kit fox, and Heermann's kangaroo rat, which are on the federal endangered species list. The red-legged frog, striped racer, bald eagle, spotted owl, California thrasher and California towhee are on the federal threatened species list. Also predicted to use the habitat are the northern flicker, savannah sparrow and brush rabbit from the state endangered

species list, the Swainson's hawk from the state threatened species list, and the white-tailed kite, golden eagle, ringtail, and mountain lion, listed as fully protected by the state of California (CA Dept. of Fish and Game 1999a).

Seventy-two rare species use blue oak woodland habitat in the Monterey FLA. Listed species are the same as those for the blue oak foothill pine type, with two exceptions: the long-toed salamander (a federal endangered species) is predicted to occur on the blue oak woodlands, while the spotted owl is not (CA Dept. of Fish and Game 1999a).

The **montane hardwood** type is found throughout the FLA on 20,000 acres of private land. Canyon live oak often forms pure stands on steep canyon slopes and rocky ridgetops in this forest type. At higher elevations canyon live oak associates with huckleberry oak, ponderosa pine, Coulter pine, white fir, and Jeffrey pine. At middle elevations it combines with Douglas-fir, tanoak, Pacific madrone, California black oak and bristlecone fir. At lower elevation live oak associates with knobcone pine, foothill pine, and Oregon white oak (Mayer and Laudenslayer 1988, CA GAP).

57 federal and state recognized rare species in the central coast bioregion are predicted to find suitable habitat in the montane hardwood forest. These include the long-toed salamander, peregrine falcon, loggerhead strike, California vole, and Heermann's kangaroo rat which are federally endangered and the red-legged frog, striped racer, bald eagle, spotted owl, California thrasher, and California towhee which are federally listed as threatened. The state-endangered northern flicker and brush rabbit, as well as state-threatened rubber boa and Swainson's hawk also are predicted to use the habitat, as do several California fully-protected species including the golden eagle, ringtail, and mountain lion (CA Dept. of Fish and Game 1999a).

Almost 7,000 acres of **closed-cone cypress** forest are found on private lands in isolated patches in the northern, central, and southern parts of the Monterey FLA. Monterey cypress occurs in nearly pure stands. Associated species include the Gowen cypress, knobcone pine, and ponderosa pine. Elevations range from nearly sea level to 6,000 feet. (Mayer and Laudenslayer 1988, CA GAP).

A total of 37 rare species are associated with the closed-cone cypress forests in the central coast region. These include the peregrine falcon and loggerhead shrike both of which are federally listed as endangered, and the red-legged frog and California towhee which are listed as threatened. From the state lists, the northern flicker (endangered), rubber boa (threatened), and ringtail, and mountain lion (fully protected) also use the habitat (CA Dept. of Fish and Game 1999a).

Other forest types severely limited in size in the Monterey FLA include the **montane hardwood-conifer** type which is found on 260 privately owned acres. **Redwoods** are found in the Monterey FLA at the southernmost end of their range, on 8,200 acres of

private land. The **valley-foothill riparian** forest (which covers only 2,800 acres) is critically important because of its ability to protect aquatic resources; it and other riparian forests help provide suitable habitat for the endangered southern steelhead (CA Dept. of Fish and Game 1999a). In addition, one of the three remaining natural **Monterey pine** forests in the nation is found on the Monterey Peninsula.

Threats to Forest Resources

A significant amount of developed lands remain in the county, including 240,000 acres of watershed lands, about 11% of the total county area. These undeveloped lands are centered in the following regions: Cachagua (35% undeveloped), Greater Monterey Peninsula (30%), Coast (19%), Toro (18%), and North County (16%) (Monterey County General Plan 1992). However, threats to forest resources in the Monterey FLA are ongoing, including residential and recreational development, and agricultural conversion

Residential development

The California Department of Finance projects that Monterey County's population will increase by 113% by 2040, from current levels of 400,000 to 855,000 people (CA Dept. of Finance 1998). Growth is being spurred in part by economic expansion in the Silicon Valley, north of Monterey. Communities on the northern end of the county are within an hour's commute from these economically thriving areas. In-migration from the north is causing development pressure in the southern part of the county as lower income residents seek more affordable housing (Towner 2000).

The City of Salinas, the main urban center of Monterey County, has grown dramatically. Between 1970 and 1993, unincorporated greater Salinas increased by 12% while the City of Salinas increased 37%. The Central Salinas Valley cities all grew at a rapid rate between 1970 and 1992. Greenfield increased population by about 60%, King City 48%, Soledad 40%, and Gonzales 12%. Most of these areas were covered with oak woodlands at one time. The Cities of Monterey and Carmel, in the Monterey pine forested area grew at a modest 5 % and 4% respectively (Monterey County 1992).

Proposed development on the Monterey peninsula affects the Monterey pine forest located there, considered one of the three last remaining natural stands of in the world. A large recreational development proposal near Pebble Beach, which would include a golf course and numerous homes threatens removal of 38,000 Monterey pines and thousands of oaks. This project was proposed in 1992 to considerable opposition and the status of it is unclear at this time (Towner 2000)

Agricultural conversion

Agriculture is Monterey County's greatest single source of income, primary land use, and one of the County's largest employers. The county is a leading producer of lettuce,

artichokes, grapes, and strawberries. Other important economic segments include manufacturing-especially food processing, tourism, and the military. Agricultural land uses account for more than half of the total land use a number of regions of the county – Greater Salinas (86%), Central Salinas Valley (74%), North County (69%), South County (68 %), and Toro (66%).

Vineyard development is occurring throughout the county, mainly on currently farmed and grazed lands. Thousands of acres have been converted in the last ten years (Towner 2000). Conversions of previously grazed lands are primarily in oak woodland areas. Expansion of agricultural operations requires a permit on uncultivated lands with slopes of 15-25 percent, and is prohibited on lands with slope over 25% (Santa Barbara 1998). A permit is required to remove any specimen oak (six inches or more in diameter at two feet above the ground) and no more than three trees per lot may be removed in any year. Proposed removal of more than three oaks triggers an environmental review by the county and requires a discretionary permit (Towner 2000).

Watershed impairment

Monterey County lies within 6 watersheds – primarily the Salinas River Watershed, and Big Sur Basin, but also the Elkhorn Slough, a bit of the Pajaro River Watershed, the Estrella River in the south, and a small piece of Morrow watershed. The majority of all of these watersheds are on private land. A number of stream and river segments on watershed lands in the FLA have been listed as impaired under the federal Clean Water Act, the result of pollution from a number of sources. While conservation of forest resources through the Program has the potential to confer water quality benefits for all CWA-listed waterways, the following waterways have recognized impairments that could potentially be mitigated through private forest conservation easements:

In the Salinas River Watershed, the Salinas River is listed as impaired under section 303(d) of the CWA, in part because of sedimentation/siltation, the result of a number of sources, including land development and non-specified non-point sources – have been cited by the state as sources of the pollution (SWRCB 1999).

In the Pajaro River Watershed, the Pajaro River is listed as impaired under section 303(d) of the CWA, in part because of sedimentation/siltation and nutrients, which the state has attributed to a number of sources, including removal of riparian vegetation, habitat modification, and undisclosed non-point source pollution (SWRCB 1999).

All watersheds in the Monterey FLA are listed under the California Unified Watershed Assessment as Category I watersheds – watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems) (CA Unified Watershed Assessment 1998). Helping stave off forestland conversion to other more intensive uses as well as limiting

road building and other soil disturbances – particularly in riparian areas – could help mitigate impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation

Specific conservation objectives for the Monterey FLA

The CDF, SFCC, and USFS will use the Program's conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program's conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners that wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program's conservation goals are applicable to the Monterey FLA. As discussed in Section V, these goals translate into a number of conservation objectives. The following conservation objectives are particularly applicable to the Monterey FLA:

1. Goal: *Prevent future conversions of forestland and forest resources, and maintain and restore natural ecosystem functions*

Objective: Minimize the level of housing and non-forest development to reduce the risk of catastrophic fire to forest resources and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: *Protect water quality, fisheries, and water supplies*

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

3. Goal: *Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity*

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

4. Goal: *Protect wildlife habitat, rare plants, and biodiversity*

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

5. Goal: *Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions*

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration “corridors”.

Resource protection mechanisms for the Monterey FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program’s tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program’s approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the Monterey FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and wildlife habitat, listed and sensitive species habitat, and opportunities for the production of rest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the SFSCC such as public recreation, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the Monterey FLA

(list not exhaustive)

USDA Forest Service

USDOJ Bureau of Land Management

US Fish and Wildlife Service

California Department of Forestry and Fire Protection

California Department of Fish and Game

State Lands Commission

Monterey County

Other local government entities otherwise authorized to acquire and hold title to real property

XXXVIII. THE NAPA FOREST LEGACY AREA BAY-DELTA BIOREGION

FLA Location

The Map entitled “Napa County Forest Legacy Area” depicts the location of the Napa FLA and its boundaries.

Boundary Description

The FLA is defined as all the lands within Napa County, which is located in the San Francisco Bay-Delta bioregion in north-central California. The FLA is bounded to the north by Lake County, to the east by Yolo County, to the south by Solano County, and to the west by Sonoma County.

As with other FLAs, any public lands – which make up about 23% of Napa County – or lands within incorporated areas, are ineligible for participation in the Program. Specific public lands are listed in Appendix H, Table V. Urban land uses cover about 5% of the private lands in the Napa FLA. The urban boundaries in the Napa County FLA map are based on US Census TIGER data (US Census 1992). In the case that actual city boundaries are different from those depicted on the reference map, the actual city boundaries will constitute FLA boundaries. The FLA also includes lands that are not likely to meet other Program eligibility requirements, including the requirement that applicant parcels must be forested with at least 10% canopy cover, or be capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be made available for viewing at CDF and USFS.

Summary

Napa County consists of two long north-south valleys, surrounded by low elevation mountains of the coast range. Big Valley, part of the larger Clear Lake Basin to the north is bounded by the Mayacamas on the southwest, mountains on east and southeast, and the Clear Lake Basin to the north. Elevations on the valley floor range between 1,330 and 1,440 feet. The surrounding mountains rise to heights of 2,550 feet to 4,300 feet above sea level. The southern end of the county reaches down to San Francisco Bay.

Of the roughly 670 square miles (430,000 acres) of private lands in Napa County, about 77%, or 330,000 acres, is forested. Of this acreage, almost half is covered in oak woodland, a third in forests combining hardwoods and conifers, and the rest in coniferous forest. Rare species found in these forests include 43 vascular plants, 2

amphibians, 14 birds, and 3 mammals (CA Dept. of Fish and Game 1999b). In addition, 20 Significant Natural Areas (SNAs) have all or a portion of their area on private lands within the FLA (CA Dept. of Fish and Game, 1999c). (SNAs with area in the FLA are listed in Appendix H Table IV.)

Development occurring in Napa County is mostly in the form of vineyard conversions and residential construction. The California Department of Finance projects that Napa County's population will increase by 51% by 2040, from current levels of 127,000 to 192,000 people. Much of the current residential development is in the form of in-fill development around established urban areas and dispersed rural residential development on existing lots. Agricultural conversions for vineyards are occurring throughout the county primarily in oak woodlands areas. Napa County currently does not regulate removal of oak woodlands or individual oak trees.

The goals of the Forest Legacy Program in the Napa FLA will be to conserve forest resources and associated habitats that are facing increasing residential and industrial development pressure in the county.

Forest Resources

Almost half the FLA's private forestland is covered in oak woodland, a third in forests combining hardwoods and conifers, and the rest in coniferous forest. Most of the eastern side of the county is covered in oak woodland while on the western side is more densely vegetated with coniferous forests and brushlands. The predominant forest types in the FLA are discussed below:

Coastal oak woodlands are found in the western half of the FLA on about 35,000 acres of private land. Dominant trees are the coast live oak, with associated California bay, madrone, and tanbark oak on moist sites, and valley oak, blue oak, and foothill pine on drier interior sites. Coastal oak woodlands occur at elevations from just above sea level near the immediate coast to about 2,500 feet at higher elevations in the interior mountains (Mayer and Laudenslayer 1988, CA GAP).

A total of 72 rare wildlife species have suitable habitat in coastal oak woodlands in the bay-delta bioregion (see note 19, page 20). These include the peregrine falcon, California vole, loggerhead shrike, which are on the federal endangered list, and the bald eagle, California towhee, California thrasher, red-legged frog, striped racer, spotted owl which are on the federal threatened list. On the state endangered list, the northern flicker, savannah sparrow and brush rabbit are predicted to use coastal oak woodland habitat, as well as fully-protected white-tailed kite, golden eagle, ringtail, and mountain lion (CA Dept. of Fish and Game 1999a).

The **valley oak woodland** forest type grows throughout the Napa FLA except for the far western edge, on almost 88,000 acres of private land at elevations below 2,000 feet. This forest type is composed almost exclusively of valley oaks in open or forest-like stands. Associates include California sycamore, Hinds black walnut, interior live oak, boxelder and blue oak in the interior foothills. In the Coast Range, common tree species are foothill pine and coast live oak (Mayer and Laudenslayer 1988, CA GAP).

In the valley oak woodlands of this region, 65 federally and state recognized rare species have suitable habitat. These include the peregrine falcon, loggerhead shrike, and California vole, which are federally endangered, and the red-legged frog, striped racer, bald eagle, California thrasher, and California towhee which are listed as threatened. State-endangered northern flicker, savannah sparrow, and brush rabbit, the state fully protected golden eagle, white-tailed kite, ringtail, and mountain lion are also predicted to occur in this habitat type (CA Dept. of Fish and Game 1999a).

Blue oak woodlands are found on almost 23,000 acres of privately-owned land in the southernmost tip of the county. It is mostly found in valleys and on lower slopes of the interior and western foothills at elevations of 500 to 2,000 feet. Blue oak woodland is dominated by the blue oak, which typically makes up more than 85 percent of the trees present, with the remainder made up by coast live oak and valley oak (Mayer and Laudenslayer 1988, CA GAP).

The **blue oak-foothill pine** type covers over a quarter, or about 105,000 acres of the private land in the FLA between 500 and 3,000 feet in elevation. These woodlands are found in patches along a north-south band in the center of the FLA. Blue oak also dominates this forest type. Associated tree species are the foothill pine, coast live oak, valley oak, and California buckeye. Interior live oak can dominate at higher elevations (Mayer and Laudenslayer 1988, CA GAP).

At least 67 rare species are predicted to find suitable habitat in the blue oak-foothill pine habitat type. These include the peregrine falcon, loggerhead shrike, and California vole, which are on the federal endangered species list. The red-legged frog, striped racer, bald eagle, spotted owl, California thrasher and California towhee are on the federal threatened species list. Also predicted to use the habitat are the northern flicker, savannah sparrow and brush rabbit from the state endangered species list, and the white-tailed kite, golden eagle, ringtail, and mountain lion which are listed as fully-protected by the state of California (CA Dept. of Fish and Game 1999a).

Sixty-four rare species use blue oak woodland habitat in the Napa FLA. Listed species are the same as those for the blue oak-foothill pine type, except that the spotted owl is not predicted to occupy this habitat (CA Dept. of Fish and Game 1999a).

The **montane hardwood** type is found in the northern half of the FLA on 33,000 acres of private land. Canyon live oak often forms pure stands on steep canyon slopes and rocky ridgetops in this forest type. At higher elevations canyon live oak it associates with huckleberry oak, ponderosa pine, Coulter pine, white fir, and Jeffrey pine. At middle elevations in combines with Douglas-fir, tanoak, Pacific madrone, California black oak and bristlecone fir. At lower elevation live oak associates with knobcone pine, foothill pine, and Oregon white oak (Mayer and Laudenslayer 1988, CA GAP).

54 federal and state recognized rare species have suitable habitat in the bay-delta bioregion's montane hardwood forests. These include the peregrine falcon, loggerhead strike, and California vole, which are federally endangered and the red-legged frog, striped racer, bald eagle, spotted owl, California thrasher, and California towhee which are federally listed as threatened. The state-endangered northern flicker and brush rabbit, the state-threatened rubber boa and Swainson's hawk, as well as several California fully protected species including the golden eagle, ringtail, and mountain lion also are predicted to use the habitat (CA Dept. of Fish and Game 1999a).

The **montane hardwood-conifer** forest type is found on about 21,000 acres, or five percent of the private forestlands in the Napa FLA. This habitat is found throughout the FLA at elevations of 1,000 to 4,000 feet. Tree species found here include the California black oak, bigleaf maple, Pacific madrone, and tanoak along with ponderosa pine, white fir, incense cedar, Douglas-fir, and sugar pine (Mayer and Laudenslayer 1988, CA GAP).

Some 59 federal and state recognized rare species have suitable habitat in the bioregion's montane hardwood-conifer forests. These include the peregrine falcon, loggerhead shrike, and California vole which are federally endangered, and the red-legged frog, striped racer, bald eagle, spotted owl, California thrasher, and California towhee which are federally listed as threatened. The state-endangered northern flicker and brush rabbit, the state-threatened rubber boa, red fox, and Swainson's hawk, as well as the golden eagle, ringtail, and mountain lion which are California fully protected species also are predicted to use the habitat (CA Dept. of Fish and Game 1999a).

Ponderosa pine stands – made up both of pure ponderosa pine or a mix of white fir, incense-cedar, Coulter pine, Jeffrey pine, Douglas-fir, sugar pine, canyon live oak, California black oak, Oregon white oak, Pacific madrone, and tanoak – cover about 4,000 acres, or one percent of the private forested lands in the northwestern corner of the Napa FLA. Ponderosa pine and its associates typically exist in the foothill and mountain regions between 800-5,000 feet in elevation (Mayer and Laudenslayer 1988, CA GAP).

Fifty-seven state or federally recognized rare species are associated with the ponderosa pine habitat in the bay-delta bioregion. The peregrine falcon, loggerhead shrike, and California vole are federally-listed endangered species, while the federally-threatened species are the red-legged frog, striped racer, bald eagle, spotted owl, and California towhee. California endangered species include the northern flicker and brush rabbit, state threatened species include the rubber boa, and red fox, while state fully-protected species predicted to use of the habitat include the golden eagle, ringtail and mountain lion (CA Dept. of Fish and Game 1999a).

The **Klamath mixed conifer** forest covers some 16,000 acres of private land in the Napa FLA, on the steep slopes and serpentine soils ranging from 4,500-6,900 feet in altitude. Species associated with the Klamath mixed conifer habitat include many of the species typical of ponderosa pine forests, as well as Shasta red fir, mountain hemlock, western white pine, knobcone pine, Jeffrey pine and brewer spruce (Mayer and Laudenslayer 1988, CA GAP).

Forty-nine rare species are predicted to occur on the Klamath mixed conifer habitat in this bioregion. The federally listed endangered species include the peregrine falcon and California vole. The spotted owl, bald eagle, striped racer and red-legged frog, all federally listed as threatened species find suitable habitat in the Klamath mixed conifer habitat. California endangered species include the northern flicker and brush rabbit, while California threatened species include the rubber boa and red fox. In addition, the golden eagle, ringtail, and mountain lion, all listed as fully-protected by the state of California, are predicted to use this habitat (CA Dept. of Fish and Game 1999a).

Threats to Forest Resources

Residential development

The California Department of Finance projects that Napa County's population will increase by 51% by 2040, from current levels of 127,000 to 192,000 people (CA Dept. of Finance 1998). Nearly all the county's population is located within the oak woodland forest types in the communities of Calistoga, St. Helena, Yountville, Oakville, Napa, Deer Park, Angwin, communities along highway 29 (the county's major transportation corridor). Pope Valley and Aetna Springs are located in the ponderosa pine type.

Current residential development is occurring primarily in the form of in-fill development around the established urban areas and dispersed rural residential development on existing lots, with few subdivisions of parcels currently occurring. Future growth will continue to be focused on urban areas (Balcher 2000).

Agricultural conversions

Agricultural uses, primarily vineyards, are concentrated in the valleys and on the slopes above. Vineyard developments are occurring throughout the county except for the most eastern and driest portions near Lake Berryessa. Current conversions are taking place in oak woodlands areas including Wooden Valley, Wild Horse, and Con Creek Valley, and more coniferous areas including Pope Valley and Angwin (Balcher 2000).

Napa County does not regulate removal of oak woodlands or individual oak trees. It does require erosion control plans for projects occurring on slopes over 5%, including agricultural conversions. The county also requires property owners carrying out ground disturbing activities to retain 60% of canopy cover within municipal watersheds. The California Department of Forestry and Fire Protection reviewed a total of 27 projects converting forestlands to agricultural and structural uses between 1983 and 1999, on a total of 290 acres.

Watershed impairment

Napa County is made up of 3 major river basins – the Napa, the Putah Creek, and the Lower Sacramento, all of which have significant amounts of land in private ownership.

River segments and a lake in the Putah Creek, and Lower Sacramento watersheds, are listed as impaired under section 303(d) of the Clean Water Act. While conservation of forest resources through the Program has the potential to confer water quality benefits for all CWA-listed waterways, the primary sources of pollution currently recognized as impairing these river segments (resource extraction/toxicity, and urban runoff) are not easily mitigated through forest conservation alone. Particular stream reaches with impairments that could potentially be mitigated through private forest conservation easements through the Forest Legacy Program have been listed below:

The Napa River in the Napa watershed is listed as impaired under section 303(d) of the CWA because of sedimentation/siltation pollution. A number of sources – including construction and land development – have been cited by the state as sources of the pollution (SWRCB 1999).

All watersheds in the Lake FLA are listed under the California Unified Watershed Assessment as Category I watersheds – watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems). (CA Unified Watershed Assessment, 1998). Helping stave off forestland conversion to other more intensive uses as well as limiting road building and other soil disturbances – particularly in riparian areas – could help mitigate impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation

Specific conservation objectives for the Napa FLA

The CDF, SFCC, and USFS will use the Program's conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program's conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners that wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program's conservation goals are applicable to the Napa FLA. As discussed in Section V, these goals translate into a number of conservation objectives. The following conservation objectives are particularly applicable to the Napa FLA:

1. Goal: *Prevent future conversions of forestland and forest resources, and maintain and restore natural ecosystem functions:*

Objective: Minimize the level of housing and non-forest development to reduce the risk of catastrophic fire to forest resources and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: *Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity*

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

3. Goal: *Protect wildlife habitat, rare plants, and biodiversity*

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

4. Goal: *Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions*

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration "corridors".

5. Goal: *Protect water quality, fisheries, and water supplies*

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

Resource protection mechanisms for the Napa FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program's tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program's approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the Napa FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and wildlife habitat, listed and sensitive species habitat, and opportunities for the production of forest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest resources and traditional uses defined by the SFSCC such as public recreation, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the Napa FLA

(list not exhaustive)

USDOJ Bureau of Land Management

California Department of Forestry and Fire Protection

California Department of Fish and Game

California Department of Parks and Recreation

State Lands Commission

Napa County

Other local government entities otherwise authorized to acquire and hold title to real property

XXXIX. THE SACRAMENTO FOREST LEGACY AREA SACRAMENTO VALLEY AND BAY-DELTA BIOREGIONS

FLA Location

The Map entitled “Sacramento County Forest Legacy Area” depicts the location of the Sacramento FLA and its boundaries.

Boundary Description

The FLA is defined as all the lands within the county, which is located in the Sacramento Valley and Bay-Delta bioregions in inland northern California, and bounded to the north by Sutter and Placer Counties, to the south by San Joaquin and Contra Cost Counties, to the east by El Dorado and Amador Counties, and to the west by Yolo and Solano Counties.

As with other FLAs, any public lands – which make less than 7% of Sacramento County, or lands within incorporated areas are ineligible for participation in the Program. Specific public lands are listed in Appendix H, Table V. Urban lands make up 23% of the county. The urban boundaries in Sacramento County Forest Legacy Area Map are based on US Census TIGER data (US Census 1992). In the case that actual urban boundaries are different from those depicted on the reference map, the actual city boundaries will comprise the FLA boundaries. The designated boundaries of the FLA include lands that are unlikely to meet other Program eligibility requirements, including the requirement that parcels be forested with at least 10% tree canopy cover, or capable of achieving 10% tree cover under natural conditions.

As noted in Appendix J, official maps depicting the FLA at a larger scale will be made available for viewing at CDF and USFS.

Summary

Sacramento County encompasses approximately 994 square miles in the middle of the 400-mile long Central Valley, California’s prime agricultural region. Sacramento County extends from the low delta lands between the Sacramento and San Joaquin rivers north to about ten miles beyond the State Capitol and east to the foothills of the Sierra Nevada Mountains. A little over five percent of the 600,000 acres (930 square miles) of private land in the Sacramento FLA is forested, some 33,000 acres. These forests are low elevation hardwoods including oak woodlands, montane hardwoods, and riparian forests.

The California Natural Diversity Database which catalogues state and federally listed rare species has recorded 20 vascular plants, 1 fish, 2 amphibians, 13 birds, and one mammal in Sacramento County (CA Dept. of Fish and Game 1999b). In addition, 27 Significant Natural Areas (SNAs) have all or a portion of their area on private lands within the FLA (CA Dept. of Fish and Game 1999c). (SNAs with area in the FLA are listed in Appendix H Table IV.)

Sacramento County is experiencing a steady march of urban development into areas that had previously been primarily rural agricultural land and open space. Since 1980, the county's population has grown by 54% and currently stands at 1.2 million. Population is projected to increase another 75% by the year 2040, to 2.1 million. Between 1990 and 1998, urban lands increased from 137,000 acres to 151,000 acres, a 10% increase.

The General Plan's urban services boundary has effectively worked to avoid urban development in the forested extreme east and southeast portions of the county. However there remains substantial pressure to relocate the boundary and allow further urban expansion in the more rural areas of the county (Sacramento Environmental Report 1999).

The Forest Legacy goals and objectives for the Sacramento FLA seek to maintain the county's private forestlands and associated habitats, while ensuring the protection of the productive forest landscape for present and future generations of county residents.

Forest Resources

The primary forest types in the Sacramento FLA are discussed below:

The **valley oak woodland** forest type grows along eastern half of the FLA in the Sierra Nevada foothills below 1,000 feet in elevation. It occupies almost 6,200 acres of private land in the Sacramento FLA. This forest type is composed almost exclusively of valley oaks in open or forest like stands, except for occasional California sycamore, Hinds black walnut, interior live oak, boxelder and blue oak (Mayer and Laudenslayer 1988, CA GAP).

79 federally and state recognized rare species have suitable habitat in the Sacramento Valley and Bay-Delta bioregions' valley oak woodlands (see note 19, page 20). These include the peregrine falcon, loggerhead shrike, California vole, and kit fox, federally listed endangered species, and the red-legged frog, striped racer, bald eagle, California thrasher, and California towhee which are listed as threatened. State-endangered northern flicker, savannah sparrow, and brush rabbit, as well as state-threatened

Swainson's hawk also are predicted to occur in this habitat (CA Dept. of Fish and Game 1999a).

Blue oak woodlands are found on almost 19,000 acres of privately owned land in the farthest eastern portion of the county as the terrain rises above the Central Valley into the Sierra Nevada foothills at 500 to 2,000 feet in elevation. Blue oak woodland is dominated by the blue oak, which typically makes up 85 to 100 percent of the trees present with the remainder made up by interior live oak and valley oak (Mayer and Laudenslayer 1988, CA GAP).

The **blue oak-foothill pine** type covers over 600 acres in the east central portion of the FLA between 500 and 3,000 feet in elevation. Blue oak continues to dominate this forest type. Associated tree species are the foothill pine, California buckeye, and interior live oak which can dominate at higher elevations (Mayer and Laudenslayer 1988, CA GAP).

At least 79 rare species are predicted to use the blue oak-foothill pine habitat types. These include the peregrine falcon, loggerhead shrike, and California vole, which are on the federal endangered species list. The red-legged frog, striped racer, bald eagle, spotted owl, California thrasher and California towhee are on the federal threatened species list. Also predicted to occur in this habitat is the northern flicker, savannah sparrow and brush rabbit from the state endangered species list, and the Swainson's hawk from the state threatened species list. Seventy-eight rare species are predicted to utilize blue oak woodland habitat in the Sacramento Valley bioregion. Listed species in those habitats are the same as those for the blue oak-foothill pine type, with one change: the spotted owl does not find suitable habitat in the blue oak woodland habitat (CA Dept. of Fish and Game 1999a).

The **montane hardwood** type is found in the far western edge of the FLA on 2,100 acres of private land. The montane hardwood type grows on steep rocky south slopes of major river canyons where it consists mostly of canyon live oak and Douglas fir. At higher elevations canyon live oak associates with Sierran mixed conifer species, while at lower elevation live oak associates with foothill pine, California laurel, knobcone pine, tanoak, and Pacific madrone (Mayer and Laudenslayer 1988, CA GAP).

63 federal and state recognized rare species have suitable habitat in the montane hardwood forests of the Sacramento Valley and Bay-Delta bioregions. These include the peregrine falcon, California vole, and loggerhead strike, which are federally endangered and the red-legged frog, striped racer, bald eagle, California thrasher, and California towhee which are federally listed as threatened. State-endangered northern flicker and brush rabbit, as well as state-threatened Swainson's hawk also are predicted to use the habitat (CA Dept. of Fish and Game 1999a).

In addition, around 5,500 acres of **valley foothill riparian** habitat is in private ownership throughout the FLA. These riparian forests grow in a band along watercourses and typically include cottonwood, California sycamore and valley oak, in association with white alder, boxelder and Oregon ash. These forests are critically important habitat because of they provide water, thermal cover, migration corridors and diverse nesting and feeding opportunities for many species, including aquatics such as the federally threatened Sacramento Splittail (Mayer and Laudenslayer 1988, CA GAP, CA Dept. of Fish and Game 1999b).

Threats to Forest Resources

Residential development

Sacramento County is currently undergoing a steady trend of urban expansion into rural areas previously occupied by agricultural and open space uses. Since 1980, population growth has totaled 54%. The State Department of Finance estimates county population at 1,200,000 as of January 1, 2000. Population is projected to increase 75% by the year 2040, to 2,100,000 (CA Dept. of Finance 1998). Sacramento County currently has six incorporated cities: Sacramento, Citrus Heights, Galt, Isleton, Elk Grove and Folsom (which is in the oak woodland zone). Just less than half of the county's population is concentrated in these cities, while the other half live in unincorporated areas, giving Sacramento County one of the largest unincorporated populations among all counties in the State.

Sacramento County is a center of commerce for the surrounding area. The county is traversed by the main east-west and north-south freeways serving northern and central California. Trade and services, federal, state and local government, and food processing are important economic sectors. The State of California is the largest employer in the Sacramento area, while major employers include those in medical services, electronics, retail sales, communications services, and financial services, and McClellan Air Force Base.

Between 1990 and 1998, urban lands increased from 137,000 acres to 151,000 acres, a 10% increase. The 1993 General Plan accommodates a substantial increase in the area dedicated for urban land uses, including residential, commercial and industrial development, mostly concentrated along the major transportation corridors of Interstates 5 and 80, State Routes 99 and 50.

The General Plan's Urban Services Boundary has effectively worked to avoid urban development in the extreme east and southeast portions of the county within the oak woodland zone. However there remains substantial pressure to relocate the boundary and allow further urban expansion in the more rural areas of the county (Sacramento Environmental Report 1999). Additional growth is anticipated in oak woodland areas around the city of Folsom and south, as well as around Rancho Murietta, off of

Highway 160, which is zoned for residential development. Efforts to protect remaining oak woodlands have begun, notably the recent purchase of the 12,500 acre Howard Ranch by The Nature Conservancy (Radmacher 2000).

Watershed impairment

Sacramento County lies within 4 major watershed basins – the Sacramento Delta, the Lower American, Lower Mokelumne, and the Cosumnes-Mokelumne – all of which are predominately made up of private land. Numerous stream segments in the Sacramento Delta and Lower American River Watersheds are listed as impaired under section 303(d) of the Clean Water Act. While conservation of forest resources through the Program has the potential to confer water quality benefits for all CWA-listed waterways, the primary sources of pollution currently recognized as impairing these river segments (including agriculture, resource extraction, and urban runoff) are not easily mitigated through private forestland conservation alone.

All watersheds in the Sacramento FLA are listed under the California Unified Watershed Assessment as Category I watersheds – watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (with an emphasis on aquatic systems). (CA Unified Watershed Assessment 1998). Helping stave off forestland conversion to other more intensive uses as well as limiting road building and other soil disturbances – particularly in riparian areas – could help mitigate impaired water quality, and help restore the vitality of aquatic systems.

FLA Implementation

Specific conservation objectives for the Sacramento FLA

CDF, the SFSCC, and the USFS will use the Program’s conservation goals and objectives to determine which eligible applicant parcels will receive priority for participation in the Program. (The Program’s conservation goals and objectives are discussed in Section V.) In addition, the conservation goals and objectives will provide guidance to CDF and to landowners who wish to participate in the Program by providing basic direction in easement design and resource management.

All of the Program’s conservation goals are applicable to the Sacramento FLA. As discussed in Section V, these goals translate into a number of conservation objectives. The following conservation goals and objectives apply to the Sacramento FLA:

1. Goal: *Prevent future conversions of forestland and forest resources, and maintain and restore natural ecosystem functions:*

Objective: Minimize the level of housing and non-forest development to reduce the risk of catastrophic fire to forest resources and to maintain opportunities for the appropriate use of fire in forest management.

2. Goal: *Protect riparian habitats, oak stands, ecological old growth, and other key forest types and seral stages which are poorly represented across landscapes and regions, and which play a key role in supporting biodiversity*

Objective: Maintain and restore the natural mix of native forest tree species and age classes, including ecological old growth.

3. Goal: *Protect wildlife habitat, rare plants, and biodiversity*

Objective: Protect rare plants, habitat for rare animals, natural communities, and significant natural areas.

4. Goal: *Maintain habitat connectivity and related values needed to ensure the viability of wildlife populations across landscapes and regions*

Objective: Protect wildlife habitat between public lands and other lands managed for habitat values, particularly along ridgetops, streams and other areas utilized by wildlife as migration “corridors”.

5. Goal: *Protect water quality, fisheries, and water supplies*

Objective: Protect and restore fish habitat, especially riparian areas, watercourse structures, instream flows, and related characteristics.

Objective: Minimize actual and potential erosion, sedimentation, and other impacts to water quality, especially impacts caused by existing roads and other past management activities.

Resource protection mechanisms for the Sacramento FLA

Conservation easements acquired (either by purchase or donation) by eligible government agencies, or by land trusts, will be the Program’s tool of preference for protecting environmental values and for establishing site specific conservation and management objectives in cooperation with willing landowners. The Program’s approach to using conservation easements is discussed further in Section V.

Public benefits derived from establishing the Sacramento FLA

Establishing the FLA will facilitate and encourage voluntary efforts by private forestland owners to protect and/or restore the forest landbase, forest health and ecosystem function, water quality and other watershed values, biodiversity, fish and wildlife habitat, listed and sensitive species habitat, and opportunities for the production of forest products for the benefit of current and future generations. In some cases, landowners may also choose to benefit the public by protecting other forest

resources and traditional uses defined by the State Forest Stewardship Coordinating Committee such as public recreation, cultural resources, or scenic enjoyment.

Government entities that are eligible to assume responsibility for easement acquisition and monitoring through the program in the Sacramento FLA

(List is not exhaustive)

USDA Forest Service

USDOJ Bureau of Land Management

USDOD Air Force

California Department of Forestry and Fire Protection

California Department of Fish and Game

State Lands Commission

Sacramento County

Other local government entities otherwise authorized to acquire and hold title to real property

PUBLIC PARTICIPATION PROCESS FOR THE AON AMENDMENT

[Will be published in Appendix Appendix G in the finalized AON]

AON Amendment, August 2000

The 2000 Amendment of the AON names as FLAs county areas that were identified in the first draft AON (1994) as potential FLAs. The 1994 AON was the subject of extensive public review. Nevertheless, additional public comment was solicited during August, 2000, regarding the Amendment.

Description:

Forest landowners, resource managers, county governments, Resource Conservation District offices, land trusts, Indian governments, and members of the general public were notified by mail about the availability of the draft Amendment during the first week of August, 2000. Comments were requested on the substance and coverage of the program.

Coverage:

1. Approximately 250 notices were mailed out. They contained a summary of the Amendment, and described where full copies could be viewed at county libraries or obtained from the CDF website on the internet. The notice recipients lived in existing FLAs, and/or were individuals or organizations that otherwise have a strong interest in the program.
2. Newspaper notices containing a brief summary of the Amendment and its availability in libraries or from the internet were placed in 11 newspapers that circulate throughout the proposed new FLAs. The combined readership of those newspapers – based on 1996 circulation figures – is more than 1.1 million people.
3. Copies of the draft Amendment were sent to the planning departments of the 28 counties proposed for inclusion in the program. Planning departments – which had also been contacted during the drafting of the Amendment -- were expected to provide feedback and to make the documents available to other interested members of the public.
4. Copies of the draft Amendment were sent to members of the University of California Cooperative Extension, as well as the CDF directorate and the CDF Regional Offices in Santa Rosa and Fresno, as well as CDF Area Offices in

Redding and Riverside. CDF offices were to make the document available to interested members of the public). In addition, copies were sent to all members of the State Forest Stewardship Coordinating Committee.

5. County libraries in the 28 counties proposed for inclusion in the Program were sent copies of the draft AON Amendment.
6. Also as mentioned above, the draft was posted in a downloadable format on the internet at CDF's official site on the world wide web.

Results:

A total of 8 responses were received, all supportive of the program and its proposed expansion into additional FLAs. Comments were largely received from members of the SFSCC, county planning offices, CDF, or the USFS. Their comments were, by and large, of a technical nature relating to the substance of the county summaries or the explanation of the functioning of the program.

Analysis of Comments on the AON Amendment (2000)

All Amendment commentors were either explicitly or implicitly supportive of the Program, and tended to focus their comments on the substance of the Program or the structure of the Amendment. The county planning departments that commented on the proposal (3) focused their comments on clarifying descriptions of county resources or planning initiatives that had a bearing on the FLA-specific descriptions. Agencies that commented on the proposal (2) focused on the overall clarity of process descriptions, particularly in light of a number of recent changes in state-level policy. SFSCC members (2) commented on both the county-specific descriptions and data presentation as well as the overall description of the tone of the document.

Responses to Public Comments

The following section summarizes substantive comments received during the Amendment comment period. CDF's responses are below the comments in italics.

- The document is not a professionally useful instrument due to inaccuracies in the reporting of forests, endangered species, and watersheds.

Data describing forests were drawn from peer-reviewed statewide databases typically used in professional resource assessments, including the Gap Analysis of Mainland California: An Interactive Atlas of Terrestrial Biodiversity and Land Management (CA GAP 1998), the California Wildlife Habitats Relationship Database (CA Dept. of Fish and Game 1999a), the

California Natural Diversity Database (CA Dept. of Fish and Game 1999b), and county general plans, the 1998 California 305(b) Report on Water Quality (CA State Water Resources Control Board 1999), among many others.

In keeping with the USFS Forest Legacy Guidelines, the Amendment drew on existing data sets that provided accurate general descriptions of forest resources, threats, and the public benefits that the Program could bring to the proposed Forest Legacy Areas. While the specific databases were chosen to provide a measure of consistency across proposed FLAs, in places where county-specific data of a more appropriate gauge was made known to the principal investigator, it was utilized in the preparation of the Amendment. The AON and this Amendment should be viewed primarily as a policy document that presents a general description of forest resources and threats, as well as programmatic direction. Its primary function is not as a management document written to guide the activities of forestry professionals.

- Rare or endangered species reported for various forest types are overstated or understated as compared with the Department of Fish and Game's Natural Diversity Database.

As noted in the Amendment, CA Department of Fish and Game's Wildlife Habitat Relationships Database was used to describe the species that are likely to occur within the forested habitat types in each FLA. The WHR database is a predictive model that describes where species' expected ranges and habitat conditions would be satisfied. The WHR may differ from other databases (such as the Natural Diversity Database) that are based upon positive sightings and thus likely under-report actual species associates (DFG 1999c). While the WHR database is the only available statewide data set that links species with habitat types in a way useful to the purposes of the Amendment, it may suggest the presence of rare species that do not actually occur in a county, since, if a subspecies is listed as rare in any portion of its range, the entire species will be reported as such wherever it appears (Parisi 2000).

- The Amendment appears to indicate that the FLP discourages active forest management by favoring/subsidizing landowners who adopt extreme "hands-off" approaches.

The Amendment is clear on the importance of management activities within the overall context of the program: like natural resource values, traditional forestry activities are explicitly to be valued and conserved under the Program. However, given that the Amendment consisted largely of county-specific summaries of forest resources and threats, it is possible that the reader was left with an incomplete sense of the overall program objectives and priorities. Therefore the Amendment must be read within the context of the overall Assessment of Need and the Federal and State Forest Legacy Programs. As of these policy documents make clear, the Program is designed to conserve a working forest landscape, where traditional uses – including timber harvest – are appropriate uses. The program requires the creation of a multi-resource management plan in concert with an easement to set forth management activities on the property.

- The Amendment should recognize the importance of maintaining forest-related economies as well as the forests that are the primary resource for those economies.

Proposed wording was changed under Goal One to better reflect areas where forest-related economies are still functioning (based on the existing Mendocino FLA). In addition, the county-specific summaries frequently discuss the importance of county natural resource-based economies, and, just as frequently, those summaries discuss the changes that county economies are experiencing that give rise to the need for the Forest Legacy Area.

- It is unclear what the relative importance of each program objective vis-à-vis the others in terms of project selection.

The Program's multiple goals and objectives reflect multiple state conservation and forestland maintenance objectives. A landowner must, at a minimum, meet the eligibility criteria outlined in Section V. Following that, landowners must meet at least one of the Program's conservation goals and objectives. It is expected that increased weighting will be given to those projects that meet multiple goals and objectives.

In addition, should the State wish to delineate more specific project-selection criteria, both federal guidelines and State authorizing legislation provide for additional regulations or Memoranda of Understanding that CDF can utilize to clarify future selection processes.

- The use of counties as FLAs is confusing given the number of counties. In order to facilitate better distribution of projects and ease Program administration, Counties could be combined into regional FLAs or bioregions for the sake of project selection.

The Amendment groups counties into bioregions (as defined by CERES) and outlines a bioregional project evaluation process that can be used by CDF to prioritize potential projects.

- Text should be edited to clarify that fee simple interests in land also can be acquired pursuant to the Program.

While the AON is clear on this point, additional clarifying language has been included in the Amendment to capture this Program option.

- The Program should provide county governments an appropriate measure to preserve forestland without being impacted financially through reduction of county tax payments.

The Program's exact impact on local tax revenues is impossible to determine at this time. However, in the analysis underpinning the AON and this Amendment, CDF has found that fiscal impacts are unlikely to be significant. Property that remains in private ownership will remain on the tax rolls. Moreover, because of existing state policies that reduce landowner tax burdens through TPZ or agricultural preserve zoning, Program easements are not likely to impact current local revenues in most cases.

Table IV Significant Natural Areas (AON Amendment)

[Will be published in Appendix H of the finalized AON]

<u>Amador FLA:</u>	BUT-048	FRE-044
	GLE-006	FRE-046
AMA-006	GLE-009	FRE-054
AMA-008	TEH-064	FRE-056
AMA-009		FRE-057
AMA-011	<u>Calaveras SNA:</u>	FRE-059
AMA-012		FRE-062
AMA-013	CAL-001	FRE-063
SAC-017	CAL-002	FRE-065
SAC-022	CAL-003	FRE-068
	CAL-006	FRE-069
<u>Butte FLA:</u>	CAL-007	FRE-070
	CAL-008	FRE-071
BUT-001	CAL-009	FRE-074
BUT-002	STA-001	FRE-076
BUT-003	TUO-017	FRE-077
BUT-005	TUO-033	FRE-079
BUT-007		FRE-081
BUT-009	<u>El Dorado SNA:</u>	FRE-083
BUT-011		FRE-085
BUT-012	ELD-003	FRE-086
BUT-015	ELD-009	FRE-087
BUT-016	ELD-024	FRE-089
BUT-017	ELD-030	FRE-091
BUT-018	ELD-031	FRE-092
BUT-021	ELD-032	FRE-093
BUT-029	ELD-034	FRE-094
BUT-033	ELD-038	FRE-103
BUT-034	PLA-009	FRE-104
BUT-035		MNT-042
BUT-036	<u>Fresno SNA:</u>	MNT-044
BUT-037		TUL-070
BUT-039	FRE-018	
BUT-040	FRE-026	<u>Humboldt FLA:</u>
BUT-041	FRE-027	
BUT-042	FRE-028	HUM-002
BUT-044	FRE-029	HUM-003
BUT-045	FRE-030	HUM-012
BUT-046	FRE-037	HUM-013
BUT-047	FRE-038	HUM-015

HUM-016	LAS-021	LAX-081
HUM-017	LAS-023	LAX-082
HUM-020	LAS-026	LAX-083
HUM-022	LAS-060	LAX-084
HUM-023	LAS-061	LAX-085
HUM-024	LAS-062	LAX-086
HUM-025		LAX-093
HUM-027	<u>Los Angeles SNA:</u>	ORA-003
HUM-028		RIV-014
HUM-029	KRN-147	VEN-006
HUM-030	LAX-003	
HUM-031	LAX-005	<u>Madera SNA:</u>
MEN-002	LAX-006	
	LAX-010	FRE-037
<u>Lake SNA:</u>	LAX-012	FRE-044
	LAX-013	MAD-012
LAK-010	LAX-016	MAD-016
LAK-013	LAX-017	MAD-018
LAK-014	LAX-020	MAD-020
LAK-017	LAX-021	MAD-022
LAK-018	LAX-027	MAD-024
LAK-019	LAX-029	MAD-027
LAK-020	LAX-033	MAD-028
LAK-021	LAX-034	MAD-029
LAK-022	LAX-035	MAD-031
LAK-024	LAX-037	MAD-032
LAK-025	LAX-039	MAD-033
LAK-026	LAX-040	MAD-034
LAK-027	LAX-046	MAD-035
LAK-029	LAX-049	MAD-037
LAK-030	LAX-052	MAD-038
LAK-031	LAX-054	MAD-040
LAK-032	LAX-056	MAD-041
LAK-033	LAX-057	MAD-042
LAK-034	LAX-058	MAD-043
LAK-035	LAX-059	MAD-045
LAK-037	LAX-060	MAD-046
NAP-001	LAX-061	
NAP-005	LAX-064	<u>Mariposa SNA:</u>
	LAX-073	
<u>Lassen FLA:</u>	LAX-077	MER-002
	LAX-079	MPA -035
LAS-018	LAX-080	MPA-009

MPA-016	MNT-062	PLA-019
MPA-027	MNT030	PLA-022
MPA-029	SBT-003	PLA-023
MPA-030	SBT-011	PLA-024
MPA-031		PLA-025
MPA-033	<u>Napa FLA</u>	PLA-026
		PLA-027
<u>Monterey FLA:</u>	LAK-29	PLA-028
	NAP-005	PLA-030
MNT- 001	NAP-006	
MNT-002	NAP-007	<u>Plumas FLA:</u>
MNT-003	NAP-008	
MNT-005	NAP-009	PLU-006
MNT-006	NAP-010	PLU-006
MNT-007	NAP-011	PLU-006
MNT-008	NAP-014	PLU-007
MNT-009	NAP-015	PLU-012
MNT-011	NAP-016	PLU-015
MNT-013	NAP-017	PLU-038
MNT-015	NAP-018	PLU-044
MNT-016	NAP-019	PLU-048
MNT-017	NAP-020	PLU-049
MNT-022	NAP-021	PLU-050
MNT-026	NAP-022	PLU-051
MNT-028	NAP-026	PLU-052
MNT-029	NAP-027	PLU-056
MNT-031	SON-047	PLU-058
MNT-032		SIE-003
MNT-035	<u>Nevada FLA:</u>	
MNT-041		<u>Sacramento SNA:</u>
MNT-042	NEV-010	
MNT-043	NEV-013	PLA-030
MNT-044	NEV-015	SAC-001
MNT-045	NEV-016	SAC-005
MNT-046	NEV-017	SAC-006
MNT-049	NEV-020	SAC-007
MNT-049	NEV-021	SAC-009
MNT-050	NEV-022	SAC-011
MNT-051		SAC-012
MNT-057	<u>Placer SNA:</u>	SAC-014
MNT-058		SAC-015
MNT-059	PLA-009	SAC-016
MNT-061	PLA-015	SAC-017

SAC-019	SBD-108	SLO-045
SAC-020	SBD-110	SLO-046
SAC-022	SBD-116	SLO-047
SAC-026	SBD-118	SLO-050
SAC-030	SBD-127	SLO-051
SAC-031	SBD-131	SLO-053
SAC-032	SBD-136	SLO-054
SAC-036	SBD-141	SLO-056
SAC-039		SLO-057
SAC-040	<u>San Luis Obispo FLA:</u>	SLO-063
SAC-041		SLO-065
SAL-033	KRN-78	SLO-069
SAL-034	SBA-002	SLO-069
SJQ-004	SLO-002	
SOL-009	SLO-003	<u>Santa Barbara SNA:</u>
	SLO-005	
<u>San Bernadino SNA:</u>	SLO-006	SBA-002
	SLO-008	SBA-004
LAX-033	SLO-009	SBA-010
RIV-008	SLO-010	SBA-015
RIV-008	SLO-012	SBA-018
RIV-014	SLO-013	SBA-023
SBD-039	SLO-014	SBA-029
SBD-041	SLO-015	SBA-032
SBD-042	SLO-016	SBA-035
SBD-047	SLO-017	SBA-036
SBD-049	SLO-018	SBA-037
SBD-050	SLO-019	SBA-039
SBD-052	SLO-020	SBA-040
SBD-054	SLO-021	SBA-041
SBD-057	SLO-022	SBA-042
SBD-065	SLO-023	SBA-049
SBD-071	SLO-024	SBA-050
SBD-072	SLO-025	SLO-054
SBD-074	SLO-026	
SBD-078	SLO-027	<u>Shasta FLA:</u>
SBD-079	SLO-030	
SBD-081	SLO-031	SHA-004
SBD-082	SLO-031	SHA-010
SBD-086	SLO-033	SHA-013
SBD-087	SLO-037	SHA-015
SBD-093	SLO-039	SHA-020
SBD-099	SLO-041	SHA-024

SHA-026	SIS-026	TEH-044
SHA-029	SIS-029	TEH-045
SHA-030	SIS-031	TEH-046
SHA-033	SIS-033	TEH-048
SHA-035	SIS-034	TEH-053
SHA-039	SIS-035	TEH-054
SHA-041	SIS-036	TEH-055
SHA-043	SIS-038	TEH-056
SHA-045	SIS-046	TEH-057
SHA-046	SIS-053	TEH-059
SHA-047	SIS-054	TEH-061
SHA-048	SIS-056	TEH-062
SHA-052	SIS-057	TEH-065
SHA-055	SIS-059	TEH-067
SHA-058	SIS-061	TEH-069
SHA-060	SIS-070	TEH-070
SHA-062	SIS-073	TEH-071
SHA-063	SIS-079	TEH-072
SIS-095	SIS-083	
TEH-001	SIS-089	<u>Trinity FLA:</u>
	SIS-093	
<u>Sierra FLA:</u>	SIS-099	HUM-002
	SNA-007	TRI-021
SIE-003		TRI-025
SIE-006	<u>Tehama FLA:</u>	TRI-026
SIE-007		TRI-039
SIE-008	TEH-001	
SIE-014	TEH-006	<u>Tulare SNA:</u>
	TEH-011	
<u>Siskiyou FLA:</u>	TEH-012	JUL-002
	TEH-016	JUL-007
SIS-003	TEH-017	JUL-018
SIS-004	TEH-018	JUL-022
SIS-006	TEH-024	JUL-024
SIS-011	TEH-026	JUL-025
SIS-013	TEH-030	JUL-032
SIS-014	TEH-032	JUL-033
SIS-016	TEH-036	JUL-034
SIS-017	TEH-039	JUL-036
SIS-018	TEH-040	JUL-039
SIS-019	TEH-041	KNG-002
SIS-020	TEH-042	TUL-013
SIS-025	TEH-042	TUL-017

TUL-019
TUL-023
TUL-028
TUL-046
TUL-048
TUL-049
TUL-050
TUL-054
TUL-056
TUL-057
TUL-058
TUL-070
TUL-073
TUL-074

Tuolumne SNA:

TOU-017
TOU-020
TOU-021
TOU-026
TOU-031
TOU-032
TOU-033
TOU-040
TOU-047

Yuba FLA:

BUT-046
BUT-048
SAC-001
SUT-006
YUB-005
YUB-007
YUB-009
YUB-010

Table V. Public Lands Within or Proximate to FLAs (AON Amendment)

[Will be published in Appendix H of the finalized AON]

Amador FLA:

Apricum Hill Ecological Reserve (CA Dept. of Fish and Game)
Eldorado National Forest
Ione Manzanita ACEC (US Bureau of Land Management)
Ione Soils ACEC (US Bureau of Land Management)
Stanislaus National Forest
Various State Lands Commission holdings
Various Bureau of Land Management holdings

Butte FLA:

Coon Hollow Wildlife Area (CA Dept. of Fish and Game)
Gray Lodge Wildlife Area (CA Dept. of Fish and Game)
Lassen National Forest
Lake Oroville State Recreation Area (California Dept. of Parks and Recreation)
Oroville Wildlife Area (California Dept. of Fish and Game)
North Table Mountain (California Dept. of Fish and Game)
Upper Butte Basin Wildlife Area (CA Dept. of Fish and Game)

Calaveras FLA:

Calaveras Big Trees State Park (California Dept. of Parks and Recreation)
Eldorado National Forest
Stanislaus National Forest
Various undesignated CA Dept. of Fish and Game holdings
Sheep Ranch (CA Dept. of Fish and Game)
Various US Bureau of Land Management holdings

El Dorado FLA:

Eldorado National Forest
Tahoe National Forest
Emerald Bay State Park (CA Dept. of Parks and Recreation)
Folsom Lake State Recreation Area (CA Dept. of Parks and Recreation)
Pine Hill Ecological Reserve (CA Dept. of Fish and Game)

Sugar Pine Point State Park (California Dept. of Parks and Recreation)
Toiyabe National Forest
Washoe Meadows State Park

Fresno FLA:

Alkali Sink Ecological Reserve (CA Dept. of Fish and Game)
Inyo National Forest
Sierra National Forest
Clear Creek Serpentine Area ACEC, (US Bureau of Land Management)
Kerman Ecological Reserve (CA Dept. of Fish and Game)
Sequoia National Forest
Lemoore Naval Air Station (US Navy)
Little Panoche Reservoir Wildlife Area (CA Dept. of Fish and Game)
Lost Lake County Recreation Area (Fresno Co)
Mendota Wildlife Area (CA Dept. of Fish and Game)
Moreno Paleontological Area ACEC (US Bureau of Land Management)
Panoche Hills Ecological Reserve (CA Dept. of Fish and Game)
Panoche-Coalinga ACEC (US Bureau of Land Management)
Various undesignated CA Dept. of Fish and Game holdings
San Joaquin River Ecological Reserve (CA Dept. of Fish and Game)
Shasta-Trinity National Forest
Sequoia and Kings Canyon National Parks (US National Park Service)
Various US Bureau of Land Management holdings

Humboldt FLA:

Big Lagoon Wildlife Area (State Lands Commission)
Eel River Wildlife Area (CA Dept. of Fish and Game)
Grizzly Creek Redwoods State Park (CA Dept. of Parks and Recreation)
Humboldt Bay National Wildlife Refuge (US Fish and Wildlife Service)
Humboldt Lagoons State Park (CA Dept. of Parks and Recreation)
King Range National Conservation Area (US Bureau of Land Management)
Klamath National Forest
Mad River Slough Wildlife Area (CA Dept. of Fish and Game)
Manila Dunes ACEC (US Bureau of Land Management)
Six Rivers National Forest
Patrick's Point State Park (CA Dept. of Parks and Recreation)
Prairie Creek Redwoods State Park (CA Dept. of Parks and Recreation)
Redwood National Park (US National Park Service)

Richardson Grove State Park (CA Dept. of Parks and Recreation)
Shasta-Trinity National Forests
Six Rivers National Forest
Various US Bureau of Land Management holdings

Lake FLA:

Boggs Mountain State Forest (CA Dept. of Forestry and Fire Protection)
Cache Creek River Corridor ACEC (CA State Lands Commission, US Bureau of Land Management)
Cache Creek Wildlife Area (CA Dept. of Fish and Game)
Clear Lake State Park (CA Dept. of Parks and Recreation)
Mendocino National Forest
Indian Valley Brodiaea ACEC (US Bureau of Land Management)
Indian Valley Wildlife Area (CA Dept. of Fish and Game)
Robert Louis Stevenson State Park (CA Dept. of Parks and Recreation)
Various State Lands Commission holdings
Various US Bureau of Land Management Holdings

Lassen FLA:

Ash Creek Wildlife Area (CA Dept. of Fish and Game)
Ash Valley ACEC (US Bureau of Land Management)
Bass Hill Wildlife Area (CA Dept. of Fish and Game)
Biscar Wildlife Area (CA Dept. of Fish and Game)
Lassen National Forest
Doyle Wildlife Area (CA Dept. of Fish and Game)
Hallelujah Junction Wildlife Area (CA Dept. of Fish and Game)
Honey Lake Wildlife Area (CA Dept. of Fish and Game)
Lassen Volcanic National Park
Modoc National Forest
Plumas National Forest
Shasta-Trinity National Forests
Sierra Army Depot (US Army)
Toiyabe National Forest
Willow Creek Wildlife Area (CA Dept. of Fish and Game)
Various US Bureau of Land Management holdings
Various State Lands Commission holdings

Los Angeles FLA:

Abalone Cove Ecological Reserve (CA Dept. of Fish and Game)
Angeles National Forest
Antelope Valley California Poppy State Reserve (CA Dept. of Parks and Recreation)
Brand Park (Los Angeles County)
Calabasas Peak State Park (CA Dept. of Parks and Recreation)
Charmlee County Regional Park (Los Angeles County)
Various CA Dept. of Fish and Game holdings
Edwards Air Force Base (US Air Force)
Frank G. Bonelli Regional Park (Los Angeles Co.)
Leo Carrillo State Beach (CA Dept. of Parks and Recreation)
Los Padres National Forest
Malibu Bluffs State Beach (CA Dept. of Parks and Recreation)
Malibu Creek State Park (CA Dept. of Parks and Recreation)
Marshall Canyon Regional Park (Los Angeles Co.)
Placerita Canyon State Park (CA Dept. of Parks and Recreation)
Red Rock Canyon State Park (CA Dept. of Parks and Recreation)
Saddleback Butte State Park (CA Dept. of Parks and Recreation)
San Bernardino National Forest
Santa Monica Mountains National Recreation Area (US National Park Service)
Santa Monica Mountains Reserve (CA Dept. of Parks and Recreation, State Lands Commission)
Santa Monica State Beach (CA Dept. of Parks and Recreation)
Solstice Canyon State Park (CA Dept. of Parks and Recreation)
Stunt Ranch State Park (CA Dept. of Parks and Recreation)
Temescal Canyon County Park (Los Angeles Co.)
Topanga State Park (CA Dept. of Parks and Recreation)
Verdugo Mountain Park (Los Angeles Co.)
Wilacre Park State Park (CA Dept. of Parks and Recreation)
Wildwood Canyon Park (Los Angeles Co.)
Zuma County Beach (Los Angeles Co.)
Various State Lands Commission holdings
Various Water District holdings
Various County and Regional Park holdings
Various CA Dept. of Parks and Recreation holdings

Madera FLA:

Inyo National Forest
Sierra National Forest
Eastman Lake National Recreation Area
Hensley Lake National Recreation Area

San Joaquin River Ecological Reserve (CA Dept. of Fish and Game)
Yosemite National Park
Various CA Dept. of Fish and Game holdings
Various US Bureau of Land Management holdings

Mariposa FLA:

Stanislaus National Forest
Sierra National Forest (including Bishop Creek Research Natural Area)
Eastman Lake National Recreation Area
Limestone Salamander ACEC (US Bureau of Land Management)
Limestone Salamander Ecological Reserve (CA Dept. of Fish and Game)
Merced River ACEC (US Bureau of Land Management)
Yosemite National Park
Various US Bureau of Land Management holdings

Monterey FLA:

Andrew Molera State Park (CA Dept. of Parks and Recreation)
Big Sandy Wildlife Area (CA Dept. of Fish and Game)
Camp Roberts (US National Guard)
Los Padres National Forest
Elkhorn Slough Ecological Reserve (California Dept. of Fish and Game)
Fort Ord Military Reservation (US Army)
Fremont Peak State Park (California Dept. of Parks and Recreation)
Garrapata State Park (California Dept. of Parks and Recreation)
Hunter Liggett Military Reservation (Dept. of Parks and Recreation)
Manzanita Regional Park (Monterey Co.)
Moss Landing Wildlife Area (CA Dept. of Fish and Game)
Pinnacles National Monument
Point Lobos State Reserve (CA Dept. of Parks and Recreation)
Salinas River National Wildlife Refuge (US Fish and Wildlife Service)
Various US Bureau of Land Management holdings
Various California Dept. of Fish and Game holdings

Nevada FLA:

Donner Memorial State Park (California Dept. of Parks and Recreation)
Spenceville Wildlife Area (CA Dept. of Fish and Game)
Tahoe National Forest

Various California Dept. of Fish and Game holdings
Various US Bureau of Land Management holdings

Napa FLA:

Bothe-Napa State Park (California Dept. of Parks and Recreation)
Fagan Slough Ecological Reserve (California Dept. of Fish and Game)
Lake Berryessa State Recreation Area (California Dept. of Parks and Recreation and US Bureau of Land Management)
Lake Hennessey City Recreation Area (Napa Co.)
Napa-Sonoma Marshes Wildlife Area (CA Dept. of Fish and Game)
Putah Creek Wildlife Area (CA Dept. of Fish and Game)
Quail Ridge Reserve (US Bureau of Land Management and State Lands Commission)
Robert Louis Stevenson State Park (California Dept. of Parks and Recreation)
Sugarloaf Ridge State Park (California Dept. of Parks and Recreation)
Various State Lands Commission holdings
Various US Bureau of Land Management holdings

Placer FLA:

Burton Creek State Park (California Dept. of Parks and Recreation)
Donner Memorial State Park (California Dept. of Parks and Recreation)
Eldorado National Forest
Folsom Lake State Recreation Area (California Dept. of Parks and Recreation)
Tahoe National Forest
USFS Lake Tahoe Basin Management Unit
Various CA Dept. of Fish and Game holdings
Various US Bureau of Land Management holdings

Plumas FLA:

Plumas National Forest
Lassen National Forest
Crocker Meadows Wildlife Area (California Dept. of Fish and Game)
Lassen Volcanic National Park
Plumas-Eureka State Park (CA Dept. of Parks and Recreation)
Tahoe National Forest
Toiyabe National Forest
Warner Valley Wildlife Area (California Dept. of Fish and Game)
Various US Bureau of Land Management holdings

Sacramento FLA:

Folsom Lake State Recreation Area (CA Dept. of Parks and Recreation)
Lower Sherman Island Wildlife Area (California Dept. of Fish and Game)
McClellan Air Force Base (US Air Force)
Mather Air Force Base (US Air Force)
Sacramento Army Depot (US Army)
Stone Lakes National Wildlife Refuge (US Fish and Wildlife Service)
Various California Dept. of Fish and Game holdings
Various California Dept. of Parks and Recreation holdings
Various US Bureau of Land Management holdings
Various State Lands Commission holdings

San Bernadino FLA:

Edwards Air Force Base
George Air Force Base
Norton Air Force Base
Angeles National Forest
Fort Irwin (US Army)
Camp Cady Wildlife Area (California Dept. of Fish and Game)
West Mojave Desert Ecological Reserve (California Dept. of Fish and Game)
Chino Hills State Park (California Dept. of Parks and Recreation)
Twentynine Palms Marine Corps Base
China Lake Naval Weapons Center
San Bernardino National Forest
Afton Canyon ACEC (US Bureau of Land Management)
Big Morongo Canyon ACEC (US Bureau of Land Management)
Bigelow Cholla Garden Wilderness Area (US Bureau of Land Management)
Bighorn Mountains Wilderness Area (US Bureau of Land Management)
Black Mountain ACEC (US Bureau of Land Management)
Bristol Mountains Wilderness Area (US Bureau of Land Management)
Cadiz Dunes Wilderness Area (US Bureau of Land Management)
Calico Early Man Site ACEC (US Bureau of Land Management)
Chemehuevi Mountains Wilderness Area (US Bureau of Land Management)
Christmas Canyon ACEC (US Bureau of Land Management)
Cleghorn Lakes Wilderness Area (US Bureau of Land Management)
Cronese Basin ACEC (US Bureau of Land Management)
Dead Mountains Wilderness Area (US Bureau of Land Management)
Eriophyllum Preserve ACEC (US Bureau of Land Management)

Golden Valley Wilderness Area (US Bureau of Land Management)
Grass Valley Wilderness Area (US Bureau of Land Management)
Harper Dry Lake ACEC, Hollow Hills Wilderness Area (US Bureau of Land Management)
Juniper Flats ACEC (US Bureau of Land Management)
Kelso Dunes Wilderness Area (US Bureau of Land Management)
Manly Peak Wilderness Area (US Bureau of Land Management)
Marble Mountains Wildlife Area (US Bureau of Land Management)
Mesquite Hills ACEC (US Bureau of Land Management)
Mesquite Wilderness Area (US Bureau of Land Management)
Mojave Fishhook Cactus ACEC (US Bureau of Land Management)
Newberry Mountains Wilderness Area (US Bureau of Land Management)
North Mesquite Mountains Wilderness Area (US Bureau of Land Management)
Old Woman Mountains Wilderness Area (US Bureau of Land Management)
Pahrump Valley Wilderness Area (US Bureau of Land Management)
Pisgah Lava Flow ACEC (US Bureau of Land Management)
Piute Mountains Wilderness Area (US Bureau of Land Management)
Rodman Mountains Wilderness Area, (US Bureau of Land Management)
Salt Creek Pupfish/Rail ACEC (US Bureau of Land Management)
Santa Ana Wash ACEC (US Bureau of Land Management)
Sheephole Valley Wilderness Area (US Bureau of Land Management)
Soggy Dry Lake ACEC (US Bureau of Land Management)
Squaw Spring ACEC, (US Bureau of Land Management)
Stateline Wilderness Area (US Bureau of Land Management)
Trilobite Wilderness Area (US Bureau of Land Management)
Trona Pinnacles ACEC (US Bureau of Land Management)
Turtle Mountains Wilderness Area (US Bureau of Land Management)
West Mojave Saltbush Research ACEC (US Bureau of Land Management)
Whipple Mountains Wilderness Area (US Bureau of Land Management)
Death Valley National Park
Joshua Tree National Park (including Joshua Tree Wilderness)
Mojave National Preserve (US National Park Service)

San Luis Obispo FLA:

Los Padres National Forest
Atascadero Regional Park (San Luis Obispo Co.)
Big Sandy Wildlife Area (California Dept. of Fish and Game)
Camp Roberts (National Guard)
Carrizo Plain ACEC (US Bureau of Land Management)
Carrizo Plain Ecological Reserve (California Dept. of Fish and Game)
El Chorro Regional Park (San Luis Obispo Co.)

Elkhorn Plains Ecological Reserve (California Dept. of Fish and Game)
Hearst San Simeon State Historical Monument (California Dept. of Parks and Recreation)
Lopez County Recreation Area (San Luis Obispo Co.)
US Bureau of Land Management
Montana De Oro State Park (California Dept. of Parks and Recreation)
Morro Dunes Ecological Reserve (California Dept. of Fish and Game)
Morro Rock Ecological Reserve (California Dept. of Fish and Game)
Nacimiento County Recreation Area (San Luis Obispo Co.)
Nipomo Regional Park (San Luis Obispo Co.)
Pismo Dunes State Vehicular Recreation Area (California Dept. of Parks and Recreation)
Pismo Lake Ecological Reserve (California Dept. of Fish and Game)
Pismo State Beach (California Dept. of Parks and Recreation)
San Simeon State Beach (California Dept. of Parks and Recreation)
Santa Margarita Lake County Park (San Luis Obispo Co.)
Whale Rock County Recreation Area (San Luis Obispo Co.)

Santa Barbara FLA:

Bitter Creek National Wildlife Refuge (US Fish and Wildlife Service)
Burton Mesa (Santa Barbara Co.)
Carpinteria Salt Marsh Reserve (State Lands Commission)
Coal Oil Point Reserve (State Lands Commission)
Los Padres National Forest
Gaviota State Park (California Dept. of Parks and Recreation)
Goleta Slough Ecological Reserve (California Dept. of Fish and Game)
La Purisima Mission State Historic Park (California Dept. of Parks and Recreation)
Sedgwick Ranch Reserve (State Lands Commission)
University of California Santa Barbara (State Lands Commission)
Vandenberg Air Force Base (US Air Force)
Various US Bureau of Land Management holdings
Various State Lands Commission holdings

Shasta FLA:

Ahjumawi Lava Springs State Park (California Dept. of Parks and Recreation)
Battle Creek Wildlife Area (California Dept. of Fish and Game)
Castle Crags State Park (California Dept. of Parks and Recreation)
Shasta-Trinity National Forest
Cinder Flats Wildlife Area (California Dept. of Fish and Game)

Lassen National Forest
Lassen Volcanic National Park
Latour State Forest (California Dept. of Forestry & Fire Protection)
McArthur-Burney Falls Memorial State Park (California Dept. of Parks and Recreation)
McCloud River Preserve (California Dept. of Fish and Game)
Mouth of Cottonwood Creek Wildlife Area (California Dept. of Fish and Game)
Lassen National Forest
Whiskeytown Unit of Whiskeytown-Shasta-Trinity National Recreation Area (US National Park Service)
Various US Bureau of Land Management holdings

Sierra FLA:

Antelope Valley Wildlife Area (California Dept. of Fish and Game)
Tahoe National Forest (including Babbitt Peak Research Natural Area)
Hallelujah Junction Wildlife Area (California Dept. of Fish and Game)
Plumas National Forest
Smithneck Creek Wildlife Area (CA Dept. of Fish and Game)
Toiyabe National Forest
Various US Bureau of Land Management holdings

Siskiyou FLA:

Klamath National Forest
Modoc National Forest
Butte Valley Wildlife Area (California Dept. of Fish and Game)
Shasta-Trinity National Forest
Horseshoe Ranch Wildlife Area (California Dept. of Fish and Game)
Lava Beds National Monument (US National Park Service)
Lower Klamath National Wildlife Refuge (US Fish and Wildlife Service)
Various CA Dept. of Fish and Game holdings
Six Rivers National Forest
Rogue River National Forest
Shasta Valley Wildlife Area (California Dept. of Fish and Game)
Siskiyou National Forest
Tule Lake National Wildlife Refuge (US Fish and Wildlife Service)
Various US Bureau of Land Management holdings

Tehama FLA:

Battle Creek Wildlife Area (California Dept. of Fish and Game)
Lassen National Forest
Mendocino National Forest
US Bureau of Land Management (including Ishi Wilderness Area)
Lassen Volcanic National Park
Mouth of Cottonwood Creek Wildlife Area (California Dept. of Fish and Game)
Shasta-Trinity National Forests
Tehama Wildlife Area (California Dept. of Fish and Game)
State Lands Commission
Various US Bureau of Land Management holdings

Trinity FLA:

Shasta-Trinity National Forest
Mendocino National Forest
Klamath National Forest
Six Rivers National Forest
Various US Bureau of Land Management holdings
Whiskeytown Unit of Whiskeytown-Shasta-Trinity National Recreation Area (US National Park Service)
Various State Lands Commission holdings

Tulare FLA:

Allensworth Ecological Reserve (California Dept. of Fish and Game)
Inyo National Forest
Blue Ridge ACEC (US Bureau of Land Management)
Blue Ridge Condor Ecological Reserve (California Dept. of Fish and Game, State Lands Commission)
Blue Ridge National Wildlife Refuge (US Fish and Wildlife Service)
Chimney Peak Wilderness Area (US Bureau of Land Management)
Sequoia National Forest
Kaweah River Brodiaea Ecological Reserve (California Dept. of Fish and Game)
Owens Peak Wilderness Area (US Bureau of Land Management)
Pixley National Wildlife Refuge (US Fish and Wildlife Service)
Sacatar Trail Wilderness Area (US Bureau of Land Management)
Sequoia and Kings Canyon National Parks
Springville Clarkia Ecological Reserve (California Dept. of Fish and Game)
Various US Bureau of Land Management holdings

Tuolumne FLA:

Inyo National Forest
Stanislaus National Forest
Calaveras Big Trees State Park (California Dept. of Parks and Recreation)
El Dorado Manzanita ACEC (US Bureau of Land Management)
Red Hills ACEC (US Bureau of Land Management)
Toiyabe National Forest
Yosemite National Park
Various US Bureau of Land Management holdings

Yuba FLA:

Beale Air Force Base (US Air Force)
Plumas National Forest
Daugherty Hill Wildlife Area (California Dept. of Fish and Game)
Feather River Wildlife Area (California Dept. of Fish and Game)
Spenceville Wildlife Area (California Dept. of Fish and Game)
Tahoe National Forest

**CALIFORNIA BIOREGIONS
(CERES BIOREGIONS)**

[To be inserted in Appendix S]

Source: California Environmental Resources Evaluation System, 1997

CALIFORNIA FOREST LEGACY PROGRAM

ASSESSMENT OF NEED AMENDMENT

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