

Glenn County Community Wildfire Protection Plan

Glenn County Resource Conservation District

2011



The Glenn County Community Wildfire Protection Plan was developed as a means of describing current fire related conditions within Glenn County, identifying public and private assets at risk from wildfire, and assessing currently in-place infrastructure developed in order to protect those assets.

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Section 1: INTRODUCTION

Human-Wildland Interactions and Communities at Risk within Glenn County

Introduction. Throughout Glenn County and in California as a whole, communities adjacent to and within the state's wildlands have experienced growth and an increase in public access and use. Development in these areas has taken a number of forms. Remote residences and areas of development are often created without many of the infrastructure components and fire safety features that are integral to fire protection. Significant among these deficiencies are insufficient access on two lane roads for ingress and egress of firefighting equipment, inadequate water supply systems, and the presence of mobile homes as residences on many small rural parcels. Considering that mobile homes are often installed with little or no vegetation removal, this type of residence is at an increased risk for flash fires.

Communities at Risk. In Glenn County, remote communities and residences at risk from fires originating from wildlands are primarily located within the county's grasslands and oak woodlands. Such remote communities include Elk Creek, Chrome, the Grindstone Rancheria, Newville, and Stonyford, which is located just south of the Glenn/Colusa County line. Additional scattered development of individual homes and other domestic structures are found within the Mendocino National Forest (MNF) and include Sky Hi, Keeran Camp, El Manzano Rancho, Snow Basin, Jenks Camp, Garnett Camp, Cabin Tract, and Lee Logan Camp. In addition, a number of federal and state owned facilities are located at Alder Springs. In terms of wildfire threat, these areas of rural development have been described as points where the fuel feeding a wildfire changes from natural (wildland) to manmade fuel, such as structures, crops, and urban debris. On page 2, "Figure A: WUI Areas" shows these "wildland-urban interface" (WUI) locations in red with Glenn County in the center of the frame. This intermingling of wildland and manmade fuel has made the control of wildland fires more difficult and costly. It has also dramatically increased the danger and potential destruction caused by wildfire.

Much of the western region of the Glenn County CWPP's planning area is steep and rocky, making construction difficult if not impossible. This physical characteristic of the Westside has focused much of the current development and residences on areas that are relatively flat.

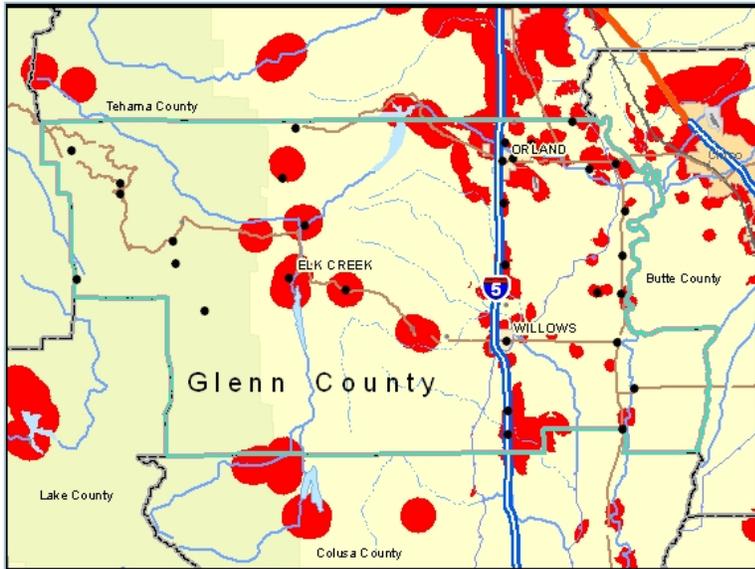


Figure A: WUI Areas

During large wildfire events, widely scattered residences and development requires firefighting forces to disperse in order to protect isolated structures. As a result, manpower and other resources necessary to initiate attack on a fire front are difficult to organize, allowing fires the potential to spread and build in intensity much more rapidly. In addition, this dispersal of development makes rescue and evacuation efforts during such emergencies more difficult, dangerous, and time consuming. Of equal importance is

that scattered rural development patterns make the efficient use of prescribed burning at a landscape scale more expensive and risky. Smoke from prescribed burns can damage homes, and escape of these burns can destroy remote residences and at-risk communities, thus increasing the cost of liability claims made against land management entities. The level of fire threat for Glenn County as determined by CAL FIRE's Fire and Resource Assessment Program (FRAP) is shown on Figure B appearing on page 4 following this section. The fire threat methodology examines a combination of two factors: 1) fire frequency, or the likelihood of a given area burning, and 2) potential fire behavior (hazard). These two factors are combined to create four threat classes ranging from nonfuel or low threat (yellow on the map), to moderate (light orange), high (orange), and very high (red).

Other significant wildfire issues. In addition to the fire threats facing WUI areas within Glenn County, several other significant wildfire issues confront Glenn County residents. Among these are highly flammable invasive fuels (*Arundo donax* and Tamarisk) along the Lower Stony Creek stream channel from Black Butte Lake to the Sacramento River. This dense vegetation threatens both the urban core of the Orland community as well as the Highway 32 corridor to the east. Urban development, farms, and ranches located along the stream channel to the west of Orland are threatened as well. Finally, high vegetative fuel levels are found along the Sacramento River corridor and within the U.S. Fish and Wildlife Service (USFWS) Sacramento National Wildlife Refuge (SNWR) located just south of Willows, a condition that threatens structures and communities within the eastern and southern portions of Glenn County.

Executive Summary and Problem Overview

Introduction. Societal pressures make increasing demands upon the environment. Expansion of residences and urban areas into natural landscapes, along with the increased utilization of natural resources, requires the control of environmental interactions that have developed over millennia. As a result, natural processes can be pushed out of balance. The hazard from wildfire exemplifies the dramatic effect that human occupation has had on the environment. In order to more intensively utilize landscapes and the resources they contain, wildfire has in the recent past been largely excluded from western landscapes. However, this control has impacted the equilibrium between fire and vegetation. It has also indirectly affected other natural systems such as hydrologic and wildlife interactions. In many areas affected by human influence, stands of live and dead vegetation have developed to unnatural levels. Now, when wildfires occur, their intensity and the severity with which they affect landscapes are often extreme.

Hazardous fuel conditions. A large portion of Glenn County, like much of Northern California, is at very high risk of experiencing catastrophic wildfire. The county's Westside area is largely rural or in the wildland/urban interface between urban development and those lands managed for ranching, timber production, open space, and watershed resources. Over the past 90 years, many of these areas have developed high levels of fuel loading due to aggressive fire suppression on both public and private lands. These high fuel loads have increased the potential for large wildfires that could destroy an array of natural resources and cause millions of dollars in damage to public and private property. The problem of hazardous fuel conditions continues to grow each year as more people move into and utilize the area's grasslands, oak woodlands, and chaparral. Greater recreational use of Mendocino National Forest (MNF), Bureau of Reclamation (BOR), and Bureau of Land Management (BLM) parcels located at the westernmost edge of the Glenn County fire planning area has also contributed to an increase in the threat of wildfire on these public lands and on adjacent private parcels.

Community Wildfire Protection Plan. The Glenn County CWPP was developed as a means of describing current fire related conditions within Glenn County, identifying public and private assets at risk from wildfire, and assessing currently in-place infrastructure that has been developed in order to protect those assets. The plan document also provides background information necessary for local organizations to obtain grants and secure funding for future fuel reduction projects and other mitigation measures. The study area extent for the Glenn County CWPP is discussed further in the following sections.

SEE 11X17 FOLDOUT MAP TITLED "FIRE THREAT" AS FIGURE B

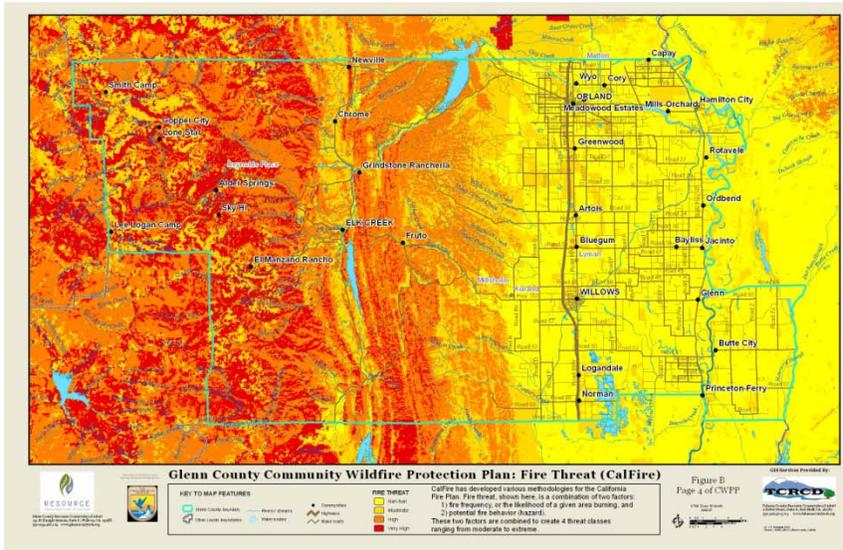


Figure B: Fire Threat

Section 2: OVERVIEW AND OBJECTIVES

Introduction

Increasing wildfire threats. As a member of the Tehama-Glenn Fire Safe Council (TGFSC), the Glenn County Resource Conservation District (GCRCD) has expressed concern about the increasing threat of wildland fire throughout Glenn County attributable to continually increasing volumes of wildland fuels together with increasing development on public and private lands. GCRCD is also cognizant of the increasing cost to fight wildfires and the need to plan, develop, and conduct fire and fuels management projects. These cost increases are impacting the financial well being of federal, state, and local government entities and are having a negative impact on the continued implementation of important resource protection work.

CWPP. The Glenn County CWPP was modeled after the California Fire Plan Workgroup's March 2004 version of the "Community Fire Plan Template," otherwise known as the Community Wildfire Protection Plan. The Glenn County CWPP is a working document that will need to be updated in order to remain relevant. To accomplish this, a yearly review of changes in the Westside area's assets at risk and wildfire protection infrastructure will be made by the CAL FIRE pre-fire engineering staff, members of the Tehama-Glenn Fire Safe Council, stakeholders involved in the development of the Glenn County CWPP, and staff from GCRCD. Through this process of updating the plan's content, information about local fire conditions can be kept current, resulting in better decision making by both landowners and agency personnel. In addition, the CWPP provides background information pertaining to the Glenn County area that will be useful to local stakeholders in preparing site and agency specific fire plans and in preparing grant applications for future fire management and fuels reduction projects.

Broadly Based Policies and Plans

At-Risk Communities. In an attempt to reduce the effects of wildfire upon urban areas, federal fire managers authorized State Foresters to determine which communities adjacent to federal lands were exposed to a significant threat from wildland fire originating on public property. CAL FIRE undertook the task of generating a list of at-risk communities showing developed areas in California not within the immediate vicinity of National Forests and BLM properties. In developing

the California list, CAL FIRE assessed all areas of the state, regardless of ownership. Three main factors were used to determine fire threats to WUI areas:

- Fuel hazard ranking (ranking vegetation types by their potential fire behavior during a wildfire)
- Assessing the probability of fire (the annual likelihood that a large damaging wildfire would occur within a particular vegetation type)
- Assessing housing densities in WUI areas (areas where humans and their development meet or intermix with wildland fuels)

Out of this statewide assessment, a list of 1,283 fire threatened communities was developed. Of these threatened communities, 843 were found to be adjacent to federal lands. The table below lists these officially recognized communities that are within Glenn County. The Hazard Level Code shown designates a community's fire threat level, with 3 indicating the highest level of threat. The location of these three communities is shown on "Figure A: WUI Areas" found on page 2 of this document.

*Officially Recognized Communities at Risk
Within Glenn County¹.*

Community Number	Community Name ¹	Federal Threat ²	Hazard Level ³
350	Elk Creek	X	3
813	Orland		2
1212	Willows		2

1. The communities of Artois, Chrome, Butte City, Glenn, Grindstone Rancheria, and Hamilton City are also significant population centers within the Glenn County CWPP area. Although not currently on the National Registry of Fire Threatened Communities, these populated areas were determined to be possibly at risk by CAL FIRE during development of the 2011 Tehama-Glenn Unit Fire Management Plan.

2. Federal Threat Code "X" indicates some or all of the wildland fire threat to the community comes from federal lands (e.g. US Forest Service, BLM, or Department of Defense).

3. Hazard Level Code indicates the fire threat level, with 2 denoting moderate threat and 3 denoting high threat.

Federal, State, and Local Fire Threat Mitigation Policies and Plans. In addition to identifying communities at a significant risk from wildfires, an array of fire policies, planning efforts, and program initiatives have been developed to improve the current fire situation. These policies and plans developed by all levels of government direct the management of fire and fuels within the Glenn County CWPP project area. At the same time, an array of programs and legislative actions have been developed at the federal, state, and local levels to translate these policies into direct impacts on fire threatened communities and landscapes. These policies, planning efforts, project implementation programs, and legislative actions are described in detail in the appendices to this document beginning on page 89.

Glenn County CWPP Objectives

Project Background. Between 2005 and 2007, CWPP's were developed for eastern and western Tehama County by the TCRC. The completion of these documents led to discussions between GCRCD, TGFSC, and TCRC regarding the benefits that have accrued to Tehama County as a result of these planning efforts. In late 2009 the GCRCD submitted an application to the California Fire Safe Council Grants Clearinghouse for funding of a CWPP for Western Glenn County, which was approved for funding in January of 2010. During March of that year, a contract was executed between the GCRCD and TCRC in order to procure technical assistance in the preparation of the Glenn County CWPP. A Technical Advisory Committee (TAC) and Landowner/Community Advisory Committee (L/CAC) were developed in the spring of 2010. Approved by the TAC and L/CAC, the planning area was expanded to encompass other portions of Glenn County: the Lower Stony Creek riparian corridor between Black Butte Dam and the Sacramento River, the Sacramento River corridor within Glenn County, and the SNWR lands in the south central portion of the county, as shown in green on the map below labeled "Figure C: Project Area Overview."

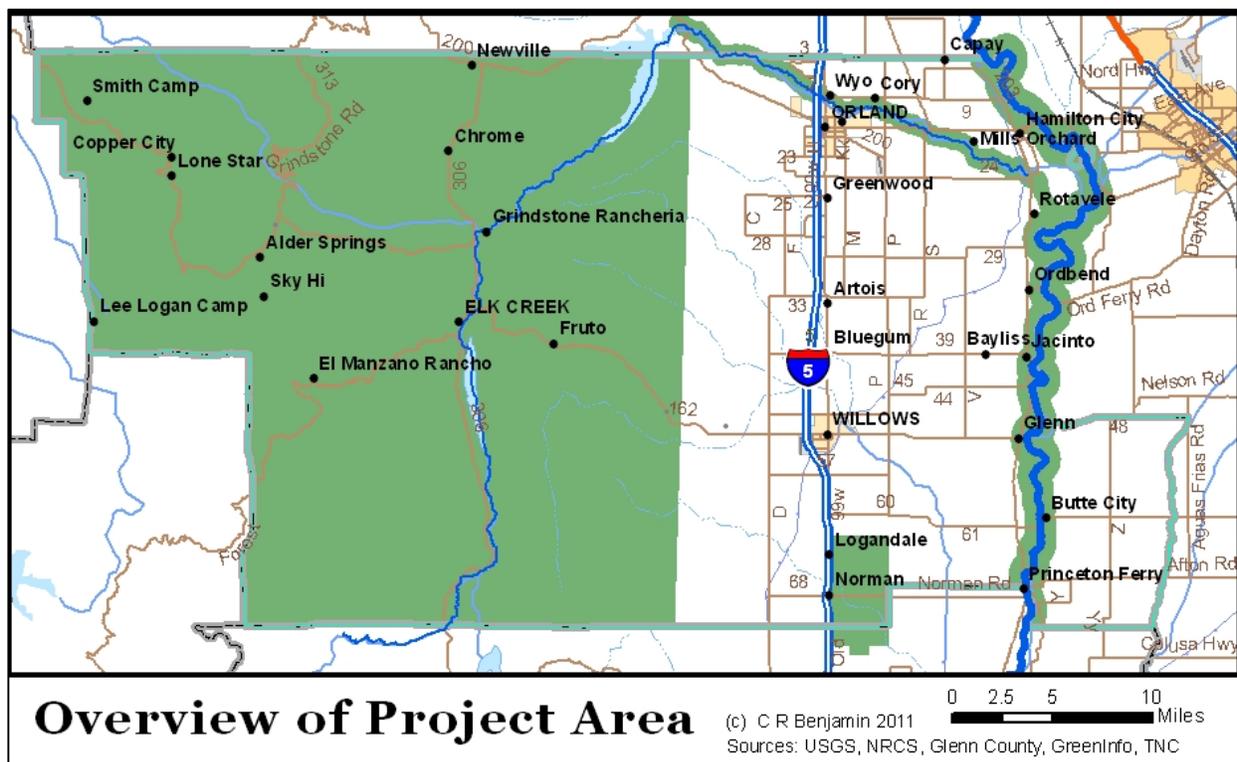


Figure C: Project Area Overview

Goals. The Glenn County CWPP was developed with the following goals in mind:

- Assist stakeholders and communities in identifying and prioritizing areas for hazardous fuel reduction treatments on federal lands and in determining the types and methods of treatment that, if completed, would reduce the risk to the communities.
- Assist stakeholders, communities and landowners in identifying and prioritizing areas for voluntary hazardous fuel reduction treatments on private lands utilizing either public or private project dollars. This assistance also includes determining the types and methods of treatment that, if completed, would reduce the risk to the private lands and communities.
- In a collaborative manner, using an array of local stakeholders, create a regional CWPP that assesses fire related ecosystems and addresses fire related issues and needs on a landscape basis, regardless of political and administrative boundaries.
- Obtain agreement on the contents of the plan by local and state fire agencies.
- Provide comprehensive wildland fire planning and prioritization of project work that focuses on the protection of at-risk communities and watersheds, or that implement recommendations developed in the planning process and listed in the CWPP.
- Provide a mechanism for federal agencies to provide leadership in the fire planning process and give meaningful consideration to community priorities, and incorporate these federal efforts in the CWPP.
- Open community debate regarding management options.
- Provide communities with maximum flexibility for determining the substance and detail of their plans.
- Merge the goals and objectives of the landowners with the needs and expectations of the community regarding fire risk reduction.
- Coordinate fire protection strategies across property boundaries.
- Improve the natural systems within the county that have developed within fire based landscapes, including:
 - Improved forage and habitat for wildlife;
 - Increased stream flows and ground water yields; and
 - The development of more natural ecosystems containing native plants that have adapted to fire.
- Protection of lands whose primary purpose is for the production of environmental resources, including recreational opportunities.
- Provide funding priority to projects and activities identified in the CWPP and coordinate the grant funding and federal program budgets to achieve the most effective results utilizing limited funding.

- Assist in the identification and federal listing of communities at risk of wildfire.
- Identify structures at risk from wildfire, as well as shortcomings in local, county, and state development and building codes.

Priorities. Based upon input from local stakeholders as well as objectives of this CWPP, the top priority is the protection of residents and firefighters, as well as public and private property. To address these priorities, proposed project work and initiatives has been ranked in significance as follows:

- Projects that provide immediate and direct impact on the threat and intensity of wildfires, such as fuel breaks and fuel reduction projects;
- Projects that result in improvements to firefighting and fire protection infrastructure, including access for firefighting forces, egress of residents, water storage, and water delivery system upgrades;
- Projects that involve regulatory matters, such as changes in laws, ordinances, and codes that relate to fire safety and fire management; and
- Projects that entail planning endeavors, such as the development of a coordination plan for maintenance and vegetation management projects along Highway 162, County Road 306, and Lower Stony Creek, including development of long term funding sources.

Description of Processes and Methodology

Technical and Landowner/Community Stakeholder Input Processes. The Glenn County CWPP has been designed to allow the incorporation of significant professional and community input into the planning process. To accomplish this, a TAC and L/CAC were established. Members of the TAC included staff from USFWS, USFS MNF, BLM, BOR, Natural Resources Conservation Service (NRCS), CAL FIRE, the City of Orland, local fire departments, Glenn County Planning Department, and California State University Chico, along with GCRC and TCRC, listed in the tables beginning on page 14. The L/CAC group consisted of residents and landowners located within the Glenn County CWPP planning area. TAC members provided guidance and rigorous technical review of the planning processes used, reviewed the plan itself, and considered the feasibility of measures designed to implement the plan's recommendations. The L/CAC allowed for residents and private landowners to voice their concerns, provide background information, help shape the direction of the planning document, and review the plan itself.

Stakeholder Meetings. Three TAC and L/CAC meetings were held during the development of the Glenn County CWPP. The initial TAC meeting was used to develop an initial set of issues and to gather resource information. A second meeting was held midway through the planning process in order to refine this information and

further shape the technical direction of the plan. A final meeting allowed for a review of the draft document in preparation for production of the final plan. The initial L/CAC meeting was held as a means to introduce the project to Glenn County residents, identify community concerns, gather information regarding the planning area, and allow community input into development of the planning processes to be used. A second meeting was held in order to communicate initial results from the planning process and to receive stakeholder input that was used in the development of conclusions, recommendations, implementation measures, and specific project work scopes. A final meeting was held prior to preparation of the final planning document in order to gather final refinements, corrections, and recommendations to the plan's content. A summary of these L/CAC meetings is included in Appendix A beginning on page 89. The final planning document will be submitted to CAL FIRE and the Glenn County Board of Supervisors for their approval and certification as a formal Community Wildfire Protection Plan. In order to assure wide distribution of the information contained in the plan, copies will be distributed to public agencies, the academic community, public libraries, and the general public. The document will also be posted on the GCRC and TCRC websites.

Planning Methodology. The methodology used in developing the Glenn County CWPP has consisted of the following steps:

- Collect available information for the project area pertaining to the natural and developed environment, fire hazards, wildland fuels, assets at risk, and local fire policies, as well as currently in-place fire protection features and infrastructure, in written, digital, and GIS formats. Include planning area demographics, ecological communities, topography, hydrology, fuel types, community infrastructure, and fire history. Also, collect information pertaining to fire related regulations, along with agency policies that impact land management and fire project implementation within Glenn County.
- Locate existing fuel reduction projects that have been planned, are in process, or have been completed within Glenn County.
- Obtain input from local landowners, land managers, and other stakeholders regarding undocumented assets at risk and fire protection infrastructure.
- Verify fuel types, assets at risk, and project work related to fire management and fuels reduction efforts.
- Develop maps that identify fuel types, assets at risk, and fire protection infrastructure that is planned, in process, or in place throughout Glenn County.
- With stakeholder input, assess information pertaining to at-risk assets and fire protection infrastructure in order to develop projects and strategies to improve the protective capacities within Glenn County.
- Develop a list of recommendations for fuel reduction and fire safety projects. Encourage ongoing maintenance of in-place projects in order to protect the network of fire protection infrastructure. Identify funding sources and landowner assessment opportunities for project development and maintenance.

The Glenn County CWPP has been developed using current fire management data obtained from CAL FIRE, FRAP, USFS, and other public and private organizations. Recommended fuel reduction project locations have been developed from a combination of analyses using existing geographic information; consultations with fire professionals of the CAL FIRE, USFS, BLM, and Glenn County Fire Department; members of the TGFSC; and meetings with local landowners and other private land stakeholders.

Summary of Fire and Fuel Risk Strategy and Development of Mitigation Projects

Introduction. The problems facing Glenn County in connection with the threat of damaging wildfire is multifaceted. In addition to endangering the lives of residents and firefighters as well as public and private property, these wildfires threaten the economy and natural resources of the Westside area, and Glenn County as a whole. Efforts to protect the residents and resources of the area come at a considerable public expense. In order to reduce the occurrence and negative impacts of wildfire, solutions to the problem must be multifaceted as well. Development of measures to reduce both wildfire risk and the impact of fire on local landscapes is a significant component of the Glenn County CWPP. These mitigation measures take a number of forms, from very specific and localized to broadly based, countywide efforts. They also range from basic “on the ground” fuels manipulations to landscape scale planning efforts, including changes to state and local laws that have a negative impact on fire hazard and fire safety conditions within Glenn County. Among these projects are those that are simply proposed for funding or are in the early stages of design. Some of the project and initiative proposals involve efforts that are in process or completed but can be expanded, redesigned, or continued in order to improve the fire and fuels management situation in Glenn County.

Project Categories. The projects that have been considered during the fire planning process or proposed in this planning document generally fall into three categories: organizational improvements, infrastructure development and improvement, and fuels reduction/vegetation manipulation. Projects in the organizational improvement category included improvements in the structure and organization of those entities that provide fire protection services. Also included are efforts to improve the organization and operation of nongovernmental entities that develop, promote, and advocate for changes in the human environment that impact fire related issues. In Glenn County, these types of nongovernmental entities include the TGFSC, GCRC, and community advocacy organizations. With regard to infrastructure development and improvement, projects include construction and improvement of those manmade features that provide fire safety and fire control. Fuels reduction and vegetation manipulation projects are efforts that attempt to impact the current arrangement

and composition of vegetation and manmade fuels at a single location or throughout an entire landscape.

More specifically, the project initiatives developed and proposed in the Glenn County CWPP involve one or more types of project work. Among these are fuels reduction and manipulation. This category of mitigation effort entails some form of vegetation management, which normally has the most immediate impact on fire behavior and intensity. Included are simple fuels reduction projects over large areas or the development of fuel breaks that will significantly impact a potential wildfire in a very specific manner. These reductions in hazardous fuels must be completed in a strategic manner that first addresses wildfire threats to important at-risk assets. In addition, restoring natural fire regimes to maintain only low intensity blazes throughout the county would be desirable. However, current residential development within the Glenn County's wildland areas prevents the widespread reincorporation of naturally occurring wildfire back into the county's landscapes. A combination of methods utilizing fire, mechanical treatments, and chemicals as control mechanisms are recommended in order to maintain a fire safe environment within the confines of urban development. Of equal importance is the establishment of financing mechanisms to maintain fuel breaks and other fuel maintenance projects once these have been completed. Currently, grant funding is used extensively to develop fire control and fuels reduction projects. These sources can sometimes be unreliable in providing long term funding for upkeep of these infrastructure improvements.

End Products of Fire Planning. Through the Glenn County CWPP process, a considerable amount of knowledge and insight has been developed regarding the natural and manmade resources found within Glenn County. The process has also shed useful light on the threats from catastrophic wildfire facing the area's communities and resources. In addition, a number of tangible end products have been developed which are expected to aid in future efforts to better manage wildfires and to reestablish more natural, beneficial fire regimes within the county's landscapes, including the following:

- A CWPP covering 840,959 acres of grasslands, chaparral, oak woodlands, forest land and riparian areas located throughout Glenn County. The planning process follows the California Fire Alliance template for preparing Community Wildfire Protection Plans. Out of this planning effort, a number of improvements to the local wildfire situation have been addressed.
- Improved efficiency in the use of fire management resources between partners with common goals that outline collaborative efforts among partners.
- Identification, cataloging, and risk assessment of various natural and manmade assets at risk from wildfire.
- Identification and cataloging of in-place measures to protect these assets and determine their vulnerability.
- Identification and assessment of gaps and shortcomings in protective measures, and development of improvements and additions to increase effectiveness in protecting at risk assets.

- Determination of the westside community WUI area's accuracy, and if necessary modification of boundaries in order to focus financial and other resources to those urban areas at greatest risk of wildland fire.
- Identification of methods to improve current protection measures to a degree of detail that would expedite the preparation of work scopes.

Multi-County Map of Fire Related Projects. In order to facilitate the planning process for individuals, independent managers, community groups, and local and regional governmental agencies, TCRCD, GCRCD, and CAL FIRE have gathered fire related project information for Tehama, Glenn, and Shasta Counties. Project work is represented on separate online maps by individual project numbers. Related project information can be viewed in the project's database file. Both the maps and database can be found on the TCRCD website located online at this URL:

<http://www.tehamacountyrcd.org/programs/fire2.html>

In order to keep the maps and related database updated each year, TCRCD staff work closely with CAL FIRE pre-fire engineering staff in gathering current information related to new fire and fuels management projects and in determining progress on in-process work and completed projects. In addition to being incorporated into the digital maps and database, this project information will be incorporated into the yearly update of the CAL FIRE Tehama-Glenn Unit Fire Plan. This information will also be used in updating the Glenn County CWPP as well as those prepared for the Tehama West and Tehama East areas. Using the spatial project information shown on these maps, project planners can visually demonstrate the relationship between their proposed project and those that are in the planning process, in progress, or completed. This information is expected to help those conducting fuels reduction work to demonstrate the value of their projects as they relate to other fuels reduction efforts, thus improving the potential for project approval or funding. Through the combined efforts of various land management entities in reducing fuel hazards, landscape scale protection of area resources can be achieved. The planning documents, risk assessment process, and the online map of fire management projects are expected to result in the following outcomes:

- *Improved Fire Regime Condition Class*. This outcome is expected to occur as stakeholders implement prescribed fire and other fuels treatments identified in the CWPP. In addition, new projects will be developed which will improve wildfire protection and management within the planning area.
- *Reduced hazardous fuels and associated fire risk*. This outcome is expected to be attained as an increased number of acres are treated for hazardous fuels and associated fire risks, including fuel breaks around at-risk communities.
- *Fewer community assets destroyed in wildfires*. The achievement of this outcome is tied to an improved wildfire response plan, reduced hazardous fuels, and improved Fire Regime Condition Class. This will be tracked via CAL FIRE data on wildfire incidents.

- *Improved long-term sustainability of watershed function.* This outcome will be achieved when environmental characteristics such as rates of erosion and invasion of non-native species are reduced. Non-native species frequency is being monitored by partners involved in rangeland and watershed management.

Community Fire Plan Stakeholders. The following decision makers have convened in order to develop the Glenn County CWPP and to assure its relevance as a tool for local fire and fuels management efforts:

- *Local Government.* The Glenn County Board of Supervisors has provided approval of the CAL FIRE Tehama-Glenn Unit Plan, which is the umbrella document under which this county level fire planning document is incorporated. Based upon the planning processes established by CWPP procedures, approval of the Unit Plan results in approval of more focused planning efforts once they are certified by CAL FIRE personnel.
- *Local Fire Chiefs.* The following Fire Agency Chiefs have reviewed and provided local fire agency approval of the Glenn County CWPP and its related components:

CAL FIRE
Jeff Schori, Unit Chief

Elk Creek Fire Department
Steve Carpenter, Fire Chief

Kanawha Fire District
Roger Steinhoff, Fire Chief

Orland Fire Department
Jeff Comes, Fire Chief

Willows City Fire Department
Wayne Peabody, Fire Chief

Project Work Group - TAC Members and Stakeholders. The following public agencies participated in the Glenn County CWPP planning process:

Involved Federal Agencies	Representative
U.S. Forest Service	Daren Dalrymple
U.S. Forest Service	Rick Mowery
U.S. Forest Service	Tou Thor
Bureau of Land Management	Jeff Tunnell
U.S. Fish & Wildlife Service	Miriam Morrill
U.S. Fish & Wildlife Service	Dale Shippelhouse

Involved Federal Agencies	Representative
Natural Resources Conservation Service	Rob Vlach
Bureau of Reclamation	Richard Robertson

Involved State Agencies/Institutions	Representative
CAL FIRE	Herb Love
CAL FIRE	Sean Kavanaugh
California State University, Chico	Don Hankins

Local / County Agencies / Organizations	Representative
City of Orland	Paul H. Poczobut, Jr.
Orland City Council	Bruce Roundy
Elk Creek Volunteer Fire Department	Steve Carpenter
Elk Creek Volunteer Fire Department	Craig Dado
Willows Fire Department	Wayne Peabody
Kanawha Fire District	Roger Steinhoff
Knife River Construction	Mason Richardson
Local Landowner	Jon Biachini
Glenn County Board of Supervisors	Steve Soeth
Glenn County RCD	Jim Giachino
Glenn County RCD ¹	Kandi Manhart
Glenn County RCD ¹	Claudia Street
Tehama County RCD ²	Cathie Benjamin
Tehama County RCD ²	Tom McCubbins

1. Project Manager

2. Project Consultant

Other Supporting Agencies	Representative
Tehama-Glenn Fire Safe Council	Tom McCubbins

Community Participation and Collaboration. The Glenn County CWPP planning process has been funded through a grant provided by the California Fire Safe Council which totaled \$21,887. In-kind contributions from agencies and other sources including the GCRCD have totaled \$15,326. With funding in hand, a group of local fire and fuels management personnel along with the GCRCD have formed a core workgroup which has laid out a strategy to complete project work. The group has met regularly throughout the planning process in order to assure that the requirements for CWPPs were incorporated into all phases of project work. Members of the TGFSC have been canvassed on numerous occasions in order to keep abreast of project work occurring within the fire planning area. Community meetings have been held in Elk Creek in order to garner input from members of the Glenn County community who were not members of the Tehama-Glenn Fire Safe Council. Out of these meetings has come detailed information on local assets at risk of wildfire as well as in-place infrastructure that is used to protect these assets. Discussions with community fire and fuels professionals along with interested community members has yielded ideas and suggestions as to how current fire protection infrastructure could be expanded or improved to better protect local assets.

Section 3: ENVIRONMENTAL REVIEW

Introduction. This section of the fire plan discusses the environmental review protocol pertinent to future project work generated through the Glenn County CWPP process. Except for a small number of high impact projects, it is anticipated that fuels reduction efforts conducted by area stakeholders will require a minimum level of environmental review. This would include an assessment of potential project impacts relative to the Endangered Species Act (ESA), the National Historic Preservation Act (NHPA), and the Migratory Bird Treaty Act (MBTA). As part of this effort, area stakeholders would also need to conduct a review through the California Natural Diversity Database (CNDDDB) to verify findings of Special Status Species within a project area and would need to conduct a literature search of existing information available through the local archaeological clearinghouse (California State University Chico) in order to determine the presence of any archaeological or historic resources within a fuel reduction project site.

During this review process, if a particular Special Status plant or animal species is found or an archaeological or historic resource is discovered at a project site, mitigation would be required that would likely include delaying work to another period of the year or physically working around the particular species or cultural resource. Low impact projects, such as chipping and hand piling, would normally be exempt from environmental review due to the past disturbances resulting from home construction. In all cases, work would stop and a plant or animal survey be conducted if a special status species were found during project work. Archaeological clearance will be necessary where ground disturbing activities are proposed.

Federal Environmental Compliance Process in Project Execution / National Environmental Policy Act. Since January 1, 1970, federal agencies such as the USFS and BLM have been directed by the United States Congress to carry out regulations, policies, and programs in accordance with the National Environmental Policy Act (NEPA). As specified in 42 U.S.C 4322; 40 C.F.R. 1500.2, the act requires projects on federal land that are financed through federal grant funding as well as those occurring on federal lands to have some level of environmental review completed prior to execution of project work. As a result, some of the projects recommended for implementation in this planning document would be subject to the NEPA process. The parameters of this review would be dictated by federal agencies at the time a grant is solicited.

State Environmental Compliance Process in Project Execution / California Environmental Quality Act. The California Environmental Quality Act (CEQA) is a set of laws designed to develop and maintain a high quality environment and prevent environmental damage. CEQA applies to decisions by state and local governmental agencies that carry out or approve projects that have the potential for causing

significant environmental effects. Fire Safe Councils and watershed groups are not governmental agencies with powers granted by the State Legislature or by a local legislative body; consequently, their decisions are not subject to CEQA. If, however, an activity sponsored by such nongovernmental organizations needs approval, financing, or efforts directly undertaken by a state or local public agency, the agency would need to address CEQA compliance with its actions. CEQA compliance responsibility is determined by the state or local public agency in collaboration with the applicant organization and would take the form of a CEQA Exemption, a Negative Declaration, or (on rare occasions) an Environmental Impact Report (EIR).

CEQA Exemptions. After a fuels reduction activity has been determined to be a project subject to CEQA review, the lead public agency involved in the activity determines if the project is exempt under CEQA guidelines. The project may be exempt if it falls into one of the following categories:

- *Statutory Exemption.* This exemption applies to activities specifically identified by the legislature as being exempt from CEQA review and includes burning permits and Air District permits for smoke management.
- *Categorical Exemption.* This form of exemption would apply to projects that have no possible significant effect on the environment and includes minor alterations to land (Article 19, Sec. 15304). This Section specifically exempts fuels reduction activities within 30 feet (or 100 feet if authorized by a local fire protection authority) of a structure.
- *Negative Declarations.* After a fuels reduction activity has been determined to be a project subject to CEQA review and after it has been determined that an exemption is not applicable, the lead public agency may choose to prepare a Negative Declaration if environmental impacts are considered insignificant. This is a written statement based on an Environmental Checklist that describes the reasons that a proposed project will not have a significant effect on the environment and therefore does not require the preparation of an Environmental Impact Report. The Negative Declaration requires a public comment period of 20 days. A Mitigated Negative Declaration may be required if some impacts are deemed significant but can be resolved in the Environmental Checklist rather than in an Environmental Impact Report.
- *Environmental Impact Reports.* Large fuels reduction projects with impacts that cannot be fully addressed in a Negative Declaration must comply with CEQA requirements through the preparation of an EIR. EIRs can be lengthy, expensive and generally involve an analysis of impacts to biological resources, hydrology, air quality, traffic, geology/soils, aesthetics, cultural resources, cumulative impacts, and impacts to other resources as identified through the EIR process. Mitigation measures are developed during the EIR process in order to address impacts created by the projects implementation. Public review and comments are important elements of an EIR. Fuels reduction projects conducted by small landowners generally do not require planning documents subject to CEQA review, unless the project includes removal of timber for commercial sale or involves CAL FIRE or other California public agency

administration and/or support. Large property owners such as timber companies, utilities operations and ranchers or groups of small property owners such as homeowners associations or watershed groups may request the support of the CAL FIRE in conducting fuels reduction projects through the CAL FIRE's Vegetation Management Program (VMP). Resources made available through the VMP program include information on environmental resources in the area that have the potential for being impacted by the project, advice on fuel treatment methods, stand-by fire suppression equipment and manpower, and hand labor for cutting, piling, and burning. The program also provides State indemnification to landowners in the event of a fire escape. CEQA documentation is generally required for each VMP project and is done by CAL FIRE through the preparation of an Environmental Checklist and a Negative Declaration. All CEQA documentation prepared for projects that have received federal funding must be reviewed to ensure the documentation meets the intent of NEPA.

Timber Harvest Plans. Fuels reduction projects in stands of timber may involve the removal of timber or solid wood forest products that landowners may sell in the open market to recover the costs of fuels reduction work or to achieve a profit. Projects may include the creation of a fire line that removes all timber and vegetation, "shaded fuel breaks" where understory vegetation and some dominant trees are removed to create areas of discontinuous fuels, or chipping for biomass on both commercial and non-commercial levels. These projects would involve the use of heavy equipment to remove the timber and transport it out of the forest. Impacts associated with timber harvest operations on private timberlands would be addressed in a Timber Harvest Plan (THP). These plans must be prepared by a Registered Professional Forester (RPF) and must comply with the Rules and Regulations of the California Forest Practice Rules as they apply to THP's. The purpose of the Forest Practice Rules is to implement the provisions of the Z'berg-Nejedly Forest Practice Act of 1973 in a manner consistent with other laws, including among others the Timberland Productivity Act of 1982, CEQA, the Porter Cologne Water Quality Act, and the California Endangered Species Act (ESA). The provisions of these rules must be followed by an RPF in preparing THPs, and by the CAL FIRE Director of Forestry in reviewing such plans. The THP process substitutes for the EIR process under CEQA because the timber harvesting regulatory program has been certified to be "functionally equivalent" to an EIR, pursuant to PRC Section 21080.5. If either CAL FIRE or the Director of Forestry believes that there are significant adverse environmental impacts not covered in existing rules, matters are referred to the Board of Forestry as specified in these rules.

State and Federal Regulatory Streamlining Efforts. The sale of commercial timber that has been harvested during a fuels reduction project can support future fuel reduction needs through establishment of a trust fund. Monies obtained through the sale of the timber can be used for the future maintenance of a fuel break or for the control of understory vegetation over time. This may be a viable tool for some communities in which many small landowners are involved with a fuel break that extends across their

land. Fuels reduction projects that remove trees on private and state timber lands may be exempt from THP requirements under an Exemption process of the California Forest Practice Rules. The cutting and removal of trees in compliance with sections 4290 and 4291, which eliminates the vertical continuity of vegetative fuels and the horizontal continuity of tree crowns, is covered under the THP exemption process. An exemption form must be completed and submitted to the Director of CAL FIRE prior to commencement of operations. Forms can be obtained from CAL FIRE. The California Board of Forestry has adopted emergency amendments, within the scope of existing legislation and the Forest Practice Rules (Title 14 CCR, Chapters 4, 4.5 and 10) to provide regulatory relief for expedited fuels hazard reduction of live and dead fuels. These changes in the California Code of Regulations were adopted on June 25, 2004 and provide a process whereby timber harvest conducted in order to protect structures and community assets located within defined WUI areas are relieved from the state's Timber Harvest Planning process. Revised forest practices regulations now allow for filing of an Exemption Form or Emergency Notice instead of a THP when harvesting operations are conducted in accordance with conditions specific in the revised regulations. The primary target of these regulations is small timber landowners who often have limited means and capability to complete fuels reduction projects. The goal of this change in the regulatory environment is to expedite those timber harvest projects that reduce the vertical and horizontal continuity of fuels through the manipulation of forest vegetation. The incorporated language requires coordination with an agency approved fire protection plan which has been formalized into the CWPP process.

CEQA also provides a means by which to expedite qualifying/eligible projects. Section 21080.5 of the Public Resources Code provides for the certification by the Secretary for Resources that State agency regulatory programs shall be exempt from the requirements for preparing EIRs, Negative Declarations, and Initial Studies if the Secretary finds that the program meets the criteria contained in that code section. A certified program remains subject to other provisions in CEQA such as the policy of avoiding significant adverse effects on the environment where feasible. Among these exempted programs are California Forest Practices Act and its regulations for timber harvesting operations by the CAL FIRE and the State Board of Forestry pursuant to Chapter 8, commencing with Section 4511 of Part 2 of Division 4. In addition, the regulatory program of the State Board of Forestry in adopting, amending, or repealing standards, rules, regulations, or plans under the Z'berg-Nejedly Forest Practice Act, Chapter 8 (commencing with Section 4511) of Part 2 of Division 4 of the Public Resources Code are exempt as well. CAL FIRE's Vegetation Management Program (VMP) is another State certified program that is exempt from an EIR; instead, this program is subject to a Programmatic EIR.

At the federal level, consideration of life and property as a priority has resulted in the development of policies and the amendment of regulations as a means to expedite the execution of certain fire and fuels reduction projects. The HFI and HFRA offers more streamlined administrative processes for hazardous fuels reduction projects conducted by federal agencies. Among these streamlining efforts are various NEPA exemptions. In addition, the ESA has new guidance including alternate approaches to streamlining Section 7 Consultation on Hazardous Fuels Treatment

Projects, evaluating the net benefits of hazardous fuels treatment projects, and the joint counterpart ESA Section 7 Regulations.

Section 4: PLANNING RESULTS AND PROJECT PRIORITIZATION

Introduction. Based upon research and meetings with project area stakeholders, significant natural and manmade assets at risk of wildfire were identified along with currently in-place infrastructure to protect these assets. These sources, particularly conversations with community members, fire managers, and fuels specialists, yielded valuable information and suggestions regarding improvements and additions to in-place protective resources that would increase the effectiveness of local fire protection measures. The results of these efforts are detailed in the following paragraphs.

Summary of Results from Project Prioritization Process. As determined by TAC and L/CAC, public and firefighter safety was first and foremost in importance. Those projects that provided immediate and effective protection to residents and firefighters as well as public and private property ranked highest. These included fuel breaks, fuels reduction projects, and other fuel manipulations that would reduce the severity and spread of wildfire events. Second in ranking were projects that aided in the control of wildfire, including firefighting infrastructure improvements such as water tank installations and water delivery infrastructure development. Finally, those projects that were long term and less immediate in nature, such as organizational improvements, planning projects, and the development of community input, were included on the list of proposed projects.

Section 5: FIRE PLAN AREA AND PLANNING UNIT DESCRIPTIONS

Geographic Location and Environmental Conditions. The Glenn County CWPP project area includes those portions of the county that are at high risk of wildfire attributable to wildland conditions related to vegetation and slope. Much of Glenn County is cultivated and under irrigation during summer months; consequently, the risk of wildfire is relatively low. Four areas within the county were identified by the project's Technical Advisory Committee as having high risk of wildfire or as meriting special consideration in this CWPP: (1) the Westside area from the high power lines located 5 miles west of Interstate 5 to the Mendocino County line, (2) the riparian corridor of Lower Stony Creek from Black Butte Dam to the stream's confluence with the Sacramento River, (3) the Sacramento River's riparian corridor, and (4) USFWS properties within the county's South Central area between Willows and the Colusa County line.

Topographic Maps Covering the Project Area. The USGS 7.5 Minute Quadrangles near the project area are listed in the columns below, and map locations are shown below.

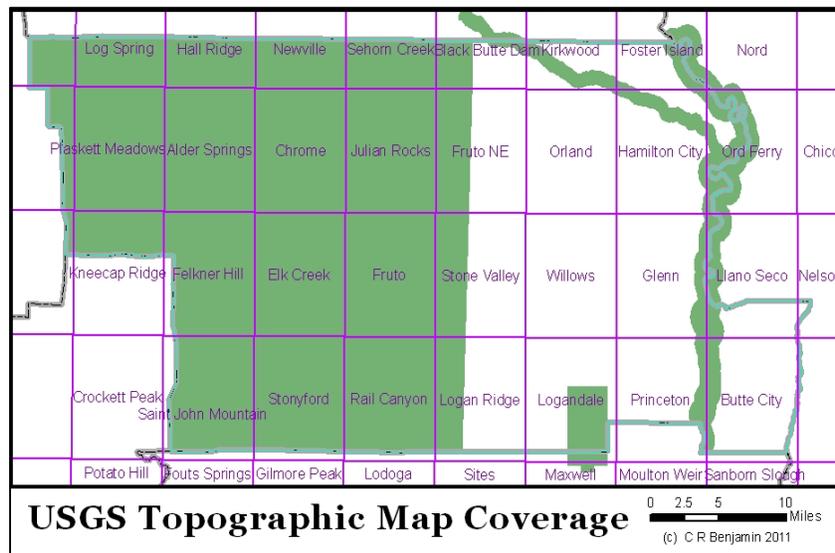


Figure D: USGS Topographic Map Coverage

USGS 7.5 Minute Quadrangles Contained in the Glenn County CWPP

- | | | | | |
|-----------------|---------------|----------------|-----------------|---------------------|
| Alder Springs | Fruito NE | Kirkwood | Newville | Saint John Mountain |
| Black Butte Dam | Fruito | Kneecap Ridge | Ord Ferry | Mountain |
| Butte City | Glenn | Llano Seco | Orland | Sehorn Creek |
| Chrome | Hall Ridge | Log Springs | Plaskett Meadow | Stone Valley |
| Elk Creek | Hamilton City | Logan Ridge | Plaskett Ridge | Stonyford |
| Felkner Hill | Hull Mountain | Logandale | Princeton | Willows |
| Foster Island | Julian Rocks | Mendocino Pass | Rail Canyon | |

Critical Factors under Consideration. The Glenn County CWPP study area generally includes those portions of Western Glenn County containing conifer forests, chaparral, oak woodlands, open grasslands, and riparian vegetation. The lands within the USFWS refuge system located in Glenn County were included due to their relatively natural condition, significant fuel loadings, and potential to burn. In analyzing fire risk in each of the planning areas, a number of critical factors related to fire behavior were analyzed, including the following:

- The fire behavior variables of fuels, topography, access, water supply, assets at risk, and fire history;
- Urban development, including formally classified at-risk communities, WUI areas, unclassified areas of development, known utilities routes, and fire protection features such as water supply infrastructure and large fuel breaks; and
- Sources of ignition, including population centers and transportation routes.

Ignition Sources. CAL FIRE's 2011 Tehama-Glenn Unit Fire Plan identifies equipment use, vehicles, power lines, and campfires as major ignition sources throughout Glenn County. Consequently, the location of various area and linear features that represent potential sources of ignition were considered in the creation of planning units. These features were found to be useful in analyzing fire threats and in developing corrective measures to protect local assets from potential wildfire. Among the types of features considered were urban area boundaries as well as roads and highways, power lines, pipelines and other linear features. CAL FIRE also recognizes the environmental realities that impact wildfire through their development of fire management planning zones that incorporate multiple firefighting agency jurisdictions in recognition of the fact that wildfire often crosses administrative boundaries. As a result, adequate fire protection and prevention measures have been developed based upon a landscape perspective as well as the organizational interrelationships between fire and land management entities.

Four Planning Units. The Glenn County CWPP project area has been divided into four planning units. In analyzing fire risk in each of the planning units, a number of critical factors related to fire behavior were analyzed, including fire behavior variables, urban development, and sources of ignition. An overview of these planning units is shown on the map labeled as "Figure E: Planning Units" on page 24. The four planning units, in order of increasing acreage, are as follows: (1) Western Glenn County, (2) Sacramento River Corridor, (3) Lower Stony Creek Riparian Corridor, and (4) Sacramento National Wildlife Refuge. Each planning unit is also generally described in subsequent paragraphs of this section and is described in more detail beginning on page 53 in Section 9.

SEE 11x17 FOLDOUT MAP TITLED "PLANNING UNITS" AS FIGURE E

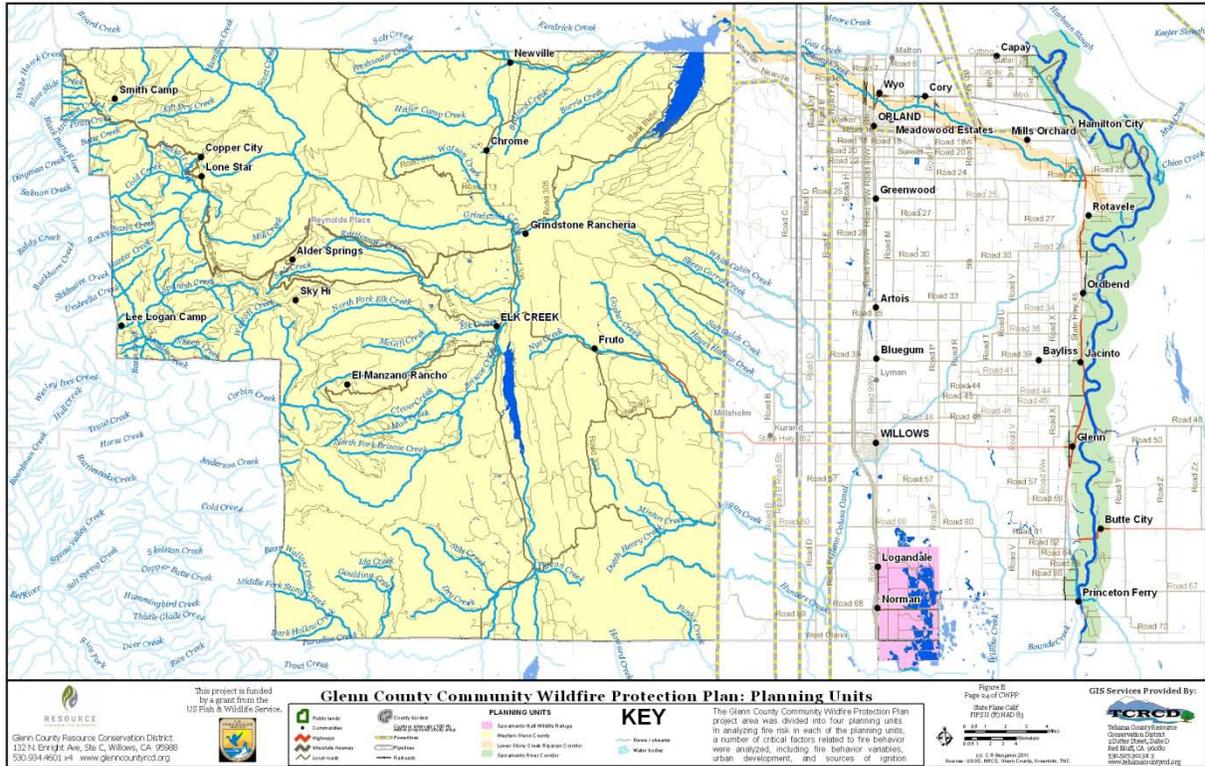


Figure E: Planning Units

Western Glenn County Planning Unit *(756 square miles)*

This planning unit encompasses all the lands within western Glenn County between the power lines located 5 miles west of Interstate 5 to the boundaries of Mendocino County, Tehama County, and Colusa County. The headwaters and central segments of Stony Creek and the entire length of its major tributary Grindstone Creek are found in this planning unit and together make up the largest tributary to the Sacramento River within Glenn County. Also located within the Western Glenn County Planning Unit are the communities of Newville, Chrome, Elk Creek, Fruto, Alder Springs, Lee Logan Camp, Sky Hi, and El Manzano Rancho. The boundaries of this planning unit are summarized below.

North: Tehama County line
East: Power line 5 miles west of Interstate 5
South: Colusa County line
West: Mendocino County line

Sacramento River Corridor Planning Unit *(64 square miles)*

The Sacramento River Corridor Planning Unit includes the riparian corridor of the Sacramento River or approximately 1 mile on both sides of the river channel within Glenn County and the portion of Butte County that abuts Glenn County's eastern boundary. The rural communities of Jacinto, Glenn, Princeton, Butte City, Hamilton City, and Ord Bend are included in this planning unit. Much of this planning area is unpopulated and is managed for farming operations, wildlife production, riverside recreation, and as habitat for an array of important riparian landscapes and species. The boundaries of this planning unit are summarized below.

North: Tehama County line
East: Eastern riparian zone boundary of the Sacramento River within Glenn County and Butte County
South: Colusa County line
West: Western riparian zone boundary of the Sacramento River within Glenn County

Lower Stony Creek Riparian Corridor Planning Unit *(22 square miles)*

This planning unit includes the riparian corridor of Lower Stony Creek or about one-half mile on both sides of the stream channel on those stream segments between the

foot of Black Butte Dam to where the stream crosses into the Sacramento River Corridor Planning Unit. A short segment of the channel flows into Tehama County and was included in the Glenn County CWPP planning process. The community of Orland is found within the planning area. Invasive species have significantly impacted this portion of Stony Creek by competing with or completely eliminating native species. This vegetation has also become a major fire hazard and is linked to significant erosion that is occurring within the Lower Stony Creek stream channel. The boundaries of this planning unit are summarized below.

North: One-half mile each side of the stream channel within Glenn County and Tehama County

East: Western boundary of the Sacramento River Corridor Planning Unit

South: One-half mile each side of the stream channel within Glenn County and Tehama County

West: Black Butte Dam

Sacramento National Wildlife Refuge Planning Unit (17 square miles)

The Sacramento National Wildlife Refuge Planning Unit contains those lands located exclusively within a specific USFWS refuge. This planning unit's study area is located within both Glenn County and Colusa County. The communities of Logandale and Norman are located adjacent to the property along with Willows which is approximately three miles to the north. The property is managed for wildlife and contains a variety of habitats that provide food, water, and cover for a variety of species endemic to the Sacramento Valley. Significant among these are seasonal marshes containing cattail, round stem bulrush, alkali bulrush, swamp timothy, and smartweed, all of which can create a significant fire threat when desiccated. The property also contains permanent ponds whose habitat value can be decreased if they become overgrown with decadent stands of cattail, roundstem bulrush, various pond weeds, and watergrass. A number of riparian areas are located on the parcel and are considered to support the greatest diversity of wildlife within the refuge. An array of tree, scrub, and grass species are found there which provide cover to a variety of avian and terrestrial species. Among the major species found in these streamside sites are cottonwoods, valley oaks, sycamores, willows, box elders, elderberry, and wild rose, which offer fish and aquatic animals cooling shade. Finally, the USFWS property contains upland areas with annual grasses and vernal pools, which can be impacted by high intensity wildfire.

Section 6: FIRE-SHAPED ECOSYSTEMS AND INFRASTRUCTURE FOR FIRE PROTECTION

Environmental Landscapes. The Glenn County CWPP area includes an array of terrains and landscapes. The planning area can be divided into three primary landforms: the Coast Range, Coast Range Foothills, and the valley floor. Elevations within the planning units range from 6,746 feet at the summit of St. John Mountain to roughly 190 feet along the Sacramento River. Correspondingly, precipitation rates range from 60 inches in the vicinity of Alder Springs to 25 inches on the valley floor. As a result, the area's vegetation forms a continuum from grasslands and riparian zones at the valley floor to oak woodlands, chaparral, and conifer forests within the westernmost third of the county which makes up the Western Glenn County Planning Unit. Peak flows from the watersheds are dominated by rain within the majority of the project's planning area and by snow events at upper elevations to the west. The combination of varied geology and vegetation help to support a diverse array of wildlife habitats in the watersheds. These include foothill, old growth, and riparian groups and twenty-five different habitat types.

Traditionally, forests and rangelands within the area's watersheds have supported local and regional economies. Almost all of the forest lands within the Western Glenn County Planning Unit are under federal management, and at the present time logging output from the Westside continues, although at a much lower rate than previous years. The production capacity of Westside rangelands has also been reduced, due primarily to the spread of non-native invasive plants, but ranching still contributes to the beef industry and provides limited employment to the economic base of Glenn County. Recreational activities in the watersheds have steadily increased over the past few decades, attributable to an increase in the region's population as well as the current mobility of the American recreating public. The MNF is located on the westernmost portion of the Western Glenn County Planning Unit and is a major source of recreational opportunities within Glenn County.

Aquatic resources along the Sacramento River and its major tributaries within Glenn County are of regional significance. Various anadromous species utilize the mainstem of the Sacramento River. In addition, Stony Creek together with its major tributary Grindstone Creek are significant contributors of spawning gravel and water into the Sacramento River.

Demographics. At the present time, the Glenn County CWPP project area remains largely rural in nature. The fire plan area includes the major Glenn County communities of Willows, Orland, Hamilton City, and Elk Creek. A number of smaller developed areas are included and listed above.

Land Use and Development Trends. Traditionally, land use in the Westside area has consisted of ranching, private timber production, watershed management, mining,

and very low density rural residential development. In addition, the Federal Reserve Act of 1891 created the National Forest system to preserve timberlands and other areas in the public domain and to prevent them from passing out of public possession. A significant portion of the lands in western Glenn County are managed by a number of federal and state land management agencies for an array of resource and environmental considerations. At the present time, the Westside area is experiencing minimal development. In addition, the eastern urban fringe of the county's larger communities of Willows and Orland continue to expand their interface area into what once were farming and grazing areas. The same phenomena are also occurring within the watershed of Lower Stony Creek.

Fire Risk Environment of Glenn County. The three major components of the wildland fire environment are weather, topography, and fuels. Local weather conditions such as wind direction, wind speed, precipitation, and humidity are important in predicting how a fire will behave. Within the lower elevations of the Glenn County CWPP project area, winds blow predominately from the north during the early part of summer and predominately from the south during the latter part of the summer season. Within Glenn County's western foothills, winds tend to blow up the canyons and along hillsides during early morning hours and downslope in the late afternoon and evening. In the valley, wind patterns push wildfire in a northerly or southerly direction, while in foothill areas winds trend in a westerly direction. The average wind speed in the Westside has been determined to be between approximately 1.1 to 4.8 miles per hour. During the fire season (June to October), daily temperatures within the project area are often in excess of 90° Fahrenheit, and relative humidity is typically less than 30 percent. The majority of the area's precipitation occurs between October and April.

Topography can affect the direction and rate of fire spread. Topographic factors important to fire behavior are elevation, aspect, steepness, and shape of slopes. When fire crews are considering fire suppression methods, topography is always critical in determining the safest and most effective plan of attack. When accessible, ridge lines are very important features from which to conduct fire suppression activities and can be a strategic area to conduct fuels management activities.

Of the three components affecting fire threat, fuel is the only factor that can be controlled. Fuel characteristics that influence fire behavior are fuel moisture, loading, size, compactness, horizontal or vertical continuity, and chemical content. Fuel moisture is the amount of water in vegetative fuel and is expressed as a percentage of its oven dry weight. Fuel loading is defined as the oven dry weight of fuels in a given area, usually expressed in bone dry tons, or 2,000 pounds of vegetation when rated at zero percent moisture content. Fuel size refers to the dimension of fuels, and compactness refers to the spacing between fuel particles. Continuity is defined as the proximity of fuels to each other, vertically or horizontally which governs a fire's capability to sustain itself. Chemical content in fuels such as oils or other flammable compounds can either retard or increase the rate of combustion. All of these factors will influence the amount of heat delivered and the

duration, flame length, and rate of spread of a particular fire and will be considered prior to developing fire prevention projects or initiating fire suppression activities.

One of the primary goals developed for this CWPP project is to identify areas of high fuel loading. CAL FIRE has developed a Fuel Rank assessment methodology to prioritize pre-fire projects that reduce the potential for large catastrophic fires. The fuel ranking methodology assigns ranks based on expected fire behavior for unique combinations of topography and vegetative fuels under a given severe weather condition (wind speed, humidity, and temperature). The procedure makes an initial assessment of fuel rank based upon an assigned fuel model and slope. Fuels have been classified into four groups: grasses, low foothill shrubs, moderate density shrubs such as those found in chaparral regions, and hardwood forest stands containing litter, slash, and understory vegetation. This fuel ranking also incorporates the amount of ladder and/or crown fuel present to arrive at a final fuel rank. CAL FIRE pre-fire engineers verify these rankings and use this fuel rank assessment in conjunction with assessments for weather, assets at risk, and level of service in order to develop the fuel ranking system shown below.

Fuel Rank	
Rank	Description
1	Moderate
2	High
3	Very High

This fuel ranking system was used along with anecdotal information provided by stakeholders in identifying high fire hazard areas and their relationship to project area assets at risk. These sources of information pertaining to high fire hazard areas were also used in developing suggested future fire and fuels management projects to either protect specific at-risk assets or to increase the effectiveness and efficiency of those protective features that are already in place.

Glenn County's Fire Shaped Ecosystems. Fire has been an integral force within many Northern California ecosystems since the Pleistocene. From the mixed conifer forests of the Coast Range, to the chaparral and grasslands of the county's inland foothills, fire is in some instances the dominant factor controlling ecological change within many local landscapes. In addition to renewing vegetation and recycling nutrients from live and dead plant material in the form of ash, the numerous low intensity burns of the past are suspected to have been a major factor in the environmental determination of plant structure and distribution as well as the composition of vegetative communities. Grassland, oak woodland, and chaparral landscapes are found in abundance within Glenn County's westside foothills and uplands and are among the county's largest fire dependent ecosystems. Within an elevation belt ranging between 500 to 5,000 feet, fire has historically swept through the vast stands of chaparral vegetation, on roughly a 20 to 30 year basis, removing old, decadent plant material with low vegetative and forage production. The county's grasslands

and oak woodlands experience the impacts of wildfire on an even more frequent basis. As a result of wildfire impacts, these chaparral ecosystems are frequently returned to an earlier stage of development. Repeated fires reduce the competition of dominant brush species which can, if not controlled, develop into single species stands that can attain heights of ten feet or more. Many chaparral species are particularly well adapted to fire, having developed an ability to produce root sprouts after burning. Fire improves brush stands as forage for large mammals by replacing woody, unpalatable vegetation of low nutrient value with new, more palatable root sprouts having somewhat higher nutritional value. The newly opened crowns of these brush fields allow more sunlight to reach the soil, resulting in the production of grasses, forbs, and those plants that develop from fire germinated seeds. In addition, the removal of dominant brush species by fire or other means often results in more complex plant communities. Among the varieties of brush species that develop after a wildfire event are Toyon, Deer Brush, Red Bud, Common Manzanita, and Chaparral Whitethorn.

The pine and mixed conifer forests found in the Glenn County's Coastal Range are another example of ecosystems that have been shaped largely by fire. Tree ring studies and charcoal analysis indicate that fires passed through many of these stands every 6 to 32 years. Prior to the early 20th Century, the frequency of these low intensity blazes provided a mechanism for thinning of the forest's understory, which prevented the development of extensive forested areas containing dense, slow growing, even-aged stands that often result after high intensity wildfires. Instead, early accounts of Northern California forests describe a patchwork of dense thickets containing trees and brush as well as more open, park-like stands. Low impact fires also provided a suitable bed for pine seeds that normally do not germinate successfully in heavy forest litter. Without fire, species such as White Fir, Douglas Fir, and Incense Cedar crowd out less competitive, shade intolerant, young pines even in their primary habitat range at lower elevations, changing the vegetative composition of these forests. In addition, without continuous low intensity fires that clear forest stands, rapidly growing brush species compete with seedlings of timber species, reducing their rate of survival. Overcrowding also tends to weaken large pines, making them susceptible to insect attack. Reduction of forest fuels prevents the development of more intense fires that can damage and kill seedlings and young trees, greatly reducing the amount of regeneration in the understory. A reduction of young understory vegetation also removes developing ladder fuels through which ground fires can move into forest crowns. Once this occurs, wildfires can spread quickly and become much more intense.

Perennial and annual grasses and forbs dominate the grassland communities of the planning area. Within these ecosystems, plant density and air temperatures are normally high enough to carry regularly occurring, fast moving, low intensity fires, which have become a major factor of change within this biotic community. A major impact of wildfire in grassland ecosystems is its effect on the distribution and form of individual plants, as well as the composition of the entire vegetative community. Grassland fires also impact the population and distribution of wildlife that inhabit these environments. As with other fire-based ecosystems, the exclusion of naturally occurring wildfire within grasslands can have significant and often negative impacts

on these landscapes. Intense, widespread wildfires can significantly reduce naturally occurring mulch and can reduce the depth of humus in the organic layer of grassland soils, resulting in a reduction of preferred grass and forbs species.

Disruption in the naturally occurring cycle of fire within grasslands can also lead to an increase in the occurrence of tree and shrub species, particularly in those grasslands immediately adjacent to woodlands and open forests. A single blaze passing through an interface area between these two plant communities can stimulate germination of seeds from brush species that require heat to initiate growth response. Once this occurs, the removal of grassy material prepares an appropriate bed for newly germinated seeds. Subsequent suppression of wildfire then allows these woody species to take full advantage of moisture and nutrients while the grass and forbs species redevelop into a competitive plant community. Finally, non-native invasive species and noxious weeds that are ill adapted to frequent fires have an opportunity to become established, increase in numbers, and spread throughout an ecosystem, threatening plant diversity and forage values. These non-native invasive plant species can also adversely impact native vegetative communities by altering patterns of nutrient recycling, hydrologic processes, and the intensity of fire.

Many of the species considered to be invasive within the study area are annuals (other than *Arundo donax* and Tamarisk, both of which are perennials) that are entirely dependent upon seed production for yearly propagation. In addition, a large number of these plants remain green and produce viable seed long after native perennial species have matured and cured. As a result, frequent fires have the opportunity to kill invasive annual species prior to seed germination, thus reducing seed counts and the potential for future development. Invasive plant pests are defined by law, regulation, and technical organizations. Weed control methods include physical control (e.g., burning and hand pulling), chemical control (e.g., selective or non-selective herbicides), and biological control (e.g., insects that eat the pest). The use of fire to control invasives, particularly starthistle and medusahead, has been utilized in surrounding counties to varying degrees of success.

Human-Wildland Interactions within the Glenn County CWPP Project Area. Communities adjacent to and within the state's wildlands have experienced dramatic growth that has taken a number of forms. In addition to the simple expansion of the urban fringe, rural subdivisions, homes, and small ranches located far from urban centers have developed from lot splits which create residential densities that approach those of urban areas. These scattered areas of development are often created without many of the infrastructure components and fire safety features that are integral to fire protection. Significant among these deficiencies are access to two lane roads for escape and ingress of firefighting equipment, water supply systems with the capacity to provide adequate fire protection, and parks and other large areas of cleared space between developed lots, as are often found within and at the perimeter of urban subdivisions. Mobile homes are often used as residences on these small parcels, are more susceptible to flash fire, and create additional structural fire hazards.

Within the Westside area, the conversion of wild areas into residential uses is currently scattered within the county's oak and conifer woodlands. In terms of

wildfire threat, these areas of rural development have been described as a point where the fuel feeding a wildfire changes from natural (wildland) to manmade fuel such as structures, crops, and urban debris. This intermingling of wildland and manmade fuel, often referred to as the wildland-urban interface/intermix, has made the control of wildland fires more difficult and costly. It has also dramatically increased the danger and potential destruction caused by wildfire.

During a large wildfire event, widely scattered development requires firefighting forces to disperse in order to protect numerous isolated structures. As a result, manpower and other resources necessary to initiate attack on a fire front cannot be organized thus allowing wildfires to spread and build in intensity much more rapidly. In addition, this scattering of residential uses makes rescue and evacuation efforts during such emergencies more difficult, dangerous, and time consuming. Of equal importance is that scattered residential patterns make the efficient use of prescribed burning on a landscape scale more expensive and risky. Smoke from prescribed burns can damage homes, and burn escapes near more densely populated landscapes can destroy residential developments, thus increasing the cost of liability claims made against land management entities involved in fuels reduction projects.

History of Fire and Fuels Management in Glenn County. Wildfire history for the study area and for Glenn County as a whole is shown below.

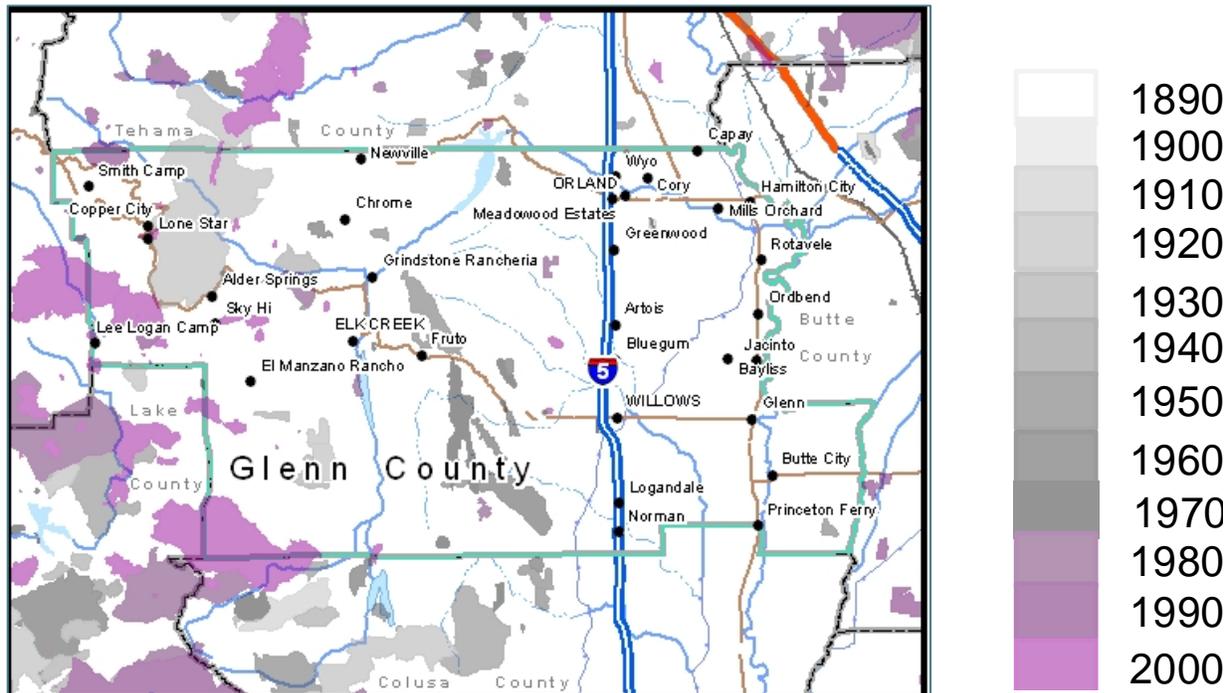


Figure F: Fire History

A summary of the recorded wildfires is shown in the table below.

Historic Fire Acreages by Decades

Decade	1900	1920	1930	1940	1950	1960	1970	1980	1990	2000	Total
Fire Events	1	7	12	32	18	12	8	11	17	14	132
Acres	948	59,518	61,254	59,914	13,234	5,758	103,188	12,023	12,892	10,844	339,213

History of Fire and Fuels Management in Glenn County. With the creation of the USFS in the early 20th Century and the California Department of Forestry and Fire Protection (CAL FIRE) in 1905, a federal and state infrastructure was created to prevent and suppress all wildfires within Glenn County. As of 1905, statewide efforts had established full suppression of wildfires throughout Glenn County and the rest of the North State. Fire suppression success was defined in terms of an overall decline in the number and size of wildfires. At the same time, it was becoming apparent that when wildfires did occur, they were often more intense, resulting in large areas of severe vegetation destruction. The increase in fire occurrence and intensity was becoming particularly acute in forested areas, where large expanses containing substantial amounts of debris, brush, and dense thickets of small timber had developed as result of logging and other resource extraction activities. The occurrence and intensity of wildfire was also found to be increasing in open wildlands where naturally occurring fires were being extinguished without exception in order to protect manmade resources and to maintain vegetative cover in watersheds.

Overview of Glenn County Fire Protection Organizations. Firefighting responsibilities in Glenn County are divided into a number of organizational units whose responsibilities are described below.

Summary of Fire Facilities within Glenn County

Department	City
Elk Creek Volunteer Fire Department	Elk Creek
Glenn-Codora	Glenn
Glenn-Colusa	Butte City
Hamilton City	Hamilton City
Glenn County Sheriff	Willows
CAL FIRE	Elk Creek

Department	City
CAL FIRE	Valley View
Mendocino National Forest Fire Service, USFS	Willows
Mendocino National Forest Fire Service, USFS	Alder Springs
Mendocino National Forest Fire Service, USFS	Elk Creek
Willows Fire Department	Willows
Willows Rural Fire Department	Willows
Capay Fire Protection District	Orland
Hamilton City Fire Protection District	Hamilton City
Ord Fire Protection District	Glenn
Artois Fire Protection District	Artois
Orland Fire Department	Orland
Bayliss Fire Protection District	Glenn
Kanawha Fire Protection District	Willows
USFWS	Willows
Indian Valley Fire Department	Stonyford

- *Elk Creek Volunteer Fire Department.* This department provides fire protection to the community of Elk Creek, as well as the Local Response Areas surrounding Chrome and Newville.
- *CAL FIRE.* CAL FIRE is responsible for preventing and suppressing wildland fires on State Responsibility Area (SRA) lands throughout Glenn County and has fiscal responsibility over additional acres of SRA lands which are directly protected by the USFS. All lands managed by the BLM within the Ukiah Field Office are under the direct protection of CAL FIRE. California Public Resources Code 4125 establishes that local and federal agencies have primary responsibility for fire prevention and suppression in all county areas not classified as SRA. Every five years, CAL FIRE reissues maps identifying the

boundaries of the SRA with any modifications approved by the Board of Forestry. In addition to the stations within the county that CAL FIRE operates or for which CAL FIRE is responsible, other firefighting resources are available in neighboring counties, including aerial attack bases.

Historic catastrophic losses of structures in the WUI have resulted in an array of laws and regulations to protect the public. On a yearly basis, each Battalion of the Tehama-Glenn Unit performs LE100 inspections of clearance around structures (Public Resource Code 4291) in order to aid residents in understanding and complying with the regulations that affect the impact of wildfire events. The Fire Safe Regulations constitute the basic wildland fire protection standards of the California Board of Forestry. These regulations have been prepared and adopted for the purpose of establishing minimum wildfire protection standards in conjunction with building construction and development in Glenn County. Items identified include basic road access, signing and building numbering, private water supply reserves for emergency fire use, and vegetation modification. Fire department personnel attend stakeholder meetings in order to aid the public with information and possible resources to utilize for fuel management projects in high priority/fire hazard areas.

- *United States Forest Service.* The MNF manages a significant portion of those chaparral and forest lands within the westernmost portion of the Glenn County CWPP planning area. The primary responsibility of this agency is for the control and suppression of wildland fires (not structural fires) on federal land. In addition to the Forest Supervisors office in Willows, USFS fire personnel are housed at facilities located in Willows, Alder Springs, Stonyford, and Elk Creek. Recently a number of remote facilities on the MNF were closed and staff reassigned to these larger facilities. USFS crews and equipment are also available at stations located within the Shasta-Trinity National Forest and other Forests located further to the north and east. In addition, the agency has access to substantial firefighting personnel and equipment throughout the region utilizing operating agreements established between other national forests.
- *Willows Fire Department.* Primary responsibility of this department is for the City of Willows along with rural areas immediately adjacent to city limits. The Department operates one fire station.
- *Capay Fire Protection District.* This department provides fire protection in the rural Capay District. Coverage includes areas of both Glenn and Tehama Counties. The Department operates one fire station.
- *Hamilton City Fire Protection District.* The Hamilton City Fire Protection District provides fire protection to Hamilton City and adjacent areas within Northeastern Glenn County located along the Sacramento River corridor. The Department operates one fire station.
- *Ord Fire Protection District.* The Ord Fire Protection District is responsible for fire protection in the vicinity of Ord Bend, Butte City and other areas

within southern Glenn County adjacent to the Sacramento River corridor. The Department operates one fire station.

- *Artois-Glenn County Fire Protection District*. This department's primary responsibility is for Glenn County's Local Response Area. The Department operates one fire station within the Glenn County CWPP project area.
- *CAL FIRE /California Department of Corrections, Valley View Conservation Camp*. CAL FIRE and the California Department of Corrections jointly operate a minimum security facility at Alder Springs located on Forest Highway 7 approximately 20 mile northwest of Elk Creek. The camp provides inmate fire crews that can be dispatched throughout the Glenn County as well as the entire state. At the present time, the camp has an array of wildland firefighting, service, and transportation equipment.
- *Bureau of Land Management*. At the present time, either the U.S. Forest Service or CAL FIRE conducts all fire suppression operations on BLM lands. In the event of a wildfire, BLM fire management and fuels personnel would serve as duty officers and agency representatives to an interagency team. In addition, several local BLM staff members have Red Cards, which allow them to join fire suppression forces if needed.

Interagency Approach to Firefighting in Glenn County. Wildland fires ignore civil boundaries. Consequently, it is necessary for cities, counties, special districts, and state and federal agencies to work together in order to minimize the adverse impacts of wildfires. All Glenn County firefighting organizations will be dispatched through the 911 system. This interagency array of firefighting forces is dispatched through the 911 system with fire engines, other emergency equipment, and personnel from the closest resources available to fill the requirements of the SRP, regardless of jurisdiction.

Community ISO Rating. As a means to standardize the rating of communities in terms of their ability to protect homes and other structures from fire, the Insurance Service Office (ISO) system was developed by the firefighting and fire insurance communities. The ISO system rates the following fire protection criteria:

- Fire protection level of service or lack of service in terms of proximity to paid firefighting personnel;
- Level and quality of emergency communications systems; and
- Quality and capacity of community emergency water delivery systems.

The "10 point" rating system (with 1 being the lowest risk and 10 being the highest risk) is often used by insurers in order to determine the availability and rate of fire insurance policies. The following table lists the current ISO ratings of the major communities within the Glenn County CWPP project area.

**ISO Ratings for Major Communities
Within the Glenn County CWPP Project Area**

Community	ISO Rating	Rationals for Rating
Willows*	3	Water availability, staffing levels and equipment
Orland*	6	Water availability, staffing levels and equipment
Elk Creek	9	Water availability, staffing levels and equipment

**The rural areas under the jurisdiction of these fire districts have ISO ratings of 8B or 6 depending upon the location.*

Section 7: IMPORTANT ASSETS AT RISK WITHIN THE GLENN COUNTY CWPP PLANNING AREA

Community Infrastructure

Developed Roads. Roads are an essential part of fire safety, fire management, and fuels reduction planning. These linear features provide access to communities, homes, and wildlands, as well as escape routes in the event of wildfire or other disasters. In addition, roads of all types provide a defensible space from which firefighters can conduct direct attack on wildfires and provide a strategic location for roadside fuel breaks. For the purposes of this plan, significant roads within the Glenn County CWPP project area have been classified into two groups: primary roads such as freeways, state highways, and county arterial roads and secondary roads such as local routes, major and minor collector routes, and local roads. These significant routes are listed in the following table.

Glenn County Road Classifications

Road Name	Primary Road Type	Secondary Road Type
Interstate 5	Interstate Freeway	
State Highway 162	State Highway	
State Highway 32	State Highway	
State Highway 45	State Highway	
Roads 14, 200, 300, 305, 308, and 50	County Road	
6 th and 8 th Streets		Local
Alder Springs Road		Local
Canal Street		Local
Newville Road		Local
Roads 14, 200, 300, 306, and 50		Local
Swift Street		Local
Walker Street		Local
Wood Street		Local

Minor Roads and Trails. In addition to developed roads, Glenn County contains many minor roads and primitive jeep trails that access public and private forest and ranch lands. Many of these roads are unmapped, gated, and/or locked and therefore do not provide reliable ingress or egress. This network of transportation routes could provide a framework for emergency evacuation routes and a system of linear fuel breaks that would protect large areas of wildlands and would link scattered fuel reduction projects located throughout the area. Unfortunately, these same roads also provide

an extensive area along which sources of ignition can create fire starts. The road network in Western Glenn County often passes through areas containing hazardous fuels, creating a significant threat of ignition. Consequently, special attention must be paid to these high hazard areas in terms of reducing fuels.

Utility Infrastructure. Numerous power lines, gas lines, and water conveyance infrastructure features are found throughout the Glenn County CWPP area. When constructed, a considerable amount of vegetation was removed within the utility right of way that continues to be maintained in order to reduce the potential of these features to pose a fire threat. A number of these facilities traverse more than one planning unit; as such, they could be developed into regional fire protection infrastructure. Significant among these are a PG&E steel tower line which traverses Glenn County from north to south and creates the eastern boundary of the Western Glenn County Planning Unit. A number of smaller power lines and gas transmission lines are also found within the study area. These large and small manmade features can, with some additional work, have the potential to be developed into site specific linear fire breaks or ingress routes for firefighting forces.

Other Important Assets

Business and Commercial Development. The economy of rural Glenn County is based largely upon crop and livestock production. Within the Western Glenn County area, agricultural operations include dry crop farming and livestock production. Elsewhere within the county, field and orchard crops are grown and processed. Rural areas at the urban fringe contain numerous hobby ranches. Several specialized agricultural processing facilities are found in the valley portions of the County as well.

Cultural Resources. Various communities found within the Glenn County CWPP area contain an array of cultural resources that are shared by local residents. Among these are community buildings, infrastructure, and parks. In addition, Glenn County contains both historic and prehistoric cultural resources that could be impacted, damaged, or destroyed by wildfire or fire management activities if effective protection and mitigation measures are not implemented.

Air Quality. During the county's fire season in late spring, summer, and fall, smoke dispersing winds are often absent, and an inversion layer above the Sacramento Valley is present much of the time. As a result, the often large volumes of smoke generated in connection with wildfires within the county's lower elevations can be trapped and drift toward developed areas containing an array of sensitive sites such as hospitals, schools, rest homes, and other facilities. These environmental characteristics and impacts also limit the ability of agriculturalists to use fire in reducing agriculture debris such as rice stubble and orchard trimmings on the valley floor. Land managers within Glenn County's grasslands, oak woodlands, and chaparral and forest lands often find themselves at odds with the agricultural community as they vie for air space in which to deposit smoke from vegetation management operations. Impacts caused by

drifting smoke include soiling of property, public nuisance, visibility loss, and related traffic safety issues. In order to reduce the impact of wildfire on air quality, it is critically important to reduce the threat of uncontrolled fires through a combination of fire safety, fire management, and reduction of hazardous fuels in a manner which allows the controlled release of smoke emissions.

U.S. Fish & Wildlife Service Critical Habit - Vernal Pools and Listed Species. Within the Western Glenn County Planning Unit are areas containing vernal pool habitat which have been classified as USFWS critical habitat for vernal pool listed and endangered species such as Vernal Pool Tadpole Shrimp, Fairy Shrimp, and Hairy Orcutt grass. Although these landscapes have developed under regimes of frequent fire, such sensitive ecosystems can be negatively impacted by excessive high intensity wildfire at critical times of the year. At the present time, land management entities are attempting to understand and recreate natural rates and intensities of fire within these vernal pool areas in an attempt to sustain and improve these habitats.

Section 8: AREA WIDE PLANNING EFFORTS RECOMMENDED BY THE GLENN COUNTY CWPP

Introduction

Project Objectives. In order to implement the fire protection, fire management, and fuels reduction goals recommended in the Glenn County CWPP, a number of proposed projects have been identified through the collaboration of the L/CAC and the TAC. Regardless of spatial extent, the following objectives should direct the design and implementation of project work:

- Projects should provide a method to assess the potential for linking with other fire and fuels management efforts in order to maximize the efficiency and cost effectiveness of project work.
- The project selection process should give the highest priority to those projects which provide maximum linkage and continuity with other wildfire related efforts, thus assuring greater positive impacts on fire conditions within Glenn County.
- A mechanism should be provided in all fuels modification projects to assure that project work is continually maintained and adequately conducted through self financing.
- Projects should maximize the responsibility of individual landowners to protect their own properties from wildfire.

Project Categories. The prioritized projects in this plan generally fall into three categories: fuels reduction/vegetation manipulation, infrastructure development and improvement, and organizational improvements. Fuels reduction and vegetation manipulation projects include efforts that attempt to impact the current arrangement and composition of vegetation and manmade fuels either at a single location or throughout a larger landscape. Infrastructure projects include construction and improvement of those manmade structures that provide fire safety and fire control. This type of nongovernmental organization would include Fire Safe Councils, watershed groups, and other community advocacy organizations. The techniques often used to manipulate the volume and arrangement of vegetative fuels is discussed in the following paragraphs.

Shaded Fuel Breaks. This form of vegetative fuel modification involves the thinning of forest crowns as well as the reduction of surface and ladder fuels. Perhaps most importantly, this type of vegetative manipulation maintains sufficient crown cover to effectively shade out shrubs and other vegetation that grow in the forest understory.

Defensible Fuel Profile Zone (DFPZ). Defensible Fuel Profile Zones are strategically located linear fuels reduction treatments and fire protection areas that are generally constructed one-quarter mile wide along significant public and private roads as well as along strategic ridgetops. DFPZ's are also designed to traverse communities, watersheds, or other areas of special concern. Within the DFPZ, hazardous surface, ladder, and canopy fuels are mechanically treated to levels that are less overstocked and closer to historical stocking levels. These developed features allow firefighters to quickly, safely, and effectively attack and suppress oncoming wildfire. The linear nature of the DFPZ network allows the development of connectivity between fire protection and fuels reduction projects on adjoining properties throughout a watershed. As a result, more extensive and effective fire protection can be developed than can be achieved through the creation of numerous unconnected fire related projects. Among the benefits of a DFPZ are:

- Protects communities, forest resources, watersheds, and wildlife;
- Addresses excessive fuel loading and overstocked timber stands at an appropriate scale and pace;
- Provides opportunities for adjoining landowners to extend fuels reduction projects and thus increase the protective capabilities of project work;
- Provides known DFPZ locations that can be incorporated into fire protection plans at the county level; and
- Provides an effective means to reduce roadside fire ignitions.

Roadside Clearings. Roadside clearings generally follow roads that are important for emergency evacuation, firefighting access, and fuel break development. These clearings will vary in width and in the degree of vegetation clearing based upon landowner cooperation, fuel density, and fire threat. Often, a 25 to 75 foot width is established from the road edge as a minimum objective for this type of project. The general prescription for a roadside clearing would be to remove all concentrations of brush and smaller trees (less than eight inches) away from the road edge. Larger trees are normally spaced to the maximum extent allowed by the property owner and pruned to at least ten feet from the soil surface.

Area-wide Projects

In the process of developing the Glenn County CWPP, a number of suggestions have been identified that are expected to positively impact wildfire conditions and fire ecology of the entire planning area. Recommended landscape scale projects are described below.

CAL FIRE Tehama-Glenn Unit Strategic Fire Plan. The CAL FIRE Tehama-Glenn Unit Strategic Fire Plan is a cooperative effort between State and local stakeholders focused on fire and fuels management within Tehama and Glenn Counties. The Tehama-Glenn Unit's Pre-Fire Engineer is responsible for updating the multi-county plan through the incorporation of current fire policies at the state level and

identification of new and in-process project work which will impact fire hazards within the planning area. Local stakeholders include TGFSC members, who provide input into the state's fire planning process by submitting project ideas and information on the progress of in-process project work. Council members also assist in prioritizing projects among a competing array of fuels management efforts.

The overall goal of the Tehama-Glenn Unit planning process is to identify public and private assets at risk of wildfire throughout the CAL FIRE area of responsibility within the Tehama County and Glenn County. The plan utilizes a methodology for defining assets protected and their degree of risk from wildfire. The assets at risk addressed in the plan are life safety (citizen and firefighter), watersheds and water quality, timber, wildlife and wildlife habitat (including rare and endangered species), rural communities, unique areas (scenic, cultural, and historic), recreation, range, property in the form of structures, and air quality. The planning document identifies strategic areas for pre-fire planning and fuels treatment for preparation of fuels evaluations and for validation of data provided from historical and current fire information and weather factors. The plan also develops an array of measures to protect at-risk assets, including a combination of fuel modification, ignition management and fire-wise planning.

Predevelopment planning is another significant component of the overall planning process and includes changes to local building codes and zoning ordinances, creation of educational and public information programs, and recommendations for improvement of firefighting infrastructure such as new or improved fire stations and water systems. The pre-fire management prescriptions identified in the Tehama-Glenn Unit plan also identify those who will benefit from such work and, consequently, those who should share in the project costs. With this information and a prioritized list of projects, stakeholders can more successfully apply for funding or approval of project work containing solutions that have been developed by consensus in a collaborative environment. As a result of these cooperative efforts among stakeholders, fire and fuels management projects can be conducted on a landscape basis with a greater chance of success. Finally, these state fire planning efforts and the creation of CWPPs within Glenn and Tehama Counties are expected to support the land use and safety elements of each county's general plan by incorporating appropriate portions of the California Fire Plan so that each county's fire plan supports the state plan.

CAL FIRE Vegetation Management Program. The Vegetation Management Program (VMP) is an ongoing cost-sharing initiative between private landowners and CAL FIRE, which takes the role of project administrator. The program focuses on the use of prescribed burns, manual and mechanical fuels reduction in order to reduce the presence of fire-prone vegetation on State Responsibility Area (SRA) lands. Throughout the Tehama-Glenn Unit area project work completed under this program has traditionally taken the form of prescribed burns for gross wildland fuels reduction. CAL FIRE has responsibility for State Responsibility Areas in Glenn County and fiscal responsibility for additional acreages which are directly protected by the USFS. The VMP allows private landowners to enter into a contract with CAL FIRE to use prescribed fire and other means to accomplish a combination of fire protection and

resource management goals; implementation of VMP projects is by local CAL FIRE units. The fuels reduction projects that will be completed first are those that are identified through the fire planning process and those developed and prioritized in individual CWPP's.

Mapping of Harvest and Thinning Projects on Public and Private Timber Lands. Under the provisions of the California Forest Practices Act, individuals and companies who conduct timber harvesting or thinning projects are required to submit THPs in connection with commercial operations. There are a variety of timber harvest documents, such as Exemptions, for homeowners or other small forestland owners who conduct fuel treatments to prevent or reduce the impact of wildland fire. These permits require the preparation of planning maps which show the location of harvest and treatment units as well as the intensity of stand reduction. Similar planning maps are prepared by the USFS in development of harvest areas on Federal lands. This spatial information would be valuable to firefighting agencies attempting to forecast fire behavior during suppression activities, thus improving fire suppression and post-fire resource protection strategies. It would also be helpful to forest managers in developing future vegetation manipulation projects that leverage previous treatment work in order to maximize the value and cost effectiveness of current fuels projects. Such an initiative would not require additional work by project applicants, only an additional copy of the project information.

In 2008, TCRCD developed an online map and database of planned, in progress, and completed fuels projects within Glenn, Tehama and Shasta Counties. These project areas were geo-referenced onto web-enabled maps. For the most part, reported projects are currently located on privately owned oak/grasslands and rangelands along with federal timberlands and chaparral lands. It is recommended that CAL FIRE submit spatial data and descriptive information regarding commercial timber harvests completed under state THPs along with those made by small landowners who are required to obtain harvest permits under small harvest exemption regulations. Similar data should be submitted by the USFS in connection with their fuels treatment program. As proposed, this information could be forwarded to TCRCD on an ongoing intermittent basis in order to maintain the map and database in a current condition. In addition, it is recommended that the Tehama-Glenn Fire Safe Council develop a list of potential funding sources in order to finance the continued maintenance of the map and database by TCRCD.

Highway 162/Forest Highway 7 Fuels Reduction Plan and Strategy. Highway 162 crosses Glenn County from Butte City in the east to the forest boundary in the west where it becomes Forest Highway 7 (FH7). At that point, the highway becomes a well maintained, unpaved road which continues to Mendocino Pass and the Glenn/Mendocino County line. At the present time, Cal Trans provides herbicide treatments along much of the State maintained portion of the road while the MNF treats sections of FH7 using various non-chemical control techniques. As a result of these efforts, the road has become an effective east-west fuel break across the various landscapes found within Glenn County. As such, this linear feature could become the basis for an extensive fuel break system which leverages already in-place

infrastructure with additional treatment areas.

It is recommended that a collaborative planning effort be developed between various State, federal, and local government agencies as well as nongovernment stakeholders in order to develop a Fuel Reduction Plan and Strategy specifically for the Highway 162/FH7 corridor. Included among the public and private stakeholders would be Cal Trans, CAL FIRE, MNF, BLM, Glenn County Public Works Department, and GCRCD, among others. As proposed, such a planning effort would also include adjacent lands of individuals and entities having an interest in incorporating their vegetation management efforts into a larger landscape scale effort at reducing wildfire threats. Another significant issue identified through the planning process is the timing of Cal Trans roadside herbicide spray treatments. It was mentioned that currently roadside fuels are often treated late in the spring growing season and as a result, relatively tall desiccated vegetation is left along the roadway exacerbating roadside ignition hazard. Through such organized efforts, the development of an overall fuels reduction plan and implementation strategy has the potential to make future fire and fuel management efforts more effective and cost efficient. In addition, the development of strategically designed and prioritized projects would make these efforts much more attractive to funding entities.

County Road 306 Fuels Reduction Plan and Strategy. County Road 306 is a major secondary transportation corridor within Western Glenn County. In addition, the communities of Elk Creek, Chrome, and Stonyford (located south of the Colusa County line) are located along the route, making it one of the most significant development corridors in the county's Westside area. Like the recommended *Highway 162/Forest Highway 7 Fuels Reduction Plan and Strategy*, a similar narrowly focused planning effort should be developed for this area in order to better leverage the already significant fuel break infrastructure represented by the road and right-of-way area.

Lower Stony Creek. As a response to landowner concerns regarding the substantial geomorphic changes that have occurred in the Lower Stony Creek Watershed since the completion of Black Butte Dam in 1963, a stakeholder group began meeting in Glenn County in 2000. The issues addressed were severe streambank and bed erosion and the associated loss of private property and riparian habitat. The result of these earlier meetings led to developing the Lower Stony Creek Landowner Watershed Strategy Visions and Stewardship Plan (Glenn County Public Works and Development Services Agency, 2001). Further stakeholder meetings facilitated by the GCRCD specifically addressed streambank and bed erosion and the eradication of the invasive non-native plant species, *Arundo donax* and Tamarisk. *Arundo* and Tamarisk exacerbate erosion, appreciably reduce wildlife habitat, and pose a serious threat of fire to rural residences and the City of Orland. GCRCD has prepared a Landowners Manual and the Lower Stony Creek Watershed Restoration Plan that serve as guidance documents for addressing issues and concerns. Through collaboration with landowners, the City of Orland, fire agencies, and resources managers, the risk of fire could be addressed and could provide increased fire protection benefits.

Fire Hazard Reduction Coordination with Glenn County Public Works Department. Public road and highway agencies are responsible for maintaining rights-of-way in a safe condition. This responsibility includes fuels reduction along roads in areas with increased wildfire risk. Properly maintained roads can act as effective and cost efficient fuel breaks over large areas. It is recommended that the road maintenance unit of the Glenn County Public Works Department stay in contact with landowners whenever fire hazard reduction projects are conducted within the vicinity of county maintained roads. Through collaboration with responsible road departments, project work can be linearly linked over large distances using rural roads; as a result, increased fire protection benefits can accrue to area stakeholders.

Map of "Fire Protection Existing Benefit Rating Criteria" for Roads within the Grindstone District of the Mendocino National Forest. In 2003, the MNF initiated its Roads Analysis Process for the entire National Forest. In connection with this effort, it is recommended that Grindstone Ranger District prepare Fire Protection Existing Benefit Rating Criteria. The criteria would be used to identify the various benefits provided by different road segments in the forest's eastside front range and timberland areas. The analysis prepared for a portion of the MNF defined the following classification of benefits to fire protection:

0 = Unknown	Benefit of road for fuels management or fire suppression activities is unknown. More information is needed.
1 = Little to No Benefit	Road is located in drainage bottom. Low or no prior fire history. Poor location for a DFPZ.
2 = Low benefit to fire suppression or fuels management	Road is located on lower slopes on north or east aspects. Fire history reflects few fires or mainly low intensity fires. Poor location for DFPZ.
3 = Moderate benefit	Road is located on lower slope with south or west aspect or on mid-slope with north or east aspects. Fire history shows a higher frequency of fire occurrence or moderate to high intensity fires. There are benefits to DFPZ locations. Road provides access to a large area.
4 = High Benefit	Road is located mid-slope with south or west aspects or on ridgetops. Fire history shows high fire occurrence or high intensity fires. Good location for DFPZ. Road provides exclusive access to a large area.

5 = Highest Benefit

Same as 4, plus road is currently along existing or proposed DFPZ. Fuel loading is moderate to high. DFPZ maintenance is required. The road is used to access structures (property) or there are structures in the area.

Once the classification of road segments within the Grindstone District has been completed, highly rated roads could be recommended for fuels reduction projects such as shaded fuel breaks. Such roads would have significant physical characteristics that would directly benefit the effectiveness of fire control infrastructure. Future fire control and fuels management efforts would thus become much more cost effective.

Fire Hazard Reduction Coordination with PG&E. PG&E is required by law to maintain certain clearances on rights-of-way for its primary and secondary power transmission lines. It is recommended that future fire hazard reduction projects be coordinated with PG&E as a way to share costs and to enhance project work.

Fuel Hazard Reduction Coordination with the Central Valley Project. The Central Valley Project maintains a high voltage power line that traverses Glenn County, including the Lower Stony Creek Riparian Corridor Unit. As is the case with the PG&E facilities described above, the BOR is required to maintain the vegetation along the power line right of way.

Development of Sufficient Water Storage, Handling, and Delivery Systems throughout the Study Area. Portions of Glenn County contain rural communities that lack water storage, handling, and delivery capacity sufficient to fight wildfires. As a result, rural homes can be at risk if wildfire disrupts electrical service and water cannot be generated on site. Several communities in the Glenn County CWPP project area currently have limited capacity for their population and, consequently, must depend on either tanker supplied water or water drafted from surface sources during wildfire events. In a wildfire situation, it is equally important to have adequate supplies of water and to have supplies that are readily available from various locations throughout the community.

Collaborative efforts between the TGFSC, CAL FIRE, GCRCD, Glenn County Planning Department, local citizens, and community groups should be encouraged in order to explore options available to increase water storage capacity and delivery systems for firefighting purposes. This group of stakeholders should also pursue grant funding to finance these improvements. In addition, consideration should be given to increasing the water flow and storage capacity requirements found in the county's zoning regulations.

Canals and Water Transfer Infrastructure. Throughout Glenn County, a number of irrigation districts have canals and other water transfer infrastructure that creates rudimentary fuel breaks. Among these facilities are irrigation canals, cross ditches, and pipe lines. Vegetation around many of these facilities is treated on an ongoing

basis. With further development, this water conveyance infrastructure has the potential to be improved as fuel breaks and to provide an array of other benefits to firefighters responding to fire emergencies. At the same time, this infrastructure poses obstacles to the ingress by firefighting personnel if their locations are unknown to units responding from outside the area. As a result, it was suggested that the location of irrigation canals and other water conveyance infrastructure be mapped in detail in order to plot this spatial information onto maps used by county and state firefighting personnel operating within the local and state responsibility areas of Glenn County.

Review of Glenn County Building, Land Development, and Zoning Codes. In order to reduce structural ignitability, the Glenn County building and land development codes should be reviewed in order to determine if all current building and land development standards incorporate fire safe standards. Recommended changes would include updated regulations and standards for new construction, as well as building retrofits in order to make them less prone to loss from a wildfire attributable to embers, radiated heat, or surface fire spread. Specific suggestions for code changes are discussed below.

Incorporate Fire Safe Principles in County Land Use and Zoning Ordinances. The Glenn County Planning Department should consider reviewing its land use and zoning ordinances in order to assure that these codes adequately, efficiently, and effectively promote fire safety and structure survival in the event of catastrophic wildfire. Among zoning issues that can impact the safety of rural residents are:

- Rural residential zoning that takes into consideration the expected density and number of homes in addition to parcel size when requiring fire protection measures;
- Rural residential zoning that takes into consideration natural fuel loadings and topographic features that can make a site more susceptible to wildfire threat (e.g., building sites on steep slopes in the chaparral belt of Western Glenn County); and
- Reassessment of workloads and response times of current fire facilities when analyzing requests for zone changes to higher density development.

Elimination of Wood Shake Roofs within the Portions of Glenn County Classified as a High Fire Threat. Efforts should be made to eliminate wood shake roofs within the areas of Glenn County classified as having a high fire threat. Presently, homeowners in Glenn County are allowed to replace up to 50% of an existing roof per year as a repair. As a result, the use of wood shakes continues in both new construction and roof replacements. Research shows that homes with noncombustible roofs and clearance of at least 30-60 feet have a 95% chance of survival in a wildfire. In order to promote this effort, the TGFSC and GCRCO should work with the Glenn County Building Department to educate residents about the importance of replacing shake roofs. In addition, county officials should consider the following changes in building regulations and polices:

- Establishment of a reduced or no-fee permit for the replacement of shake roofs;
- Required replacement of shake roofs upon sale of a home; and
- Financial assistance programs for wood shake roof replacement among qualifying low income homeowners and first time home buyers.

County Incentives for Fire Safe Landscaping. In addition to constructing homes and other structures that are capable of surviving catastrophic wildfire events, the Glenn County Building Department should review building and development codes in order to assure that all landscaping requirements are fire safe. Consideration should also be given to exploring an array of incentives for homeowners and other rural property owners to utilize fire safe landscaping techniques and plant materials. Finally, through cooperation between the Glenn County Building Department and CAL FIRE, consideration should be given to developing a program of uniform and consistent inspections in order to maintain homeowner compliance with Public Resources Code 4291, which establishes minimum standards for open space around structures.

Support of Glenn County Fire Districts and Departments. It is recommended that the TGFSC and GCRCD, if requested, explore ways to assist the various county fire districts and departments in the area of grant funding for firefighting assets and training.

Formal Classification of Communities as Federal at-risk Communities. The 10-Year Comprehensive Strategy Implementation Plan prepared jointly by the Secretaries of Agriculture and Interior in May of 2002 created a mandate that the U.S. Department of Agriculture (USDA) and the U.S. Department of the Interior (DOI) work with state governors on a long term strategy to deal with the wildland fire and fuels situation and the urgent need for habitat restoration and rehabilitation after wildfire. To this end, attention was focused on areas adjacent to federal lands that were within the wildland urban interface. More specifically, this partnership between the federal government and the states was tasked with the responsibility of creating "...broad, nationally compatible standards for identifying and prioritizing communities at risk." In identifying these communities, agency officials were to remain cognizant of three basic tenets:

- Include all lands and all ownerships;
- Use a collaborative process that is consistent with the complexity of land ownership patterns, resource management issues, and the number of interested stakeholders; and
- Set priorities through project evaluation, not by ranking communities.

An initial step in the classification process was the establishment of a formal definition for "Urban Wildland Interface Community." On January 4, 2001, the Federal Register published an initial definition of interface areas in order to focus fire protection and fire reductions efforts on those communities within at-risk areas. According to the official federal definition, urban wildland interface communities are

those lands where "...humans and their development meet or intermix with wildland fuel." Further, the federal definition establishes three categories of communities that meet this description, of which Categories 1 and 2 are of special importance to federal officials, described below.

- Category 1. Interface Community. The Interface Community exists where structures directly abut wildland fuels. There is a clear line of demarcation between residential, business, and public structures and wildland fuels. Wildland fuels do not generally continue into the developed area. The development density for an interface community is usually 3 or more structures per acre, with shared municipal services. Fire protection is generally provided by a local government fire department with the responsibility to protect the structure from both an interior fire and an advancing wildland fire. An alternative definition of the interface community emphasizes a population density of 250 or more people per square mile.
- Category 2. Intermix Community. The Intermix Community exists where structures are scattered throughout a wildland area. There is no clear line of demarcation; wildland fuels are continuous outside of and within the developed area. The development density in the intermix zone ranges from structures very close together to 1 structure per 40 acres. Fire protection districts funded by various taxing authorities normally provide life and property fire protection and may also have wildland fire protection responsibilities. An alternative definition of intermix community emphasizes a population density of between 28-250 people per square mile.
- Category 3. Occluded Community. The Occluded Community generally exists in a situation, often within a city, where structures abut an island of wildland fuels (e.g., park or open space). There is a clear line of demarcation between structures and wildland fuels. The development density for an occluded community is usually similar to those found in the interface community, but the occluded area is usually less than 1,000 acres in size. Fire protection is normally provided by local government fire departments.

In addition to the spatial relationship between urban development and areas containing wildland fuels, a number of fire behavior and urban development criteria were converted to factors that needed to be considered when making a determination that a community was at risk of wildfire threat. The January 4, 2001 Federal Register described these significant factors through example with descriptions of situations of decreasing severity that impact landscapes.

- Risk Factor 1: Fire Behavior Potential
 - Situation 1: In these communities, continuous fuels are in close proximity to structures. The composition of surrounding fuels is conducive to crown fires or high intensity surface fires. There are steep slopes, predominantly south aspects, dense fuels, heavy duff, prevailing wind exposure and/or ladder fuels that reduce firefighting effectiveness. There is a history of large fires and/or high fire occurrence.
 - Situation 2: In these communities, there are moderate slopes, broken moderate fuels, and some ladder fuels. The composition of surrounding

fuels is conducive to torching and spotting. These conditions may lead to moderate firefighting effectiveness. There is a history of some large fires and/or moderate fire occurrence.

- Situation 3: In these communities, grass and/or sparse fuels surround structures. There is infrequent wind exposure, flat terrain with little slope and/or predominantly a north aspect. There is no large fire history and/or low fire occurrence. Firefighting generally is highly effective.
- Risk Factor 2: Values at Risk
 - Situation 1: This situation most closely represents a community in an urban interface setting. The setting contains a high density of homes, businesses, and other facilities that continue across the interface. There is a lack of defensible space where personnel can safely work to provide protection. The community watershed for municipal water is at high risk of being burned compared to other watersheds within that geographic region. There is a high potential for economic loss to the community and likely loss of housing units and/or businesses. There are unique cultural, historical or natural heritage values at risk.
 - Situation 2: This situation represents an intermix or occluded setting, with scattered areas of high-density homes, summer homes, youth camps, or camp grounds that are less than a mile apart. This situation would cover the presence of lands at risk that are described under state designations such as impaired watersheds, or scenic by-ways. There is a risk of erosion or flooding in the community if vegetation burns.
- Risk Factor 3: Infrastructure
 - Situation 1: In these communities, there are narrow dead end roads, steep grades, one way in and/or out routes, and minimal firefighting capacity, no fire hydrants, no surface water, no pressure water systems, and no emergency operations group and no evacuation plan in an area surrounded by a fire-conductive landscape.
 - Situation 2: In these communities, there are limited access routes, moderate grades, limited water supply, and limited firefighting capability in an area surrounded by scattered fire-conductive landscape.
 - Situation 3: In these communities, there are multiple entrances and exits that are well equipped for fire trucks, wide loop roads, fire hydrants, open water sources (pools, creeks, and lakes), an active emergency operations group, and an evacuation plan in place in an area surrounded by a fireproof landscape. The Secretaries will work collaboratively with states, tribes, local communities, and other interested parties to develop a ranking process to focus fuels reduction activities by identifying communities most at risk.

Since its initial publication, the federal list of at-risk communities has expanded to include all lands in the vicinity of wildland fuels, not just those adjacent to federally managed lands. As a result, the initial list of 843 communities increased to 1,283. In addition, the California State Forester has assigned the role of maintaining the current list of at-risk communities to the California Fire Alliance

(CFA) which has recently developed a process whereby communities can be added or removed from the formal designation as an at-risk community. Given the significance that classification as an at-risk community has on project funding and prioritization, it is of critical importance that communities within the purview of the Glenn County CWPP are assessed as to their potential for such classification.

Public Outreach and Fire Safe Education. The residents of Glenn County have already benefited from the public outreach and public information efforts of the local fire departments, TCFSC and its member organizations. These efforts have included fire safety and fire ecology information distributed at community meetings. In addition, council members have participated in Wildfire Awareness Week programs. With the exception of labor hours contributed by agency personnel and publicly funded watershed coordinators, these outreach and education projects have been accomplished at little or no public expense.

In order to increase public awareness of fire hazards and the need for continued fire management and fuels reduction project work, the TGFSC should further develop its program of public education and outreach. These increased efforts could be supported by the current outreach programs of GCRCDC, such as the following:

- Fire safe education workshops for developers, realtors, contractors, home builders, building inspectors, and citizens concerning prevention of wildfires, preparation for the inevitable occurrence of wildfire events, methods to ensure structural and landscaping survival following a wildfire, and the impacts of environmental features on the development of fire safe home sites.
- Public education advertisements that inform the public about new open space requirements, fire safe building materials, and the role of fire in maintaining fire safe landscapes within Glenn County in order to educate homeowners, ranchers and other residents about current changes in open space requirements.
- Reports about new and ongoing efforts to manage wildfire and wildland fuels as well as the need for citizen input into the fire planning process.

Mapping of Secondary Ranch Roads and Development of Multi-Hazard Community Emergency Evacuation Plan. A number of ranch roads and other wildland routes are located throughout the Glenn County CWPP project area that could be used both for access to remote areas by firefighting personnel as well as for egress by area traffic during a significant wildfire event. Gates across these routes would require the installation of combination locks or could be keyed in a manner that would give firefighting personnel, land managers, and local rural residents the ability to open them rapidly in the event of a fire emergency. Route maps would need to be developed and issued to firefighting personnel and others in order to expedite emergency response and escape.

Section 9: OVERVIEW OF ASSETS AT RISK, CURRENTLY IN-PLACE FIRE PROTECTION INFRASTRUCTURE, AND RECOMMENDED PROJECTS BY PLANNING UNIT

Western Glenn County Planning Unit

Introduction. The Western Glenn County Planning Unit focuses on those watersheds and landscapes within Glenn County that are situated west of Interstate 5. More specifically, the planning area begins roughly five miles west of Interstate 5 where Central Valley Project power lines pass through the county from north to south. Within this area there are several rural communities, the largest of which is Elk Creek (population 586) located approximately 28 miles west of Willows at the intersection of Highway 162 and County Road 306. Other much smaller communities within this planning unit include Fruto located roughly 18 miles west of Willows on Highway 162 and Chrome located about 8 miles north of Elk Creek along County Road 306.

Major Land Management Areas and Assets at Risk. This planning unit contains large tracts of public land containing valuable natural resources, rural communities, transportation routes, and significant watersheds, as described below.

Mendocino National Forest. Approximately 222,618 acres of the Mendocino National Forest (MNF) are located within Glenn County. Included within this portion of the MNF are 10,865 acres within the Snow Mountain Wilderness Area which contains the headwaters of the Stony Creek system. Significantly, within the Wilderness Area, Stony Creek has a self-sustaining population of wild rainbow trout. More than 500 species of plants and 122 species of wildlife have been identified in the Wilderness Area. The highest elevations have a subalpine environment with barren, rocky slopes and stunted red fir trees, while middle and lower elevations have stands of mixed conifers such as White Fir, Jeffrey Pine, and Incense Cedar, as well as Black Oak. Mountain Mahogany grows on exposed ridges in the wilderness and is a food source for the black-tailed deer. Rare native plants include Sonoma Manzanita (*Arctostaphylos canescens ssp. sonomensis*) on Snow Mountain East and the endemic annual herb Bentflower Fiddleneck (*Amsinckia lunaris*) on St. John's Mountain. In addition, the Wilderness Area provides habitat for species such as the Northern Spotted Owl, marten, fisher, goshawk, black bear, mountain lion, and game birds like California quail, sooty grouse, and bandtailed pigeon.

Bureau of Land Management Properties. The BLM provides oversight on 3,382 acres of land within Glenn County. In addition to wildlife habitat, these properties provide rangelands for livestock grazing, sites for electronic communication facilities, mineral extraction sites, and off-road vehicle use areas.

Grindstone Rancheria and Related Cultural Resources. The Grindstone Rancheria is a federal reservation of Nomlaki and Wintun Indians in Glenn County. The facility is located approximately 6 miles north of Elk Creek along County Road 306 and Grindstone Creek. With population of 98 and tribal enrollment of roughly 162, the Rancheria property covers 120 acres of oak woodlands and grasslands. In addition to residences, the property contains a large number of Nomlaki and Wintun cultural resources including the oldest Round House in California.

Community of Elk Creek and its Wildland Urban Interface Area. Elk Creek is a compact community with a population of approximately 600. It is formally recognized as a federally listed at-risk community. The urban core contains a number of commercial establishments, post office, community hall, church, and elementary, middle, and high schools. Electrical and water utility infrastructure such as water pumping facilities are located in the community's urban core. The community and the surrounding area are served by a seasonal CAL FIRE station along with a USFS facility and the Elk Creek Volunteer Fire Department.

Communities of Fruto and Chrome. These two communities are the historic remains of developed areas that were much larger at the turn of the 20th Century. At the present time there are roughly 20 residents living in the vicinity of each of these historic spots.

Highway 162/Forest Highway 7. Highway 162 passes through the middle of the Western Glenn County Planning Unit from east to west. Where it crosses the eastern boundary of the MNF, the route becomes Forest Highway 7 (FH 7) and is maintained by the Glenn County Road Department. Along those road segments between Butte City on the valley floor and Fruto in Western Glenn County, vegetation within the highway right-of-way is controlled through a combination of herbicide and hand treatments. Between Fruto and the MNF boundary, vegetation is intermittently treated using hand treatments and occasional burning. The USFS also utilizes hand treatments and prescribed burning along FH 7.

County Road 306. County Road 306 is a locally maintained north-south road which connects a number of communities located along the base of the Coast Range's eastern slope including Newville, Chrome, Elk Creek, and Stonyford, which is located just south of the Colusa County line. As such, this paved road has created a major transportation corridor within Western Glenn County and creates opportunities for both fire control and roadside ignitions.

County Road 308 (Ivory Mill Road). County Road 308 is a partially paved secondary road that connects Elk Creek and the County Road 306 corridor with the

communities of El Manzano Rancho and Sky Hi. The unpaved road segments within the MNF have well maintained gravel or chip seal surfaces. The road continues to the northwest where it connects with Forest Service Road M3 and thus ties into a major system of primary USFS roads that cross the MNF. The paved portion of the road is located within grasslands and scattered oak woodlands near Elk Creek and in its present state acts as a barrier between wildfires moving in a north-south direction. Further up slope, the road passes through chaparral lands containing dense stands of old growth chamise. The roadway is not as effective in containing large, fast moving chaparral fires which could threaten public and private timberlands in the area of Alder Springs. Traffic volumes along the road create a significant risk of ignition.

County Road 309 (Sanhedrin Road). Another partially paved secondary route, County Road 309, connects Elk Creek with USFS and CAL FIRE / California Department of Corrections and Rehabilitations facilities at Alder Springs. Like County Road 308, County Road 309 creates a fuel break within lower elevation grasslands and oak woodlands.

County Road 313. County Road 313 is an unpaved road that intersects County Road 306 two miles south of Chrome. The road traverses oak grasslands, oak woodlands, chaparral lands, and low elevation conifer forests in northwestern Glenn County. The road continues north into Tehama County where it intersects with Road M4, continuing onto USFS facilities at Log Springs and west to developed areas at Mendocino Pass.

County Roads 303/403/400. These roadways connect Route 162 with County Road 306 south of Stony Gorge Reservoir. County Roads 303 and 403 create a paved route which intersects with County Road 400 and becomes a relatively well maintained gravel road. Where these roads connect, roadside vegetation changes from open grasslands and oak woodlands to chaparral species containing scattered pines and oaks.

Stony Creek and Grindstone Creek. The Stony Creek Watershed is the largest within Glenn County, and its main tributary is Grindstone Creek. This watershed originates in Lake County and passes through both Colusa County and Glenn County, joining with the Sacramento River east of Orland. The forks of Stony Creek supply water for a series of BOR reservoirs, including Stony Gorge located immediately east of Elk Creek. Substantial acreages in the overall watershed are located within the Glenn County CWPP project area, and additional acreage is located within the Mendocino National Forest, with some lands under the management of the BLM. In addition, certain BOR lands surround Stony Gorge Reservoir, also included within the Western Glenn County Planning Unit. The major tributaries within the Stony Creek watershed system inside Glenn County are Briscoe Creek, the North and South Forks of Elk Creek, and Grindstone Creek.

Approximately 90% of the Grindstone Creek watershed is located within Glenn County, with the remainder located in Tehama County. Approximately 84% (92,400 acres) of this tributary's watershed is located within chaparral lands and timber lands

of the Mendocino National Forest. The last three miles of its stream channel flow through privately held grasslands and oak woodlands prior to its confluence with Stony Creek. Although both Stony Creek and Grindstone Creek flow through mixed conifer forests, oak woodlands, and grasslands within the Western Glenn County Planning Unit, a large portion of these watersheds are largely or exclusively within chaparral lands located at elevations ranging between 800 feet and 3,000 feet. Vegetation in many of these areas has grown largely unabated since the adoption of fire suppression policies over the past 80 years. Prior to this period of increased fire suppression, large areas of chaparral were routinely burned and grazed, creating a mosaic pattern of dense and sparse brush along with open grassy areas. This variation of vegetation size and maturity at one time created a variety of habitats for a range of plant and animal species.

The absence of prescribed burning and fire suppression policies has also resulted in the forage value of various species to be reduced for both wildlife and livestock, particularly those found within chaparral lands. Under current conditions, a large portion of chaparral lands within these watersheds has become unpalatable and low in nutritional value. Mature brush also provides poor wildlife cover, contributing to a reduction in wildlife populations. In addition, these dense stands of chaparral vegetation can limit access to areas having superior forage value. Recent chaparral management studies indicate that plants considered to be typical brush land species do not have homogenous habitat requirements. Consequently, brush land needs to be managed in order to create a mosaic of stand age classes ranging from recent to relatively old.

Currently in-Place Fire Protection Infrastructure. At the present time, an array of natural and manmade features are located within the Western Glenn County Planning Unit which provide fire protection to local communities and other at-risk assets or which prevent wildfires from building in intensity and developing into a catastrophic conflagration. These are described in the paragraphs below.

Highway 162/Forest Highway 7 Roadside Fuels Treatment. At the present time, CalTrans conducts roadside fuel treatments along Highway 162 throughout the Western Glenn County Planning Unit area including herbicide applications, hand clearing, and burning. With the exception of herbicide applications, the Glenn County Road Department uses similar techniques to reduce roadside vegetation along Forest Highway 7.

Mendocino National Forest Prescribed Burn Program. The Grindstone District of the MNF conducts an on-going program of fuel treatments on both timberlands and chaparral throughout the MNF's eastside area. At the present time, burns have been planned, are in progress, or have been recently completed in a number of locations along the eastern crest of the Coast Range. These include Felkner Ridge, Tool Cache Ridge just east of El Manzano Rancho, Self Ridge, McGill Ridge, and Sanhedrin Ridge near Valley View Orchard, along Forest Road 21N62, along Forest Highway 7 within Grindstone Creek Canyon, and along parts of M3, M6 and County Road 311. Various

burns and thinnings have also occurred in and around state and federal facilities at Alder Springs.

Tehama West Fire Plan. Like Western Glenn County and much of Northern California, Tehama County is at very high risk of experiencing catastrophic wildfires. Conditions within the west side of both counties are similar in terms of topography, vegetation, and development. At the present time, considerable effort is being made by public and private land managers in Tehama County's westside to reduce wildland vegetation in order to reduce the threat of uncontrolled wildfire and to recreate natural fire return intervals in westside landscapes. These efforts have included an array of prescribed burns, shaded fuel breaks, and other fuel reduction practices developed on public and private lands.

In order to better coordinate the project activities of individual stakeholders, thus maximizing their value and cost effectiveness, the Tehama West Fire Plan was developed. In addition to describing current conditions and in-place protection measures, the plan describes current and planned project work as well as recommendations for additional efforts that will improve the current wildfire and fuels management situation in southwestern Tehama County. Out of this planning process, an array of projects was recommended that impact wildfire conditions within this portion of the county. A number of these projects are located to the north and west of Newville, and with additional work could be connected with similar efforts developed for northwestern Glenn County. The Tehama West Fire Plan represents a tangible component of Western Glenn County's fire and fuel infrastructure as projects and initiatives are recommended that will directly impact fire safety and the fire ecology within Glenn County.

Significant Resources within Planning Unit. The significant resources found within the Western Glenn County Planning Unit consist of the following:

- The communities of Elk Creek (the only developed area in the planning area having an urban core containing commercial services and community utilities infrastructure), together with Fruto, the Grindstone Rancheria, and Chrome;
- Lands used for commercial purposes such as grazing, dry crop production, and timber production;
- Vast watershed areas containing an array of important environmental values including wildlife, water production, and vegetative cover which controls runoff, erosion, and sedimentation to water courses;
- Other sensitive, threatened, and endangered plant and animal species, along with their critical habitat;
- Riparian habitats along watercourses;
- Properly functioning aquatic ecosystems;
- Unique landscapes, such as the area's serpentine belt, which support an array of rare and endangered plant species; and
- Sites of cultural and historical significance, including ranches, home sites, the Grindstone Rancheria and other areas of human occupation.

Priorities and Summary of Proposed Projects. In prioritizing project recommendations, the protection of residents and firefighters was of primary importance. Additionally, protection of development and infrastructure on rural public and private property as well as within the Elk Creek community's urban core was considered paramount. Also of considerable concern were the Stony Creek and Grindstone Creek watersheds. As was the case throughout the Glenn County CWPP project area, the protection of watershed plant and animal species and critical habitat were also given special consideration in the process of project development. Projects protecting cultural and historical resources were considered as well. The following descriptions and discussions of projects and their protection goals reflect the prioritization values of the planning area's stakeholders and project participants. Certain of these project recommendations are depicted on the planning unit maps labeled Figure G on page 64 and Figure H on page 65.

(1-A) Development of Existing Roads as Fuel Breaks. The fire records and experience of the various firefighting entities within the Western Glenn County Planning Unit indicate that the majority of wildfires impacting the region occur during the months of August and September. Most of the ignitions related to these fires occur in dry grass and chaparral located at elevations between 800 feet and 4,000 feet. The normal wind direction in this westside area is downhill in the morning and uphill in the afternoon, with stronger northerly or southerly winds occurring with the passage of high or low pressure systems. Steep topography in the area can create strong localized impacts on wind direction and speed. The behavior of past wildfires has shown that fuel breaks are most effective when there is light wind and when fire is moving at right angles to the fire break. Fire control mechanisms are less effective on steep slopes due to increased flame lengths associated with the chimney effect. Throughout the Western Glenn County Planning Unit, pre-existing features such as roads, streams, power line and pipeline corridor rights-of-way, and other utility infrastructure could be expanded quickly and efficiently into fire breaks. Using these observations, agency personnel and community members developed recommendations for an array of fuel breaks to be constructed along relatively flat roads and ridgetops.

(1-A1) County Road 308 (Ivory Mill Road)/ M3 and M6 Fuel Break. This combination of county maintained, paved and unpaved roads connects Elk Creek with a number of privately owned developed areas including El Manzano Ranch and Sky Hi. A significant portion of County Road 308 is located within dense chaparral stands while the M3 and M6 roads traverse conifer/brush stands and dense mixed conifer stands at higher elevations. Given the significant volume of traffic using these routes in the late summer and early fall, there is a significant risk of ignition. In their present state, these roads may act as an effective barrier between wildfires moving in a north-south direction. Additional fuel treatments, such as hand and mechanical brushing as well as herbicide treatments to maintain control of vegetation, would improve the roads' protective capabilities at lower elevations. Development of shaded fuel breaks within timber stands further upslope would have the same effect in forested landscapes. These treatments would also provide an anchor point for

future prescribed burns that would reduce wildland fuel volumes over thousands of chaparral and timberland acres in southwestern Glenn County. If efforts to create roadside fuel breaks were continued along County Road 311 located on Bear Wallow Ridge, the small developed area of Lee Logan Camp would be afforded protection, as would the important habitats found within the State Game Refuge immediately to the south.

(1-A2) County Road 309 (Sanhedrin Road). This partially paved road provides a southerly route between Elk Creek, Alder Springs, and the MNF. In addition to providing an alternate escape route out of the Alder Springs area, the road could provide control for chaparral fires occurring within Bowman Canyon and the North Fork of Elk Creek to the south, and within Salt Creek Canyon between County Road 309 and Forest Highway 7 to the north. The road could also provide a significant anchor point for future prescribed burns that would improve the effectiveness of the roadway as a fuel break as well as reduce wildland fuel volumes within a significant portion of chaparral lands west of Elk Creek and Stony Gorge Reservoir.

(1-A3) County Roads 313 and M4. Like the proposed County Road 309 discussion above, this well maintained, unpaved road provides an escape route out of the forest. If a roadside fuel break were established along its route, significant control would be afforded to fires occurring within Grindstone Creek Canyon to the south as well as within numerous small watersheds and facilities on top of Red Mountain to the north. If work was continued on MNF lands within Tehama County, protection would also be provided to the Devils Basin Research Natural Area managed by the MNF.

(1-A4) Road M-10 (Fouts Springs Road) (not shown on map). Although located in Colusa County and outside of the Western Glenn County Planning Unit, Road M-10 is an east-west transportation route within the MNF. This unpaved road connects the community of Stonyford with a number of campgrounds within the MNF, Fouts Springs, and a number of secondary forest roads that lead to trail heads at the boundary of the Snow Mountain Wilderness Area. If a roadside fuel break was created along this route within both the chaparral belt and forested areas, an effective control line could be developed south of the Snow Mountain Wilderness Area, which would protect both resources and recreation facilities in the event of a large wildfire. Once completed, this linear fuel break could become the anchor point for future prescribed burns which would expand and improve the protection capabilities of the road.

(1-A5) County Road 304 and Entrance to Stony Gorge Reservoir. County Road 304 intersects with Highway 162 and is the main access route to facilities at Stony Gorge Reservoir. It was noted that the segment of roadway closest to Highway 162 is narrow and could cause a restriction in traffic flow in both directions in the event of a fast moving wildfire. It was recommended that the portion of roadway between the Highway 162 and the lake be widened to assure incoming and outgoing traffic flows in the event of an emergency.

(1-A6) County Roads 302 and 303 (Clarks Valley Road). Together, County Roads 302 and 303 connect Highway 162 with County Road 306 southeast of

Elk Creek and the Stony Gorge Reservoir. These roads create alternate access routes out of the area. If improved through vegetation treatments, they would also provide a significant fuel break for fires moving west from the valley floor and open grasslands towards the Stony Gorge Reservoir and County Road 306.

(1-B) Ridgetop Fuel Breaks and Vegetation Management Program Prescribed Burns. In addition to roadside fuel breaks, other fire and fuel management techniques are available with which to control wildfire and wildland fuels, as well as their impacts on communities and landscapes. Significant among these are ridgetop fuel breaks and large prescribed burns such as those sponsored and conducted by CAL FIRE through their Vegetation Management Program (VMP). Under this program, CAL FIRE works with landowners to develop prescribed burning projects that provide for fire management objectives and restoration of natural fire rotation cycles through a reduction of wildland fire. To accomplish this, the agency provides fire management resources, technical expertise, project administration, and indemnification for damages in the event of an escape.

(1-B1) In order to increase the utility of fuel breaks along County Road 313 as described above, it was recommended that fuel treatments be developed on the ridge top along Heifer Ridge and Digger Ridge located approximately 3 miles to the north. These treatments would not only help to protect the community of Newville, but would also provide a northerly fuel break for fire threats to facilities atop Red Mountain. Protection would also be provided from the south near the Salt Creek Conservation Camp as well as the Wilder Ridge Research Natural Area located next to this facility. Once these ridgetop fuel breaks were established, large scale prescribed burns could be safely conducted over thousands of acres between Heifer Ridge and the Glenn/Tehama County line.

(1-C) Fuels Reduction on Private Lands Adjacent to Mendocino National Forest Boundary Utilizing Wyden Amendment Legislation. The Wyden Amendment (Public Law 109-54, Section 434) authorizes the USFS to enter into cooperative agreements in order to benefit resources within watersheds on National Forest System lands. Agreements must be with willing federal, tribal, state, and local governments, private and non-profit entities, and landowners to conduct activities on public or private lands for the following purposes:

- Protection, restoration, and enhancement of fish and wildlife habitat and other resources;
- Reduction of risk for natural disaster where public safety is threatened; or
- A combination of both.

A recommendation was made by local stakeholders for the MNF to expedite implementation of this legislation in order to direct USFS financial and technical resources related to fuel reduction efforts using the authorization of this legislation. Through such action, the goals and objectives for National Forest fire and fuels management efforts would more closely match those of the landowners and of the landowners and communities located adjacent to the National Forest Boundary.

(1-D) *Installation of Water Tanks with High Volume Fill Spout Fittings.* During wildfire emergencies, drafting of water from ditches and streams can be time consuming. In addition, roads adjacent to such infrastructure can become cut off from firefighting vehicles, limiting the number of water sources available for fire containment. Consequently, an important recommendation is that supplemental water sources be constructed for use in firefighting efforts. TAC and L/CAC members provided the following list of specific water tank sizes and locations. These locations are marked on the planning units maps with this symbology: 

(1-D1) *50,000 Gallon Water Tank at the Elk Creek High School.* Elk Creek High School is located along County Road 309 (Sanhedrin Road), which is one of the main rural routes out of the community towards the MNF. In addition, the school has extensive clearance and would be accessible during almost all wildfire events. A recommendation was made to install a 50,000 gallon water tank on the school grounds which would be available for service to the community of Elk Creek and would also serve as fire protection infrastructure to the school itself.

(1-D2) *50,000 Gallon Water Tank at the Grindstone Rancheria.* The Grindstone Rancheria has a population of approximately 98 people. The area contains public buildings and various public sites that are secure from vandalism. It is recommended that a 50,000 gallon water tank be installed within the Grindstone Rancheria compound in order to provide firefighting water to forces operating in the area. The water supply would also be readily available for emergencies within the compound.

(1-D3) *50,000 Gallon Water Tank at Stony Gorge Dam.* Operational facilities are located at the foot of Stony Gorge Dam. The site is protected with fencing and gates. In addition, personnel are in the vicinity of these facilities most of the time. The site also has excellent paved access, which would make it an effective site to fill tanker units operating within the area. Consequently, the site was recommended as a location for a 50,000 gallon water tank.

(1-D4) *10,000 Gallon Water Tanks throughout the Western Glenn County Planning Unit.* Portions of the Western Glenn County Planning Unit have limited sources of firefighting water in the form of ponds, tanks, flumes, and close access to streams. In addition, such sources of water can be easily cut off from firefighting vehicles in the event of large, fast moving wildfires. Ten thousand gallon water tanks provide flexibility in staging firefighting resources, as they are relatively inexpensive and portable. Tanks of this size can be moved in order to maximize their utility as yearly fire conditions change or as fire threats change in the face of community development. Members of the TAC and L/CAC provided input with regard to two recommended locations for tanks: (1) County Road 200 at Newville and (2) County Road 306 at Chrome.

(1-E) *Community Preparedness Rehearsals, Information and Evacuation Plans.* Recommendations by community members included trainings and rehearsals of emergency procedures in the event of wildfire. Other recommendations included the

creation of a comprehensive list that include fire prevention and firefighting resources that should be maintained around the home or ranch such as fire swatters and other tools to be used in the event of wildfire. It was also recommended that items to be included in personal fire preparedness kits be distributed to residents. Finally it was suggested that households and ranches prepare an evacuation plan for domestic animals and livestock as well as a clearance plan that are based upon CAL FIRE recommendations.

(1-F) Programmatic Environmental Document for Fuels Work on Private Lands. In order to expedite and make more cost effective the development of fuel breaks, prescribed burns and other vegetation management efforts, it was recommended that an environmental permitting program be developed that would describe an array of treatment options, their use and effectiveness in reducing fuels in specific situations. The program description would discuss the permitting program and the specific watershed based permits that would be issued to the GCRC and CAL FIRE in order to cover specific standardized, multi-agency approved fire and fuels management practices. The program document would also describe overall operation of the permitting program along with the roles and responsibilities of the GCRC and CAL FIRE in accepting fuels reduction projects of area landowners into the program and assuring compliance with its provisions.

A California Environmental Quality Act Initial Study/Mitigated Negative Declaration would be prepared that describes in detail the project area which would include large expanses of grasslands, oak woodlands and chaparral within Western Glenn County. The programmatic CEQA document would discuss the environmental impacts of the pre-approved fire and fuels management techniques developed under the program as well as measures to render these impacts less than significant and the limitations placed upon their use through the program's operations. If proposed fuel treatments were approved through the permitting program, a more limited environmental review process would be required that entailed site specific archeological review.

(1-G) Map and Database of Natural Fire Management Units. In order to facilitate communication between fire agencies, land managers, land owners, and other area stakeholders it is recommended that a map and database of natural fire management units be developed that are based upon topography and natural fire breaks, both of which directly affect fire behavior. These units would span multiple agency jurisdictions, such as watershed, large drainages and canyons. Communication between concerned parties is particularly important during wildfire events and the conducting of fuels management projects. As a result, landscape scale fire and fuels management strategies can be developed that reflect ecological realities of the project area.

Examples of the use of these fire management units include the identification and cataloging of homes and other structures as well as critical stream segments containing important riparian and aquatic resources. In addition, areas containing threatened and endangered species can be mapped and included in the database in order to assure protection during controlled and uncontrolled burns. Fire management

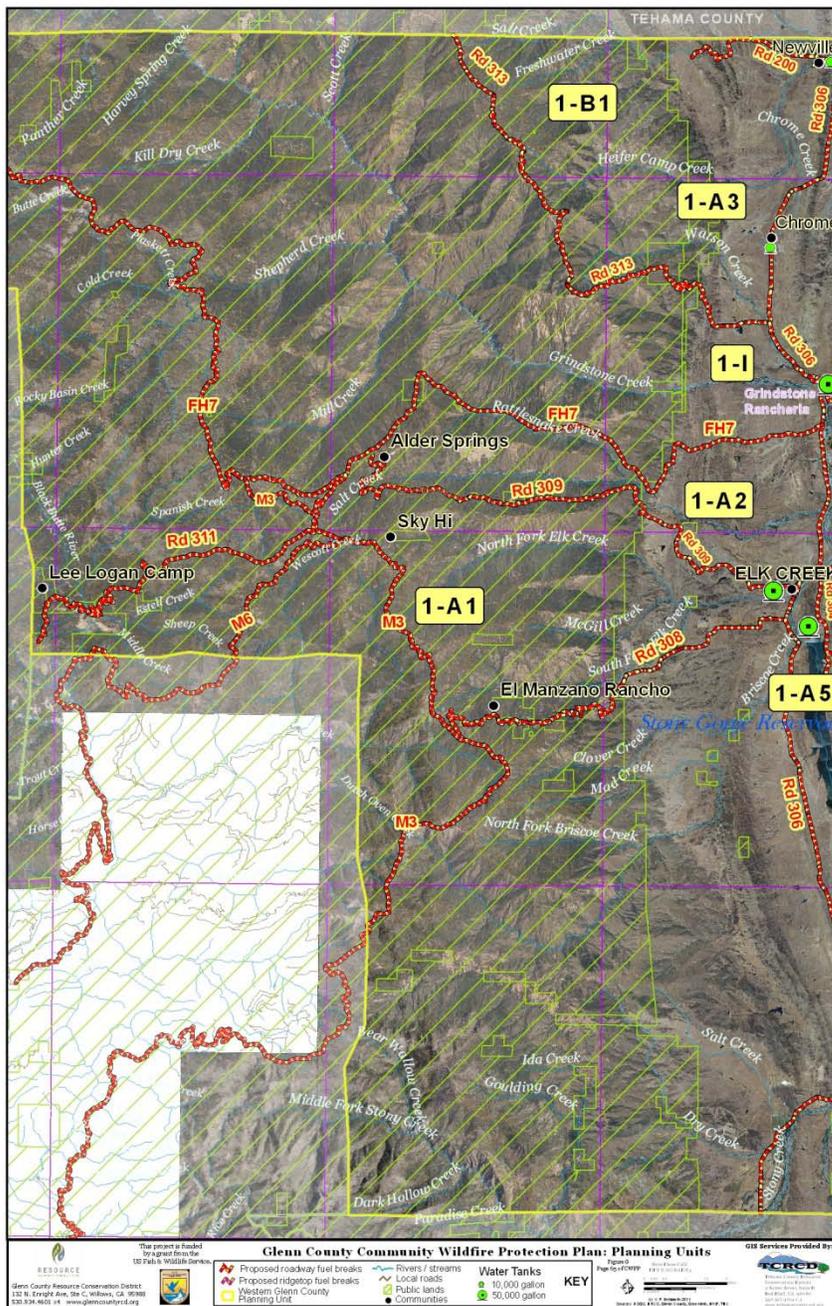
applications include the mapping of watering holes and tanker fills. This kind of resource and wildfire management information would greatly assist out-of-area firefighting units in managing fires in a manner that promotes expeditious containment and maximum resource protection. With the fire management units delineated and mapped, the process of cataloguing assets at risk and fire management infrastructure into a corresponding database could begin and would continue as information is received from landowners, agency personnel, and other land managers.

(1-H) Development of Mendocino National Forest Type Conversion Data Layers into Publicly Available Maps. At the present time, the MNF is in the process of converting areas containing artificially high levels of chaparral fuels and overstocked timber stands into more natural systems by increasing fire return intervals through techniques such as thinnings. Areas where conversions have either occurred or have been planned are on data layers that could be developed into maps. If made available to landowners, such maps could help owners of adjacent private lands to direct their resources to areas where adjacent Forest Service fuels work has already been completed or is planned, thus increasing the overall effectiveness of both the public and private efforts.

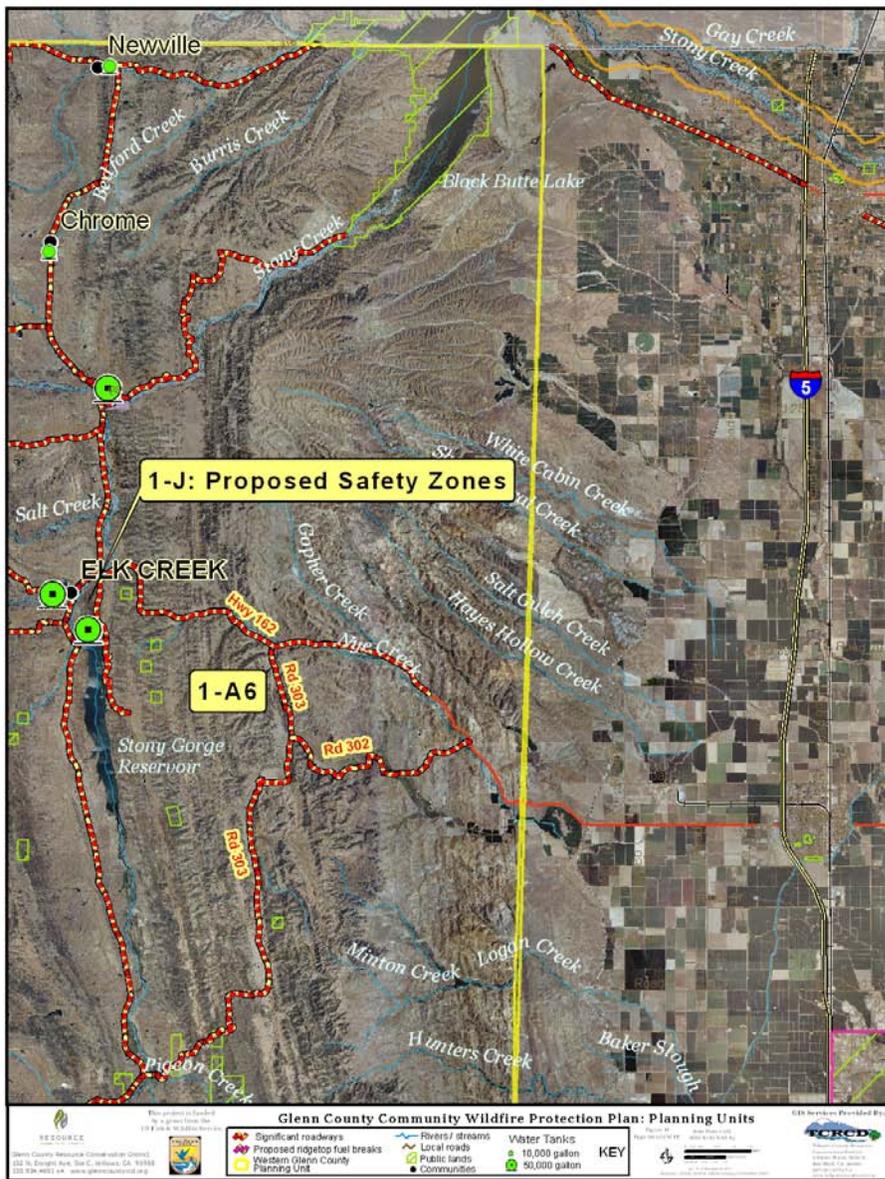
(1-I) Development of Multiple Access Points to County Road 306 from the Grindstone Rancheria. At the present time there is a single access point into the Grindstone Rancheria along County Road 306 via County Road 305. In the event of a fast moving wildfire, County Road 305 could become restricted or blocked by traffic during a large wildfire event preventing entry by firefighting personnel or egress by residents evacuating the area. It was recommended that the Glenn County Public Works Department address this issue through the development of a second access route out of the Rancheria property to County Road 306.

(1-J) Formal Establishment of Fire Safety Zones. In the event of a large, fast moving fire in the vicinity of Elk Creek or other populated portions of the County Road 306 corridor, various routes out of the area may become blocked, preventing egress to other parts of Glenn County or to neighboring counties. In such an event, the creation of formal safety zones and emergency evacuation routes would be invaluable. Areas recommended for such sites include the east side of Stony Gorge Reservoir and the Elk Creek High School. These areas are relatively free of vegetation and could be utilized as a formal safety zone if a catastrophic wildfire threatened the community from any direction. If these areas were formally designated as Fire Safety Zones, these areas should be included on CAL FIRE evacuation maps.

SEE 11x17 FOLDOUT MAP OF WESTERN GLENN COUNTY PLANNING UNITS (1 OF 2) AS FIGURE G



SEE 11x17 FOLDOUT MAP OF WESTERN GLENN COUNTY PLANNING UNITS (2 OF 2) AS FIGURE H



Lower Stony Creek Riparian Corridor Planning Unit

Introduction. The Lower Stony Creek Riparian Corridor Unit was developed in order to address a specific fire hazard within north central Glenn County – the development of dense stands of *Arundo donax* (*Arundo*) and *Tamarix* spp. (*Tamarisk*) within the flood channel of Lower Stony Creek. In order to be comprehensive, the planning unit includes an area 0.5 mile on each side of Lower Stony Creek’s thalweg on those stream segments between the foot of Black Butte Dam and the creek’s intersection with the Sacramento River Corridor Planning Unit. The town of Orland (population approximately 7,000) is the only formal community within the planning unit, although a significant number of residences and businesses are located along Newville Road (which generally follows Lower Stony Creek from Black Butte Reservoir to Orland) and along Highway 32 (which connects Orland with Hamilton City and Chico).

Major Land Management Areas and Assets at Risk. This planning unit contains significant public lands, communities, and transportation routes, as described below.

Black Butte Lake. Black Butte Lake is owned and operated by the U.S. Army Corps of Engineers. It is located on Stony Creek approximately eight miles west of Orland. There are six recreation areas, a dam overlook, and nature trails. Recreation lands surrounding the reservoir total about 4,000 acres. Orland Buttes Recreation Area contains camping sites and a boat ramp with parking spaces. The campsites have been built on a steep slope and have been tiered with retaining walls at each site, as well as for the parking areas. Grizzly Flat Recreation Area on the west shore is a day-use area primarily for hunting and fishing access. The terrain and vegetation is composed of low rolling hills and grassy oak woodland. A graveled road leads into the area where many undeveloped roads branch off of it.

Other facilities at Black Butte Lake include Big Oak Trail which is located at the southern end of the reservoir and leads to the lake through a willow and cottonwood forest. Observation Point is near Black Butte Dam and is an overlook area with a view of the main body of the lake, the dam, and the outlet structure. Eagle Pass Recreation Area is located near the dam overlook. It has a three-lane boat ramp with 62 parking spaces. Anglers Cove and a 75acre OHV Park are located on the northwest shore. This area is accessed from Newville Road at the intersection of Black Butte Road. At the ATV Park, there is a gravel parking area with several spaces for camping. The entire area is composed of rolling, grass covered hills with a few oak trees and shrubs. Buckhorn Recreation Area is also along Newville Road, west of Anglers Cove. This is the most developed area at Black Butte Reservoir. There is a two-lane boat ramp, a marina, and a store that is operated on a seasonal basis. Burris Creek Recreation Area is on the west branch of the reservoir. This area is similar to Grizzly Flat but is considerably smaller. It is connected to Grizzly Flat by a service road (closed to public vehicles) and an equestrian trail. It is comprised of oak woodland habitat with one main access road and several spurs that lead to areas for picnicking or fishing. The lake at this point is quite shallow, so even small drawdown creates a large mud flat down to where Burris Creek flows into the reservoir.

Community of Orland. The urban core of Orland is located generally between Interstate 5 to the west, the Lower Stony Creek riparian corridor to the north, County Road MM to the east and County Road 20 to the South. The area immediately adjacent to the urban core consists of agricultural land and grazing lands interspersed with individual homes and subdivisions, especially along Newville Road (County Road 200) and Highway 32. As a result, with the exception of the extensive stands of Arundo and Tamarisk within the Stony Creek riparian corridor, fuel loading in the vicinity of Orland is low but extensive enough to warrant the community's classification as a federally listed at-risk community. Orland and the surrounding area are served by the Orland City Fire Department and Orland Rural Fire District. Additional support is provided by the mutual aid from additional Glenn County Fire Departments.

Highway 99. Highway 99 parallels Interstate 5 and crosses the Lower Stony Creek corridor approximately 1 mile north of the Orland city limits. The road also allows rapid response from firefighting units responding from outside of the immediate Orland area.

Highway 32. Highway 32 parallels the Lower Stony Creek stream channel, sometimes no more than one-quarter mile to the south, and crosses the channel approximately 4 miles east of Orland. This linear feature acts as a significant access route to the stream channel in the event of wildfire or other emergency. It also acts as a significant source of human caused ignitions from both traffic and general urban development that have resulted from the highway's presence. Presently CalTrans, the California Department of Corrections, and CAL FIRE continue to work collaboratively in maintaining the fuels along this highway corridor as well as along paralleling frontage roads.

Rosser Road and County Road 3. These two secondary roads tie into one another just west of Interstate 5 and run parallel to the Lower Stony Creek riparian corridor located several miles to the north.

County Road 200 (Newville Road). This county maintained, paved, main artery is the primary route between Interstate 5, Orland, and Black Butte Lake. The road follows the stream course of Lower Stony Creek which is located approximately 1.5 miles to the north.

County Road 24 (St. John). This secondary road follows the south bank of Lower Stony Creek several miles prior to its confluence with the Sacramento River.

Rodgers Ranch Road. This rural road follows closely along Lower Stony Creek's north bank for many miles east of the stream mouth.

Other County Roads Providing Access to the Lower Stony Creek Corridor. The following paved and unpaved county roads provide direct access from the north or

south to the Lower Stony Creek channel in the event of wildfire: County Roads KK, MM, N, P, PP, 11, 202, VV, 21, 26, and XX.

Currently in-Place Fire Protection Infrastructure. At the present time, an array of natural and manmade features are located within the Lower Stony Creek Riparian Corridor Planning Unit which provide fire protection to local communities and other at-risk assets or which prevent wildfires from building in intensity and developing into a catastrophic conflagration. These are described below.

Orland Volunteer Fire Department, Capay Fire Department, and Glenn County Fire Department. These firefighting units have the ability to attack both structural as well as wildland fires occurring on the valley floor.

CAL FIRE / California Department of Corrections Valley View and Salt Creek Conservation Camps Arundo Reduction within the Lower Stony Creek Stream Channel. On an intermittent basis, State Conservation Camp crews contract with the Glenn County Public Works department to conduct hand reductions of Arundo vegetation within the Lower Stony Creek stream channel near the city of Orland as well as upstream of state and county bridges that cross the stream channel. These consist of hand cutting and burning of vegetation.

Significant Resources. The significant resources found within the Lower Stony Creek Riparian Corridor Planning Unit consist of the following:

- The Orland community;
- Lands used for agricultural purposes such as grazing, crop production, and dairy operations, plus commercial operations including agribusinesses, manufacturing, and distribution operations;
- Riparian habitats along watercourses; and
- Properly functioning aquatic ecosystems.

Priorities and Summary of Proposed Projects. In prioritizing project recommendations, the protection of residents and firefighters was of primary importance. Additionally, protection of development within the Orland community's urban core as well as along Highway 32, Highway 99, and Newville Road corridors was considered paramount. The following descriptions and discussions of projects and their protection goals reflect the prioritization values of the planning area's stakeholders and project participants. Please refer to the planning unit map labeled Figure I found on page 71.

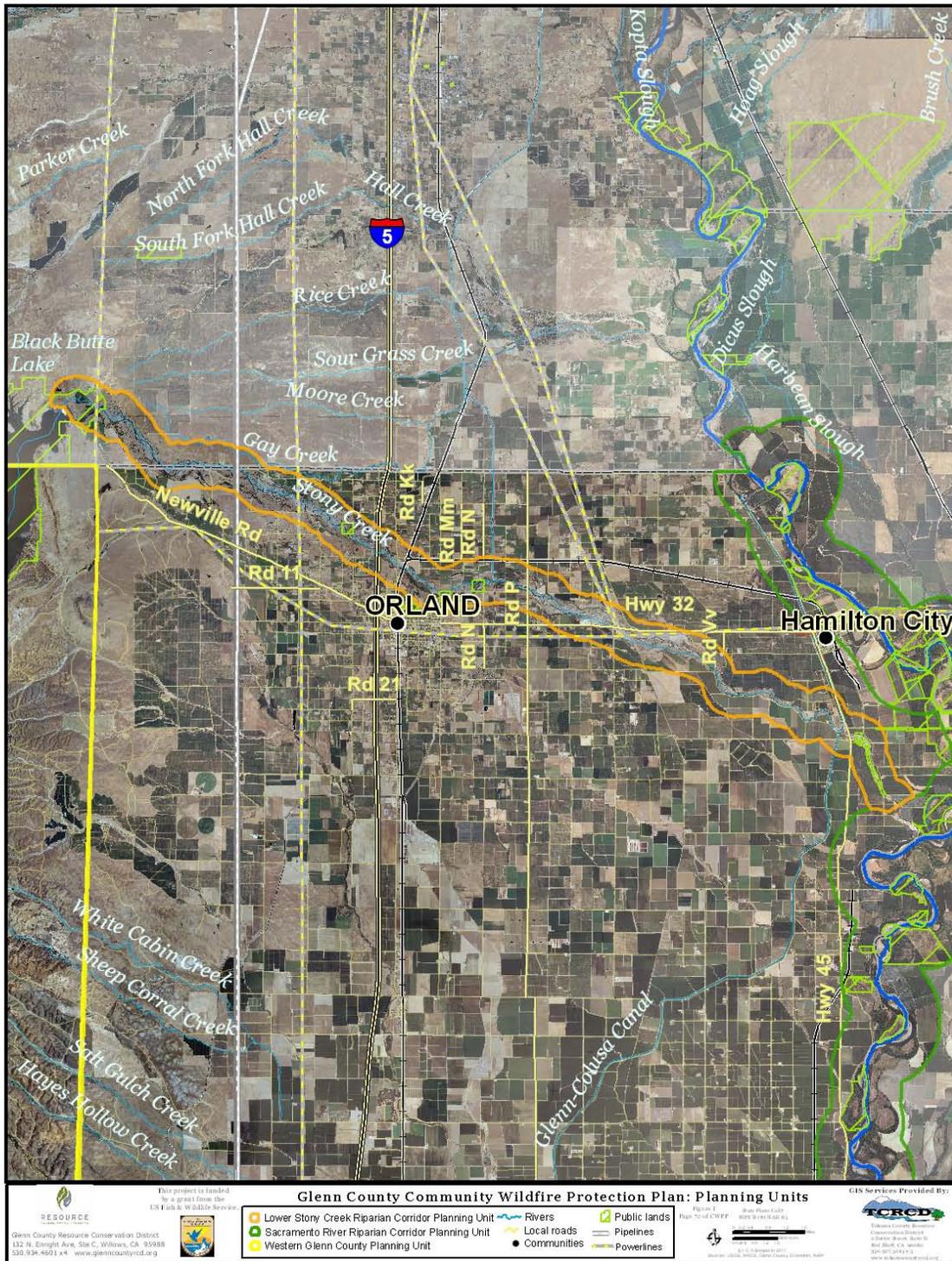
(2-A) Development of Comprehensive Arundo Eradication and Maintenance Program for the Lower Stony Creek Riparian Corridor. If properly executed, this multiphase project would lead to eradication efforts of Arundo and Tamarisk within the Lower Stony Creek channel and thus eliminate a major source of wildland fire within the Lower Stony Creek Riparian Corridor Planning Unit. Eradication efforts at a watershed scale are necessary due to the growth characteristics of both of these non-

native invasive plant species. These plants spread in a downstream direction, when rootlets, rhizomes or pieces of stems are carried downstream during flood events. As a result, any infestations upstream from an eradicated area can readily contaminate downstream sites, which will result in the reestablishment of plant infestations. In general, such efforts would require the continued mapping of all *Arundo* and *Tamarisk* infestations within Lower Stony Creek, treatment of any live infestations, monitoring, continuing control of new infestations, and restoration of native vegetation within the riparian corridor. More specifically, the project would entail the following components:

- Aerial photography and topographic maps would be utilized to identify, quantify, and map areas of *Arundo* and *Tamarisk* infestations within stream channels.
- A revegetation plan would be developed to propagate and promote natural riparian vegetation along stream channels in order to prevent reinfestation of *Arundo* and *Tamarisk* and other invasive species, to increase bank stability, decrease sedimentation, promote naturally occurring riparian vegetation, and to increase the diversity of streamside plant and animal species.
- A watershed-wide effort to eradicate *Arundo* and *Tamarisk* would be developed which would effectively and efficiently remove *Arundo* and *Tamarisk* infestations along the streams found within the watershed. This phase of project work would use successful technologies and would be customized for the particular characteristics of the stream channels found in the project area. The design of site specific eradication techniques would not only assure success in efforts to eradicate *Arundo* and *Tamarisk* infestations, but would result in more accurate unit cost estimates when developing the budget for site work. In addition, an analysis of the project would be conducted in order to identify the permits and other environmental analysis that would need to be prepared prior to conducting project fieldwork.
- A three year monitoring program would be developed for water quality, the condition and composition of reintroduced native vegetation, determination of wildlife numbers and composition, and the possible reinfestation of *Arundo* and *Tamarisk* populations along the stream banks.
- Using parcel data, a list of landowners willing to participate in eradication efforts would be developed. This base of willing landowners may be used to discuss the potential for eradication work on private property during the second phase of project work. The list of willing landowners would also be used in the development of public education and outreach programs that focus on property owners located in the project area. Developing landowner interest and enthusiasm for the project, as well as their permission to conduct project work on their lands, would result in more thorough removal of *Arundo* and *Tamarisk* infestations and more complete revegetation of the stream channels located within the watershed. The protection of private landowner rights will always be respected.

- With the assistance of the TAC and L/CAC, GCRCD would work with a selected consultant to prepare all necessary permits and related environmental analysis required in order to complete phase I and phase II project work.
 - The GCRCD has developed the Lower Stony Creek Watershed Restoration Plan and Landowners Manual which provide comprehensive information on permit procedures and removal techniques. For more information, visit www.glenncountyrwd.org, or call (530) 934-4601 x5.

SEE 11x17 FOLDOUT MAP OF LOWER STONY CREEK PLANNING UNIT AS FIGURE I



Sacramento National Wildlife Refuge Planning Unit

Introduction. The 10,783-acre Sacramento National Wildlife Refuge (SNWR) consists of about 7,600 acres of intensively managed wetlands, uplands, riparian habitat, and vernal pools. It typically supports wintering populations of more than 600,000 ducks and 200,000 geese. The refuge supports several endangered plants and animals, including transplanted colonies of palmate-bracted bird's-beak, several species of fairy shrimp, vernal pool tadpole shrimp, giant garter snake, wintering peregrine falcon, bald eagle, and breeding tricolored blackbird. Resident wildlife includes grebe, heron, blackbird, golden eagle, beaver, muskrat, black-tailed deer, and other species typical of upland and wetland habitats. Approximately 9,000 people hunt on the refuge each year, and 73,000 people use the visitor center, auto tour route, and walking trail.

Major Land Management Areas and Assets at Risk. The entire planning unit consists of the area within the SNWR, which is one unit of the SNWR Complex. This property is largely within Glenn County; however a small portion of the acreage is in Colusa County as well. The area contains seasonal marshes, permanent ponds, and uplands areas among its ecosystems. Although there are no formal communities within or adjacent to the SNWR Planning Unit, there is residential development on the southeast side of the refuge at the intersection of Lambert Court and Norman Road. There are also scattered farm buildings roughly one-quarter mile from the refuge boundary. Buildings related to the headquarters of the SNWR Complex are located within the boundary of the refuge. Certain transportation routes are relevant to this planning unit, as well, as described below.

Interstate 5 / Highway 99. Interstate 5 and Highway 99 (the frontage road for the freeway) parallel the Planning Unit on the west.

County Road 50. This county-maintained, paved road passes to the north of the planning unit.

County Road 55. This road is also paved and passes to the east of the planning unit.

Lambert Court and Norman Road. These paved roads are located roughly at the southern end of the planning unit.

Roads Crossing the SNWR Planning Unit. County Road 99W passes through the refuge property from north to south. County Road 8013 is an east-west route that connects the refuge headquarters with Highway 99. County Road 68 also passes through the property in an east to west direction.

Currently in-Place Fire Protection Infrastructure. At the present time, an array of natural and manmade features are located within the SNWR Planning Unit which

provides fire protection to surrounding residential developments and other at-risk assets which assists in preventing wildfires from building in intensity and developing into a catastrophic wildfire. These are described in the paragraphs below.

Interstate 5/Highway 99 Roadside Fuels Treatments. Cal Trans conducts roadside fuel treatments along Highway 99 where it passes the SNWR Planning Unit through the use of herbicide applications, hand clearing, and burning.

SNWR Complex Fire Management Unit. This fire and fuels management unit is stationed at the SNWR. Unit staff includes a Fire Management Officer, Assistant Fire Management Officer, two Station Managers, Fire Engine Operators, Lead Firefighters, and Temporary Firefighters. The Fire Management Unit operates with two Type-3 engines, one Type-6 fire engine, and one water tender. The fire staff participates on interagency incident management teams, refuge fire responses, and off-unit assignments across the nation, interagency prescribed fire operations, and interagency training assignments. In addition, unit staff persons are augmented by a contingent of collateral duty fire qualified personnel. Approximately 15 staff positions ranging from biologists and law enforcement personnel to equipment operators and refuge managers assist with wildfire support and prescribed fire operations. The SNWR Complex Fire Management Program is part of the North Central Valley Fire Management Zone within the Service's Region 8 Fire Management Program, which includes SNWR, Delevan NWR, Colusa NWR, Sutter NWR, Sacramento River NWR, Stone Lakes NWR, Red Bluff Field Office, Coleman National Fish Hatchery, and Livingston Stone National Fish Hatchery. The fire program emphasizes fire suppression, prevention, hazardous fuels reduction, and prescribed fire.

Mutual Aid Agreements with Other Firefighting Units. In addition to its own fire staff, the SNWR has established interagency mutual aid agreements with other federal, state, and local firefighting entities, including MNF, Willows City Fire Department, Ord Bend Fire District, Maxwell Fire Protection District, and others as far south as Williams, Colusa, and Arbuckle. These firefighting units have the ability to attack both structural and wildland fires occurring on the valley floor.

Significant Resources. The significant resources found within the SNWR Planning Unit consist of the following:

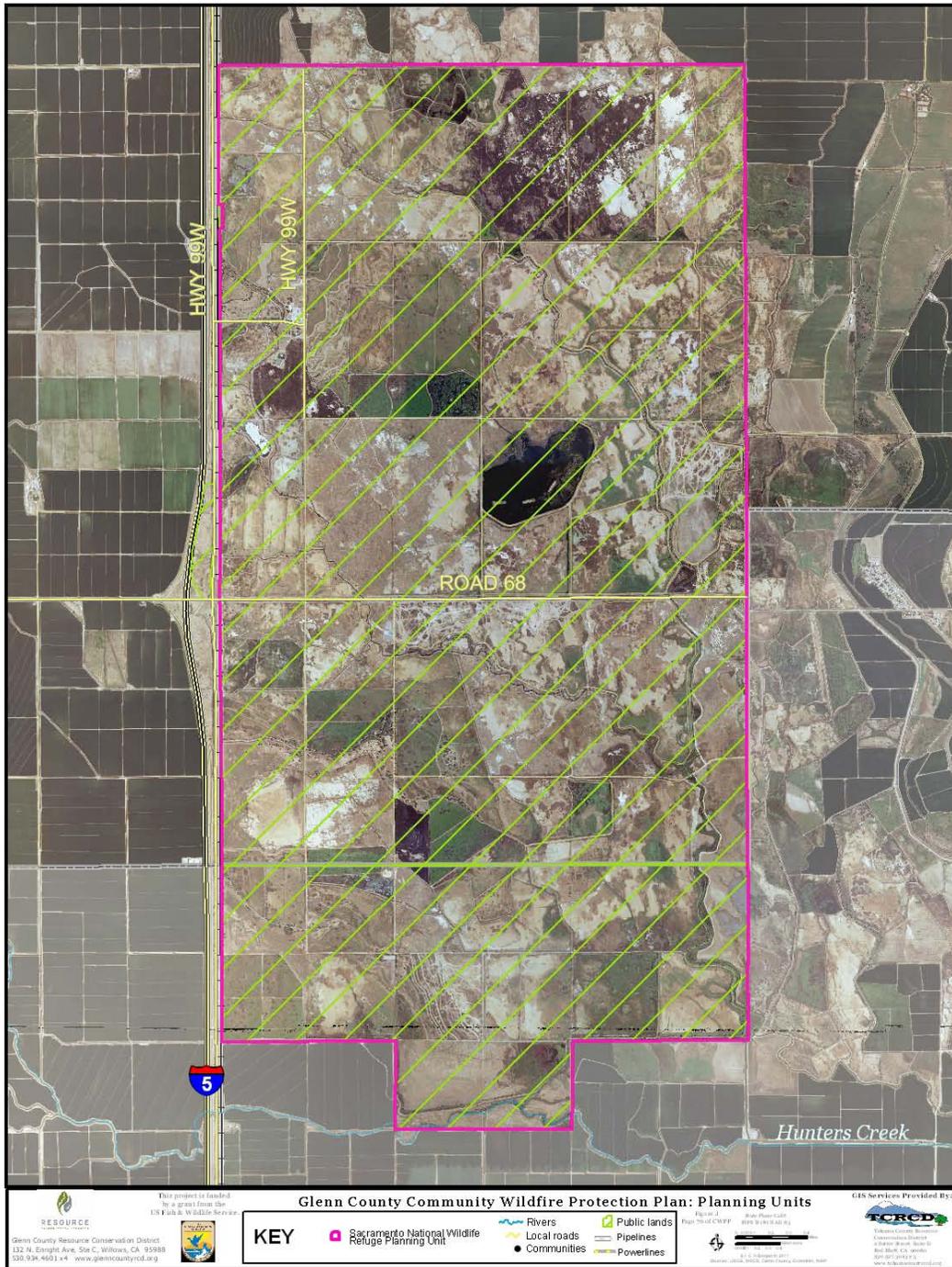
- Lands used for commercial purposes such as farming and ranching;
- Vast watershed areas containing an array of important environmental values such as sensitive, threatened, and endangered plant and animal species along with their critical habitat;
- Water quality and quantity;
- Riparian habitats along major watercourses; and
- Areas of cultural and historical significance, including significant sites of human occupation.

Priorities and Summary of Proposed Projects. In terms of ranking priority projects, the protection of lives and private property was of paramount importance. The recognition of landscape-scale interconnectedness of ecological components resulted in those projects which provided landscape-scale protection to plants, animals, and other watershed resources to be considered of significant importance. Finally, projects that protected permanent cultural features in the area were given consideration. The following descriptions and discussion of projects to protect the resources within the SNWR Fire Planning Unit have been prioritized based upon the values placed on the primary resources these projects would protect. Please refer to the planning unit map labeled Figure J found on page 75.

(3-A) *Development of Nonplanted Buffer Zones between Restoration Projects and Roads.* The USFWS is considering the creation of non-planted buffer zones between vegetation restoration sites and roads. At the present time rates of vegetation development within restoration project sites is such that planted vegetation quickly reaches to road edges, adding to the potential for fire to adversely affect traffic. Nonplanted buffer strips are expected to reduce this threat.

(3-B) *Incorporation of Grazing Livestock into Refuge Fuels Reduction Operations.* USFWS fire and fuels staff is incorporating cattle and goat grazing into the suite of vegetation management techniques used to reduce fuel loadings on refuge lands. These techniques would be in addition to currently use methods of mechanical reductions prescribed fire and tillage.

SEE 11x17 FOLDOUT MAP OF SACRAMENTO NATIONAL WILDLIFE REFUGE PLANNING UNIT AS FIGURE J



Sacramento River Corridor Planning Unit

Introduction. In recognition of the linear environmental systems found within the Sacramento River Corridor Planning Unit, the entire corridor area along both sides of the Sacramento River was analyzed and thus includes portions of both Glenn County and Butte County. Implementation measures were developed for both counties, but only those within Glenn County would be implemented under this CWPP document. The corridor also includes the mouths of those major streams included in this fire plan's area of analysis.

Major Land Management Areas and Assets at Risk. This planning unit contains significant public lands, rural communities, transportation routes, and valuable waterways, as described below.

U.S. Fish & Wildlife Service, Sacramento River National Wildlife Refuge. The federally managed Sacramento River National Wildlife Refuge consists of 27 properties located along 77 miles of the Sacramento River within Tehama and Glenn Counties. 17 of these parcels are within the Sacramento River Corridor Planning Unit. The riparian habitats found within the units include wetlands, uplands, and a number of agricultural parcels that are managed in such a manner as to incorporate the resource goals of the refuge. The primary objective of the refuge is to protect and improve riparian and aquatic habitat located on lands managed by the USFWS along the Sacramento River. Significant among the species of concern are 4 runs of Chinook salmon plus an array of migratory birds, songbirds, and water associated animals, including the river otter, turtles, beaver, American pelicans, ospreys, and bank swallows.

A program of fire and fuels management has been developed for all the parcels within the wildlife refuge and is incorporated into the "Wildland Fire Management Plan for the Sacramento River National Wildlife Refuge." Overall, the projects and other efforts developed in the fire management plan are intended to maintain current fire protection and fuels reduction efforts. It also reports the results of future fire planning needs assessment. Importantly, the initiatives developed in the USFWS fire plan intended to supplement, clarify, and direct efforts related to fire management utilizing stakeholder input developed through the CWPP process. Through this process, it is expected that the organizational goals and agenda of the USFWS can be better meshed with those of other public and private stakeholders within the county. Such collaborations are expected to result in superior projects that address numerous fire and resource issues as well as the needs of rural communities within Glenn and Tehama County. The projects developed by USFWS personnel focus on reducing hazardous fuels (particularly in WUI areas), reducing non-native vegetation, and managing and improving riparian habitat. These projects follow minimum impact strategies in order to reduce impacts to sensitive plants, fish, and wildlife.

The Nature Conservancy, Sacramento River Conservation Area. The Nature Conservancy (TNC) is working collaboratively with the USFWS, the California

Department of Fish and Game (DFG), the California Wildlife Conservation Board (WCB), and private landowners in restoring a continuous 100 mile stretch of ecologically viable riparian habitat and flood-prone lands along the Sacramento River between Red Bluff and Colusa. The Sacramento River Conservation Area project is the largest riparian restoration project in the United States. On some sites, the river is being allowed to regenerate its banks and meander through the natural process of winter flooding and deposition. On other sites, TNC is contracting with local farmers to plant native trees and shrubs. The consortium of participants in this project has acquired a total of 14,000 acres of riparian habitat along the river.

Hamilton City. As of 2007, Hamilton City had a population of just over 2,000 residents. As the largest community within the planning area, Hamilton City contains a number of commercial establishments and roadside services, two schools, a post office, and several large agricultural processing facilities. Fire protection is provided by the Hamilton City Fire Protection District.

Ord Bend. Ord Bend has a population of roughly 985. Facilities within the community are limited to a post office, a school and several businesses. Fire protection is provided by the Ord Bend Fire Protection District.

Glenn. This small community has a population of less than 50. Facilities include a post office and church. Fire protection is provided by the Sacramento River Rural Fire Protection District.

Butte City. Butte City is located on the east side of the planning unit along Highway 162. The community has a population of 291 residents. The developed area contains a post office, several small commercial operations, homes, and a number of agricultural processing facilities. Fire protection is provided by the Sacramento River Rural Fire Protection District.

Highway 32. Highway 32 crosses the Sacramento River Corridor Planning Unit at Hamilton City located between Orland and Chico and is a major transportation route through the area. Highway 32 acts as a significant fuel break for wildfires, especially those moving in a north-south direction. Also, like other highways in the area, this route provides a considerable source of potential roadside ignitions.

Highway 45. Highway 45 passes along and sometimes into the planning area, and generally creates its western boundary. This highway has been constructed on top of a river levee which provides both flood control and fire protection to low lying lands adjacent to the Sacramento River channel. The relatively high volume of traffic occurring along the Highway 45 corridor creates considerable risk of ignition within the sometimes dense vegetation found within the planning unit's riparian corridor.

Highway 162. Highway 162 crosses the Sacramento River Corridor Planning Unit in the vicinity of Butte City and is a major transportation route between Willows and

Oroville. Like Highway 32, this route creates both a significant east-west fuel break within the planning unit as well as a significant source of traffic related ignitions.

Other County Roads Providing Access to the Sacramento River Corridor Planning Unit. The following paved and unpaved county roads provide direct access from the east or west into the Sacramento River Corridor Planning Unit within Glenn County: County Roads 8, 23, 26, 27, 28, 29, 30, 30^{1/2}, 31, 32, 33, 34, 35, 36, 37, 38, 40, 41, 43, 44, 48 (Pear Avenue), 54 (Walnut Lane), 56 (Olive Road), 59 (Willow Avenue), 61, 62, 64, 65, 66, 67 and 69; St. John Road and Bayliss Road; Gum Avenue; and Olive Lane. The following north-south roads intersect the Sacramento River Corridor Planning Unit: Canal Road and Road XX. These east-west roads intersect the planning unit within Butte County: Nord Gianella Road, Wilson Landing Road, West Sacramento Avenue, Ord Ferry Road, and Levee Road. These Butte County roads intersect the Planning Unit in a north-south direction: Gianella Road, Sutter Avenue, and River Road.

Significant Waterways. No significant watersheds originate entirely within the Sacramento River Corridor Planning Unit. However, numerous significant and minor tributaries of the Sacramento River have their stream mouths in this area. The most significant of these streams within Glenn County is Lower Stony Creek. A number of Butte County tributaries enter the Sacramento River within the Planning Unit, including Pine Creek, Big Chico Creek, and Butte Creek. Several of these streams are considered to be significant rearing areas for nonnatal anadromous species and play a significant role in maintaining the fisheries within the Sacramento River watershed system.

Physical Description of Planning Unit. With the exception of the communities listed above, the majority of the Sacramento River Corridor Planning Unit is rural in nature, having a low population and low housing density. In addition to a riparian corridor located immediately adjacent to the Sacramento River, the planning unit contains agricultural lands such as orchards, croplands, and a small amount of irrigated grazing land. Since the majority of the planning area's agricultural lands are irrigated, they pose a minimal risk from wildfire during the dry summer period. Wildfire is, however, a threat to the unit's wildland areas adjacent to the Sacramento River. The topography of the undeveloped portions of the riparian corridor is generally characterized by high and low terraces, an array of oxbow lakes, and sparsely vegetated gravel bars that are often only accessible by boat. Vegetation consists of dense riparian forests, upland grasslands, riparian shrub lands, wetlands, seasonal marshes, and vernal pools.

The typical high fire danger period within the planning unit is between May and early November as confirmed by information developed by CAL FIRE. Most of the fires occurring on these lands are reported to last no longer than one burning period (suppression before sunup or sundown). Fire causes are generally roadside ignitions, adjacent levee burning, power line, railway, and adjacent agricultural burning. Fire history within the area indicates that large and damaging fires can occur almost anywhere within the planning unit. This includes large, one-day fires in grass fuels;

large fires (over 200 acres) in the foothills, which can be difficult to contain; and valley grassland fires, which can carry rapidly spreading, wind-driven fires with low to moderate resistance to control once attacked.

Currently In-Place Fire Protection Infrastructure. The USFWS has developed an ongoing program of fuels management within USFWS properties along the Sacramento River. This program of work entails the development of fire control infrastructure such as mowing, grazing, disking, and applying herbicides along access roads which act as fire breaks, as well as actual fire breaks developed specifically for this purpose. In addition, USFWS personnel conduct prescribed burns within grasslands and desiccated wetlands in order to reduce fuel hazards and to promote ecological functioning within the various landscapes. Periodically, riparian shrub and tree species are mechanically thinned in order to develop proper spacing for fire protection and forest health.

Significant Resources. The significant resources found within the Sacramento River Corridor Planning Unit consist of the following:

- Various small rural communities, including Hamilton City, Ord Bend, Glenn, and Butte City;
- Lands used for commercial purposes such as farming and ranching;
- Vast watershed areas containing an array of important environmental values such as sensitive, threatened, and endangered plant and animal species along with their critical habitat, particularly vernal pool species found adjacent to the Sacramento River;
- Water quality and quantity;
- Riparian habitats along major watercourses;
- Properly functioning aquatic ecosystems, including the neo-natal rearing habitats found at numerous stream mouths along the Sacramento River; and
- Areas of cultural and historical significance, including significant areas of human occupation.

Priorities and Summary of Proposed Projects. In terms of ranking priority projects, the protection of lives and private property was of paramount importance. Second in importance, the recognition of landscape-scale interconnectedness of watershed components resulted in those projects which provided landscape-scale protection to plants, animals, and other watershed resources. Finally, projects that protected permanent cultural features in the area were given consideration. The following descriptions and discussion of projects to protect the resources within the Sacramento River Corridor Fire Planning Unit have been prioritized based upon the values placed on the primary resource these projects would protect.

Given the relatively limited amount of stakeholder interest and participation in the Sacramento River Corridor Planning process, community input was focused on government land management entities and watershed conservancies. This participation consisted of agency membership (USFWS and the DFG) and input into the

core work group's efforts, input from members of the TGFSC, and focused outreach to various landowners, watershed representatives, and land managers regarding technical or location specific issues. The results of these efforts are summarized in this section. Also presented in this section are assets at risk located within the planning unit, in-place fire protection infrastructure, and proposed efforts to improve the protection of local at-risk assets. Additional recommendations for fire safe activities are also discussed. Please refer to the planning unit map labeled Figure K found on page 86.

(4-A) *USFWS Properties.* The presence of the USFWS within the Sacramento River Corridor Planning Unit includes that portion of the SNWR Complex located within Glenn County and Butte County. The Sacramento River NWRC was established in 1989 under the ESA and Emergency Wetlands Resources Act with the purpose of preserving, restoring, and enhancing riparian habitat for threatened and endangered species, neotropical and migratory birds, waterfowl, anadromous fish, resident wildlife, and plants. The Sacramento NWRC was established under Executive Order No. 75 62 and the Emergency Conservation Act of 1933 to alleviate crop depredation and to provide wintering habitat for waterfowl. Fire management goals on all USFWS properties include the protection of life and property, reduction of hazardous fuels and non-native plants, and restoration of native habitats for fish and wildlife. Further details are given below regarding USFWS properties.

- *Refuge assets at risk.* Refuge properties include a range of assets at risk of wildfire. Many refuge properties include threatened, endangered, and sensitive species which could be affected by unplanned and catastrophic wildfires, including those that start on adjacent public and private lands. These USFWS properties support neotropical migratory land birds and diverse flora and fauna, in addition to providing feeding and resting habitat for migrating and wintering waterfowl and other water birds. These sites also provide opportunities for public education and research related to wildlife ecology and human impacts on riparian environments. Various structures, facilities, high value fish and wildlife habitats, and cultural resources occur on these properties. WUI issues on local USFWS lands are most prevalent in the vicinity of the Sacramento River NWRC. Adjacent to these properties are orchards, pastures, agricultural crops, private duck hunting clubs (seasonal wetlands), and low density housing that are also at risk from wildfire. There may also be issues with recreational use and target shooting on adjacent lands. In addition, these areas have increased ignition probabilities attributable to urban interface development and have a high potential for public trespass.
- *Restoration activities.* As a result of USFWS restoration activities on acquired lands that were once considered "unburnable" (i.e., walnut orchards), "burnable" areas are being created. This poses a challenge for USFWS as these native plantings add to fire risk and fuel loads management strategies and planning. With multiple land holdings along the Sacramento River, managing all the locked gates and associated variety of combinations poses a problem. USFWS is working with local

fire departments and dispatch centers to provide a way to distribute combinations and/or use a universal combination so when an emergency arises and response teams need to access the property and USFWS staff is not available, combinations will be conveyed in a timely manner to ground crews.

- *Access to properties.* Proper signage and/or documentation of access to USFWS properties are inadequate which adds to the difficulty in finding roads and/or gates to properties in emergency situations. Restoration projects increase fire risks due to vegetative growth adding to fuel loads. USFWS is looking at creating a non-planted buffer zone between projects and roads. Currently, the success of restoration projects is so great that planted vegetation quickly reaches to road edges, adding to the potential for fire to adversely affect traffic. With regards to ingress by firefighting personnel and escape to those using Wildlife Area facilities, USFWS needs to assess properties to insure ample space is available for fire engines to enter, turn around and exit safely.
- *Air quality.* Air quality requirements and restrictions for burn days remain a challenge to scheduling burns. As a result, USFWS is finding value in planning fires for late May to mid June. This time frame also works well as crews are available during this period for training.
- *Prioritization of Projects.* When prioritizing potential projects, USFWS analyzes whether the potential project is associated with a CWPP, has current NEPA, and has collaboration with local fire departments and/or landowners; whether there are multiple funding sources available; whether WUI areas exist; and whether contracting is needed (e.g., goats). In addition, USFWS employees address the following concerns:
 - Projects need to provide wildlife habitat or protect existing habitat.
 - USFWS is looking to acquire more properties in Tehama and Colusa Counties.
 - In the planning stages is the potential to burn the strip belonging to the railroad between I-5 and Highway 99. The plan is to conduct small, 20-foot burn pockets that will reduce the risk and severity of fires originating along Interstate 5 and/or Highway 99.
 - Every year, between all the local refuges, approximately 1,400 acres are burned.
 - The following refuge units have existing Fuels and Fire Break Plans as a result of proximity to residences: Pine Creek, McIntosh Landing, Capay, North Ord, Ord Bend, and South Ord Units.
 - Fuels reduction plans work to incorporate cattle and/or goat grazing and burns.
 - USFWS reviews projects concluded in prior years to plan for the following year.

- *In-place fire protection infrastructure and proposed efforts to improve the protection of local at-risk assets.* USFWS has established a funding priority for fire and fuels management projects within WUI areas which emphasizes those assets and values at risk that are identified collaboratively within a CWPP. In some cases, habitat management goals would create and/or maintain vegetation (fuels) in a Fire Regime Condition Class II or III. Some of these habitats have been significantly altered from historic conditions, but the ecosystem is not at risk of collapse and may be managed with fire at a more frequent rate than would naturally occur. In areas being managed for native upland habitat, the presence of non-native invasive plants such as yellow starthistle and medusa-head grass is a significant issue and has altered the fire regime/condition class.
- *USFWS planning policy.* The DOI fire management policy requires that all burnable acres on USFWS lands have a FMP which details fire management guidelines for operational procedures and values to be protected and/or enhanced. FMP's are tiered from larger programmatic-level resource management plans such as a refuge Comprehensive Conservation Plan (CCP) and associated Habitat Management Plan (HMP). Current FMP's within the TGFSC area of interest include the 2001 Coleman National Fish Hatchery FMP (updating in 2006), the 2001 Red Bluff Field Office FMP, and the 2001 Sacramento NWRC FMP. These FMP's are designed to assist in the protection of individual site facilities, resources, employees, and adjacent communities at risk to wildfire. FMP's are coordinated by the Zone fire management team and various resource staffs, although final management decisions are made by site or complex managers. Fire project planning and implementation are directly supervised by the Zone Fire Management Officer. The Sacramento Fire Zone maintains a fire staff consisting of a Fire Management Officer, Wildland Urban Interface Coordinator, Fire Operations Supervisor, Engine Captain, and crew. Planning strategies and objectives are considered in the preparation of the Zone's Annual Work Plan and development of annual budget requests. Proposed actions, alternatives, and environmental analyses in compliance with NEPA will be developed from annual strategies and will be used in the development of site-specific projects occurring on USFWS properties. Annual work plans and project lists will be provided to the applicable CWPP representatives (CAL FIRE Tehama-Glenn Unit Pre-Fire Engineer and TGFSC Coordinator) and other interested parties for review, prioritization, and amendment or adoption into the applicable CWPP's.
- *Proposed WUI projects.* The USFWS North Central Valley Fire Management Zone submitted a proposed 2007 Wildland Urban Interface project, along with CWPP support information, to the TGFSC for review, comment, and adoption. This information was then forwarded to the TCRCDC for incorporation into the Tehama East Community Wildfire

Protection Plan. Initially, project proposals are general and aim for maintenance and projected project needs (out-year planning). Treatment areas have primarily been outlined within FMPs, HMPs, and CCPs, which provide the overlying management objectives. USFWS Wildland Urban Interface project areas/treatments may also be identified through CWPP efforts. Collaborative Wildland Urban Interface treatments identified within a CWPP will receive priority funding.

The majority of USFWS Wildland Urban Interface treatments are focused at reducing non-native vegetation and hazardous fuels as well as managing habitat. Mechanical fuel treatments may include hand thinning, chipping, mowing, disking, and grazing. Prescribed fire and grazing are often the preferred management tools (depending on habitat type), as they provide many habitat benefits as well as hazardous fuels reduction. The majority of prescribed fire activities on USFWS lands follow minimum impact strategies so as to reduce impacts to sensitive/protected plants, fish, and wildlife.

Partner and community support for USFWS fire management projects enhances funding and implementation options for USFWS and project collaborators. Federal WUI funding is prioritized by several factors, with an emphasis on collaboration. Both grant funding and agency project funding are enhanced as partnerships and support is levied.

- *Zone WUI program objectives.* Within the WUI, fuels reduction projects will be designed to mitigate the risks to people, their communities, and adjacent resource values important to the social/economic stability of those communities from unwanted wildland fire. Although community protection is a WUI priority, USFWS has a general conservation mission and when and where possible will incorporate habitat objectives into WUI projects. To be effective in mitigating risks, in many cases projects cross jurisdictional boundaries and address landscape level management strategies. USFWS funded WUI projects emphasize the following criteria:
 - Be focused on communities at risk (CAR). In California, the CAR list is maintained by the California Fire Alliance and a process is in place for communities to be added or removed from that list. If the adjacent community meets the criteria of “at-risk” and is not identified on the CAR list, guidance and information will be offered to community organizations (fire safe councils, fire departments, city councils, etc.) on the potential benefits of this listing status, and these community organizations will be directed to the CAR application.
 - Be adjacent or in close proximity to USFWS lands where there is risk of fire originating on those lands and threatening life and community values. Additionally, other lands will be managed under the direction or guidance of USFWS to incorporate fire

management and hazardous fuels reduction within the WUI. These projects may include conservation easement lands and recovery implementation projects providing the mutual benefit of species recovery and fuels reduction.

- Be identified or referenced within a CWPP which has or will be coordinated with the USFWS or is identified under a collaborative agency hazard mitigation plan which meets the intent of or is equivalent to a CWPP when all partners are not available.
 - Be designed to meet the objectives outlined in a CWPP (or other collaborative plan) and consistent with USFWS policy and management directives. Priority objectives include (a) firefighter and public safety, protection of community values (including primary living and business structures, escape routes, watershed and ecosystem functions); (b) utilization of mechanical treatments which emphasize projects yielding biomass for off-site economic use (see guidance in the April 2004 DOI IM "Implementation of the Policy and Principles of Woody Biomass Utilization"); (c) partnerships providing matching or in-kind services demonstrating commitment to project objectives; (d) utilization of local contractors in support of rural community stability; and (e) provision of the mutual benefits of hazardous fuels reduction and ecosystem enhancement.
- *Zone CWPP objectives.* Education and outreach with interagency and local WUI partners will be the key to integration of USFWS fire management activities in a CWPP. Refuge CCPs, HMPs, and FMPs may need to be presented and/or interpreted to WUI partners in order to provide the information necessary for cooperative fire management efforts. Managers will review refuge documents to determine if WUI program objectives are clearly outlined and linked between plans. Many CCPs and HMPs may only identify fire as a habitat management tool and may not identify WUI program objectives.

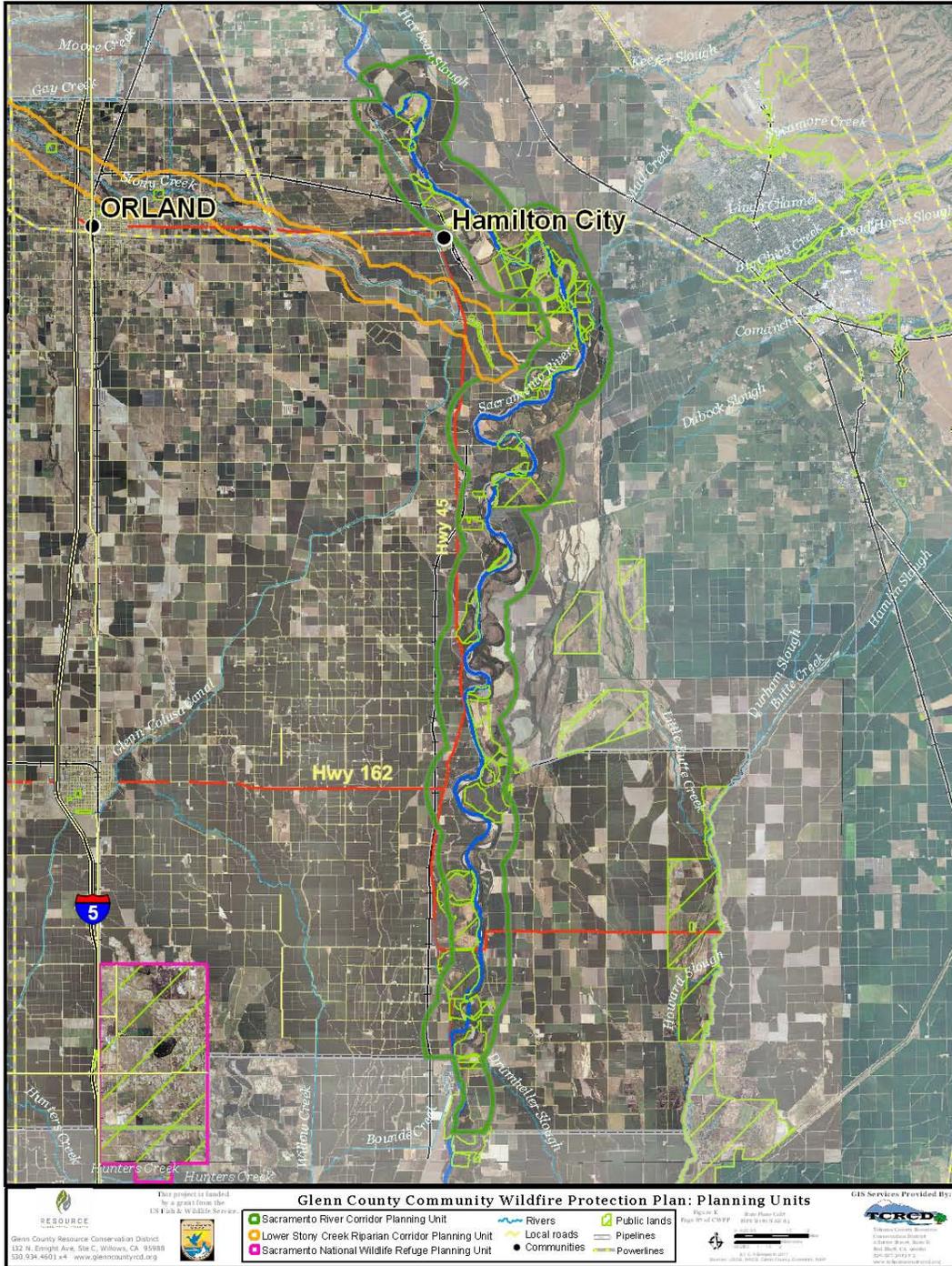
Under a CWPP, community values and objectives will be defined through a collaborative process. An attempt will be made to address and incorporate refuge habitat management objectives into a CWPP when considering USFWS-related WUI projects. Refuge FMPs will identify CWPP objectives, treatment areas and projects when and where applicable. The March 2003 Information Memorandum Service Fire Management Policy Clarification states that USFWS fire management policy and implementation guidance shall apply to all USFWS fire management activities regardless of land ownership. USFWS projects defined in a refuge FMP and CWPP or with the treatment area and treatment type identified in a CWPP will receive priority WUI funding.

Where appropriate, a CWPP can be incorporated into a county plan or Disaster Mitigation Act/Multi-Hazard Mitigation Plan to help meet

multiple planning and policy requirements. Project prioritization at a larger scale makes agency-funding strategies more effective while addressing local needs. The complexity of a CWPP will be dependent on local needs and opportunities; however the USFWS may be more strategic at coordinating at the county or watershed level or through integration with CAL FIRE unit plans.

USFWS fire management directives state that a FMP will be reviewed and/or revised at a minimum of 5 year intervals or when a significant change in program management is proposed or land use changes occur adjacent to USFWS lands. When a FMP is ready for revision or amendment, CWPP objectives and treatments will be incorporated into the plan, if and when applicable.

SEE 11x17 FOLDOUT MAP SACRAMENTO RIVER RIPARIAN CORRIDOR PLANNING UNIT AS FIGURE K



Section 10: SUMMARY AND CONCLUSIONS

Analysis and Findings

In establishing priorities for fire and fuels management projects to be completed within the Glenn County CWPP project area, the lives of area stakeholders and firefighters as well as public and private property were first and foremost in consideration. Those projects that provided immediate and direct impact on the threat and intensity of wildfire were given the highest priority. Among these critically important projects were those that entailed fuels reduction and infrastructure improvements, particularly those involving access for firefighting forces and egress of residents. In addition, water storage and water delivery projects were considered of equal importance. Projects of somewhat less urgency were those involving regulatory matters such as changes in laws, ordinances and codes that related to fire safety and fire management. Projects considered important but not urgent were initiatives to formally classify a number of small communities as officially recognized communities at risk as well as the development of WUI areas. Finally, planning initiatives were considered to be the least time critical. From this prioritization process, the following broad action items were developed by the GCRCD with extensive input from TAC and L/CAC members, the TGFSC, area stakeholders, and TCRC.

- TGFSC should develop a list of all currently unfunded fire and fuels management projects.
- TGFSC should identify possible sources of public and private funding for unfunded projects. Funding is expected to be in the form of public and private grants, self funding through the sale of biomass product, or other revenue sources. Proceeds from such funding could be used to finance both the initial completion of project work as well as the permanent maintenance of already completed infrastructure improvements.
- TGFSC, in conjunction with CAL FIRE and county regulatory agencies, should establish a work group to review those local ordinances that impact fire safety and development within the fire prone areas throughout Glenn County. The efforts of the TGFSC, USFS, and BLM personnel should be coordinated in order to create additional WUI areas.

Plan Update Process. The overall goal of fire and fuels management for Glenn County is to develop countywide coordination of fire management related projects and policies. With the completion of the Glenn County CWPP, the documents, maps, and recommendations generated through the planning process will be incorporated either by reference or directly into the CAL FIRE Tehama-Glenn Unit Fire Plan which is updated annually. On a yearly basis, the coordinator of the TGFSC will work with the CAL FIRE Tehama-Glenn Unit Pre-Fire Engineer to update the unit fire plan document's list of projects as well as to identify newly developed projects throughout

Glenn County. This project information will also be used to update TCRCD's on-line map and database of fire and fuels management projects. Members of the TGFSC will be canvassed for input regarding changes to federal, state, and local policies, laws, and ordinances pertaining to fire safety, fire management, and fuels reduction projects.

Next Steps. In order to efficiently and effectively initiate the efforts described in this planning document, stakeholders involved in the planning of the CWPP, GCRCD, and the TGFSC will immediately begin to work with the members of the TGFSC to identify unfunded project work within Glenn County. The TGFSC Coordinator will work with the CAL FIRE Tehama-Glenn Unit Pre-Fire Engineer and the TGFSC members in order to establish a process to officially incorporate the Glenn County CWPP into the Tehama-Glenn Unit fire plan. CAL FIRE unit staff will then establish formal procedures to update project work and stakeholder policies related to fire and fuels management. This effort is expected to be completed by June 30 of each year.

APPROVED AS TO FORM. THIS DOCUMENT MAY BE SIGNED IN COUNTERPART.

GLENN COUNTY RESOURCE
CONSERVATION DISTRICT

CAL FIRE

Date: _____

Date: _____

KANDI MANHART
Executive Officer

JEFF SCHORI
Chief, Tehama-Glenn Unit

GLENN COUNTY
BOARD OF SUPERVISORS

Date: _____

STEVE SOETH
Chairman

APPENDIX A – Synopsis Of Landowner / Community Advisory Committee

The Landowner/Community Advisory Committee (L/CAC) consists of local landowners and community members who have attended meetings or have supplied comments and suggestions throughout the development of the CWPP. In an effort to maintain an element of private property landowner anonymity, a list of names is not included. However, their efforts to the planning process have been and will continue to be of great value.

L/CAC Meeting

Date: May 11, 2010

Place: Elk Creek Grange Hall

Agenda:

- Introductions
- What is a Community Wildfire Protection Plan?
- Proposed Planning Project Area
- Identify Stakeholders in the CWPP Process
 - Rural Residents
 - Landowners
 - Agencies
- Assets at Risk
 - High Risk Areas
 - Community - Residences
 - Natural Resources
 - Rangelands
 - Timber
 - Streams and Reservoirs
- Fire Suppression Infra-Structure
- Suggestions for Improving Current Infra-Structure
- Next Steps

Meeting Notes:

Assets at Risk

- High fuels in valley plus forest lands

- Fuel loading
- Rangeland wildlife habitat
- Grindstone Rancheria
 - Round House (oldest in Ca)
 - Discuss Rancheria land, buildings, infrastructure and other current/historic assets at risk
 - One entrance/one exit
 - Can they utilize fuels reduction crews?
- Fences
- Highway 162
 - Fruto to County Road 302
 - Work with Cal Trans on timing of roadside spraying to reduce desiccated fuel loads as a result of current practice of spraying larger, mature weeds
 - Rangelands bordering 162
 - Entrance road to Stony Gorge Reservoir
- County Road 309 6 miles from forest land below Bowman Ridge
- Land along Sacramento River
- Need for a Countywide CWPP
- Elk Creek community and residences
- Elk Creek Church
- USFS Grazing Allotments
- Rangeland forage
 - Complex issue of maintaining residual dry matter for early winter feed during summer months when fire danger is high
- Identify the roles of existing fire agencies to improve effectiveness and efficiency
 - Need for specific information related to fire fighting units, equipment, manpower, auxiliary equipment, etc
 - Kanawa Fire District - Roger Steinhoff
 - 200 square miles
 - Volunteer fire department
- Non-participation in roadside burn program along Highway 162
- Identify evacuation routes
- Identify safety zones
- Arson
- Fires originating along any and all roadways in the area
 - Increased use of roads by tourists and visitors to recreational areas
- Fires originating as a result of drug trafficking and drug gardens
- Human life
- Need to identify landowners with equipment (dozers)
 - Identify requirements for work on a fire
 - Identify landowners who contract for dozer services (fuel breaks)
- Identify an Elk Creek Community contact list
- Currently fuel breaks stop at mid slope and need to continue - need to consider different property owners in this continuation

Current Infra-Structure

- Elk Creek Cal Fire Station has 2 engines
- Valley View Conservation Camp (Alder Springs)
 - 120 member inmate crew
- Kanawa Fire District - Roger Steinhoff
 - 200 square miles
 - Volunteer department
- Elk Creek Volunteer Fire Department
- Artois Volunteer Fire Department
- Willows Fire Department
- NRCS Rangeland Association map
- CAL FIRE
- Medical aid
- 2 water tenders
- Covelo
 - Hot Shot Crew
 - 6 engines
 - Hand Crew
- Stony Gorge Reservoir - can this be utilized?
- Contract Fuels Reduction Crews
- RAC funds available for fuels treatment on private lands situated adjacent to USFS lands
- Potential to increase VMP work within the area (CAL FIRE question)

Compliance Issues

- Require access letter between private landowners and USFS to continue treatments originating on USFS lands on to private lands
- Steven's Act (USFS)

Suggestions for CWPP

- Need for countywide CWPP
- Identify priority areas
- Identify evacuation routes - need to address liability issue when suggesting evacuation routes
- Identify safety zones - need to address liability issue when suggesting safety zones
- Maps
 - Include ranch roads
 - Include gates
 - Include stream/creek crossing restrictions/capabilities
 - USFS maps
 - Assign road numbering system
 - Coordinate with 911 system
 - Identify ranch water sources
- Have a plan in place for tracking change of property ownership

- Include Fire Management Units
- Catalog assets at risk
- Incorporate Rangeland Association Map

Priority Projects

- Fire protection education for homeowners
- Additional water storage tanks
 - CAL FIRE RAC funds?
 - NRCS EQIP funds
 - Recommend the use of universal hook-up
 - Recommend standards for additional water storage tanks

L/CAC Meeting

Date: December 14, 2010

Place: Elk Creek Grange Hall

Agenda:

- Introductions
- Review the need for a Wildfire Protection Plan
- Revised Planning Project Area
 - Risk Assessment for Western Glenn County
 - Sacramento Wildlife Refuge Complex
 - Lower Stony Creek Riparian Corridor
 - Sacramento River Riparian Corridor
- Review Notes from First Meeting (May 11, 2010)
 - Corrections to Notes
- What Have We Missed?
 - Review Maps
 - Additional Assets at Risks
 - High Risk Areas
 - Community - Residences
 - Natural Resources
 - Rangelands
 - Timber
 - Streams and Reservoirs
- Identify and Prioritize Potential Projects
- Next Meeting and Timeline

Meeting Notes:

Prioritized Projects

- Update current Rangeland Association Map (created by NRCS)

- Expand on current map
- Map/list of current access roads (utilize CAL FIRE maps)
 - Annual update of access road data base
- Map/list of water sources
 - Type of water source
 - Property owner
- Address signage for residences
 - Potential for an FFA project?
 - Keep consistent with other counties
 - Correlate with CAL FIRE standards
- Education and outreach
 - Local fire department
 - Orientation for incoming CAL FIRE staff
- Annual review of CWPP and maps
- Create a list of Helpful Hints that landowners/residents can use
 - ie: use of flagging material to alert local Fire Department
- Fuel breaks
 - Utilized available resources
- Encourage/support continued roadside spray program under CalTrans jurisdiction
- Dialog between Indian Valley and Elk Creek Fire Departments regarding response time and jurisdictional boundaries needs to continue
- Extend Hiway 162 roadside fuel break
 - Combination of hand crews, herbicides and managed burns
 - Extend fuel break from CR 302 all the way to CR 306
- Begin discussion for landscape wide planning
 - Identify landowners in Newville/Chrome areas
- Encourage cooperative programs between USFS, CAL FIRE and landowners on fuel break/managed burns
- Make a list of potential funding/resource partners for projects
 - CAL FIRE VMP
 - Mule Deer Association
 - National Turkey Federation
 - Elk Foundation
- Protect local community service providers
 - Schools
 - Library
 - Restaurant
 - Store

L/CAC Meeting

Date: April 7, 2011

Place: Elk Creek Church

Agenda:

- Introductions
- Receive Comments on First DRAFT CWPP
 - Final Date to Receive Comments
- Receive Comment regarding Maps
- Timeline and Formal Presentation of Final CWPP
 - End Date: July 31, 2011
- Other
- Timeline

Meeting Notes:

- Receive comments on First DRAFT CWPP
- Receive comments on DRAFT Map

APPENDIX B – Government Policies and Programs

Federal, State, and Local Fire Threat Mitigation Policies

The 1995 Federal Wildland Fire Management Policy and Program Review revised an array of federal policies and procedures pertaining to the suppression and use of fire. This legislation was an attempt to change the federal outlook on the role of wildfire within the environment, as well as to better control and utilize this natural phenomenon in order to achieve positive impacts on the nation's landscapes. The policy directs federal wildland fire agencies to achieve a balance between fire suppression and fuels management in order to sustain healthy forests, especially those in fire-adapted ecosystems. The 1995 review began a process that redirected some dollars allocated for wildland fire suppression to a more proactive fuels management program. Modest increases in budget allocations were made, and specific numbers of acres to be treated were targeted, dictating that the primary treatment method for hazardous fuels reduction would be prescribed fire.

Western National Forest: A Cohesive Strategy

In April 1999, the U.S. General Accounting Office (GAO) issued a report to the subcommittee on Forests and Forest Health, the Committee on Resources, and the House of Representatives entitled "Western National Forest - A Cohesive Strategy is needed to Address Catastrophic Wildfire Threats." While the USFS in the previous decade had attempted to reduce the threat of catastrophic wildland fire through the use of timber sales and understory tree removal prescriptions, this report recognized that the agency had failed to make significant progress in reducing the number and severity of large wildfires. Further, the GAO report indicated that accumulation of vegetation having little or no commercial value was a critical component in fueling destructive wildfires.

National Fire Plan

During the 2000 fire season, wildfires burned millions of acres throughout the United States. These fires dramatically illustrated the threat to human lives and development. In response to these catastrophic fires, President Clinton requested the Secretaries of Agriculture and Interior to submit by September 8, 2000, a report called "Managing the Impact of Wildfires on Communities and the Environment, A Report in Response to the Wildfires of 2000." Collectively, this report, its accompanying budget request, and Congressional direction for substantial new

appropriations for wildland fire management, action plans, and agency strategy has become known as the National Fire Plan (NFP). The NFP was created as a cooperative, long term effort of the USFS, BLM, and National Association of State Foresters to protect communities and restore ecological health on federal lands. A major component of the NFP was funding for projects designed to reduce fire risks to communities. The NFP provided the foundation and momentum for the Healthy Forest Initiative of 2002 and the Healthy Forest Restoration Act (HFRA) of 2003. The NFP contains five key areas to which funding will be channeled:

- *Firefighting Resources* to increase the level of funding for suppression resources to the Most Efficient Levels based on the values at risk and the cost of staffing a fire suppression force to protect them;
- *Rehabilitation and Restoration* to establish the formation of Burned Area Emergency Rehabilitation teams that respond to large and damaging wildfires by identifying emergency projects to protect life, property, and key ecosystem components from damage caused by wildfire;
- *Hazardous Fuel Reduction*, working with area cooperators, to identify and implement projects to reduce potential wildfire damage;
- *Community Assistance* to direct federal wildland fire managers to work with communities in order to reduce hazardous fuels, increase local employment with jobs in restoration and fuel reduction projects, and provide defensible space information, volunteer and rural firefighting assistance, and economic action programs; and
- *Accountability* to establish a tracking system to monitor progress of acres treated and monies spent.

In addition, the NFP focuses funding and technical assistance to those communities most at risk from the impacts of wildfire by establishing a federal definition of at-risk communities as well as a process for designating these threatened urban areas. At-risk communities are considered to be the most impacted by wildland fire and thus become priority areas for federal firefighting and fire management resources. Originally these communities were considered to be those that were located immediately adjacent to federal lands. Over various iterations of the NFP, the definition of an at-risk community has been broadened to include all communities where structures and other forms of urban development meet (interface) or mingle (intermix) with undeveloped wildlands and their associated vegetative fuel.

The enabling legislation of the NFP establishes development densities of at-risk interface communities at three or more structures per acre. Alternatively, these areas are defined as those having 250 or more people per square mile. These at-risk areas must have shared municipal services such as electricity and must receive fire protection by a local governmental fire department. The legislation goes on to define intermix communities as those developed areas where human development is scattered throughout a much larger natural landscape and where there is no clear boundary between the two. Development densities within intermix areas range from sites where structures are simply very close together to those locations where there is only one structure per 40 acres. An alternative definition specifies 28 to 250 people

per square mile in areas where fire protection districts funded by various taxing authorities provide structural and wildland fire protection. In addition, NFP provisions attempt to address the issue of large scattered communities with significant areas of undeveloped wildland or open space areas that are surrounded by urban environments. In these occluded communities, wildlands and their associated fuels are surrounded by relatively intense urban development.

In evaluating the fire hazard of each of the above types of development scenarios, the NFP specifies various factors of analysis that must be utilized in identifying at-risk communities. Among these are fire behavior potential, values at risk, and fire and public safety infrastructure. Since the original version of the NFP was prepared, the definition of Wildland Urban Interface (WUI) areas has expanded to include all urban areas that intermix or interface with wildlands containing contiguous vegetation, not just those managed by the federal government. Also, WUI areas now consist of at least one house per 40 acres, less than 50 percent vegetation, and within 1.5 mile of an area (made up of one or more contiguous Census blocks) over 1,325 acres that is more than 75 percent vegetated. The minimum size limit ensures that areas surrounding small urban parks are not classified as an interface area. Finally, the minimum density has been changed to one structure per 40 acres. Intermix areas have continuous wildland vegetation, are more than 50 percent vegetated, and have more than one house per 40 acres.

Finally, the NFP recognizes that in order to reduce threats from wildfire, rural communities must buffer core urban areas from wildland fire through gradual manipulation and reduction of fuel volumes at their outer edges. At the present time, these interface areas are defined as inhabited zones within 1.5 miles of wildland vegetation, roughly the distance that firebrands can be carried from a wildland fire to the roof of a house. It captures the idea that even those homes not sited within the forest are at risk of being burned in a wildland fire. As defined in the NFP, the WUI is a buffer zone that extends 1.5 miles out into private or public wildlands from areas that have residences, commercial buildings, or administrative sites with facilities.

These WUI areas consist of an inner buffer .25 mile wide (the defense zone) and an outer buffer 1.25 mile wide (the threat zone). The actual boundaries of WUI zones are determined locally, based on the actual distribution of structures and communities adjacent to or intermixed with local wildlands. Strategic landscape features such as roads, changes in fuel types, and topography can all be used in delineating the physical boundary of the WUI. Within these zones, fuel reduction treatments are designed to protect communities from wildland fires as well as to minimize the spread of fires that might originate in urban areas and spread onto wildland areas. The management objective in the wildland urban intermix zone is to enhance fire suppression capabilities by modifying fire behavior inside the zone and to provide a safe and effective area from which possible future fire suppression activities might be carried out.

A Collaborative Approach for Reducing Wildland Fire Risk to Communities and the Environment: A 10 Year Comprehensive Strategy

In August of 2001, the 10-Year Comprehensive Strategy was released. The Western Governors Association, National Association of State Foresters, National Association of Counties, Intertribal Timber Council, and Secretaries of the Interior and Agriculture joined to endorse a document called "A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: A 10-Year Comprehensive Strategy." The 10-Year Comprehensive Strategy refined the framework of the NFP and established expectations for implementation outcomes, performance measures, and implementation tasks for the four goals of the 10-year Comprehensive Strategy, including the following:

- Improved Fire Prevention and Suppression
- Reduced Hazardous Fuels
- Restored Fire-Adapted Ecosystems
- Promotion of Community Assistance

Healthy Forest Initiative

In August of 2002, the Bush administration announced the Healthy Forest Initiative (HFI). The HFI is in response to federal agencies concerned with administrative procedures that delay the preparation and implementation of hazardous fuels reduction projects in critical areas and that impede the implementation of the NFP. The HFI expedites the administrative procedures for certain hazardous fuels reduction projects by issuing new categorical exclusion categories in order to reduce lengthy environmental and sociological documentation. The new categorical exclusions require the USFS, DOI, and BLM to participate in a public collaboration process with state and local governments, tribes, landowners, and other interested persons and community based groups in order to identify new project areas and treatments.

Healthy Forest Restoration Act

The Healthy Forest Restoration Act of 2003 (HFRA) contains a variety of provisions to expedite hazardous fuels reduction and forest restoration projects on specific types of federal land that are at risk of wildland fire or insect and disease epidemic. The Federal Register of August 17, 2001 provides the latest listing of communities at risk of wildfire in the vicinity of federal lands. Additional communities may have been added since this listing based on later evaluations. The HFRA encourages federal agencies to involve state and local governments and citizens when developing plans and projects for vegetation treatment on federal lands and adjacent nonfederal lands. The HFRA includes provisions to:

- Establish WUI's .5 mile wide around at-risk communities or within 1.5 mile

when mitigating circumstances exist, such as sustained steep slope or geographic features aiding in creating a firebreak. Hazard reduction treatments are given priority within these WUI's.

- Establish WUI's adjacent to evacuation routes for at-risk communities.
- Expedite National Environmental Protection Agency (NEPA) review of hazardous fuel reduction projects in WUI's on federal lands.
- Encourage biomass removal and utilization from public and private lands.
- Require using at least 50% of the dollars allocated to HFRA projects to protect communities at risk of wildfire.

The enactment of the HFRA gives new impetus for communities to engage in forest planning. The legislation includes the first meaningful statutory incentives for the USFS and the BLM to give consideration to the priorities of local at-risk communities as the agencies develop and implement forest management and hazardous fuel reduction projects. In order for an at-risk community to take full advantage of this new opportunity, it must first prepare a CWPP.

Endangered Species Act

The Endangered Species Act (ESA) of 1973 provides for the conservation of ecosystems upon which threatened and endangered species of fish, wildlife, and plants depend. Pertaining to fire and fuels management activities of the federal government, the ESA requires federal agencies to insure that any action authorized, funded, or carried out by such agencies is not likely to jeopardize the continued existence of listed species or negatively modify their critical habitat. In addition, the ESA prohibits unauthorized taking of endangered species, regardless of the positive benefits of the activity for which the taking occurred. Finally, the ESA authorizes establishment of cooperative agreements and grants-in-aid to states that establish and maintain active and adequate programs for endangered and threatened wildlife and plants. These agreements have included funding for fuels reduction and vegetation management activities that protect wildlife habitat from catastrophic wildfire as well as those that promote advantageous habitat that aids in the expansion and sustainability of wildlife populations.

National Historic Preservation Act

The National Historic Preservation Act (NHPA) requires the review of any project funded, licensed, permitted, or assisted by the federal government for impact on significant historic properties. Federal agencies must allow the State Historic Preservation Office and the Advisory Council on Historic Preservation to comment on a proposed project. During the review process, the agency must determine if historic properties exist within the project area. If so, the agency must determine the effects on those properties and seek ways to avoid or reduce any negative effects. The responsible federal agency first determines whether it has an undertaking that is of a

type that could affect historic properties that are included in the National Register of Historic Places or that meet the criteria for the National Register. If such a property exists within the project area, the agency must identify the appropriate State Historic Preservation Officer/Tribal Historic Preservation Officer in order to conduct consultations during the execution of project work. Agencies involved in federally funded projects must also involve the public and other potential consulting parties.

California Fire Plan

The California Fire Plan (CFP) was prepared by the State Board of Forestry and CAL FIRE. The CFP provides a framework to assist communities in funding, development, and implementation of Fire Safe plans and Defensible Fuel Profile Zones (DFPZ). The overall goal of the CFP is to reduce total costs and losses from wildland fire by protecting assets through pre-fire management activities and by increasing initial attack success. The CFP has five strategic objectives:

- Create wildfire protection zones that reduce fire risks to citizens and firefighters.
- Assess all wildlands throughout the state, including all State Responsibility Areas (SRA's). Assessments will include an analysis of all wildland fire service providers - federal, state, and local governments and private. The analysis will identify high risk/high value areas, and determine who is responsible, who is responding, and who is paying for wildland fire emergencies.
- Identify and analyze key policy issues and develop recommendations for changes in public policy. Analysis will include alternatives to reduce total costs and losses by increasing fire protection system effectiveness.
- Create a strong fiscal policy focus and monitor the wildland fire protection system in fiscal terms. This will include all public and private expenditures and economic losses.
- Translate the analyses into public policies.

Agency and Resource Management Entity Fire Planning Efforts

In addition to the policies developed in the broad strategic plans such as the NFP, DMA Multi-Hazard Mitigation Plan, and the CFP, various agencies and resource management entities have prepared fire plans for specific areas or particular resources. These planning endeavors generally take the form of:

- Resource management plans which include a discussion of fire and its impact on specific resources and
- Agency fire management plans which address fire organization and logistical issues as well as the implementation of fire policies developed in broader resource planning documents.

The content of such plans and their impact on the fire environments and fire

protection efforts of Glenn County are discussed below.

Mendocino National Forest Land and Resource Management Plan

This forest wide planning document discusses management objectives and issues for all resource areas including fire within federally managed and privately managed acreage within the boundaries of the MNF. Among its objectives, the MNF Land and Resource Management Plan (LRMP) establishes an array of goals for the forest which are expected to result in the development of desired conditions in various forest ecosystems up to 50 years in the future. A number of these goals relate directly to the management and use of fire. The plan also establishes goals and objectives for commodities and services to be provided as well as prescribed standards, guidelines, and practices that are expected to achieve goals and objectives.

In conjunction with the preparation of the MNF LRMP, an array of standards and guidelines have been established that provide tangible management direction in accomplishing the policy objectives established in this planning document. These standards and guidelines assure that the MNF LRMP is implemented in conformance with USFS regional management direction as well as the legal requirements of various environmental laws such as the Clean Water Act, the Clean Air Act and Endangered Species Act, among others. A number of these implementing guidelines apply directly to the management and use of fire or indirectly in terms of how other resources are managed in relationship to fire. Due to the size of the MNF, fire management and fire related decisions made within its boundaries can have a significant impact on public and private land management outside the forest's boundaries.

Mendocino National Forest Fire Management Plan

On a yearly basis, fire management staff of the MNF prepares a forestwide fire plan which describes the elements, objectives, strategies, and resource considerations of the forest's fire program. This planning document provides a course of action for the MNF's fire and fuels management program in order to achieve the resource management goals and objectives developed in the MNF's LRMP. In addition, the fire plan translates strategic LRMP direction into specific fire and fuels tactical options for each of the forest's fire management units. The fire planning document also describes the annual fire program that has been determined to most efficiently meet the forest's fire management direction in terms of fire organization, facilities, equipment, staffing needs, activities, timing, location, and related costs. In addition, each national forest with burnable vegetation subject to wildfire must review, revise, and approve a fire management plan by February 1, and the fire planning document aids the MNF in complying with the requirement. In addition to implementing fire related goals within national forest boundaries, the MNF fire plan establishes a number of goals that address fire and fuels management issues in the interface area between private and national forest lands. In broad terms, the following criteria are

used in developing and evaluating fuels projects:

- Communities at risk of wildfire,
- Municipal watersheds, and
- Threatened and endangered species.

More specifically, the following policies have been established for evaluating fire and fuels management projects both within the national forest and on those lands adjacent to its boundaries:

- Firefighter and public safety is the first priority in every fire management activity.
- The role of wildfire as an essential ecological process, and this natural change agent will be incorporated into the planning process.
- Fire management programs and activities support land resource management plans and their importance.
- Fire management programs and activities are economically viable, based upon values to be protected.
- Fire management programs must be based upon the best available science.
- Fire management activities incorporate public health and environmental quality considerations.
- Federal, tribal, state, and local interagency coordination and cooperation is essential.
- Standardization of policies and procedures among federal agencies is an ongoing objective.
- Conduct fire management planning, preparedness, suppression, monitoring, research and fire use on an interagency basis.
- Integrate fire management planning with other types of forest planning whenever possible.
- Encourage property owners to take an active role in establishing and maintaining their own fire prevention and safety measures in WUI areas.
- Provide technical and financial assistance to state, tribal, and local cooperators for fire management planning and activities in WUI areas through Cooperative Fire Protection programs.
- Assess, analyze, and plan for fire prevention and protection in conjunction with other federal, tribal, state, county, and local government entities as well as with community and citizens groups.
- Encourage and participate in partnerships with citizens or use community centered approaches to manage fire risks and hazards in WUI areas.
- Integrate WUI considerations into land management planning as well as into program project plans.
- Implement fuel modification projects to mitigate fire hazards.

**Bureau of Land Management
Ukiah Resource Management Plan and Fire Management Plan**

In September of 2006, the BLM's Ukiah Field Office prepared a multi-year strategic

plan for the agency's Ukiah Resource Area (URA). The planning process and the regulating document provide a strategy as to how and where the agency will administer public lands under its jurisdiction within the URA. This administrative unit of the BLM encompasses 270,000 acres located within the counties of Marin, Solano, Sonoma, Mendocino, Lake, Napa, Yolo, Colusa, and Glenn. Included in this land base are 47,000 acres of scattered parcels, 3,382 acres of which are located within Glenn County and considered in the Glenn County CWPP. The goal of the BLM planning document is to assist the agency with implementing the four basic components of its organizational agenda including:

- Manage public lands as "keepers of the public trust," providing a variety of resource opportunities and open spaces for the benefit and enjoyment of everyone.
- Maintain and improve the health of our diverse landscapes and ecosystems.
- Protect the public lands from abuse.
- Respect community values and seek opportunities for local involvement in area conservation and use.

To accomplish this, the Ukiah Resource Management Plan (RMP) addresses a number of resource issues that are common to all the parcels covered under the Ukiah RMP. Among the 18 resource issues addressed in the planning document is fire management. Significant among BLM management actions with regards to fire is the development and maintenance of a Fire Management Plan (FMP). An FMP is a strategic document that identifies and integrates all wildland fire management guidance, direction, and activities. It reflects and integrates fire management direction from the RMP, subsequent amendments to the RMP, and other applicable special management and/or activity plans. The goal of the Ukiah Field Office FMP is to provide an appropriate management response on all wildland fires, emphasizing firefighter and public safety. Within this planning document, management actions are categorized into 6 categories each having separated goals and specific implementation measures. Those goals and management actions that relate to BLM properties in Glenn County include the following:

Wildfire Suppression.

- *Goal:* To provide an appropriate management response on all wildland fires, emphasizing firefighter and public safety.
- *Management Actions.* In order to obtain the goal of appropriately managing response to wildfire on lands under BLM management, the FMP directs personnel to prioritize fires and related response levels based on values to be protected commensurate with cost. To accomplish this, high priority wildfire risk areas such as WUI, critical habitats and cultural areas will be identified through the FMP process. In addition, the planning document will list at-risk values and communities within a Fire Management Unit. These lists may change as communities are removed or added each year. At the present time only the community of Elk Creek has been formally identified as being at risk from wildfire. Further, agency personnel are directed to adjust the intensity of fire

suppression efforts to the most economical response consistent with human and resource values at risk and considering the impact of fire versus the impact from suppression actions. More specifically, in order to protect riparian area and cultural sites, the FMP prohibits the use of bulldozers and other heavy equipment in these areas unless the restriction is lifted by the Ukiah Area Field Manager in order to protect human life, private property, structures, visitor safety or sensitive or valuable resources. Fire retardant drops are also to be limited in order to protect vernal pools, aquatic species and waterways. Finally cultural resources are to be protected through the agency coordination with tribal entities.

Fuels Management.

- *Goals* include the following:
 - Improve ecological conditions and reduce the risk of catastrophic wildfire through the use of prescribed burning and mechanical treatments.
 - Manage fuels to mimic the natural role of fire while enhancing resource values.
 - Reduce fire risk to WUI communities.
 - Promote greater diversity within plant communities with the use of fire.
 - Protect riparian and wetland areas.
- *Management Actions:* In general, the BLM FMP promotes the use of prescribed fire, along with mechanical, biological and chemical treatments as a means to develop and maintain fuel breaks within WUI areas. In order to focus agency efforts towards those that leverage local stakeholder initiatives, agency personnel are directed to work with local fire safe councils in the planning, development and implementation of risk assessments and community protection plans. The risk assessment and community protection plans set forth and prioritize in a collaborative manner, hazard reduction projects between public and private stakeholders regardless of administrative boundaries and ownerships.

In addition to managing fire as a threat, the FMP promotes the use of prescribed fire as a natural land management tool for the control and eradication of noxious weeds, development of wildlife habitat, increasing water yields and enhancing other watershed resources. These uses of fire require its introduction into local landscapes on a rotational basis. The Ukiah Area FMP recognizes that the desired results from the use of fire must be balanced with other considerations such as smoke management, air quality management, as well as personnel and other resource logistics. The FMP establishes that prescribed burn plans and related smoke plans developed for hazard reduction and vegetation management activities will occur during project level implementation and include appropriate environmental analysis. To increase the

potential for successful project outcomes, a fire effects monitoring system will be established that inventories pre-burn species composition and resulting post fire response.

Fire Rehabilitation, Stabilization & Restoration.

- Goal: To rehabilitate burned areas to mitigate adverse effects of fire on natural and cultural resources.
- Management Actions: In order to promote natural ecosystems on BLM lands impacted by wildfire or prescribed burns, the Ukiah Field Office Fire Management Plan (FMP) specifies that native species will be used in reseedings to minimize noxious weed invasion. In order to better organize and prioritize rehabilitation efforts, the FMP also directs agency personnel to develop local or regional Normal Fire Year Rehabilitation Plans and to monitor rehabilitation efforts that facilitate future planning and implementation.

Prevention and Risk Mitigation & Education.

- Goal: To increase the public's knowledge of the natural role of fire in the ecosystem, including the hazards and risks associated with living in WUI areas.
- Management Actions: In addition to developing risk assessments and community protection plans, the BLM FMP directs agency staff to work with Fire Safe Councils, along with other federal and state agencies in educating the public on fire risk and prevention measures. Personnel are also directed to employ fire prevention strategies that reduce human ignition occurrence on public land within the Ukiah Field Office area.

United States Fish and Wildlife Service Fire Planning Policies

The Department of Interior (DOI) fire management policy requires that all burnable acres on USFWS lands have a FMP which details fire management guidelines for operational procedures and values to be protected and/or enhanced. These FMP's are designed to assist in the protection of individual site facilities, resources, employees, and adjacent communities at risk of wildfire. Fire management plans are tiered from larger programmatic-level resource management plans such as:

Refuge Comprehensive Conservation Plan (CCP): This planning document addresses a number of broad resource planning and conservation issues. A number of these relate to fire and fuels management concerns:

- Development and management of habitat for endangered, threatened, and/or sensitive species;
- Protection and development of habitat for neotropical migratory land birds;
- Preservation of natural diversity and abundance of flora and fauna;
- Development of feeding and resting habitat for migratory and wintering waterfowl and other water birds;
- Development of opportunities for understanding and appreciating wildlife

- ecology and the human role in the environment;
- Providing high quality wildlife dependent recreation and education;
- Providing an area for compatible management oriented research.

Habitat Management Plan (HMP): This type of directed planning document focuses specifically on the development, protection, and sustainability of habitat resources found within the wildlife area. Unit-specific fire management plans provide site-specific information and guidance regarding fire protection as well as fire and fuels management on specific USFWS properties. Those plans currently in effect on USFWS properties within Glenn County include the following programs.

Sacramento River National Wildlife Refuge Complex Fire Management Plan: The Sacramento National Wildlife Refuge Complex (SRNWRC) was established in 1989 under the authority of the Endangered Species Act. The refuge was created in order to preserve, restore, and enhance habitats and species that make up the Sacramento River ecosystems. The refuge consists of 18,000 acres along both banks of the Sacramento River between Red Bluff and Colusa. The SRNWRC fire plan was developed based upon the following assumptions and considerations:

- Fire is an essential part of maintaining the refuge's native biotic communities.
- Prescribed fire has positive effects on vegetation and wildlife when conducted during the appropriate burning conditions, time of year, and plant phenology, using the proper techniques.
- Uncontrolled wildland fire has the potential for negative impacts (out of season, increased intensity, fire trespass, burning onto neighboring properties).
- Use of Minimum Impact Suppression Tactics (MIST) concept to minimize environmental damage.

The fire planning document was prepared in order to meet these primary objectives:

- Protection of life, natural resources, and public and private property;
- Use of prescribed fire for hazard fuel reduction and habitat improvement;
- Safe suppression of all wildland fires using strategies and tactics appropriate to safety considerations and values at risk;
- Provide for and protect habitat for trust species, especially endangered, threatened, and species of concern;
- Use prescribed fire to reduce hazardous fuels and improve habitat conditions;
- Prevent human-caused wildland fires; and
- Public education regarding fire management.

Fire management programs are coordinated by the Zone fire management team and various resource staff members, although final management decisions are made by site or complex managers. Fire project planning and implementation are directly supervised by the Zone Fire Management Officer. The Sacramento Fire Zone maintains a fire staff consisting of a Fire Management Officer, Wildland Urban Interface Coordinator, Fire Operations Supervisor, Engine Captain, and crew.

Planning strategies and objectives are considered in the preparation of the Zone's Annual Work Plan and development of annual budget requests. Proposed actions, alternatives, and environmental analyses in compliance with NEPA will be developed from annual strategies and will be used in the development of site-specific projects occurring on USFWS properties. Annual work plans/project lists will be provided to the applicable CWPP team representatives and other interested parties for review, prioritization, and amendment/adoption into the applicable CWPP(s).

Sacramento National Wildlife Refuge Complex Fire Management Plan. The Sacramento National Wildlife Refuge (SNWR) was established in 1937 in order to alleviate crop depredation problems as well as provide wintering habitat for waterfowl. The Refuge is located in the Sacramento Valley six miles south of Willows. SNWR comprises 10,783 acres located largely within southern Glenn County. Most of wildland fires at the facility each year occur along its boundaries (fire trespass), public use areas, adjacent roadways, and the railroad right-of-way. These fires may have the potential to negatively impact resident or nesting wildlife, threatened and endangered species, and/or habitat, depending on the time of year. Generally, damage is temporary; after one or two years, impacted areas usually have returned to their original condition.

In addition to fire management staff located at the facility, SNWR has established interagency memoranda of understanding with an array of federal, state, and local fire organizations in order to provide an efficient level of fire management operations. These MOU's allow the responding agency to assume command of an incident until a representative of the USFWS can arrive and establish a unified command or assume responsibility for the incident. Depending on time of year, these non-USFWS fire resources may perform initial attack for the Refuge. Similarly, these MOU's also allow refuge fire personnel the ability to respond in connection with fires that occur adjacent to or in proximity to SNWR lands under the principle of "closest resource." These interagency relationships include the following:

Ord Bend Fire Protection District
Glenn-Colusa Fire Protection District - Butte City
Hamilton City Fire Protection District
Sacramento River Fire Protection District
Willows City and Rural Fire Protection District
Maxwell Fire Protection District
Colusa Rural Fire Protection District
Williams Fire Protection District
Bayliss Fire Protection District

The overall strategy of the USFWS in dealing with wildfire on the refuge is to suppress all wildland fires in a safe and cost effective manner consistent with resources and values at risk. Of highest priority is the safety of employees and members of the public located either on site or on nearby lands. Buildings and facilities along with power line rights-of-way are also considered of the highest significance. Generally, the SNWR FMP instructs fire management personnel to utilize minimal impact suppression tactics while remaining in compliance with all applicable laws, policies,

and regulations. The facility's management has been directed to maintain an initial attack organization capable of suppressing wildland fires inside refuge boundaries within one hour during the fire season. More specifically, the SNWR FMP has established that existing roads, canals, parking lots, and natural features are to be used for control lines, anchor points, safety zones, and escape routes. Burnouts have been approved to reinforce control lines, and heavy equipment is allowed if there has been an archaeological clearance or if necessary to protect life and buildings. The use of retardant is allowed near waterways under standard restrictions.

In addition to prevention and suppression, the SNWR FMP addresses fire issues in terms of vegetation management. Among the methods approved for vegetation treatments are mechanical techniques (disking and mowing) as a means to create and maintain fuel breaks that protect on site and off site resources. Not only must these treatments be effective, they must also conform to the ESA and historic preservation mandates. Typically fuel breaks will be developed in previously farmed areas where soil disturbance has already occurred. Since the 1980's, SNWR personnel have been active in utilizing prescribed burning as part of the facility's overall vegetation management program during the months of June through November. The ability of prescribed burning to mimic the natural function of fire within the refuge's ecosystems in a controlled manner has been an asset in reducing the threat of wildfire and in producing desired habitat conditions for waterfowl, upland species, and other ecological resources found within the refuge. These burns have also been used to reduce non-native plant species. Prescribed fire activity is established and coordinated annually as part of the Refuge's Habitat Management Plan. Presently, SNWR's prescribed fire planning process allows for approximately 5-10% of the Refuge's total acreage to be treated yearly.

Community Wildfire Protection Plans

The process of developing a CWPP, such as the Glenn County CWPP, is a collaborative effort by citizens and agency personnel that identifies and describes the wildfire situation of communities located within those wildlands and wildland urban interface areas that are impacted or have the potential to be significantly impacted by wildfire. This broad look at a community's wildfire situation includes a description of the area's fire ecology as well as the interrelationships and impacts that occur between fire dominated ecosystems and human occupation of these landscapes. More specifically, community fire plans identify and describe natural and manmade assets at risk of wildfire found in the local area as well as infrastructure in place to protect them. This infrastructure is then analyzed in order to determine its effectiveness in protecting local at-risk assets, and improvements are developed to increase the usefulness of these protective measures.

CWPPs are the citizens' opportunity to supplement broad regional and national fire plans with local plans that meet the concerns and needs of the immediate community. Under current planning requirements for CWPPs, the at-risk community determines and defines the boundaries of the WUI which protects the citizens and

development found within a community. The use of the community as the determiner of the WUI protection area supersedes the default distance limitations of 1.5 miles from the community as specified in the HFRA of 2003. This community plan is not constrained by standards and guidelines such as canopy closure, tree size limitations, and basal area retention standards. In addition, the plan is not subject to the legal challenges that frequently encumber federal land management plans. Significantly, those communities with wildfire protection plans receive priority for funding of fire and fuels management projects as well as those projects that improve fire safety. Some of the significant components found in many CWPP's include:

- Identification of at-risk communities within or adjacent to wildlands that are at risk of impact by large-scale wildland fire;
- Identification of federal and nonfederal areas suitable for hazardous fuel reduction treatments that will result in the protection of identified at-risk communities;
- Prioritization of fuel reduction treatments;
- Recommendations as to appropriate types and methods of fuel reduction treatments to be applied on both federal and nonfederal land;
- Recommendation of measures that will reduce structural ignitability throughout identified at-risk communities;
- Recommendation for changes in the regulatory setting of the planning area that will increase fire safety and reduce the risk of both ignitions and the occurrence of catastrophic wildfire;
- Development of a fire plan within the context of collaborative agreements and in consultation with interested parties and federal land management agencies having management responsibilities within the vicinity of identified at-risk communities.

Tehama-Glenn Fire Safe Council

In the spring of 2000, the Tehama-Glenn Fire Safe Council (TGFSC) was formed in order to act as an advisory group on issues related to wildfire and fire safety within the Glenn and Tehama County areas. Due to the rural nature of both counties, the TGFSC focuses primarily on fire management, fuel reduction, and fire prevention issues associated with wildlands and urban-interface areas on a landscape basis. Among these area-wide issues are:

- Smoke management and self regulation;
- Coordination of prescribed burning;
- Coordination of wildfire incidents;
- Public education;
- Fire prevention education;
- Fire training for land managers;
- Prescribed and emergency response fire capacity;
- Rehabilitation after wildfire incidents;
- Fuel break and vegetation treatment projects;

- Monitoring of regulations; and
- Project funding.

The primary objectives of the TGFSC are:

- Coordination of fire and fuels management initiatives being conducted by public entities, landowner groups and watershed organizations as a means to make these efforts more effective and cost efficient.
- Development of project work and other initiatives that reduce fire threats and improve the fire ecology of Glenn and Tehama Counties.
- Work with established fiscal agents in obtaining funding for projects relating to fire management, fuel reduction, and fire prevention.

The group consists of representatives from the USFS, BLM, USFWS, National Park Service, California Department of Forestry and Fire Protection (now CAL FIRE), California Department of Fish and Game, Glenn County Planning Department, Glenn County Public Works Department, Glenn County Air Pollution Control, Glenn County Planning Department, Glenn County Public Works Department, GCRCD, Tehama County Planning Department, Tehama County Public Works Department, Tehama County Air Pollution Control, Tehama County Public Works Department, TCRCD, Crane Mills, Sierra Pacific Industries, Collins Pine Company, and the Quincy Library Group. Private landowner representation is generally provided through local watershed conservancies or other landowner groups. Among those providing significant contributions to the Tehama-Glenn Fire Safe Council are Battle Creek Watershed Conservancy, Mill Creek Conservancy, and Deer Creek Watershed Conservancy. In addition to its participation as a member of the Fire Safe Council, TCRCD contributes a paid staff member to coordinate council activities as well as to provide planning and GIS services.

From past discussions, a number of suggestions were developed about specific project work that could achieve TGFSC goals. Significant among these ideas was the development of an overall framework for fire and fuels planning which would look at issues on a countywide basis. At the present time, land management entities and fire planning organizations within both Glenn and Tehama Counties operate under an array of organizational agenda. This situation hinders the development of a more unified wildfire response strategy among public and private stakeholders. It also impacts the effective coordination of complex fire management issues in a unified, cohesive manner and at ecologically relevant scales. It was determined that in order to develop specific information with which to develop fire management and fuels projects and to garner stakeholder support, a countywide planning process would need to be divided into geographic regions having similar landscapes, fuel conditions, and management objectives. Glenn County stakeholders observed that wildfire issues were generally focused in four locations: the county's Westside oak woodlands, chaparral and timberlands; the Lower Stony Creek corridor from Black Butte Lake to the Sacramento River; the Sacramento River corridor itself; and the wildlands of the SNWR.

Fire impacted landscapes cross administrative boundaries. As a consequence, successful and cost effective efforts to deal with fire and fuels issues on a landscape

basis requires coordination with planning initiatives that have already been completed within Glenn County together with those that will be developed and implemented once the Glenn County CWPP is approved by the County Board of Supervisors. At a larger scale, CAL FIRE and TGFSC have been attempting to coordinate and integrate the array of fire planning and mitigation efforts taking place throughout Glenn and Tehama Counties through the development and continued refinement of the CAL FIRE Tehama-Glenn Unit Plan. This multi-county fire planning document coordinates the policies, planning efforts, and project work developed in the Tehama West Fire Plan, the Tehama East Community Wildfire Protection Plan, the Manton Community Wildfire Protection Plan, the Deer Creek Fire Management Framework and the fire management agenda of the CAL FIRE organization. Once completed, the initiatives and improvement recommendations in the Glenn County CWPP will be included in this coordination process. As a result of this coordination effort, an increase in the effectiveness and cost efficiency of fire and fuels management projects developed throughout Glenn County and Tehama County is expected. In addition, the CAL FIRE Tehama-Glenn Unit Plan document will also meet the requirements of the Federal Healthy Forest Initiative, as well as the compliance criteria of the DMA of 2000, the NFP, and the California Fire Plan. Once this multi-county planning document is completed, local land management entities will be able to apply for federal and state funding for fire and fuels management projects.

Fire Prevention Regulations and Enforcement

The laws and regulations concerning fire prevention on private lands in Glenn County are enforced primarily by CAL FIRE and various county and city fire entities. Pertinent sections of the California Public Resources Code are found in **Appendix B**. Applicable portions of California Government Code 51182 are shown in **Appendix C**, and those portions of Title 14 California Code of Regulation (14 CCR) applicable to fire safety and wildfire are shown under **Appendix D**. Finally, starting in January 2008, revisions to the California Building Code (CBC), shown under **Appendix E**, related to building products that can be used in WUI areas, become effective. Among the changes to the Building Standards and Materials for Building Code (Chapter 7A of the CBC) are new regulations that require building products to comply with specific standards if structures are built within very high fire hazard severity zones as mapped by CAL FIRE. A map of these areas can be found at:

<http://frap.cdf.ca.gov/projects/hazard/fhz.html>

These new code provisions include provisions for ignition resistant construction standards in WUI areas. The updated fire hazard severity zones will be used by building officials to determine appropriate construction materials for new buildings in WUI areas. The updated zones will also be used by property owners to comply with natural hazards disclosure requirements at time of property sale.

APPENDIX C – Public Resource Code

The laws and regulations concerning fire prevention on private land in Glenn County are enforced primarily by CAL FIRE and by Glenn County authorities. The following list provides a summary of the major laws and regulations currently in force within Glenn County pertaining to fire prevention and fire safety.

PRC 4291 - *Defensible Space*. Any person who owns, leases, controls, operates, or maintains a building or structure in, upon, or adjoining any mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or any land that is covered with flammable material, and located within a State Responsibility Area, shall at all times do all of the following:

(a) Maintain a firebreak by removing and clearing away all flammable vegetation and other combustible growth within 30 feet of each building or structure, with certain exceptions pursuant to PRC §4291(a). Single specimens of trees or other vegetation may be retained provided they are well-spaced, well-pruned, and create a condition that avoids spread of fire to other vegetation or to a building or structure.

(b) Dead and dying woody surface fuels and aerial fuels within the Reduced Fuel Zone shall be removed. Loose surface litter, normally consisting of fallen leaves or needles, twigs, bark, cones, and small branches, shall be permitted to a depth of 3 inches. This guideline is primarily intended to eliminate trees, bushes, shrubs and surface debris that are completely dead or with substantial amounts of dead branches or leaves/needles that would readily burn.

(c) Down logs or stumps anywhere within 100 feet from the building or structure, when embedded in the soil, may be retained when isolated from other vegetation. Occasional (approximately one per acre) standing dead trees (snags) that are well-space from other vegetation and which will not fall on buildings or structures or on roadways/driveways may be retained.

(d) Within the Reduced Fuel Zone, one of the following fuel treatments (4a. or 4b.) shall be implemented. Properties with greater fire hazards will require greater clearing treatments. Combinations of the methods may be acceptable under §1299(c) as long as the intent of these guidelines is met.

1. In conjunction with a., b., and c., above, minimum clearance between fuels surrounding each building or structure will range from 4 feet to 40 feet in all directions, both horizontally and vertically. Clearance distances between vegetation will depend on the slope, vegetation size, vegetation type (brush, grass, trees), and other fuel characteristics (fuel compaction, chemical content etc.). Properties with greater fire hazards will require greater separation between fuels. For example, properties on steep slopes having large sized vegetation will require greater spacing between individual trees and bushes. Groups of vegetation (numerous plants growing together less than 10 feet in total foliage width) may be treated as a single plant. For example, three individual manzanita plants growing together with a total foliage width of eight feet can be “grouped” and considered as one

plant and spaced according to specific Plant Spacing Guidelines.

Grass generally should not exceed 4 inches in height. However, homeowners may keep grass and other forbs less than 18 inches in height above the ground when these grasses are isolated from other fuels or where necessary to stabilize the soil and prevent erosion. Clearance requirements include:

- Horizontal clearance between aerial fuels, such as the outside edge of the tree crowns or high brush. Horizontal clearance helps stop the spread of fire from one fuel to the next.
- Vertical clearance between lower limbs of aerial fuels and the nearest surface fuels and grass/weeds. Vertical clearance removes *ladder fuels* and helps prevent a fire from moving from the shorter fuels to the taller fuels.

2. To achieve defensible space while retaining a stand of larger trees with a continuous tree canopy apply the following treatments:

- Generally, remove all surface fuels greater than 4 inches in height. Single specimens of trees or other vegetation may be retained provided they are well-spaced, well-pruned, and create a condition that avoids spread of fire to other vegetation or to a building or structure.
- Remove lower limbs of trees (“prune”) to at least 6 feet up to 15 feet (or the lower 1/3 branches for small trees). Properties with greater fire hazards, such as steeper slopes or more severe fire danger, will require pruning heights in the upper end of this range.

PRC 4292. - *Power lines.* Except as otherwise provided in Section 4296, any person that owns, controls, operates, or maintains any electrical transmission or distribution line upon any mountainous land, or forest-covered land, brush-covered land, or grass-covered land shall, during such times and in such areas as are determined to be necessary by the director or the agency which has primary responsibility for fire protection of such areas, maintain around and adjacent to any pole or tower which supports a switch, fuse, transformer, lightning arrester, line junction, or dead end or corner pole, a firebreak which consists of a clearing of not less than 10 feet in each direction from the outer circumference of such pole or tower. This section does not, however, apply to any line which is used exclusively as telephone, telegraph, telephone or telegraph messenger call, fire or alarm line, or other line which is classed as a communication circuit by the Public Utilities Commission. The director or the agency which has primary fire protection responsibility for the protection of such areas may permit exceptions from the requirements of this section which are based upon the specific circumstances involved.

PRC 4293. Except as otherwise provided in Sections 4294 to 4296, inclusive, any person that owns, controls, operates, or maintains any electrical transmission or distribution line upon any mountainous land, or in forest-covered land, brush-covered land, or grass-covered land shall, during such times and in such areas as are determined to be necessary by the director or the agency which has primary responsibility for the fire protection of such areas, maintain a clearance of the respective distances which are specified in this section in all directions between all vegetation and all conductors which are carrying electric current:

- (a) For any line which is operating at 2,400 or more volts, but less than 72,000 volts, 4 feet.
- (b) For any line which is operating at 72,000 or more volts, but less than 110,000 volts, 6 feet.
- (c) For any line which is operating at 110,000 or more volts, 10 feet.

In every case, such distance shall be sufficient to furnish the required clearance at any position of the wire, or conductor when the adjacent air temperature is 120 degrees Fahrenheit, or less. Dead trees, old decadent or rotten trees, trees weakened by decay or disease and trees or portions thereof that are leaning toward the line which may contact the line from the side or may fall on the line shall be felled, cut, or trimmed so as to remove such hazard. The director or the agency which has primary responsibility for the fire protection of such areas may permit exceptions from the requirements of this section which are based upon the specific circumstances involved.

PRC 4294. A clearing to obtain line clearance is not required if self-supporting aerial cable is used. Forked trees, leaning trees, and any other growth which may fall across the line and break it shall, however, be removed.

PRC 4295. A person is not required by Section 4292 or 4293 to maintain any clearing on any land if such person does not have the legal right to maintain such clearing, nor do such sections require any person to enter upon or to damage property which is owned by any other person without the consent of the owner of the property.

PRC 4296. Sections 4292 and 4293 do not apply if the transmission or distribution line voltage is 750 volts or less.

PRC 4296.5 - Railroads.

(a) Any person or corporation operating a railroad on forest, brush, or grass-covered land shall, if ordered by the director or the agency having primary responsibility for fire protection of the area, destroy, remove, or modify so as not to be flammable any vegetation or other flammable material defined by regulation of the director to be a fire hazard on the railroad right-of-way. The director shall adopt regulations establishing fire prevention hazard reduction standards for broad geographic areas by fuel type, slope, and potential for ignition from hot or flaming exhaust, carbon particles, hot metal, burning signal devices, burning tobacco, and other similar potential sources of ignition.

(b) The order to destroy, remove, or modify vegetation or other flammable material shall specify the location of the hazard to be destroyed, removed, or modified within the right-of-way, the width of the hazard which shall not exceed the width of the right-of-way, and the time within which compliance with the order is required.

(c) The director or the agency having primary responsibility for fire protection of the area shall allow a reasonable period of time for compliance with an order to destroy, remove, or modify vegetation or other flammable material.

PRC 4297. Upon the showing of the director that the unrestricted use of any grass-covered land, grain covered land, brush-covered land, or forest-covered land is, in the judgment of the director, a menace to life or property due to conditions tending to cause or allow the rapid spread of fires which may occur on such lands or because of the inaccessible character of such lands, the Governor through the director, may, by a proclamation, which declares such condition and designates the area to which, and the period during which the proclamation shall apply, require that such area be closed to hunting and fishing and to entry by any person except a person that is within one of the following classes:

- (a) Owners and lessees of land in the area.
- (b) Bona fide residents in the area.
- (c) Persons engaged in some bona fide business, trade, occupation, or calling in the area and persons employed by them in connection with such business, trade, occupation, or calling.
- (d) Authorized agents or employees of a public utility entering such area for the purpose of operating or maintaining public utility works or equipment within the area.
- (e) Members of any organized firefighting force.
- (f) Any federal, state or local officer in the performance of his duties.
- (g) Persons traveling on public roads or highways through the area.

PRC 4298 - *Fire Closures.* The proclamation by the Governor shall be released to the wire news services in the state, and shall be published at least once in a newspaper of general circulation in each county which contains any lands covered by the proclamation. Notice of closure shall also be posted on trails or roads entering the area covered by the proclamation. The closure shall be effective upon issuance of the proclamation by the Governor. Each notice shall clearly set forth the area to be subject to closure and the effective date of such closure. The closure shall remain in full force and effect until the Governor shall by order terminate it. The notice of such termination shall follow the same procedure by which such closure was affected. The order of termination shall be effected upon issuance.

PRC 4299. Any person who violates Section 4297 or 4298 is guilty of a misdemeanor and shall be punished by a fine of not less than fifty dollars (\$50) nor more than one thousand dollars (\$1,000) or by imprisonment in the county jail for not less than 10 days nor more than 90 days or both fine and imprisonment. All state and county law enforcement officers shall enforce orders of closure.

PRC 4475 - *Prescribed Fire.* The director may enter into an agreement, including a grant agreement, for prescribed burning or other hazardous fuel reduction that is consistent with this chapter and the regulations of the board with either the owner or any other person who has legal control of any property or any public agency with regulatory or natural resource management authority over any property that is included within any wild land for any of the following purposes, or any combination of those purposes:

- (a) Prevention of high-intensity wild land fires through reduction of the volume and continuity of wild land fuels.
- (b) Watershed management.
- (c) Range improvement.
- (d) Vegetation management.
- (e) Forest improvement.
- (f) Wildlife habitat improvement.
- (g) Air quality maintenance.

An agreement shall not be entered into pursuant to this section unless the director determines that the public benefits estimated to be derived from the prescribed burning or other hazardous fuel reduction pursuant to the agreement will be equal to or greater than the foreseeable damage that could result from the prescribed burning or other hazardous fuel reduction.

PRC 4475.1. The director, with the approval of the Director of General Services, may enter into a master agreement with federal land management agencies to conduct joint prescribed burning operations on wildlands and federal lands where these operations serve the public interest and are beneficial to the state. This master agreement shall be known as the Interagency Agreement for Cooperative Use of Prescribed Fire and shall establish guidelines for the cooperative management of joint prescribed burning operations. The master agreement shall require the completion of a project agreement for each individual prescribed burn which shall include the following:

- (a) A list of all participants.
- (b) A joint prescribed burn plan.
- (c) A display of the project costs to be assumed by each participant.
- (d) A summary of the benefits to be received by each participant.
- (e) An apportionment of suppression cost to each participant in the event a wildfire escapes from the project.

Project costs to be assumed by each agency or cooperator shall be based on the benefits received by each participant. The apportionment of suppression cost shall be based on the following:

- (1) The benefits received by each participant.
- (2) The amount at risk for each participant.
- (3) The cost to produce the desired benefits received by each participant.
- (4) The total acreage included by each participant.

PRC 4475.5. (a) The state may assume a proportionate share of the costs of site preparation and prescribed burning conducted pursuant to this article on wildlands other than wildlands under the jurisdiction of the federal government. The state's share of those costs shall bear the same ratio to the total costs of the operation as the public benefits bear to all public and private benefits to be derived from the prescribed burning operation, as estimated and determined by the director. The state's share of the costs may exceed 90 percent of the total costs of the operation

only if the director determines that no direct private economic benefits will accrue or will be utilized by a person that owns or controls any property under contract pursuant to Section 4475.

(b) The board shall adopt regulations establishing standards to be used by the director in determining the state's share of such costs and in determining whether, pursuant to Section 4475, the public benefits of a prescribed burning operation will equal or exceed the foreseeable damage therefrom.

(c) The determination of public and private benefits pursuant to this section shall reflect any substantial benefit to be derived from accomplishing any of the purposes specified in Section 4475 and the prevention of degradation of air quality.

(d) All or part of such costs to be borne by the person contracting with the department may be met by the value of materials, services, or equipment furnished by that person directly, or furnished by that person pursuant to an agreement with a private consultant or contractor, or furnished by a combination of both means, that are determined by the department to be suitable for the preparation for, and the conduct of, the prescribed burning operation.

PRC 4476. Any contract which is entered into pursuant to this article shall do all of the following:

(a) Vest in the director the final authority to determine the time during which wildland fuel and structural fire hazards may be burned to minimize the risk of escape of a fire set in a prescribed burning operation and to facilitate maintenance of air quality.

(b) Clearly state the obligation of each party to the contract to provide, maintain, and repair equipment and indicate the number of each type of equipment to be provided and the duration of its availability.

(c) Designate an officer of the department as the fire boss with final authority to approve and amend the plan and formula applicable to the prescribed burning operation, to determine that the site has been prepared and the crew and equipment are ready to commence the operation, and to supervise the work assignments of departmental employees and all personnel furnished by the person contracting with the department until the prescribed burning is completed and all fire is declared to be out.

(d) Specify the duties of, and the precautions taken by, the person contracting with the department and any personnel furnished by that person.

(e) Provide that any personnel furnished by a person contracting with the department to assist in any aspect of site preparation or prescribed burning shall be an agent of that person for all purposes of worker compensation. However, any volunteer recruited or used by the department to suppress a wildland fire originating or spreading from a prescribed burning operation is an employee of the department for all purposes of worker compensation.

(f) Specify the value assigned to the materials, services, or equipment furnished by the person contracting with the department in lieu of payment of all or part of that person's share of the actual costs.

(g) Specify the total costs of the prescribed burning operation and the pro rata share thereof for each party to the contract. Any person contracting with the department shall, prior to the commencement of any work by the department, place on deposit in an interest-bearing escrow or trust account with a California-licensed financial institution an amount equal to that person's pro rata share of the costs, less the value of materials, services, or equipment specified pursuant to subdivision (e). Interest earned on the account shall accrue to the depositor and may be separately disbursed from the principal amount upon request of the depositor. Disbursement of funds on deposit in the trust or escrow account shall be authorized by the depositor within 15 days after completion, to the depositor's satisfaction, of all work specified in the contract to be done by the department.

(h) Provide that the department may, in its discretion, purchase a third party liability policy of insurance which provides coverage against loss resulting from a wildland fire sustained by any person or public agency, including the federal government. The amount of the policy, if purchased, shall be determined by the director. The policy shall name the person contracting with the department and the department as joint policyholders. The premium shall be included as a cost prorated as provided in subdivision (g). A certificate of insurance, if purchased, covering each policy shall be attached to or become a part of the contract. If the department elects not to purchase insurance, the department shall agree to indemnify and hold harmless the person or public agency contracting with the department with respect to liability arising out of performance of the contract.

PRC 4477. If the amount of moneys due the state is not paid as provided in subdivision (e) of Section 4476, such amount shall become a lien upon the property.

(a) Notice of the lien shall be recorded by the department in the office of the county recorder of the county in which the property is situated within one year.

(b) An action to foreclose the lien shall be commenced by the Attorney General in the name of the people of the State of California within 6 months after the lien is filed and recorded.

(c) When the property is sold, enough of the proceeds to satisfy the lien and the costs of the foreclosure shall be paid to the state and the surplus, if any, shall be paid to the owner of the property.

PRC 4478. All moneys received by the department pursuant to this article shall be credited to the department's current support appropriation as a reimbursement.

PRC 4479. Liability for any costs incurred by the department in suppressing any wildland fire originating or spreading from a prescribed burning operation conducted pursuant to a contract entered into pursuant to this article shall be governed by subdivision (b) of Section 13009 of the Health and Safety Code.

PRC 4480. In any area of the state where there are substantially more requests for prescribed burning operations pursuant to this article than can be conducted directly by the department in a single fiscal year, the director may, with the approval of the Director of Finance, enter into an agreement with private consultants or contractors or with other public agencies for furnishing all or a part of the state's share of the responsibility for planning the operation, preparing the site, and conducting the prescribed burning. The private consultant or contractor or other public agency, and the work assignments of its employees, shall be supervised by the fire boss, as provided in subdivision (c) of Section 4476. No agreement may be entered into pursuant to this section unless the director determines that it will enable the prescribed burning operation to be conducted at a cost equal to, or less than, the cost that would otherwise be incurred by the state.

APPENDIX D – California Government Code 51182

51182. (a) Any person who owns, leases, controls, operates, or maintains any occupied dwelling or occupied structure in, upon, or adjoining any mountainous area, forest-covered land, brush-covered land, grass-covered land, or any land that is covered with flammable material, which area or land is within a very high fire hazard severity zone designated by the local agency pursuant to Section 51179, shall at all times do all of the following:

(1) Maintain around and adjacent to the occupied dwelling or occupied structure a firebreak made by removing and clearing away, for a distance of not less than 30 feet on each side thereof or to the property line, whichever is nearer, all flammable vegetation or other combustible growth. This paragraph does not apply to single specimens of trees or other vegetation that is well-pruned and maintained so as to effectively manage fuels and not form a means of rapidly transmitting fire from other nearby vegetation to any dwelling or structure.

(2) Maintain around and adjacent to the occupied dwelling or occupied structure additional fire protection or firebreaks made by removing all brush, flammable vegetation, or combustible growth that is located within 100 feet from the occupied dwelling or occupied structure or to the property line, or at a greater distance if required by state law, or local ordinance, rule, or regulation. This section does not prevent an insurance company that insures an occupied dwelling or occupied structure from requiring the owner of the dwelling or structure to maintain a firebreak of more than 100 feet around the dwelling or structure if a hazardous condition warrants such a firebreak of a greater distance. Grass and other vegetation located more than 30 feet from the dwelling or structure and less than 18 inches in height above the ground may be maintained where necessary to stabilize the soil and prevent erosion. This paragraph does not apply to single specimens of trees or other vegetation that is well-pruned and maintained so as to effectively manage fuels and not form a means of rapidly transmitting fire from other nearby vegetation to a dwelling or structure.

(3) Remove that portion of any tree that extends within 10 feet of the outlet of any chimney or stovepipe.

(4) Maintain any tree adjacent to or overhanging any building free of dead or dying wood.

(5) Maintain the roof of any structure free of leaves, needles, or other dead vegetative growth.

(6) Provide and maintain at all times a screen over the outlet of every chimney or stovepipe that is attached to any fireplace, stove, or other device that burns any solid or liquid fuel. The screen shall be constructed and installed in accordance with the California Building Standards Code.

(7) Prior to constructing a new dwelling or structure that will be occupied or rebuilding an occupied dwelling or occupied structure damaged by a fire in such zone, the construction or rebuilding of which requires a building permit, the owner shall obtain a certification from the local building official that the dwelling or structure, as proposed to be built, complies with all applicable state and local building standards, including those described in subdivision (b) of Section 51189, and shall provide a copy of the certification, upon request, to the insurer providing course of construction insurance coverage for the building or structure. Upon completion of the construction or rebuilding, the owner shall obtain from the local building official, a copy of the final inspection report that demonstrates that the dwelling or structure was constructed in compliance with all applicable state and local building standards, including those described in subdivision (b) of Section 51189, and shall provide a copy of the report, upon request, to the property insurance carrier that insures the dwelling or structure.

(b) A person is not required under this section to maintain any clearing on any land if that person does not have the legal right to maintain the clearing, nor is any person required to enter upon or to damage property that is owned by any other person without the consent of the owner of the property.

APPENDIX E – Board of Forestry “Defensible Space”

Defensible Space

Adopted by BOF on February 8, 2006

Adopt 14 CCR, Division 1.5, Chapter 7 Fire Protection, Subchapter 3.,
Article 3. Fire Hazard Reduction Around Buildings and Structures

§ 1299. Defensible Space

The intent of this regulation is to provide guidance for implementation of Public Resources Code 4291(a) and (b), and minimize the spread of fire within a 100 foot zone around a building or structure.

(a) A person that owns, leases, controls, operates, or maintains a building or structure in, upon, or adjoining any mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or any land that is covered with flammable material, and is within State Responsibility Area, shall do the following:

(1) Within 30 feet from each building or structure maintain a firebreak by removing and clearing away all flammable vegetation and other combustible growth pursuant to PRC § 4291(a). Single specimens of trees or other vegetation may be retained provided they are well-spaced, well-pruned, and create a condition that avoids spread of fire to other vegetation or to a building or structure.

(2) Within the 30 feet to 100 feet zone (Reduced Fuel Zone) from each building or structure (or to the property line, whichever is nearer to the structure), provide a fuelbreak by disrupting the vertical and/or horizontal continuity of flammable and combustible vegetation with the goal of reducing fire intensity, inhibiting fire in the crowns of trees, reducing the rate of fire spread, and providing a safer environment for firefighters to suppress wildfire pursuant to PRC § 4291(b).

(b) Any vegetative fuels identified as a fire hazard by the fire inspection official of the authority having jurisdiction shall be removed or modified provided it is required by subsection (a)(1) & (a)(2).

(c) Within the intent of the regulations, the fire inspection official of the authority having jurisdiction may approve alternative practices which provide for the same practical effects as the stated guidelines.

(d) Guidance for implementation of this regulation is contained in the publication: “General Guidelines for Creating Defensible Space” as published by the Board of Forestry and Fire Protection by resolution adopted on February 8, 2006.

Note: Authority cited: Section 4102, 4291, 4125-4128.5, Public Resource Code.
Reference: 4291, Public Resource Code. File: Defensible Space Regulations final § 1299 2_17_06.doc

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ACRONYMS

BLM	Bureau of Land Management
BOR	Bureau of Reclamation
CAR	Communities at Risk
CBC	California Building Code
CCP	Comprehensive Conservation Plan
CCP	Comprehensive Conservation Plan
CEQA	California Environmental Quality Act
CFA	California Fire Alliance
CFPEO	CAL FIRE County Fire Prevention and Education Officer
CNDDDB	California Natural Diversity Database
CWPP	Community Wildfire Protection Plan
DFG	California Department of Fish and Game
DFPZ	Defensible Fuel Profile Zone
DOI	U.S. Department of the Interior
EIR	Environmental Impact Report
ESA	California Endangered Species Act
FRAP	Fire and Resource Assessment Program (CAL FIRE)
GAO	U.S. General Accounting Office
GCRCDD	Glenn County Resource Conservation District
HFI	Healthy Forest Initiative
HFRA	Healthy Forest Restoration Act

HMP	Habitat Management Plan
ISO	Insurance Service Office
LRMP	Land and Resource Management Plan
MBTA	Migratory Bird Treaty Act
MIST	Minimum Impact Suppression Tactics
MNF	Mendocino National Forest
NEPA	National Environmental Policy Act
NFP	National Fire Plan
NHPA	National Historic Preservation Act
NRCS	Natural Resources Conservation Service
RA	Resource Area
RMP	Resource Management Plan
RPF	Registered Professional Forester
SNWR	Sacramento National Wildlife Refuge
SRA	State Responsibility Area
SRNWRC	Sacramento National Wildlife Refuge Complex
TGFSC	Tehama-Glenn Fire Safe Council
THP	Timber Harvest Plan
TNC	The Nature Conservancy
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
VMP	Vegetation Management Program
WCB	California Wildlife Conservation Board
WUI	"Wildland Urban Interface"