

# Glenn County Community Wildfire Protection Plan

Glenn County Resource Conservation District

# 2023



The 2023 Glenn County Community Wildfire Protection Plan update was developed as a means of describing current fire related conditions within Glenn County, California identifying public and private assets at risk from wildfire and assessing currently in-place infrastructure developed to protect those assets.

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A special thanks is also owed to others who generously provided their time and assistance to this project including Dawn Pedersen, Unit Forester - Tehama Glenn Unit, CAL FIRE, Dan Lang, Senior Grant Specialist, California Fire Safe Council, Tom McCubbins, Resource Conservation District of Tehama County, Martin Spannaus and Greg Conant, Glenn County Resource Conservation District. The guidance, professional expertise, and dedication they provided to this project have proven valuable beyond measure. Additional gratitude is given to the staff of CAL FIRE's Fire and Resource Assessment Program who were generous with their time and technical assistance in the use of state fire data.

As a member of the Tehama-Glenn Fire Safe Council (TGFSC), the Glenn County Resource Conservation District (GCRCD) coordinates its fire/fuels management efforts within the Local, State and Federal Response Areas with area stakeholders. District management would like to thank participating TGFSC members and other planning process participants for their contribution of data, input, and suggestions used in the development of the Glenn County Community Wildfire Protection Plan (GCCWPP). Participating Council members include staff from the Mendocino National Forrest (MNF), Bureau of Land Management (BLM), U.S. Fish and Wildlife Service (USFWS), Natural Resources Conservation Service (NRCS), California Department of Fish and Wildlife (CDFW), CAL FIRE, Cal Trans, members of the Glenn County Board Supervisors, Glenn County Sheriff's Office and Office of Emergency Services (GCOES), Glenn County Public Works Department (GCPWD), Glenn County Air Pollution Control District (GCAPCD), Orland and Willows Fire Departments, Elk Creek Volunteer Fire Department, Kanawha Fire District and Capay Fire Protection District. In addition, individuals and representatives from landowner groups provided a great deal of assistance in developing the revised CWPP documents including the Glenn County Rangeland Association.

THANK YOU to all Glenn County partners and collaborators!



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*The views and conclusions contained in this document are those of the authors and should not be interpreted as representing the opinions of policies of California Fire Safe Council, the U.S. Forest Service or the U.S. Government. Mention of trade names or commercial products does not constitute their endorsement by California Fire Safe Council, the U.S. Forest Service or the U.S. Government.*



# CONTENTS

LIST OF FIGURES & EXHIBITS.....	ii
EXECUTIVE SUMMARY .....	1
Section 1: INTRODUCTION .....	3
Human-Wildland Interactions and Communities at Risk within Glenn County Problem Overview	
Section 2: PROJECT BACKGROUND.....	7
Section 3: OVERVIEW AND OBJECTIVES.....	11
Introduction	
Broadly Based Policies and Plans	
Glenn County CWPP Objectives	
Description of Processes and Methodology	
Summary of Fire/Fuel Risk and Development of Mitigation Projects	
Section 4: ENVIRONMENTAL REVIEW.....	21
Section 5: PLANNING RESULTS AND PROJECT PRIORITIZATION.....	22
Section 6: FIRE PLAN AREA AND PLANNING UNIT DESCRIPTIONS.....	24
Western Glenn County Planning Unit	
Sacramento River Corridor Planning Unit	
Lower Stony Creek Riparian Corridor Planning Unit	
Sacramento National Wildlife Refuge Planning Unit	
Section 7: FIRE-SHAPED ECOSYSTEMS AND INFRASTRUCTURE FOR FIRE PROTECTION.....	30
Section 8: IMPORTANT ASSETS AT RISK WITHIN THE GLENN COUNTY CWPP PLANNING AREA.....	38
Community Infrastructure	
Other Important Assets	
Section 9: AREA WIDE PLANNING EFFORTS RECOMMENDED BY THE GLENN COUNTY CWPP.....	41
Introduction	
Section 10: OVERVIEW OF ASSETS AT RISK, CURRENTLY IN PLACE FIRE PROTECTION INFRASTRUCTURE, AND RECOMMENDED PROJECTS BY PLANNING UNIT.....	58
Section 11: SUMMARY AND CONCLUSIONS.....	100
APPENDIX A – Synopsis Of Landowner / Community Advisory Committee Meetings.....	103
APPENDIX B – Government Policies and Programs.....	104
APPENDIX C – Public Resource Code.....	105
APPENDIX D – California Government Code 51182.....	106
APPENDIX E – Board of Forestry “Defensible Space”.....	107
APPENDIX F – Glenn County General Plan.....	108
APPENDIX G – Prioritization Worksheet.....	109
REFERENCES.....	110
ACRONYMS .....	117

## LIST OF FIGURES

Figure A: Wildland Urban Interface (WUI) .....	4
Figure B: Fire Threat .....	5
Figure C: Project Area Overview.....	10
Figure D: USGS 7.5 Minute Quadrangles.....	25
Figure E: Planning Units/County Base .....	27
Figure F: Fire History .....	32
Figure G: Western Glenn County Planning Unit (Eastern).....	75
Figure H: Western Glenn County Planning Unit (Western) .....	76
Figure I: Lower Stony Creek Riparian Corridor Planning Unit .....	83
Figure J: Sacramento National Wildlife Refuge Planning Unit .....	87
Figure K: Sacramento River Corridor Planning Unit .....	99

## LIST OF EXHIBITS

Exhibit I: Fire Protection Districts (DRAFT).....	Attached
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# EXECUTIVE SUMMARY

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In 2011, the Glenn County Resource Conservation District (GCRCD), with technical assistance provided by the Resource Conservation District of Tehama County (RCDTC), completed preparation of the first Glenn County Community Wildfire Protection Plan (GCCWPP). Funding for the original fire planning effort was provided by the Bureau of Land Management (BLM) via the California Fire Safe Council (CFSC) Grants Clearinghouse.

In fall 2018, the GCRCD received funding to update the 2011 GCCWPP document; funding was provided through CAL FIRE's Greenhouse Gas Reduction Fund as part of the California Climate Investments Program (CCI) as well as the CFSC provided by a grant from the Cooperative Fire Program of the U.S. Forest Service, Department of Agriculture, Pacific Southwest Region. The ultimate goal of the original 2011 GGCWPP and its 2023 update is to identify current community and natural assets at risk from wildfire and develop future efforts to improve fire/fuels management and fire ecology conditions within Glenn County. This update is particularly important given the significant changes to the grasslands, oak woodlands and forestlands of western Glenn County related to the 2020 August Complex Fire. To that end, the GCRCD has once again developed a collaboration of public and private sector stakeholders who assisted in updating the 2011 GCCWPP document including its list of completed, in process and proposed project work. These individuals also participated in the identification of additional significant community and natural resources in need of protection and developing a number of newly proposed efforts to be completed in the future.

The original CWPP was used as a guide by area stakeholders and the GCRCD in developing additional protection strategies and specific projects to implement these efforts. Since the development of the original CWPP a number of collaborative projects described in that document have been completed by the GCRCD, RCDTC, CAL FIRE, Glenn County Road Department, Cal Trans, and the Mendocino National Forest. An example of such cooperation in the implementation of fire/fuels management and fire ecology efforts over the past several years includes federal dollars being provided to the GCRCD to complete fuel treatments along County Road 302 utilizing the services of the RCDTC's Vegetation Management Program. In partnership with CAL FIRE, the CAL FIRE Valley View Fire Center and Cal Trans, hand crews worked along State Highway (State Route) 162 between the Stony Gorge Reservoir entrance to approximately County Road 302 west of Willows, in order to install a 4' to 6' wide roadside fuel break. These efforts have resulted in many additional miles of fuel treatments developed within Glenn County's chaparral and oak woodlands.

Much work has been completed. Much however remains to be done, as Wildland Urban Interface areas continue to increase in population, vegetation within fuel breaks and other vegetation treatments continue to grow, and additional important natural resources are identified, making the update of these fire planning documents so important. Through this update process, the GCRCDC has made necessary modifications to the Glenn County CWPP that result in the document being formally recognized as a revised Community Wildfire Protection Plan by the document's signatories. With this designation, it is anticipated that obtaining public and private funding for the fire and fuels management projects described in this revised planning document will be made easier and more efficient.

The project work and other efforts described in this updated CWPP has been prioritized based upon input provided by members of the Tehama-Glenn Fire Safe Council and other reviewers from the Glenn County community and North State area. The results of this process can be found on the prioritization worksheet which is attached to the planning document and to be completed once the 2023 Glenn County CWPP Update is approved. This component of the CWPP update process is integral to the project's deliverable package, which also includes the revised CWPP planning document and revised Planning Units/County Base Map. Importantly, the prioritization process represents the opinions and agenda of public and private stakeholders who have an interest in the County's fire/fuels management efforts along with the restoration of the area's natural fire ecology. The agenda of potential funders and availability of project dollars, however, will ultimately determine which projects are completed first.

It is the goal of the Glenn County RCD to seek funding and implement projects according to the priorities established by local review entities without missing opportunities to complete projects that are of lower priority. Finally, the revised Glenn County Community Wildfire Protection Plan should be considered in progress as it is anticipated that additional project work or other fire/fuels management and fire ecology efforts will be identified in the years to come. In order for these future efforts to be considered a part of the Glenn County CWPP process, they will need to be formally incorporated into the plan by reference and approved by the Glenn County Board of Supervisors, CAL FIRE's Tehama-Glenn Unit Chief and the GCRCDC if amendments are developed by that organization.

***\* Please note that some locations, roads and/or areas may be inaccessible due to continuing impacts caused by the historic 2020 August Complex Fire and 2022 winter storm damage.***

# Section 1: INTRODUCTION

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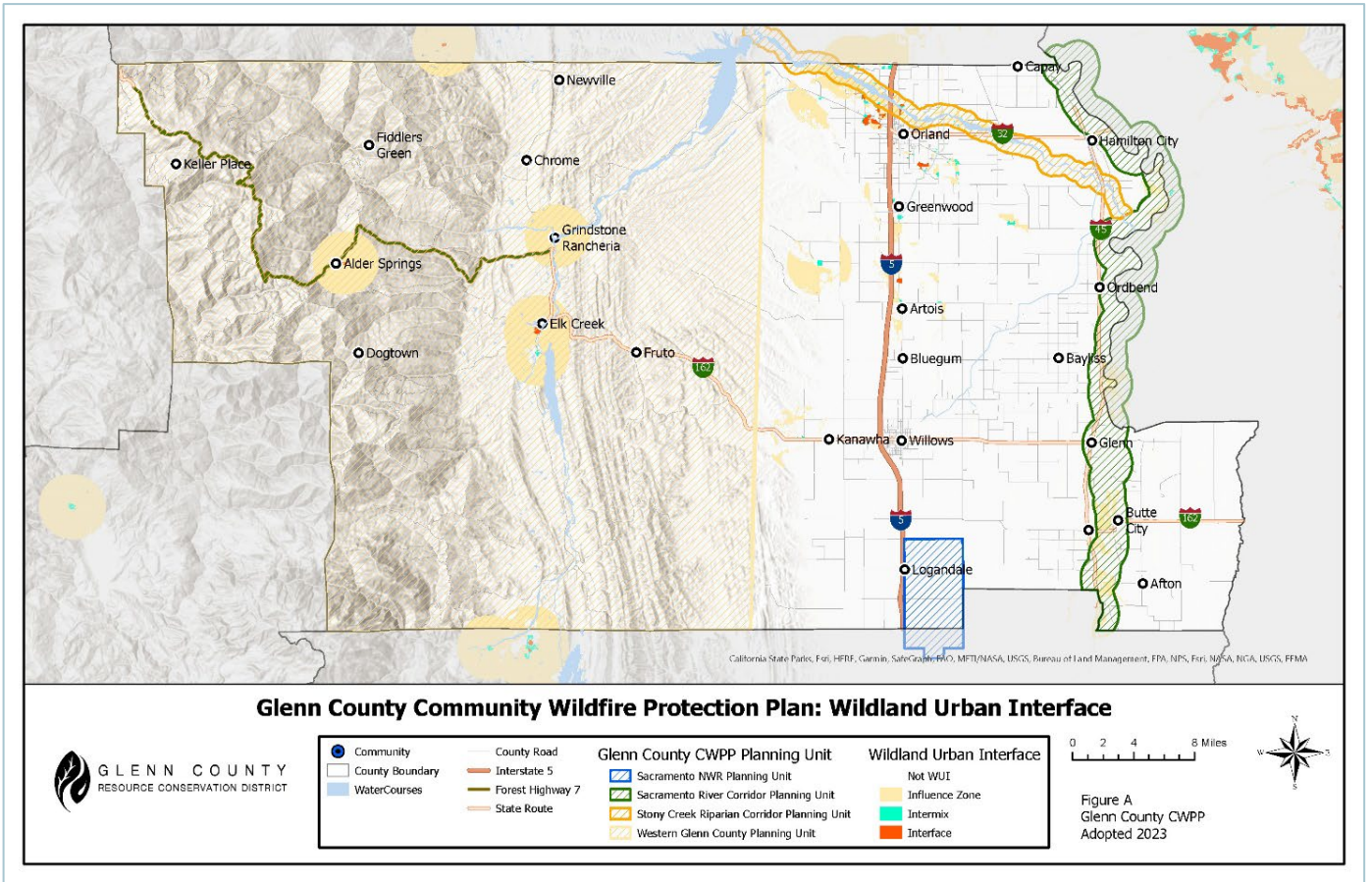
## *Human-Wildland Interactions and Communities at Risk within Glenn County*

**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 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, wildfire is a threat to remote communities and residences in the grass 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 and include Sky Hi, Keeran Camp, El Manzano Rancho, Snow Basin, Jenks Camp, Garnett Camp, Cabin Tract, and Lee Logan Camp. The largest of these rural communities are shown below in **Figure A: Wildland Urban Interface (WUI) Areas**. 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 change from natural (wildland) to manmade fuel, such as structures, crops, and urban debris. 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. As shown in **Figure A**, Wildland Urban Interface locations are displayed in yellow with Glenn County in the center of the frame showing a border.

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. During large wildfire events, widely scattered residences and development require 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

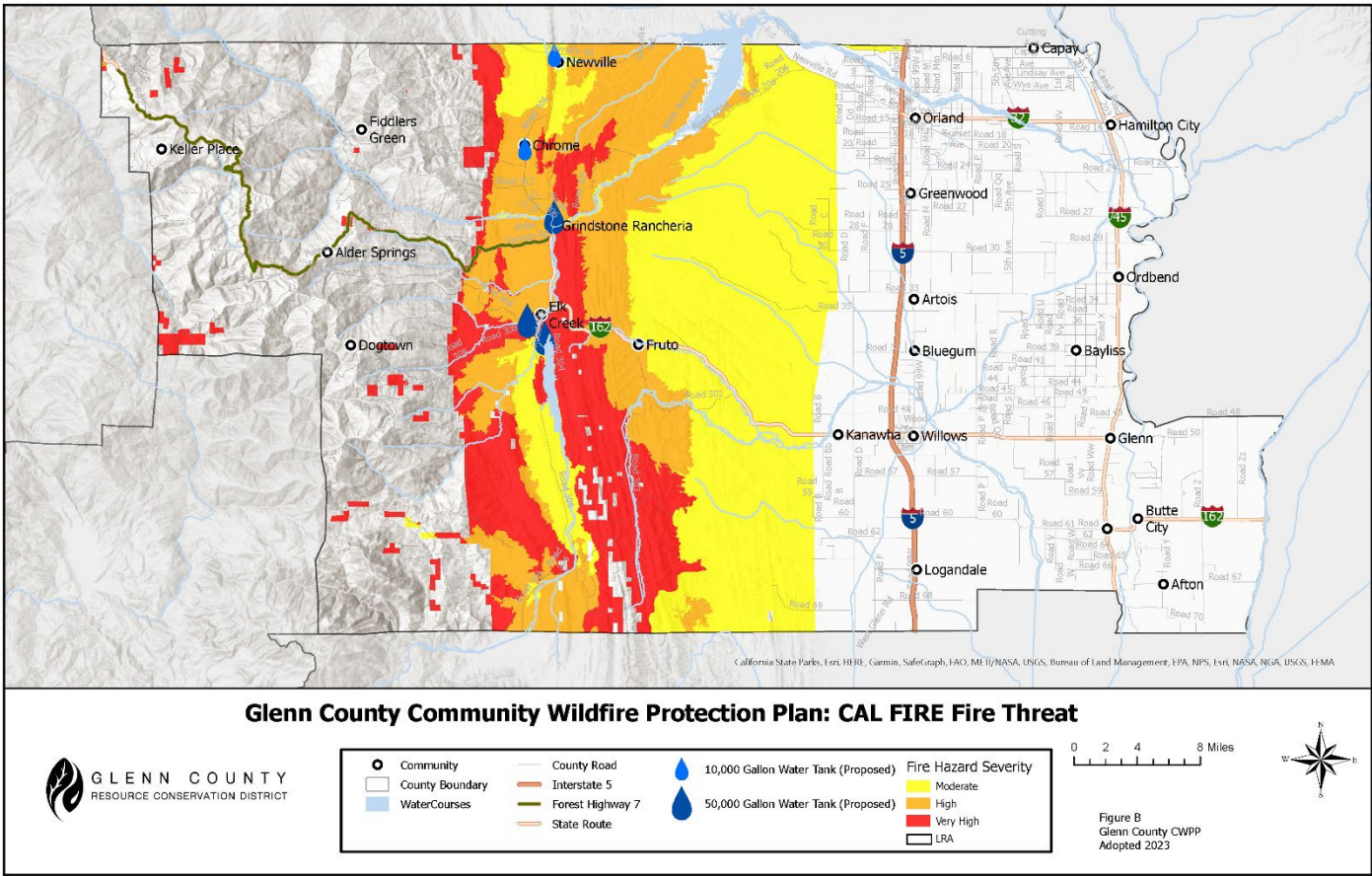




**Figure A:  
Wildland Urban Interface (WUI)**

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 riskier. Prescribed fire risks include smoke damage from prescribed burns and the possibility of escape which could impact remote residences and at-risk communities. This risk can increase the cost of liability claims made against landowners and 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: Map of Fire Threat**. 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 threat classes ranging from nonfuel or low threat, to moderate (yellow), to high (orange), and to very high (orange-red).



**Figure B: Fire Threat**

**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 the urban core of the Orland community and the Highway 32E corridor to the east. Attempts have been made in the past to eradicate *Arundo*, but with high costs and lack of long term landowner commitment, little success has been made. Urban development, farms and ranches located along Stony Creek’s stream channel to the east and west of Orland are threatened as well. Finally, high vegetative fuel levels are found along the Sacramento River corridor within the Sacramento River National Wildlife Area as well as State lands managed by the California Department of Fish and Wildlife and California Department of Water Resources. Other federal wildlife area lands west of the Sacramento River corridor that pose a significant risk for wildfire include those of the Sacramento National Wildlife Refuge (SNWR) located just south of Willows. If left unmanaged, vegetative fuels within these federal lands have the potential to threaten structures and communities within

the eastern and southern portions of Glenn County.

**August Complex Fire Impacts on Glenn County.** Glenn County experienced a loss of 188,741 acres to the August Complex Fire. A significant portion of the burned area is on Mendocino National Forest land. A mix of primary residence, secondary homes and cabins, and outbuildings were lost in the fire. Damage to Forest Highway (FH) 7 occurred as well as minor damage to County Road 308. County Road 308 has been repaired. The destruction from this fire was limited in Glenn County due to the rural/frontier nature of the burn area. Due to the limited scope of damage sustained within the Glenn portion of the fire, Glenn County did not receive State of Emergency assistance and did NOT qualify for Federal assistance through FEMA. Glenn County was able to file a claim for damages to FH7 through the Federal Highway Administration (FHWA) Emergency relief Program due to the Governor proclaimed statewide State of Emergency for the 2020 wildfires. Individual property owner assistance is not available through State or federal programs due to the limited scope of damage sustained within Glenn County. Property owners are encouraged to work with private insurance for cleanup and rebuilding. Private contractors and cleanup agencies are available to assist with debris and hazardous waste removal.

## *Problem Overview*

**Introduction.** Urbanization and rural development are impacting 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 decade, many of these areas have accumulated high fuel loads 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. Hazardous fuel conditions continue to grow each year as more people move into rural Glenn County. Greater recreational use of Mendocino National Forest (MNF), Bureau of Reclamation (BOR), and Bureau of Land Management (BLM) parcels located in western Glenn County have 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 Community Wildfire Protection Plan was developed to describe current fire related conditions within Glenn County, identify public and private assets at risk from wildfire, and assess in-place infrastructure developed 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 that improve the County's current wildfire situation. The intent of this 2023 update to the 2011 Glenn County CWPP is to describe changes in Glenn County's fire threatened resources, current fire risk and the County's current fire ecology. The study area extent is the same as that used during the 2011 process and is discussed in the following sections.

## Section 2: PROJECT BACKGROUND

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**PLANNING PROCESS OVERVIEW.** As was the case during development of the original Glenn County Community Wildfire Protection Plan, the update process was designed to allow the incorporation of significant professional expertise and community input into the development of these documents. To accomplish this, members of the Tehama-Glenn Fire Safe Council along with other public and private stakeholders within Glenn County were once again canvassed in order to obtain updated information regarding changes in the County's natural and man-made fire conditions. Input was also provided regarding progress achieved in connection with project work and other efforts they reported during the original CWPP planning process. In addition, these stakeholders provided recommendations for additional projects or other actions that would improve current fire/fuels management and fire ecology conditions within Glenn County.

At the present time, Tehama-Glenn Fire Safe Council activities are coordinated by a designated staff member of the Resource Conservation District of Tehama County and the Glenn County RCD. Council members include staff from the United States Forest Service (Lassen, Mendocino and Shasta-Trinity National Forests), Bureau of Land Management, U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, CAL FIRE, The Nature Conservancy, Sierra Pacific Industries, Crane Mills, Collins Pine Company, Glenn County Board of Supervisors, Tehama County Board of Supervisors, Glenn County Public Works Department, Glenn County Planning and Community Development Services, Tehama County Public Works Department, Tehama County Planning Departments along with individual landowners and landowner organizations.

CWPP outreach and input efforts were also focused on specific landowners who expressed interest in this planning project and who were forthcoming with questions, comments, and concerns. In order to maximize input from area stakeholders, an announcement was made in area newspapers regarding the completion of the draft plan revisions which were uploaded onto the GCRCD's website.

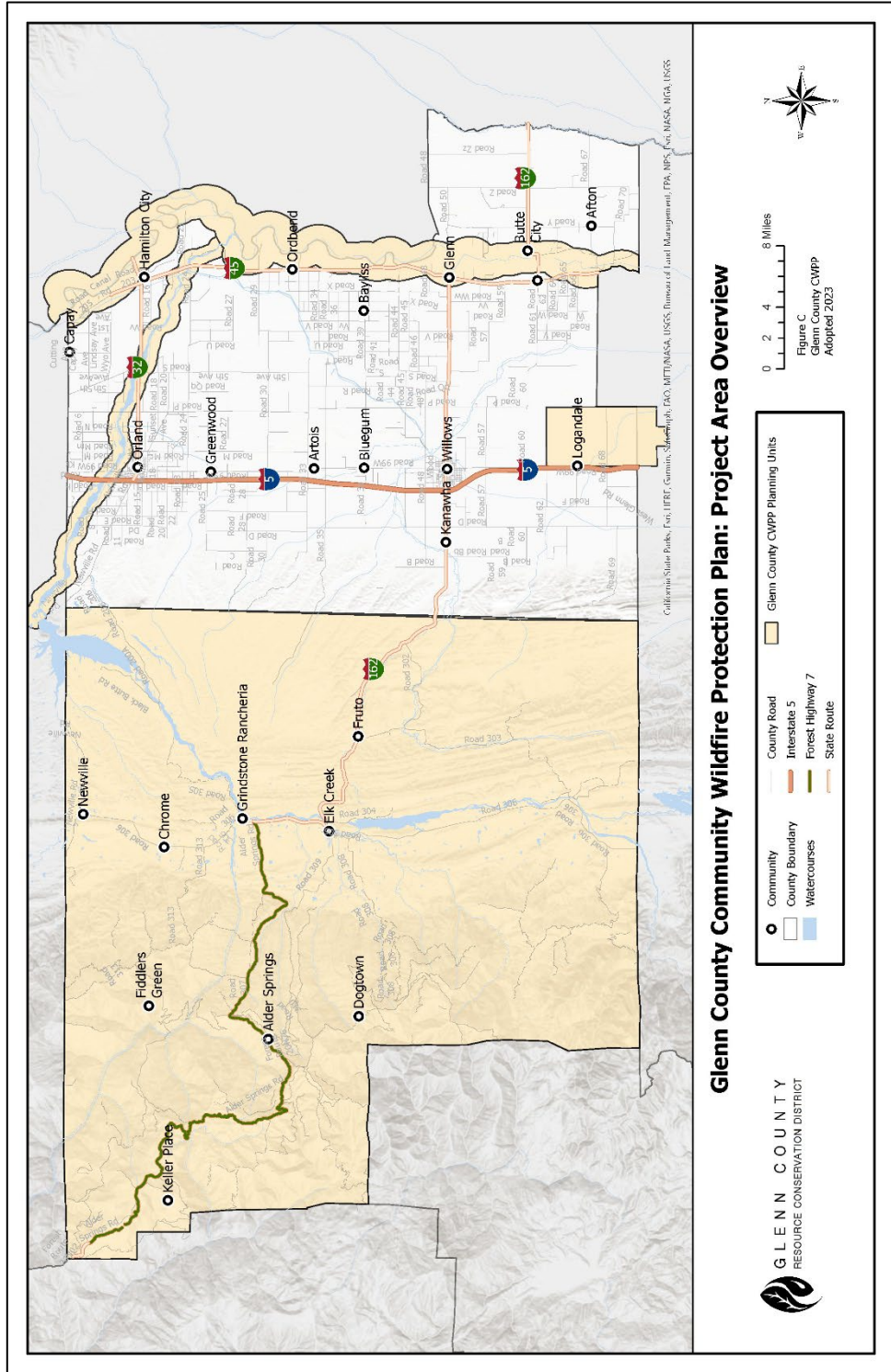
Once comments were received from TGFSC members and other stakeholders, they were reviewed, considered and incorporated into the revised plan's final draft that was then updated, clarified, and expanded. The final draft planning documents were submitted to CAL FIRE Tehama-Glenn Unit Chief, the Glenn County Board of Supervisors and the Glenn County RCD for approval and certification as a formal Community Wildfire Protection Plan. In order to assure wide distribution of the information contained in the plan, copies were distributed to public agencies, the academic community, public libraries, and the general public, as requested. The final document is permanently posted to the GCRCD website for community reference and downloading.

**PLANNING METHODOLOGY.** The methodology used in developing this update to the Glenn County CWPP was similar to that used in developing the original version of this fire plan which consisted of the following steps:

- The GCRCD contracted with the RCD of Tehama County to procure that organization's technical personnel who would help prepare the updated planning document and collect current information pertaining to previously unidentified natural and developed resources currently impacted by wildfire, fire hazards, wildland fuels, assets at risk, along with currently in-place fire protection features and infrastructure located throughout Glenn County in written, digital, and GIS formats. Included among this information were planning area demographics, ecological communities, topography, hydrology, fuel types, community infrastructure, and fire history. The threat of wildland fire throughout the County attributable to increasing volumes of wildland fuels as well as urban development were also considered.
- Working with public and private stakeholders, GCRCD staff and RCDTC personnel identified existing threatened resources, fire/fuels management infrastructure and project work along with other fire related efforts that had not been identified during the 2011 planning effort. GCRCD and RCDTC staff also assessed information pertaining to at-risk assets and fire protection infrastructure in order to develop additional projects and strategies that will improve protective capabilities within the four Glenn County CWPP planning units.
- Utilizing RCDTC technical assistance, the Glenn County RCD revised the Planning Units/County Base Map in order to include new and revised information regarding at risk resources, project work and other efforts that will improve current fire/fuels conditions within Glenn County. The development of this large scale mapping effort is another means of achieving improved project effectiveness and cost efficiency

developed through the current fire planning process. The map allows public and private land managers, community groups, and government agencies to visually demonstrate the relationship between their proposed, in progress, and completed projects and the fire and fuels management efforts being conducted by other entities. This information is expected to help those conducting fuels reduction work to better demonstrate the value and connectivity of their projects in relation to other fuels reduction efforts in the creation of landscape scale protection against catastrophic wildfire. Through this visualization and demonstration of the interconnectedness between individual projects, applications for permits or funding have a much greater chance of receiving approval.

In order to reduce the cost of planning and executing fire hazard reduction projects, an overarching County-wide fire planning/risk assessment framework and planning process was developed which incorporates the array of fire and fuels management plans, policies, and projects being developed or currently established by public and private stakeholders located throughout Glenn County (**see Figure C: Project Area Overview**). Utilizing the collaboration and cooperation required in order to develop a landscape scale planning and assessment document, it was assumed that cost savings could be achieved by identifying common fire and fuels management problems on a landscape scale basis, developing mitigation measures to solve these problems, and implementing mitigation projects.



**Figure C: Project Area Overview**

## Section 3: OVERVIEW AND OBJECTIVES

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### *Introduction*

**Increasing wildfire threats.** As a member of the Tehama-Glenn Fire Safe Council, the Glenn County Resource Conservation District (GCRCD) has expressed concern about the increasing threat of wildland fire throughout Glenn County. This threat is attributable to continually increasing volumes of wildland fuels and development on public and private lands. GCRCD is also cognizant of the growing cost of wildfire and the need to plan, develop, and conduct fire and fuels management projects. Rising costs are impacting federal, state, and local government entities financially and can draw funds away from other important resource protection work.

**CWPP update development process.** The 2011 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 and County Planning Units/County Base Map (Base Map) are working documents that will need updates to remain relevant. To accomplish this, a comprehensive update of the original 2011 planning document and Planning Units/County Base Map have been completed. In order to keep these revised documents up to date, however, will require yearly review of changes in the Westside area’s assets at risk and wildfire protection infrastructure. This ongoing review process will be made by CAL FIRE pre-fire engineering staff, members of the Tehama-Glenn Fire Safe Council (or newly established local Fire Safe Council), stakeholders involved in the development of the Glenn County CWPP and Planning Units/County Base Map, along with GCRCD staff.

As significant projects are developed throughout the year, these can be submitted by stakeholders to the GCRCD who will prepare individual amendment documents and present them to the CAL FIRE Tehama-Glenn Unit Chief and the Glenn County Board of Supervisors for review and approval. If recommended project work is to be implemented by the Glenn County RCD, that organization’s Board of Directors will also review and become a signatory to amendment documents. Such updates will thus be formally incorporated by reference into this 2023 GCCWPP amendment document. Through these intermittent and yearly processes for updating the CWPP and Planning Units/County Base Map content, information about local fire conditions can be kept current, resulting in better decision making by both landowners and agency personnel. In addition, the continually updated CWPP will provide current background information pertaining to the Glenn County area that will be useful to local stakeholders in developing cost efficient, effective fire/fuels management and fire ecology improvement projects. This information is also expected to assist public and private



entities in preparing site and agency specific fire plans and in developing grant applications and permits for future fire related project work.

### *Broadly Based Policies and Plans*

**At-Risk Communities.** To reduce wildfire effects upon urban areas, federal fire managers authorized State Foresters to identify high wildfire risk communities adjacent to federal lands, 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 California’s 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 in **Figure B: Fire Threat** and **Figure C: Project Area Overview** above.

#### ***Officially Recognized Communities at Risk Within Glenn County<sup>1</sup>.***

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

1. As shown on **Figure C: Project Area Overview**, 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 and the 2023 CWPP update.

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, U.S. Fish and Wildlife Service as examples).

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 of the 2011 Glenn County CWPP document.

### *Glenn County CWPP Objectives*

**Project Background.** Between 2005 and 2007, Community Wildfire Protection Plans were developed for eastern and western Tehama County by the RCD of Tehama County. The completion of these documents led to discussions between the GCRCD, TGFSC, and RCDTC 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 that would be developed for those portions of Glenn County most at risk from wildfire. That application was approved for funding in January 2010. During March of that year, a contract was executed between the GCRCD and RCDTC in order to procure technical assistance in the preparation of the Glenn County CWPP and County Base Map. A Technical Advisory Committee (TAC) and Landowner/Community Advisory Committee (L/CAC) were developed in the spring of 2010. After numerous TAC and L/CAC meetings, a final version of those documents was completed and submitted to the Glenn County Board of Supervisors in 2011 for their review and approval. In fall 2018, the GCRCD received funding to update the 2011 GCCWPP document; funding was provided through CAL FIRE's Greenhouse Gas Reduction Fund as part of the California Climate Investments Program (CCI) as well as the CFSC provided by a grant from the Cooperative Fire Program of the U.S. Forest Service, Department of Agriculture, Pacific Southwest Region. The fundamental goals of this update effort were to:

- Update current community and natural assets at risk from wildfire.
- Update in place and currently in process fire/fuels management infrastructure and project work developed to protect these assets and improve the fire ecology conditions of Glenn County.
- Identify additional infrastructure and other efforts that will improve the County's fire/fuels management and fire ecology conditions.

**Specific Objectives of the Glenn County CWPP Process.** The Glenn County CWPP and Base Map were developed with the following objectives in mind:

- Assist stakeholders and communities in identifying and prioritizing areas for additional hazardous fuel reduction treatments on federal lands and in determining the types and methods of treatment that, if completed, would reduce fire 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 private lands and communities.
- In a collaborative manner, using an array of local stakeholders, create an updated 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 updated plan by local and State fire agencies.
- Provide comprehensive wildland fire planning and prioritization of currently in process and proposed 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 this updated 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 current goals and objectives of 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.
- Recognize air quality as a resource and promote prescribed fire as one method to prevent catastrophic wildfires and limit their air quality impacts.
- 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 for this effort is the protection of residents and firefighters, as well as public and private property. To address these priorities, proposed project work and initiatives have 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 of 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 (State Route) 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 expertise and community input into the planning process. To accomplish this, a Technical Advisory Committee and Landowner/Community Advisory Committee 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, City of Willows, Elk Creek Volunteer Fire Department, Capay Fire Protection District and other local fire departments, Glenn County Sheriff’s Office and Office of Emergency Services, Glenn County Planning and Community Development Services, Glenn County Public Works Department, Glenn County Air Pollution Control District, along with GCRC and TCRC personnel, and other stakeholders. TAC members and other stakeholders are listed below in the table entitled **Project Work Group - TAC Members and Stakeholders**. TAC members provided guidance and rigorous technical review of the planning processes used, reviewed the revised plan and Planning Units/County Base Map as well as considered the feasibility of measures designed to implement the plan’s recommendations. The L/CAC group consisted of residents and landowners located within the Glenn County CWPP planning area. The L/CAC allowed residents and private landowners an ability to voice their concerns, provide background information, help

shape the direction of the planning document as well as review the revised plan and Planning Unit/County Base Map. The identity of L/CAC members and other individual's participating in this planning process have been withheld to protect their privacy.

**Stakeholder Meetings.** TAC and L/CAC meetings were held during the development of the Glenn County updated Glenn County CWPP; there were at least two TAC and two L/CAC meetings including a Post Fire Recovery and Planning Meeting held in Elk Creek after the August Complex Fire with all stakeholders invited. In addition, the Glenn County RCD made available an *All Stakeholders' Survey* which was mailed to western Glenn County residents, promoted via email lists, promoted at local outreach events, and available online at the GCRCD's website to ensure a wide range of outreach and engagement. The TAC meetings were used to review stakeholder survey responses, gather new resource information, refine the 2011 GCCWPP information, further shape the technical direction of the updated plan and review the draft document in preparation for production of the final plan. The L/CAC meetings were held to introduce the project to Glenn County residents, identify community concerns, gather additional information regarding the planning area, and allow community input into the planning processes. A summary of these L/CAC meetings is included in **APPENDIX A – Synopsis of Landowner / Community Advisory Committee Meetings**. 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, as requested. The document will also be posted on the GCRCD website for full public access.

**Planning Methodology.** The methodology used in developing the original 2011 Glenn County CWPP and 2023 update consisted of the following steps:

- Collect available information for the project area pertaining to the current natural and developed environment; current fire hazards, wildland fuels, assets at risk and local fire policies along with currently in-place fire protection features and infrastructure, in written, digital, and GIS formats.
- Identify existing fuel reduction projects that have been planned, are currently in progress, or have been completed that were not identified during the 2011 CWPP planning process.
- 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 revised planning area maps and the Planning Unit/County Base Map so that updated information related to fuel types, assets at risk, and fire protection infrastructure that is planned, in process, or in place throughout Glenn County is portrayed.
- With stakeholder input, assess information pertaining to at-risk assets and fire protection infrastructure in order to develop projects and strategies to

- improve the current protective capacities within Glenn County.
- Develop a list of recommendations for additional fuel reduction, fire safety and fire ecology restoration 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.

## *Summary of Fire/Fuel Risk 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, wildfire threatens the economy and natural resources of 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 update process. These mitigation measures take a number of forms, from very specific and localized to broadly based County-wide efforts. Among the categories of measures to improve Glenn County’s current fire, fuels and fire ecology conditions are basic “on the ground” fuels manipulations to landscape scale planning efforts. Changes to State and local laws have also been recommended that will eliminate unintended negative impacts on Glenn County’s fire hazard and fire safety conditions as well as improve the ability of stakeholders to take action.

**Project Categories.** Projects that have been considered during this fire planning process and proposed in the revised CWPP document fall generally into three categories: fuels reduction/vegetation manipulation, infrastructure development and improvement, and organizational improvements. 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. Infrastructure development and improvement projects include construction and improvement of those manmade features that provide fire safety and fire control. Fuel breaks and the installation of tanks and other water features are an example of such infrastructure improvements. 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 GCRCD, TGFSC and community advocacy organizations.

**End Products of Fire Planning.** Through the Glenn County CWPP update process, a considerable amount of additional 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 current threat 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:

- A revised CWPP document and Planning Unit/County Base Map that covers 840,959 acres of grasslands, chaparral, oak woodlands, forest land and riparian areas located throughout Glenn County. 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.
- Updating, identification, cataloging, and risk assessment of various natural and manmade assets at risk from wildfire.
- Updating, identification and cataloging of in-place measures to protect these assets and determine their vulnerability.
- Updating, 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 WUI area accuracy within Glenn County and when necessary, modification of boundaries in order to focus financial and other resources to those urban areas at greatest risk of wildland fire.
- Identification of additional methods to improve current protection measures to a degree of detail that would expedite the preparation of work scopes.

The revised CWPP document and Planning Unit/County Base Map 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 updated CWPP. In addition, new projects will be developed that will continue the improvement of 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 were convened in order to revise the Glenn County CWPP and Planning Unit/County Base Map 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 such as the Glenn County CWPP update initiative, once planning documents 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 update and its related components:

**CAL FIRE**

Matt Chamblin, TG Unit Assistant Chief

**Orland Fire Department**

Justin Chaney, Fire Chief

**Willows Fire Department**

Nathan Monck, Fire Chief

**Capay Fire Department**

Ian Turnbull, Fire Chief



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

Involved Federal Agencies	Representative
U.S. Forest Service	Jon Tishner
Bureau of Land Management	Jeff Turnbull
U.S. Fish & Wildlife Service	Dale Shipplehoute
U.S. Fish & Wildlife Service	Ryan Aeby

Involved State Agencies/Institutions	Representative
CAL FIRE	Emily Wilkinson
CAL FIRE	Matt Chamblin

Local / County Agencies / Organizations	Representative
Glenn County Planning & Community Development Services Agency	Mardy Thomas
Glenn County Air Pollution Control District	Ian Ledbetter
Glenn County Sheriff's Office - Office of Emergency Services	Amy Travis
City of Orland Fire	Justin Chaney
City of Orland Fire	John McDermott
City of Willows Fire	Nathan Monck
Capay Fire Department	Ian Turnbull
Elk Creek Community Service District	Board of Directors
Golden State Risk Management Authority	Brian Edinger
Glenn County Landowners	
Glenn County RCD <sup>1</sup>	Kandi Manhart
Glenn County RCD <sup>1</sup>	Martin Spannaus
Glenn County RCD <sup>1</sup>	Ritta Martin
RCD of Tehama County <sup>2</sup>	Tom McCubbins
RCD of Tehama County <sup>2</sup>	Emmy Westlake

1. Project Manager
2. Project Consultant

## Section 4: ENVIRONMENTAL REVIEW

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Please refer to the 2011 Glenn County CWPP document related to Environmental Review. The following additional information was provided by the County of Glenn Air Pollution Control District.

**Air Quality Regulations.** Title 17 of the California Code of Regulations (17 CCR § 80160) describes the Air Pollution Control Districts' smoke management programs "Special Requirements for Prescribed Burning and Prescribed Fires in Wildland and Wildland/Urban Interface Areas". This includes but is not limited to "...the submittal of smoke management plans for all burn projects greater than 10 acres in size or estimated to produce more than 1 ton of particulate matter." All Smoke Management Plans are submitted through the California Air Resource Board's Prescribed Fire Information and Report System (PFIRS) and are reviewed by the District.

The Sacramento Valley Basin wide Air Pollution Control Council's SACRAMENTO VALLEY AIR BASIN 2016 SMOKE MANAGEMENT PROGRAM plan requires the following process for performing a prescribed burn: 1. Submit a smoke management plan (SMP) utilizing the PFIRS website or by submitting a SMP as per the district of jurisdiction's burn rules; 2. Receive final approval of the SMP from the district of jurisdiction; 3. Receive a district permit to burn; 4. Request authorization to burn no later than the afternoon prior to the requested burn day; and 5. Maintain communication with the district and report the burn status along with the acres burned upon its conclusion.

The following additional information was provided by CAL FIRE Tehama-Glenn Unit personnel which updates the original 2011 Glenn County CWPP's discussion regarding CAL FIRE's Vegetation Management Program.

CAL FIRE's Vegetation Management Program (VMP) is a derivative of Senate Bill 1704 signed into law in 1980 by Governor Brown Jr. and can be found in the Public Resources Code Sections 4461 to 4473, 4475 to 4480 and 4491 to 4494. VMPs allow for controlled burns and hazardous fuel reductions on SRA. VMPs are a State certified program that is subject to a CEQA Programmatic EIR and lasts ten years.

## Section 5: PLANNING RESULTS AND PROJECT PRIORITIZATION

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**Introduction.** During the 2023 Glenn County CWPP Update process, research and meetings with project area stakeholders, particularly conversations with community members, fire managers, and fuels specialists, yielded valuable information regarding newly identified at-risk assets. These experts also provided 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 this planning effort's TAC, Landowner/Community Advisory Committee and other local stakeholders, 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 rank highest. These include 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 aid in the control of wildfire, including firefighting infrastructure improvements such as water tank installations and water delivery infrastructure development. Finally, 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.

### CATEGORIES USED TO RANK RECOMMENDED PROJECTS

- **Community (areas valued by community members):** High value examples are a community, a housing development or a grouping of several residences, a telecommunications translator, a community water supply, or key travel corridors. Low value examples are areas containing no residences or infrastructure issues.
- **Fuel Hazard (areas with high fuel loading and/or flammable vegetation):** High hazard equates to dense, flammable vegetation (e.g., thickets of second growth, untreated plantations, or brush fields). Low hazard equates to open sites, areas previously thinned, and those containing no ladder fuels.
- **Fire Risk (areas with a high likelihood of fire starting):** High risk equates to areas with high slope position and southwest aspect, with a past history of lightning strikes, or with high concentrations of human activity (e.g., hunting

camps). Low risk equates to areas with low slope position, with little human activity, or with little past history of lightning strikes or fires.

- **Ecological Value (a measure of known ecological concerns in the landscape):** High value is assigned for known habitat of threatened or endangered species or species for which State or federal agency survey and management protocols apply (e.g., notable stands of old growth vegetation or known nesting habitats of rare species). Low value does not indicate lack of ecological value but rather no outstanding concerns for the particular area in question.
- **Economic Value (a measure of known economic value of area resources):** High value is assigned for areas with private property values or with power lines, plantations or other investments/resources at risk. Low Value is assigned for areas containing no particular infrastructure or resource value.
- **Readiness (ability of landowners and managers to respond quickly):** High value is assigned where the ability exists for both private landowners and the USFS to act immediately with community support on public or private land. Low value is assigned where significant administrative work would be needed (e.g., NEPA/CEQA compliance) before activities could take place.
- **Cost of Project (referring to overall economic cost of doing the work):** High cost examples include inaccessible or steep terrain, or a large scale project. Low cost examples include clearing defensible space around a residence, or some types of controlled burns.
- **Recreation Value/Viewshed:** High value would be a scenic highway designation or high recreational use area. Low value would indicate that no particular value was noted.

## Section 6: FIRE PLAN AREA AND PLANNING UNIT DESCRIPTIONS

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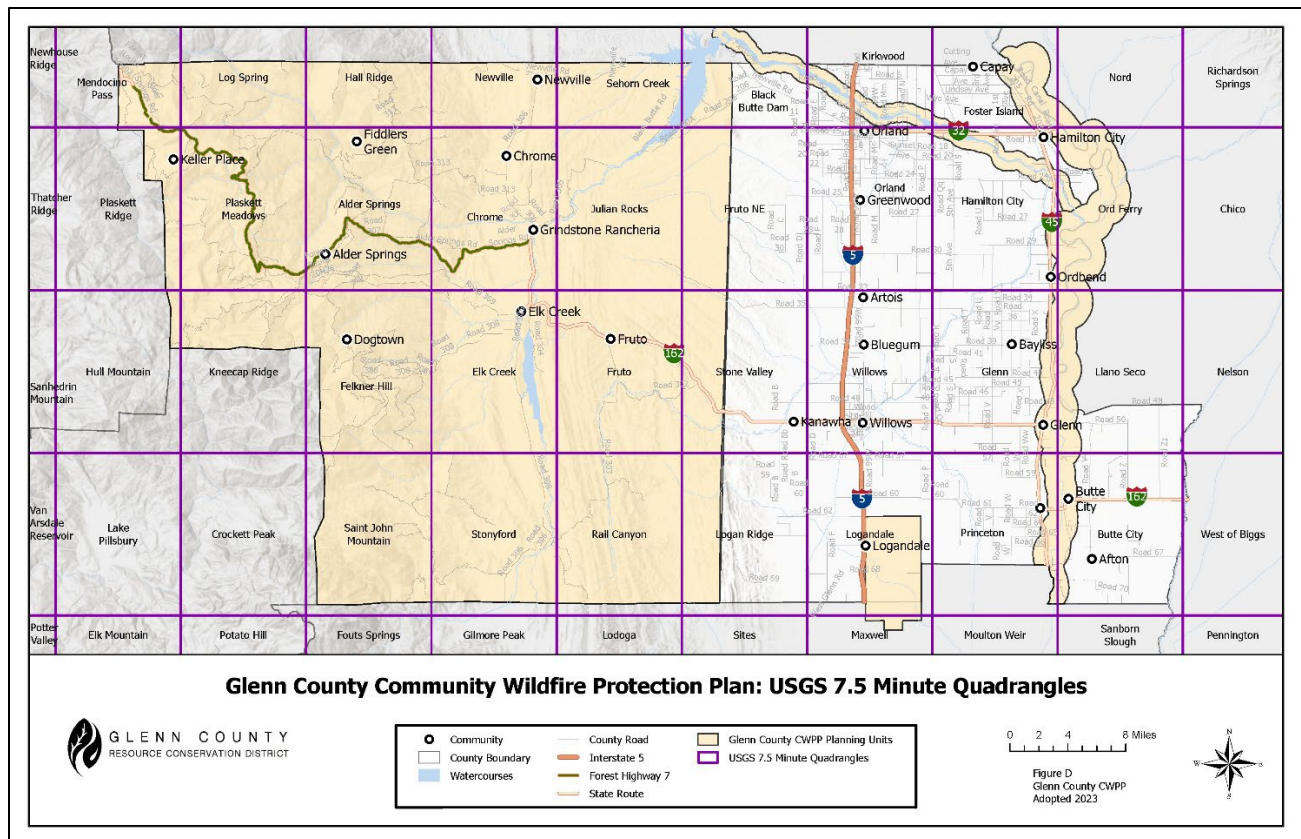
**Geographic Location and Environmental Conditions.** The Glenn County CWPP project area includes those portions of County that are at high risk of wildfire attributable to wildland conditions related to vegetation and slope. Much of Glenn County is cultivated and under irrigation during summer months; consequently, the risk of wildfire is relatively low. Four areas within the County were identified by the original 2011 GCCWPP project's Technical Advisory Committee as having high risk of wildfire or as meriting special consideration: (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. These planning areas were reviewed by the CWPP update project's TAC and L/CAC at the start of the revision process. No changes in planning area boundaries were found to be necessary.

### **Topographic Maps Covering the Project Area**

The USGS 7.5 Minute Quadrangles near the project area are displayed and listed below in **Figure D: USGS 7.5 Minute Quadrangles Map**.

**Critical Factors under Consideration.** In analyzing fire risk in each of the planning areas, a number of critical factors related to fire behavior were analyzed, including:

- 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.



## Figure D: USGS 7.5 Minute Quadrangles Map

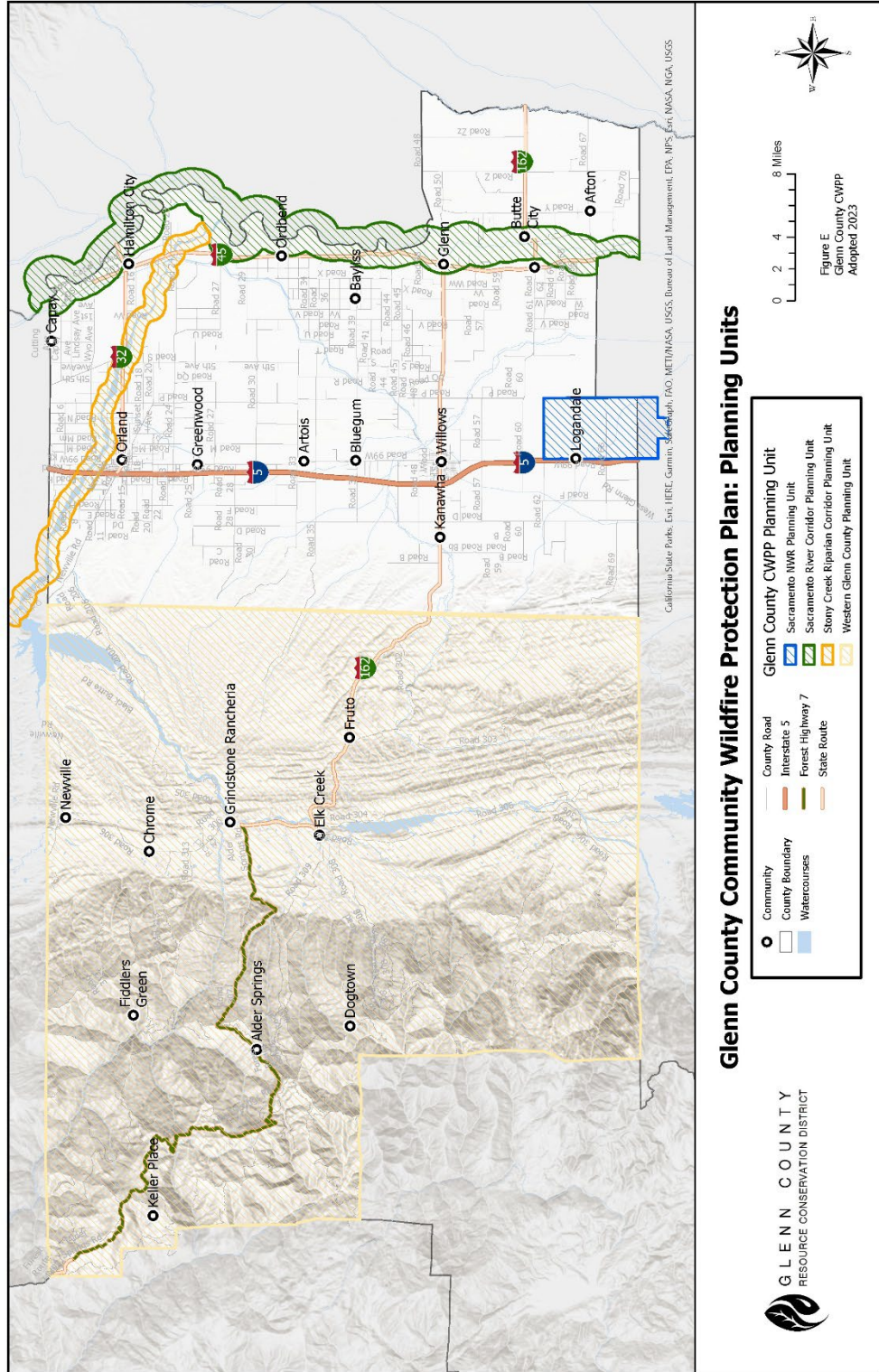
Contained in the Glenn County CWPP

- |                 |               |                |                 |                     |
|-----------------|---------------|----------------|-----------------|---------------------|
| 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     |                     |

**Ignition Sources.** CAL FIRE’s current 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 areas 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 below on the map labeled **Figure E: Planning Units/County Base Map**. The four planning units, in order of increasing acreage, are: (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 in Section 9.



**Figure E: Planning Units/County Base Map**



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

*This planning unit encompasses all the lands within western Glenn County between the high voltage 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. Grindstone Rancheria is also in this planning unit. The boundaries of this planning unit are summarized below.*

*North: Tehama County line  
East: High Voltage 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, Capay and Ord Bend are included in this planning unit. Much of this planning area is unpopulated and is managed for farming operations, wildlife production/management, riverside recreation, and as habitat for an array of important riparian landscapes and species including that provided by the Sacramento River National Wildlife Area. 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)

*The Lower Stony Creek Riparian Corridor 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, consumer of water 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 specific USFWS refuge parcels. 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 approximately three miles to the north. Interstate 5 and State Route 99W are located within the Western portion of this planning unit. 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 7: FIRE-SHAPED ECOSYSTEMS AND INFRASTRUCTURE FOR FIRE PROTECTION

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Please refer to the 2011 Glenn County CWPP document related to Environmental Landscapes, Demographics, Land Use and Development Trends and Glenn County’s Fire Shaped Ecosystems.

## Fire Risk Environment of Glenn County.

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 (See Figure B: Fire Threats).

### **Human-Wildland Interactions within the Glenn County CWPP Project Area.**

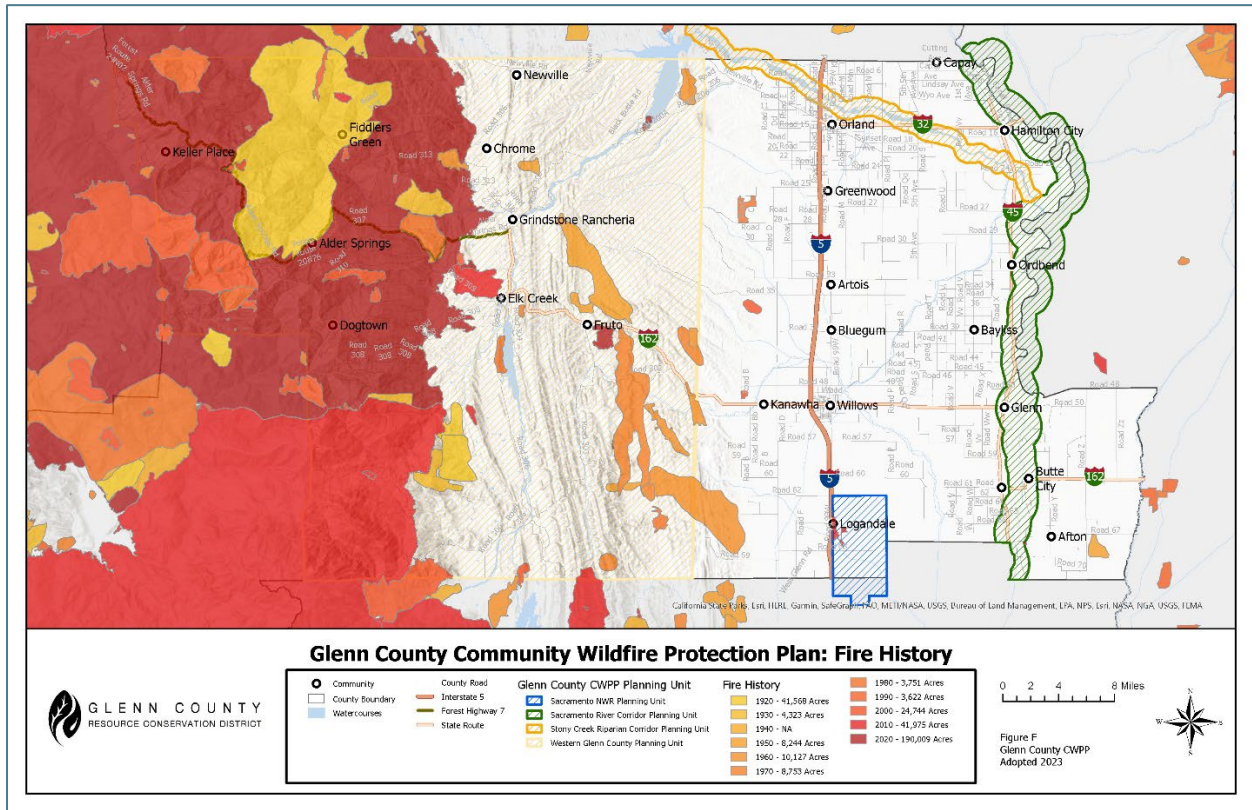
Communities adjacent to and within the State's wildlands have experienced dramatic growth that has taken a number of forms. In addition to the simple expansion of the urban fringe, rural subdivisions, homes, and small ranches located far from urban centers have developed from lot splits which create 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 woodlands and grasslands. In terms of wildfire threat, these areas of rural development have been described as a point where the fuels feeding a wildfire change 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 riskier. 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 in **Figure F: Fire History.**

With the creation of the USFS in the early 20<sup>th</sup> 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



**Figure F: Fire History**

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.

The following table provides a summary of the recorded wildfires within Glenn County.

**Historic Fire Acreages by Decades**

Decade	1900	1920	1930	1940	1950	1960	1970	1980	1990	2000	2010	2018	Total
Fire Events	1	7	12	32	18	12	8	11	17	14	25	9	166
Acres	948	59,518	61,254	59,914	13,234	5,758	103,188	12,023	12,892	10,844	51,979	417,783	809,335

**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 Volunteer Fire Department	Glenn
Glenn-Colusa Volunteer Fire Department	Butte City
CAL FIRE	Elk Creek
CAL FIRE/California Department of Corrections Valley View Conservation Camp [now Valley View Fire Center]	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 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 Volunteer Fire Department	Orland
Bayliss Fire Protection District	Glenn
Kanawha Fire Protection District	Willows
Bureau of Land Management	Ukiah
U.S. Fish and Wildlife Service	Willows
Indian Valley Fire Department	Stonyford

- ***Elk Creek Volunteer Fire Department.*** This department provides volunteer fire protection to the community of Elk Creek, as well as the Local Response Areas surrounding Chrome and Newville.
- ***Glenn-Codora Volunteer Fire Department.*** This volunteer fire department maintains a fire station and equipment located in the community of Glenn.
- ***Glenn-Colusa Volunteer Fire Department.*** The volunteer fire department maintains a fire station and equipment located in the community of Butte City.
- ***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. CAL FIRE maintains a station in the community of Elk Creek and fire-fighting 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.

- ***CAL FIRE /California Department of Corrections, Valley View Conservation Camp [now Valley View Fire Center].*** CAL FIRE and the California Department of Corrections used to jointly operate a minimum security facility at Alder Springs located on Forest Highway 7 approximately 20 miles northwest of Elk Creek. The camp provided inmate fire crews that could be dispatched throughout the Glenn County area as well as the entire State. At the present time, the camp is now considered a Fire Camp operated by CAL FIRE personnel

and firefighters and has an array of wildland firefighting, fire service, and transportation equipment. Similar services may also be provided by the Salt Creek Conservation Camp located southeast of Paskenta in Tehama County near the Glenn County line.

- ***Mendocino National Forest (Willows, Alder Springs, Elk Creek)***. 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 and Ranger Station in Willows, USFS fire personnel are housed at facilities located at Elk Creek, Alder Springs and Stonyford just south of the Glenn/Colusa County line. 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/Willows Rural Fire Protection District***. The primary responsibility of this department is for fire protection within Willows, along with rural areas immediately adjacent to that community's city limits. The Willows Rural Fire Protection District extends from the Glenn-Colusa County Line on the south to north of County Road 44 on the north. The western boundary is County Road FF, north to Highway (State Route) 162 and south to the Glenn Colusa Canal. The eastern boundary is Willow Creek, the Quint Canal and County Road V. The Department operates one fire station.
- ***Capay Fire Protection District***. Operating one fire station, this department provides fire protection to the rural Capay District which is located within both Glenn and Tehama Counties. The Capay area contains roughly 1,000 residents of which 200 are located within the Sacramento River Corridor Planning Unit. Within the Capay District are various agricultural businesses, a store, a k through 8th grade school and the Glenn-Colusa Irrigation District pumping plant.
- ***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 Fire Protection District.** This department's primary responsibility is for the community of Artois and surrounding developed areas. This all volunteer fire department operates one fire station and two fire trucks.
- **Orland Volunteer Fire Department.** The Orland Volunteer Fire Department is primarily responsible for fire protection within Orland city limits and immediately adjacent areas.
- **Bayliss Fire Protection District.** The Bayliss Fire Protection District extends from the Sacramento River west to the Glenn-Colusa Irrigation District Main Canal and from County Road 34 on the north to County Road 44 and beyond on the south. The department operates two pumper units.
- **Kanawaha Fire Protection District.** The Kanawaha Fire Protection District's coverage area includes much of central Glenn County from the Orland Volunteer Fire Department's southern boundary south to the Glenn/Colusa County line.
- **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.
- **US Fish and Wildlife Service Sacramento National Wildlife Refuge.** The USFWS maintains a fire station at the Sacramento National Wildlife Refuge located approximately 7 miles south of Willows. In addition to providing fire protection to federal wildlife properties, these fire resources are utilized to complete prescribed fire operations on agency parcels in order to both reduce fire ignition and spread risk as well as improve vegetation conditions for wildlife species utilizing USFWS lands.
- **Bear Valley/Indian Valley Fire Department/Fire Protection District.** The Bear Valley/Indian Valley Fire Protection District is a volunteer fire department serving unincorporated areas of Colusa and Glenn Counties. Included within the District's protection area are the communities of Stonyford and Lodoga which

are both located in Colusa County near the Glenn/Colusa County line. The district covers 270 square miles.

**Interagency Approach to Firefighting in Glenn County.** Wildland fires ignore civil boundaries. Consequently, it is necessary for cities, counties, special districts, along with 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	Rational for Rating
Willows*	2	Water availability, staffing levels and equipment
Orland*	4	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 8: 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, backfiring operations or prescribed burns. For the purposes of this plan, significant roads within the Glenn County CWPP planning 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 <sup>th</sup> and 8 <sup>th</sup> 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 is removed within utility rights of way that continue 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.** Air quality in the Sacramento Valley is heavily influenced by weather conditions. During calm nights, surface inversions are formed when the ground surface becomes cooler than the air above it. The inversion is dissolved when heat from the sun warms the ground, which in turn heats the lower layers of air. This heating stimulates the ground level air and smoke to float up through the inversion layer and away from people. The combination of stagnant wind conditions and low-level inversions produce high pollutant concentrations that can persist for long periods during wildfire events. Wildfires produce a range of harmful air pollutants, from known cancer-causing substances to tiny particles whose exposure can produce symptoms such as eye and respiratory tract irritation and can be as serious as worsening of heart and lung disease, asthma, stroke, and even premature death. Particulate matter (PM) is the principal pollutant of concern from wildfire smoke for the relatively short-term exposures (hours

to weeks) typically experienced by the public. Particles from smoke tend to be very small (with diameters of 2.5 micrometers and smaller) and can be inhaled into the deepest recesses of the lung.

Prescribed fires provide an opportunity to control the intensity and timing of fire as well as the ability to manage the amount of smoke and its path, thereby reducing the impact of fire emissions. Prescribed fire, managed using basic smoke management practices that include monitoring weather conditions, can reduce the impacts on air quality while meeting fire-related objectives. Using fire as a tool is a major factor in preventing the massive air pollution emissions and health impacts accompanying large wildfire events.

**Federal Endangered Species Act Critical Habitat, Vernal Pools and Listed Species.**

Within the Western Glenn County Planning Unit are areas containing vernal pools which have been classified as critical habitat under the federal Endangered Species Act for an array of threatened and endangered vernal pool species. Among these are the 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 vernal pool areas in an attempt to sustain and improve these ecosystems.

**US Forest Service and Bureau of Land Management Critical Habit and Listed Species.**

Within the Western Glenn County Planning Unit, a number of critical habitat areas and federally listed species are found. Like USFWS lands, these landscapes have developed under regimes of frequent fire, such sensitive ecosystems can however be negatively impacted by excessive high intensity wildfire at critical times of the year.

# Section 9: AREA WIDE PLANNING EFFORTS RECOMMENDED BY THE GLENN COUNTY CWPP

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## *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 these efforts TAC and L/CAC. Regardless of spatial extent, the following objectives directed 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.

**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. Significantly, 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:

- The protection of communities, forest resources, watersheds, and wildlife;
- They address excessive fuel loading and overstocked timber stands at an appropriate pace and scale;
- They provide opportunities for adjoining landowners to extend fuels reduction projects thus increasing the protective capabilities of project work;
- They provide known DFPZ locations that can be incorporated into fire protection plans at the County level; and
- They provide 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**

During the Glenn County CWPP update process, a number of suggestions were provided and added to the list of proposed projects that have the potential to positively impact wildfire and fire ecology conditions within all CWPP planning areas and the County as a whole. In addition, a number of area-wide projects that were developed or suggested during the original 2011 CWPP process are now in process while some have now been completed.

## **SUMMARY OF PROPOSED COUNTY-WIDE PROJECTS (CWP), IN NO PARTICULAR ORDER.**

**CWP#1 Update of CAL FIRE Emergency Water Storage/Tanker Fill Map.** During a community meeting in September of 2019, it was noted that CAL FIRE's current map of emergency water storage and tanker fill facilities may not be comprehensive

and may be missing various pieces of information. A recommendation was made for that agency to formally update map information.

**CWP#2 Support of Glenn County Fire Districts and Departments.** It is recommended that the TGFSC (or newly established Fire Safe Council) and the GCRCD, develop efforts that would assist the various County fire districts and departments. Importantly, this should include development of grant funding for increased/improved firefighting assets, equipment, staffing, and training.

**CWP#3 Database and Listing of Fire Fighting Equipment Available and Problem Areas Within Glenn County.** The recommendation was made for the GCRCD or other County entity to develop a database and publicly available listing of firefighting equipment (dozers, water tenders, fire trucks, etc.) available within Glenn County. In addition, problem areas and risk zones need to be updated or addressed.

**CWP#4 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 eliminate 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. If incorporated onto the Glenn County Planning Units/County Base Map, this spatial information would be invaluable 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.

It is recommended that CAL FIRE submit to the GCRCD, spatial data and descriptive information regarding commercial timber harvests completed under State Timber Harvest Plans. Data related to timber harvests made by small landowners who are required to obtain harvest permits under small harvest exemption regulations should be submitted as well. In addition, similar data should be submitted by the USFS in connection with their fuels treatment and timber harvest programs. As proposed, this information could be forwarded to the GCRCD on an ongoing intermittent basis in order to maintain the Planning Units/County Base Map in a current condition. In addition, it is recommended that the Tehama-Glenn Fire Safe Council or newly established local Fire Safe Council, develop a list of potential funding sources in order to finance the continued maintenance of the map and database by the GCRCD.

**CWP#5 Inclusion of All Developed, In Process and Proposed Fuel Breaks Within Each Glenn County CWPP Planning Unit onto the County Base Map.** In order to improve the development of fire control infrastructure, a recommendation was made



to include all types of fuel break and fire lines that have been developed, are in process, or have been proposed within each of the Glenn County CWPP planning units on the Glenn County Planning Units/County Base Map.

**CWP#6 Highway (State Route) 162/Forest Highway 7 Fuels Reduction Plan and Strategy.** Highway (State Route) 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 brake 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 (State Route) 162/FH7 corridor. Included among the public and private stakeholders would be Cal Trans, CAL FIRE, Mendocino National Forest, Bureau of Land Management, Glenn County Public Works Department, private land innholders within MNF boundaries, the GCRCD and TGFSC, 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 an organized effort, 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. The development of strategically designed and prioritized projects would also make these efforts much more attractive to funding entities.

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

**CWP#8 Roadside Fuel Treatments on County Roads Within Glenn County’s Local Responsibility Area and State Responsibility Areas.** It is recommended that the GCRC or a County agency survey County maintained roads within Glenn County’s LRA and SRA lands in order to identify those road segments that are in need of vegetation treatments. Once these treatments were completed, it is anticipated that roadside ignition and fire spread risk could be significantly decreased and sight lines improved. The data collected could include road name, the number of road miles in need of vegetation treatment, recommended treatment type and the location of treatment sites. As proposed, such roadside treatments would be completed by the Glenn County Road Department. The GCRC or County government could apply for grant dollars available through the California Fire Safe Council or other funding entities in order to complete such treatments in high priority areas.

**CWP#9 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 contact landowners whenever fire hazard reduction projects are conducted within the vicinity of County maintained roads. Through collaboration with the County Department, project work could be linearly linked over large distances using rural roads; as a result, increased fire protection benefits could accrue to area stakeholders.

**CWP#10 Map of “Fire Protection Existing Benefit Rating Criteria” for Roads Within the Grindstone Ranger 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 USFS personnel prepare Fire Protection Existing Benefit Rating Criteria for roads within the Grindstone Ranger District, particularly that portion of National Forest lands within Glenn County boundaries. 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 are 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 | Road is located on lower slopes on north or east aspects. Fire history reflects few                          |

fuels management	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 was 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. Through the development of this rating criteria, it is anticipated that future fire control and fuels management efforts would become much more cost effective.

**CWP#11 Coordination of Vegetation Treatments Between Cal Trans, CAL FIRE and Adjacent Landowners in Connection with Fuel Treatments Conducted Along Highway (State Route) 162, 45, 99W, and 32W.** The vegetation along State Highways within Glenn County is continually treated in order to improve the safety of highway infrastructure and reduce roadside ignitions. Highway (State Route) 162 passes through or is adjacent to extensive areas of Glenn County wildlands that are at a high risk of ignition and fire spread. State Route 45 divides wildland areas adjacent to the Sacramento River from farmlands located west of the highway’s right-of-way. Vegetation maintenance along this route protects developed parcels, native vegetation and crops from ignition risk and fire spread. State Route 99W and 32W are major local highway corridors with relatively high traffic volumes. As a result, both routes contribute considerably to roadside ignition risk within the County’s valley floor farmlands and orchards. Through improved coordination between Cal Trans District 3 maintenance personnel, the Glenn County Road Department, CAL FIRE, local fire districts and adjacent landowners, highway infrastructure could be better leveraged in the development of a fuel break network. These major well maintained routes could create a framework from which a large, interconnected fuel break

network is developed. Such coordination could be established through the Glenn County RCD and the Tehama-Glenn Fire Safe Council, or a newly developed local Fire Safe Council created for Glenn County.

**CWP#12 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 near PG&E utility rights-of-way be coordinated with PG&E as a means to potentially share costs and to leverage, enhance and expand project work.

**CWP#13 Fuel Hazard Reduction Coordination with Utility Providers Throughout Glenn County.** Various utility operators (phone, gas, etc.) maintain underground service cables. During installation of these lines, vegetation is removed, and portions of the utility company right-of-way is maintained clear of vegetation and wildland fuels. If vegetation were managed along the entire length of utility rights-of-ways, these linear features could provide access for firefighters and their equipment as well as become the framework for a more extensive fuel break network within a significant portion of the four planning units. Consequently, it is recommended the GCRCD and other County entities involved with fire/fuels management issues collaborate with utility providers to identify utility rights-of-way and increase clearance of these linear features. In addition to expanding vegetation treatments within current utility rights-of-way, the recommendation was made to, when appropriate, utilize rights-of-way treatments as a framework from which intersecting fuel breaks and other fire control features could be developed. As result of such coordination, planned/proposed vegetation treatments on lands adjacent to all utility rights-of-way could be better leveraged with in process power infrastructure fuel treatments.

**CWP#14 Inspection of Vegetation Treatments Around Cell Towers Throughout Glenn County.** Numerous cell towers are located throughout Glenn County which can be put at risk during wildfire events. It is recommended that all cell tower locations within Glenn County be located and incorporated into the Glenn County RCD's Planning Units/County Base Map prepared in connection with development of this CWPP update document which displays at risk assets. With this information, inspection of these sites can be made by County fire authorities or CAL FIRE (depending upon their location) with necessary follow-up treatments completed.

**CWP#15 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 PG&E and the other utility providers described above, the Bureau of Reclamation is required to maintain vegetation along the power line right-of-way. Consequently, the expansion of vegetation treatments along BOR rights-of-way as well as the development of additional intersecting vegetation treatments could improve the ability of this large infrastructure system to provide significant protection to Glenn County grasslands, rangelands and riparian areas.

**CWP#16 Development of Sufficient Water Storage, Handling, and Delivery Systems Throughout Each Glenn County CWPP Planning Unit.** 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 both adequate supplies of water and to have those supplies readily accessible at 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 landowner and 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.

**CWP#17 Canals and Water Transfer Infrastructure.** Throughout Glenn County, a number of irrigation districts have canals and other water transfer infrastructure that create rudimentary fuel breaks. Among these facilities are irrigation canals, cross ditches, and pipelines. 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 federal, State and County firefighting personnel operating within the local and state responsibility areas of Glenn County. This information should also be incorporated into the updated Planning Units/County Base Map.

**CWP#18 Review of Glenn County Building, Land Development, and Zoning Codes.** In order to reduce structural ignitability, a recommendation was made for the GCRCD, CAL FIRE and local fire officials to work with appropriate Glenn County personnel to review and codified requirements related to County building, land development, and zoning codes. At the present time, portions of the County building code address construction in the Wildland Urban Interface area and rely upon the fire severity zones within State Responsibility Area lands as a guide. If a determination is made by County officials that local ordinance changes would improve fire safety, it is recommended that the incorporation of fire safe principals into land use and zoning be made at a policy level through revisions to the County General Plan. In addition, the

General Plan's Safety Element could be utilized in order to identify policies which can then be implemented through appropriate zoning regulations and decision making.

Specific recommendations for code changes could include among others, 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 under **CWP#19**, **CWP#20** and **CWP#21**. In order to achieve success, it is of the utmost importance that the development of changes to County-wide ordinance or code provisions have full input and the support of local fire authorities who are the "authority having jurisdiction" over fire safety and control within the Local Response Area. To that end, it is recommended that the Glenn County Fire Chief's Association have substantial input into the process of County ordinance and code changes.

**CWP#19 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 the GCRCDC 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.

**CWP#20 Support of Glenn County Fire Radio Infrastructure.** It is recommended that the GCRCDC, County government entities and the TGFSC (or locally developed Fire Safe Council) explore ways to assist and support to maintain and improve Glenn County Fire Radio infrastructure such as at Needham, Red Mountain, Black Butte Lake and other repeater sites.

**CWP#21 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 campgrounds 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 has 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 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. As mentioned, above, the communities of Artois, Chrome, Butte City, Glenn, Grindstone Rancheria, and Hamilton City are population centers within the Glenn County CWPP area. Although not currently on the National Registry of Fire Threatened Communities, these populated areas have been determined to be possibly at risk by CAL FIRE during development of the 2011 Tehama-Glenn Unit Fire Management Plan and reiterated by community members during development of the 2023 CWPP update. As a result, it is recommended that CAL FIRE, the GCRCDC or other Glenn County entity advocate for the inclusion of these developed areas onto the federal list of at-risk communities.

**CWP#22 Fuel Treatments Programmatic Permit Coordination Program.** It is recommended that the GCRCDC or other entity having an ability to become CEQA Lead Agency develop a fuel treatments permit coordination program and related programmatic CEQA environmental analysis document (**Programmatic Initial Study/Mitigated Negative Declaration**). The goal of such an effort would be to assess the potential impact of common fuels/vegetation treatments that are often employed by private landowners within specific assessment areas located in Glenn County. Through the pre-approval of specific fuel treatment techniques, it is anticipated that development of fire management infrastructure and implementation of fire/fuels and watershed management projects can be completed in a timely and cost efficient manner thus increasing the pace and scale of such projects' implementation. In order

to reduce the impact of these activities to a less than significant level, an array of Mitigation Measures and Best Management Practices (BMPs) would need to be developed and then approved by regulatory entities. In addition, applications for programmatic permits required by resource agencies would need to be developed and approved in order to execute the activities approved under this permitting program.

Through the development and negotiation of CEQA environmental analysis and programmatic permits with agencies having oversight, the GCRCD or other County entity could become a one stop source of permits and environmental analysis that are often required to implement those activities that could be approved under such a permitting program as long as they occurred within the area that was assessed for impacts in the Programmatic CEQA document. The approval and certification of the environmental analysis conducted to assess the impact of the program and the implementation of approved practices would result in the Programmatic CEQA document serving as a functional equivalent to the incremental environmental analysis and permits that are required of participants if they completed fuel treatments individually outside of such a permitting program's regulatory processes.

**CWP#23 Public Outreach, Fire Safe Education, and Engagement.** The residents of Glenn County have already benefited from the public outreach and public information efforts of the local fire departments, Tehama-Glenn Fire Safe Council and its member organizations. These efforts have included fire safety, fire/fuels management and fire ecology information distributed at community meetings and ice cream socials. In addition, events such as Wildfire Awareness Week programs. With the exception of labor hours contributed by agency personnel and publicly funded coordinators, these outreach and education projects have been accomplished at little or no public expense.

In order to increase public awareness of wildfire hazards and the need for continued fire management and fuels reduction project work, the TGFSC or newly established local Fire Safe Council should further develop programs of public education, outreach and engagement. These increased efforts could be supported by the current outreach programs of GCRCD, such as:

- 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 service announcements that inform the public about new open space requirements, fire safe building materials, the role of fire in maintaining fire safe landscapes, and 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.

**CWP#24 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.

**CWP#25 Glenn County Residents Guide to Wildfire Preparedness.** It is recommended that a wildfire preparedness guide, which may include an evacuation guide section, be developed and distributed to residents of Glenn County. The information included in such a document is intended to provide Glenn County residents with an overview of the steps they can take to prepare themselves, their families and neighbors should an evacuation become necessary.

**CWP#26 Sharing and Coordination of Glenn County CWPP GIS Data with the Glenn County Planning Department.** Glenn County Planning Department personnel recommended that the Glenn County RCD and RCD of Tehama County share and coordinate distribution and use of GIS data developed in connection with the Glenn County CWPP update process. County personnel mentioned that this data could inform future County policy decisions and initiatives related to fire protection.

## IN PROCESS COUNTY WIDE PROJECTS (CWIP)

**CWIP#1 CAL FIRE Vegetation Management Program.** The CAL FIRE Vegetation Management Program (VMP) is an ongoing negotiable cost-share initiative between private landowners and CAL FIRE, which takes the role of project administrator. VMPs are a ten-year program that focuses on the use of prescribed burns and both manual and mechanical fuels reduction 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 SRAs 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. Although this fuels management program is available to landowners within Glenn County's SRA, at the present time no current VMP projects have been developed to knowledge.

**CWIP#2 CAL FIRE Cal Mapper Program.** Since 2009, CAL FIRE Units have developed and compiled Geographic Information System data on various fire and fuels management projects that have been completed, are currently in process or have been proposed within Unit areas. This spatial information allows CAL FIRE to prepare maps of projects throughout large geographical areas. As a result, CAL FIRE and other users can better understand the spatial relationships between fuel treatment areas in order to more effectively utilize previously developed project work when developing new treatments as a means to increase the effectiveness and impact of newly developed fuel treatment and fire management projects. CAL FIRE Cal Mapper data was used by the GCRC and RCDTC in the development of the Planning Units/County Base Map for Glenn County that shows community and wildland resources in need of protection along with the completed, in progress, and planned vegetation treatments developed to protect those resources. Given the positive impact that forest stand thinning through timber harvest can have on fire spread, it is recommended that data related to large and small timber operations reported to CAL FIRE be incorporated into the Cal Mapper system.

**CWIP#3 CAL FIRE Fire Defensible Space Inspections.** Changes to Public Resources Code (PRC) 4291 expand the defensible space clearance requirement maintained around buildings and structures to a distance from 30 feet to 100 feet. CAL FIRE personnel conduct random fire inspections on residences located within Glenn County's State Responsibility Area lands in order to determine whether defensible space has been established and maintained around structures in accordance with these regulations.

**CWIP#4 Update of County Evacuation Plan and Wildfire Preparation Plan.** Glenn County officials are in the process of updating the County evacuation plan and wildfire preparedness plan [2019]. At the present time, facilities at Black Butte Dam are the only site within Glenn County that has a formal evacuation plan in place. County officials are also developing provisions for providing access to communities with limited entry during emergency events.

## COUNTY-WIDE COMPLETED PROJECTS CWC

**CWC#1 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 currently 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. 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 Glenn County and Tehama County. In comparison, the Glenn County Community Wildfire Protection Plan provides similar information and analysis specifically for the County's SRA along with Local Responsibility Areas (LRA), and Federal Responsibility Areas (FRA). The Tehama-Glenn Unit Strategic 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 CAL FIRE planning document identifies strategic areas for pre-fire planning and fuels treatment, 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 CAL FIRE 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 Strategic 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.

**CWC#2 Tehama County Community Wildfire Protection Plan.** Like Western Glenn County and much of Northern California, southwestern 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. Similarities between the two Counties' landscapes also exist within US Fish and Wildlife Service and California Department of Fish and Wildlife parcels located along the Sacramento River. At the present time, considerable effort is being made by public and private land managers within Tehama County to manage wildland vegetation in order to reduce the threat of uncontrolled wildfire and to recreate natural fire return intervals throughout the County. A majority of these efforts are documented in the 2017 Tehama East/Tehama West Community Wildfire Protection Plan along with its yearly updates. A number of these formally developed and approved efforts include an array of

prescribed burns, shaded fuel breaks, and other fuel reduction practices developed on public and private lands at the border of Glenn County and Tehama County which provide cross boundary protection.

**CWC#3 Glenn County Emergency Operations Plan.** In 2019, Glenn County officials completed **Annex B: Public Information and Warning** to the **Glenn County Operational Area Emergency Operations Plan** the Annex B document describes in detail emergency warning alert processes, procedures and systems that would be utilized during wildfire events or other emergencies. Annex B can be found at:

[https://www.countyofglenn.net/sites/default/files/Office\\_of\\_Emergency\\_Services/Annex%20B%20-%20Emergency%20Public%20Info%20%26%20Warning%202019.pdf](https://www.countyofglenn.net/sites/default/files/Office_of_Emergency_Services/Annex%20B%20-%20Emergency%20Public%20Info%20%26%20Warning%202019.pdf)

**CWC#4 Glenn County Tactical Interoperable Communications Plan.** The **Glenn County Tactical Interoperable Communications Plan** was developed as a first responder/radio communications plan. This document establishes a county-wide tactical interoperable communications plan which documents the interoperable communications resources available within the County's designated response area. The document also establishes who controls each resource, and what rules of use or operational procedures exist for the activation and deactivation of each resource. The plan is intended for use by first responders and may be used by governmental organizations and other appropriate entities whose personnel require communications or coordination during an incident or planned event. All Glenn County Emergency Operations Plan documents can be found at:

<https://www.countyofglenn.net/dept/sheriff/office-emergency-services/response-agencies-plans>

# Section 10: OVERVIEW OF ASSETS AT RISK, CURRENTLY IN-PLACE FIRE PROTECTION INFRASTRUCTURE, AND RECOMMENDED PROJECTS BY PLANNING UNIT

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## *Western Glenn County Planning Unit*

**Introduction.** The Western Glenn County Planning Unit encompasses 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 22 miles west of Willows at the intersection of Highway (State Route) 162 and County Road 306. Other much smaller communities within this planning unit include Fruto located roughly 15 miles west of Willows along Highway (State Route) 162 and Chrome located about ten 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 managed by the Mendocino National Forest and the Bureau of Land Management. These lands contain 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 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 six 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 20<sup>th</sup> Century. At the present time there are roughly 20 residents living in the vicinity of each historic spot.

***Highway (State Route) 162/Forest Highway 7.*** Highway (State Route) 162 passes through the middle of the Western Glenn County Planning Unit from east to west and is maintained by Cal Trans. Where the highway crosses the eastern boundary of the MNF, the route becomes Forest Highway 7 (FH 7) and is maintained by the Glenn County Road Department and the Forest Service. 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 is a major transportation



corridor within Western Glenn County and creates opportunities for both fire control and roadside ignition risk.

**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 Valley View Fire Center 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 Highway (State 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. The Stony Creek 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 of 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 of low 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 is 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 (State Route) 162/Forest Highway 7 Roadside Fuels Treatment.** At the present time, Cal Trans conducts roadside fuel treatments along Highway (State Route) 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 and USFS use 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. Other treatment areas include Forest Road 21N62, Forest Highway 7 within Grindstone Creek Canyon, along with parts of roads M3 and 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 Glenn 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. A number of projects described in the Tehama West Fire Plan represent tangible components of Western Glenn County's fire and fuel infrastructure as they 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.

**Summary of Proposed Projects (WGCP).** 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: Western Glenn County Planning Unit Eastern Half** and **Figure H: Western Glenn County Planning Unit Western Half**.

**WGCP#1 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 May through 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, existing roads can be developed into fuel breaks at a relatively low cost. 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 as described below.

**WGCP#2 County Road 308 (Ivory Mill Road), 311, M3 and M6 Fuel Breaks.** 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.

**WGCP#3 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.

**WGCP#4 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.

**WGCP#5 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.

**WGCP#6 County Road 304 and Entrance to Stony Gorge Reservoir**. County Road 304 intersects with Highway (State Route) 162 and is the main access route to facilities at Stony Gorge Reservoir. It was noted that the segment of roadway closest to

Highway (State Route) 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 (State Route) 162 and the lake be widened to assure incoming and outgoing traffic flows in the event of an emergency.

**WGCP#7 County Roads 302 and 303 (Clarks Valley Road).** Together, County Roads 302 and 303 connect Highway (State Route) 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.

**WGCP#8 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 (described above). A number of stakeholders mentioned that mastication projects are more desirable than prescribed fire use within developed areas due to challenges related to air quality, scheduling, weather conditions, and CAL FIRE staffing.

In order to increase the utility of fuel breaks along County Road 313 described above, it was recommended that fuel treatments be developed on the ridge top along Heifer Ridge and Digger Ridge located approximately three 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.

**WGCP#9 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 adjacent to National Forests 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 promote implementation of this legislation in order to direct USFS financial and technical resources related to fuel reduction efforts using the authorizations found in this legislation. Through such action, the goals and objectives for National Forest fire and fuels management efforts could be more closely matched to those of landowners and communities located adjacent to National Forest Boundaries.

**WGCP#10 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, L/CAC and community members provided the following list of specific water tank sizes and locations. These locations are marked on the planning units' maps with a water drop symbology. Funding for tanks and related equipment would need to be secured from a combination of community contributions and outside funding sources.

**WGCP#11-A 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 routes out of the community towards the MNF. In addition, the school has extensive clearance and would be accessible during most 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.

**WGCP#11-B 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.

**WGCP#11-C 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 and secure site to fill tanker units operating within the area. Consequently, the site was recommended as a location for a 50,000 gallon water tank.

**WGCP#11-D 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.

**WGCP#12 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. A suggestion was also made that households and ranches prepare an evacuation plan for domestic animals and livestock along with a vegetation clearance plan that are based upon CAL FIRE recommendations.

**WGCP#13 Map and Database of Natural Fire Management Units.** In order to facilitate communication between fire agencies, land managers, landowners, 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 watersheds, large drainages and canyons. The development of fire management units would allow fire crews and prescribed fire administrators to determine where landscape scale fire control and fuels management strategies could be deployed that reflect ecological realities of the local landscape.

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 as a means to assure protection during controlled and uncontrolled burns. Fire management applications include the mapping of watering holes, tanker fills, fuel breaks and other vegetation treatments. These types 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.

**WGCP#14 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 vegetation systems by increasing fire return intervals. To safely accomplish this, prescribed fire in chaparral stands along with a combination of stand thinnings and prescribed fire use within forest stands are being conducted. 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 direct their resources to areas where adjacent Forest Service fuels work has already been completed or is planned, thus increasing the effectiveness and size of public and private efforts.

**WGCP#15 Mendocino Prescribed Fire and Strategy Fuels Management Strategy.** This proposed planning and development project proposed for Mendocino National Forest lands would result in an overall strategy for the use of prescribed fire and manual treatments to reduce fuel loads and mitigate future impacts of wildfire across these National Forest lands outside of designated wilderness areas. As proposed, this National Forest-wide prescribed fire treatment strategy would include the use of prescribed fire treatment to maintain structure, composition and resiliency of forest, shrublands, and grassland communities and reduce undesirable accumulations of fuel over the next 10 to 15 years. Proposed treatments would occur in Late Successional, Adaptive Management, Managed Late Successional, Administratively Withdrawn, Riparian Reserves, Research Natural Areas, and Matrix land allocations outside of designated wilderness.

Prescribed fire treatments would be applied in forested areas with excessive accumulations of live fuels; in areas with excessive accumulations of dead fuels; in mature Chaparral stands to create a mosaic of age classes; and in grasslands to manage nonnative and/or undesirable plants. Treatments would include broadcast burning and pile burning. All prescribed fire treatments would be implemented in accordance with applicable design criteria and resource protection measures under appropriate burning conditions to move treatment areas toward desired conditions. The project has been designed to provide a range of prescribed fire opportunities that can be prioritized and scheduled as necessary in any given year, allowing for flexibility in implementation. Specific yearly prescribed fire and fuels management efforts and treatment areas would be dependent upon funding, weather, and other resource conditions. Other issues to be taken into consideration each year include sites where treatments are most feasible to implement and most needed to improve the protection of highly valued resources and urban communities from future wildfires.

Proposed methods for application of fire on the landscape would include but not limited to, ground and aerial application of fire using handheld drip-torches, aerial ignition by spherical ignition devices or helitorch, fusees, or flares. Hand Thinning & Limbing Trees to Raise Canopy Base Height in Areas where it is determined that fuel loading and/or stand structure is such that prescribed fire behavior might exceed acceptable thresholds, posing a risk to prescriptive objectives, WUIs and other highly valued resources, prescribed fire alone would not be the sole treatment option. In these situations, hand thinning and limbing trees using chainsaws or other tools would occur

prior to prescribed burning to reduce ladder fuels and associated potential for crown fire initiation and spread. Resulting slash would be scattered or left in place to assist understory fire spread. When prescribed fire is unlikely to consume most residual slash or would result in undesired fire effects, some or all thinned vegetation may be piled and burned on site.

Existing features such as roads, trails, rock outcrops, or existing fuel breaks would be used for fire control lines where possible. Where existing control lines are absent, fire lines would be constructed to facilitate broadcast burning and hand piling burning operations. Fireline construction would also be used for the protection of cultural sites, sensitive resources, administrative sites, infrastructure or private property, and other features as needed. Fire lines would be constructed by hand. The amount of fire line construction would vary depending on the size of the burn area and existing conditions. Design Criteria and Resource Protection Measures Site specific design criteria would be adopted and included in implementation plans as resource protection measures.

**WGCP#16 Plaskett-Keller August Complex Phase 1 Project.** Proposed project work would entail the removal of fire-killed and fire-injured trees attributable to the 2020 August Complex Fire in order to mitigate hazards posed by dead and dying trees, recover economic value of removed material and to manage forest fuels. Fuels treatments for smaller trees and vegetation would include thinning, piling, burning, chipping, and mastication. All Late Successional Reserves would be avoided from any direct project activities. Salvage units will focus on areas with high burn severity with a high chance of mortality.

**WGCP#17 Ranch Fire Broom Treatment.** In order to reduce fire ignition and spread risk attributable to post-fire invasion of broom species, the Mendocino National Forest proposes to initiate foliar applications of herbicide to these invasive plants located at specific locations within the 2018 Ranch Fire that burned within a multi-county area of the National Forest.

**WGCP#18 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.

**WGCP#19 Formal Establishment of Fire Safety Zones and Evacuation Routes Throughout Western Glenn County.** In the event of a large, fast moving fire in the vicinity of Elk Creek or other populated portions of the County Road 306 and State Route 162 corridors, 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, they should be included on CAL FIRE maps. It is recommended that the Glenn County Sheriffs Department who oversee evacuations, coordinate with CAL FIRE and local fire entities in the development of various formal evacuation routes located throughout Glenn County.

**WGCP#20 Coordinated Arundo Eradication Efforts Along Stony Creek and Other Westside Streams.** Arundo growing along Stony Creek, its tributaries and other westside streams pose a significant risk of fire ignition and spread within the oak woodlands, grasslands and valley floor landscapes of the Western Glenn County Planning Unit. In order to effectively treat and control this invasive riparian species, all infestations between the plant's uppermost sites within a watershed and the Sacramento River would need to be treated and eradicated or at a minimum placed under control. To accomplish this, all landowners having properties along infested stream segments would need to participate in control efforts by allowing access to their streamside properties for treatments. In order to effectively and efficiently coordinate efforts that would result in long term control of Arundo within stream channels, it is recommended that the Glenn County RCD or other Glenn County entity initiate efforts to establish watershed wide control efforts that would entail the participation of all streamside landowners within a particular stream channel. To that end, the GCRCD could reinstate the efforts described in its Lower Stony Creek Watershed Management Plan as well as developing a list of specific project descriptions that could be incorporated into an array of funding proposals. If necessary, to implement the watershed plan, the GCRCD's related CEQA Initial Study/Mitigated Negative Declaration could be revised to reflect current environmental and cultural conditions within project treatment areas. In order to secure long term funding for initial and maintenance treatments, consideration should be given to the establishment of a special assessment district whose focus was invasive plant control.

**WGCP#21 Establishment of Burning Associations Within Western Glenn County.** Prescribed burn associations are organized groups of landowners who complete their own prescribed burn projects utilizing guidance from fire agencies. Such groups also share the cost and upkeep of an equipment cache containing burn implementation, safety and communications equipment. In addition, the creation of such organizations can result in the development of coordinated fire/fuels management projects among a number of landowners. As a result, the cost of project permitting required by regulatory entities could be reduced by dividing it among participating landowners.

**WGCP#22 Map and List of Water Sources Located Throughout Western Glenn County.** The recommendation was made for CAL FIRE, the GCRCD or other Glenn County entity to create and maintain a map and list of water sources available for fire-fighting forces. Among such sources would be public and private water tanks, ponds, hydrofill

sites and stream pools among others. This effort would include the establishment of pre-authorization to use these facilities by land managers/owners.

**WGCP#23 Development of a Fire Suppression Water System for Elk Creek.** The recommendation was made for the development of a fire suppression water system that could provide non-potable water to the Elk Creek community. The use of non-potable water would reduce demands on the community's local potable water supply during wildfire events.

**WGCP#24 GCRCD, CAL FIRE and Glenn County Fire District's Development Firewise Communities Within Western Glenn County.** A recommendation was made for the Glenn County RCD and other County fire entities to pursue development of numerous Firewise Communities through a formal process established by the National Fire Protection Association's Firewise USA® program. The goal of this program is to educate landowners and other members of the public about adapting to and living with wildfire. The program also encourages neighbors to work together and take action that will prevent future fire losses. Through recognition as a Firewise Community, property owners are sometimes offered a reduced rate for homeowners or fire related insurance coverage depending upon the insurance carrier.

**WGCP#25 Improved Enforcement of State Defensible Space Requirements Through Increased CAL FIRE Inspections.** Adjacent to a number of County maintained roads within Western Glenn County are found properties, some under absentee ownership, that are in need of fuel treatments. CAL FIRE Units currently have inspection and enforcement personnel assigned to enforce State defensible space regulations and assure that all property owners are either in compliance or are remediating conditions that are in violation of State law. It is recommended that the GCRCD work with Glenn County fire districts to develop strategies and initiatives that result in increased inspections and enforcement of vegetation clearance requirements by both on site and absentee landowners.

**WGCP#26 Defensible Space Assistance and Community Chipping Program for Elderly, Disabled and Low Income Property Owners.** Based upon input at community meetings conducted in connection with this fire planning effort, it was noted that numerous elderly, disabled and low income persons live within the rural communities and outlying areas of Glenn County. A recommendation was made for the GCRCD or another local entity to develop a work program and seek funding for wildfire education and fuels management assistance. This assistance program would be directed towards community members who are unable to treat vegetation in order to obtain compliance with State Defensible Space regulations. As proposed, this effort would entail conducting various community specific fire safety workshops which showcase the principles of defensible space. The program could also sponsor a number of chipping days in which residents located in fire prone areas could cut and stack vegetation along roadways with this material processed using a professional chipper and blown back onto treatment sites.

In addition, such a program could also include a wildfire defensible space

assistance component that would provide no cost assistance in developing appropriate defensible space around homes and related structures. Eligible participants could include the elderly (65 and older) along with those who are physically and/or financially unable to maintain mandated defensible space around their property. This service could also be extended to absentee landowners in the form of no cost inspections with treatments completed on a fee-for-service basis once land ownership had been established. Through increased compliance with State mandated clearance requirements, it is anticipated that the probability of catastrophic loss of structures and life, public health concerns regarding smoke inhalation, watershed impacts and the release of GHG emissions in the event of a wildfire can be significantly reduced.

**WGCP#27 Establishment, Development and Maintenance of a Multi-Parcel Fuel Break Surrounding the Community of Elk Creek.** In order to better protect the Elk Creek community along with surrounding developed sites from wildland fire, it is recommended that the Glenn County RCD, CAL FIRE, local fire agencies, local landowners and other community members create a collaborative public/private group to establish an appropriate route and boundaries for a series of fuel breaks that protect these developed areas. In creating such a landscape feature, multiple landowners over whose property the fuel break would be developed and continuously maintained would need to be contacted to obtain an agreement for continuous access in order to maintain this fire protection infrastructure. In addition, local or other sources of funding would need to be secured to initially develop the fuel break and continuously retreat the project area in order to maintain its viability in controlling and limiting wildfire spread.

**WGCP#28 Mendocino National Forest Salt Project.** This proposed forest health project is being developed on National Forest lands in order to improve conditions for forest species including rare plants and wildlife. The project area would be located approximately five miles west of the Elk Creek community and the Grindstone Rancheria. Project components include timber harvest in order to reduce forest stand density along with other fuels reduction. Once completed, it is anticipated that the Salt Project will reduce the risk and extent of insect/disease infestations, increase the resistance and resilience of stands to current and future infestations/epidemics.

**In Process Projects (WGCIIP).** Since the 2011 publication of the Glenn County Community Wildfire Protection Plan a number of projects proposed in the earlier original CWPP along with newly identified efforts are now in process through the Western Glenn County Planning Unit including the following efforts:

**WGCIIP#1 Roadside Fuel Breaks Along Highway (State Route) 162.** Since 2011, the Glenn County RCD has been in the process of completing approximately 22 miles of vegetation treatments annually along that portion of Highway (State Route) 162 [north and south sides] within the Western Glenn County Planning Unit. This work is in addition to annual treatments completed by Cal Trans and are being completed in order to expand and improve the impact of yearly vegetation reductions. Treatment prescriptions currently include hand scraping of roadside vegetation

and/or mowing in order to extend the life of vegetation reductions. In addition, hand cutting and chipping of tree limbs and brush species are being completed. Within certain landowner approved project segments, County approved herbicides were applied to treatment areas.

**WGCI#2 Roadside Fuel Breaks Along State Route 306.** Since 2016, the Glenn County RCD is in the process of completing approximately 32 miles of vegetation treatments annually along County Road 306 between Newville and the Tehama County line and the Colusa County line [east and west sides]. Similar to vegetation treatments along Highway (State Route) 162, County Road 306 treatment prescriptions include hand scraping of roadside vegetation and/or mowing in order to extend the life of vegetation reductions along with hand cutting and chipping of tree limbs and brush species. Within certain landowner approved project segments, County approved herbicides were applied to treatment areas.

**WGCI#3 Timber Harvest Operations Completed in Connection with the USFS Four Beetles South Project and Treatments on Crane Mills Properties.** In 2021/2022, approximately 1,000 acres of merchantable timber was removed in connection with the Mendocino National Forest's 4 Beetles Project now being implemented within the Thomes Creek and Grindstone Creek watersheds. It is anticipated that the removal of timber will improve forest health and fire control through a reduction in tree density and associated vegetative fuels.

**WGCI#4 Ridge Top Fuel Break in the Vicinity of Rattle Snake Ridge.** Mendocino National Forest personnel are developing a fuel break within the Rattle Snake Ridge system which separates the Rattlesnake Creek and Salt Creek watersheds. At the present time, 20 acres of vegetation treatments have been completed along a minor ridge of the larger Rattlesnake Ridge topographic feature. The fuel break begins at the Grindstone overlook and runs SSE towards the National Forest boundary. Treatments will continue in upcoming years in order to expand and improve this fire/fuels management infrastructure.

**WGCI#5 Alder Springs Understory Burning.** At the present time, Mendocino National Forest personnel continue with understory burning in the vicinity of Alder Springs, Ivory Mill, and grass glades surrounding these sites. During 2019, USFS personnel burned approximately 300 acres of glades within Grindstone Creek Canyon above Powder House, 110 acres of the project's Ridgetop Unit near Ivory Mill along with over 100 acres of piles along Hardin Ridge.

**WGCI#6 U.S. Bureau of Reclamation Stony Gorge Reservoir Vegetation Treatments.** CAL FIRE working in collaboration with the U.S. Bureau of Reclamation, have completed 12 acres of vegetation treatments on Bureau land surrounding Stony Gorge Reservoir. Additional treatment acres are expected to be completed.

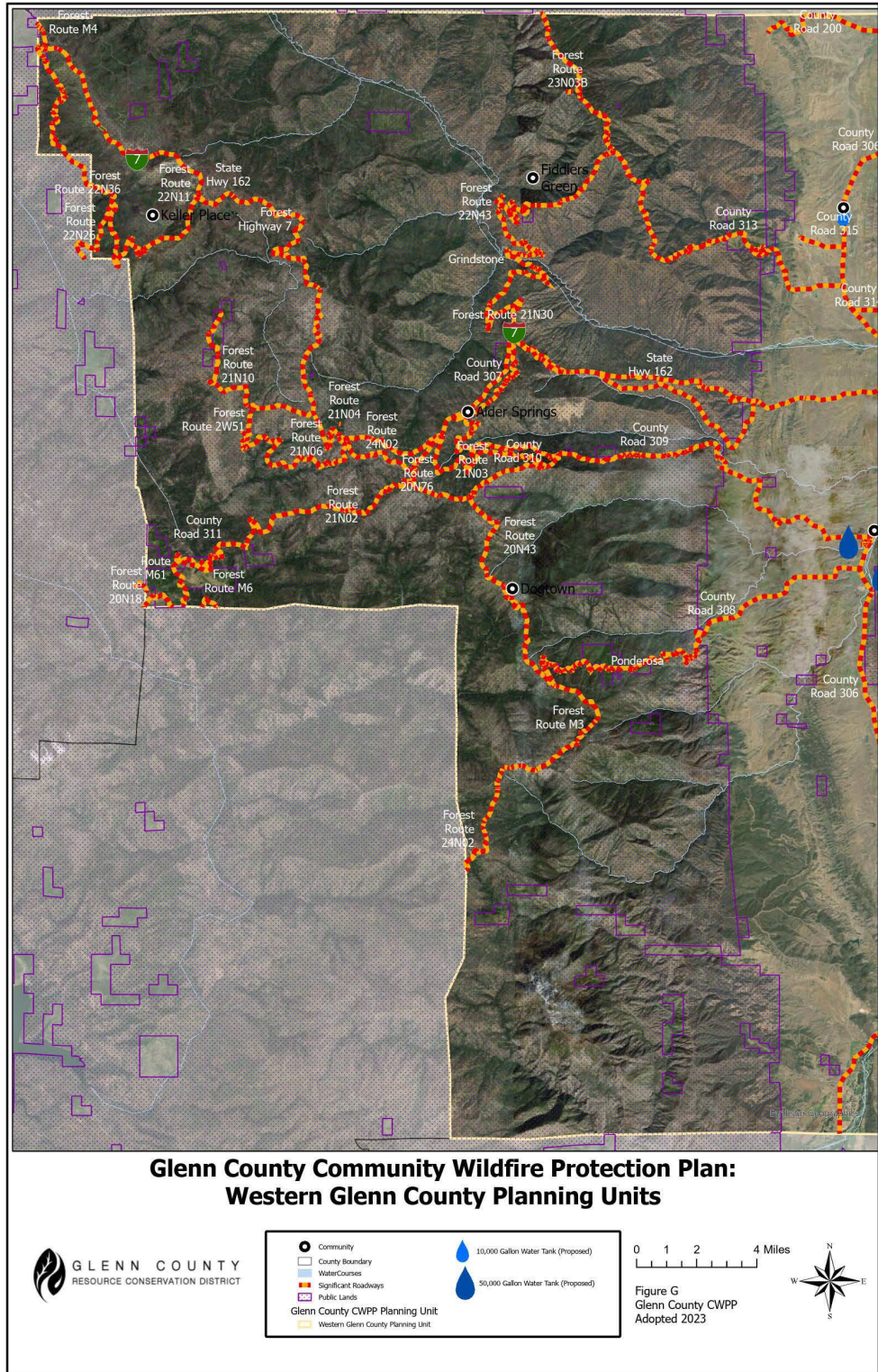
## **Summary of Completed Projects**

**WGCC#1 County Road 306/162 Vegetation Treatments.** In June of 2020, the Glenn County RCD in collaboration with CAL FIRE's Tehama-Glenn Unit conducted a control burn along the easement on County Road 306 from Newville Road south to Highway (State Route) 162. Upon completion of project work, burning operations reduce roadside fuels, as well as ignition and fire spread risk. These treatments also created a space from which firing operations could be completed during wildfire and additional prescribed fire operations on adjacent lands in the future along with live fire training. Funding for this project was provided by the CAL FIRE as part of the California Climate Investments Program. The County Road 306 and Highway (State Route) 162 Fuel Break Project is part of California Climate Investments, a statewide program that utilizes State Cap-and-Trade dollars to those efforts that reduce GHG emissions.

**WGCC#2 CAL FIRE Development of Fire Roads on US Army Corps of Engineers Managed Lands Surrounding Black Butte Lake.** CAL FIRE has developed and is maintaining 10 miles (approximately 12 acres) of fire roads on US Army Corps of Engineers managed lands surrounding Black Butte Lake in Glenn County and southern Tehama County.

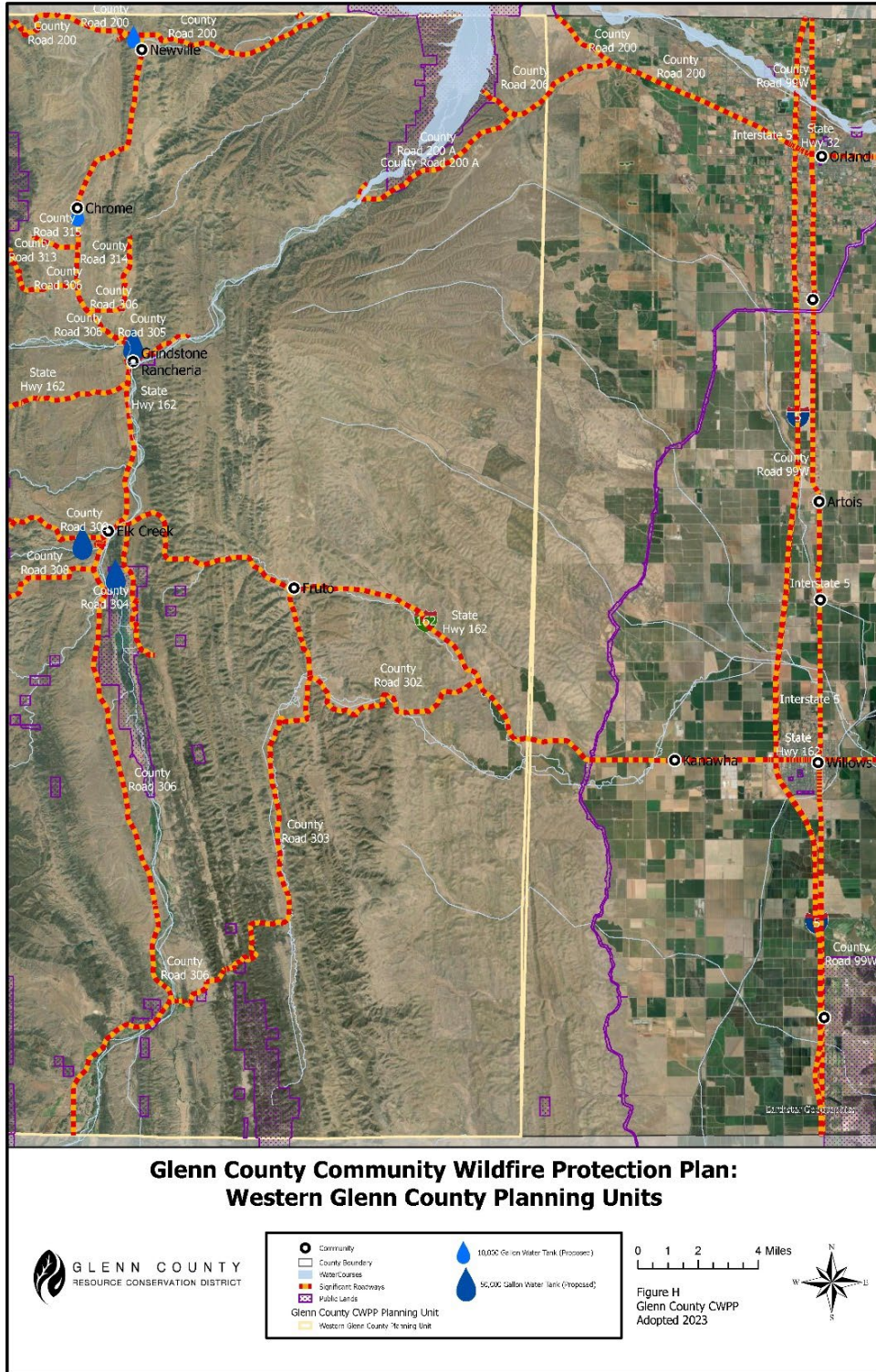
**WGCC#3 CAL FIRE Developed Elk Creek Fuel Break.** Recently CAL FIRE completed a 34 mile long (841 acres) mechanically developed fuel break along various wildland roads. The project area is located east of Road 306 between Sanhedrin Road and the Colusa County line.

**WGCC#4 Stony Gorge Hazardous Fuels Reduction Project.** The Stony Gorge Hazardous Fuels Reduction Project (Project) is a 121-acre fuels reduction project on private lands in western Glenn County, California. In November 2021 the Glenn County RCD received a CAL FIRE Wildfire Prevention Program (CCI) Grant. Practices included invasive shrubs (including chaparral), brush and fallen trees removal, conservation pile burning and an herbicide application to brush regrowth. During implementation the initial wildfire prevention project transformed into a LANDSCAPE TYPE CONVERSION. The hope is this once un-usable rangeland will become active grazing ground again, while simultaneously maintaining the wildfire prevention project far longer than the grant term. With funding from the CA Department of Conservation's Regional Forest and Fire Capacity Program, the project expanded to add an aerial application of an annual grass seed mixture as recommended by USDA-Natural Resources Conservation Service and U.C. Cooperative Extension and chosen by the private landowners. The seed mixture also helped with erosion control during rainfall events. A second Herbicide spot spray application is scheduled for Spring 2024, which will conclude the project. Glenn County RCD and partners will continue to monitor the site and the aerial seeding success. Plans are in the works for additional research provided by project partners to share this long-term wildfire prevention project with other private landowners and partner agencies.



**Figure G: Western Glenn County Planning Unit  
EASTERN HALF**





**Figure H: Western Glenn County Planning Unit  
WESTERN HALF**

## **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 *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 are composed of low rolling hills and grassy oak woodland. A graveled road leads into the area where many undeveloped roads branch off.

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 75 acre 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 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 extensive Arundo and Tamarisk stands 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.

***County Road 99W.*** *County Road 99W* parallels Interstate 5 and crosses the Lower Stony Creek corridor approximately one 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 four miles east of Orland. This linear feature acts as a significant access route to the stream channel in the event of wildfire or other emergencies. 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 Cal Trans, 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 one and a half 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 is 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 Other 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 [Valley View Fire Center] 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.

**Summary of Proposed Projects (LSCP).** The following descriptions and discussions of projects and their protection goals reflect the values of planning area's stakeholders and project participants. Please refer to the planning unit map labeled **Figure I: Lower Stony Creek Planning Unit.**

**LSCP#1 Development of Comprehensive Arundo Eradication and Maintenance Program for the Lower Stony Creek and Hambright Creek Riparian Corridor.** If properly executed, this multiphase project would lead to eradication efforts of Arundo and Tamarisk within the Lower Stony Creek and Hambright Creek channels and thus eliminate a major source of wildland fire within the Lower Stony Creek Riparian Corridor Planning Unit. 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. All treatment operations would be on a voluntary basis.
- To advance this effort, the GCRC could consider re-initiation of efforts described in its Lower Stony Creek Watershed Management Plan as well as developing a list of specific project descriptions that could be incorporated into an array of funding proposals. If necessary, to implement the watershed plan, the related CEQA Initial Study/Mitigated Negative Declaration could be revised to reflect current environmental and cultural conditions within project treatment areas. It is anticipated that funding would be required to adequately

update the Lower Stony Creek Watershed Management Plan (see comments immediately below). With the assistance of the GCRCD Technical Advisory Committee the GCRCD could work with a selected consultant to prepare all necessary permits and additional related environmental analysis required in order to complete all phases of proposed project work.

- *In order to secure long term funding for initial and maintenance treatments, consideration should be given to the establishment of a special assessment district.*

**LSCP#2 Review and Modification of Lower Stony Creek Permit Coordination Program and Related CEQA Environmental Analysis.** During the years since the GCRCD's preparation of the Lower Stony Creek Permit Coordination Program and the related CEQA environmental analysis document, significant changes may have occurred to various resources within the Stony Creek Watershed. As a result, those documents' conclusions could have been rendered inaccurate or incomplete. As a result, the permit coordination program could be determined invalid by environmental review agencies. Consequently, it is recommended that the GCRCD and Glenn County CWPP update Technical Advisory Committee review both the Lower Stony Creek Permit Coordination Program document and the related CEQA analysis in order to determine if changes or additions to their content or analysis are required. If updates are necessary, it is recommended that the GCRCD seek suitable funding to complete the updating process.

**LSCP#3 Development of Unvegetated Buffer Along the Stony Creek Corridor Within Orland City Limits.** At the present time, a significant fire spread risk exists within those segments of Stony Creek that contain dense stands of Arundo and pass through, or are adjacent to the City of Orland. A recommendation was made for the development of an unvegetated buffer along the south bank of the Stony Creek riparian corridor. Such treatments would require coordination between City and County government entities that oversee various stream segments. A recommendation was also made for the GCRCD to pursue grant funding for initial vegetation removal and to develop local funding sources to finance on-going maintenance of vegetation treatments.

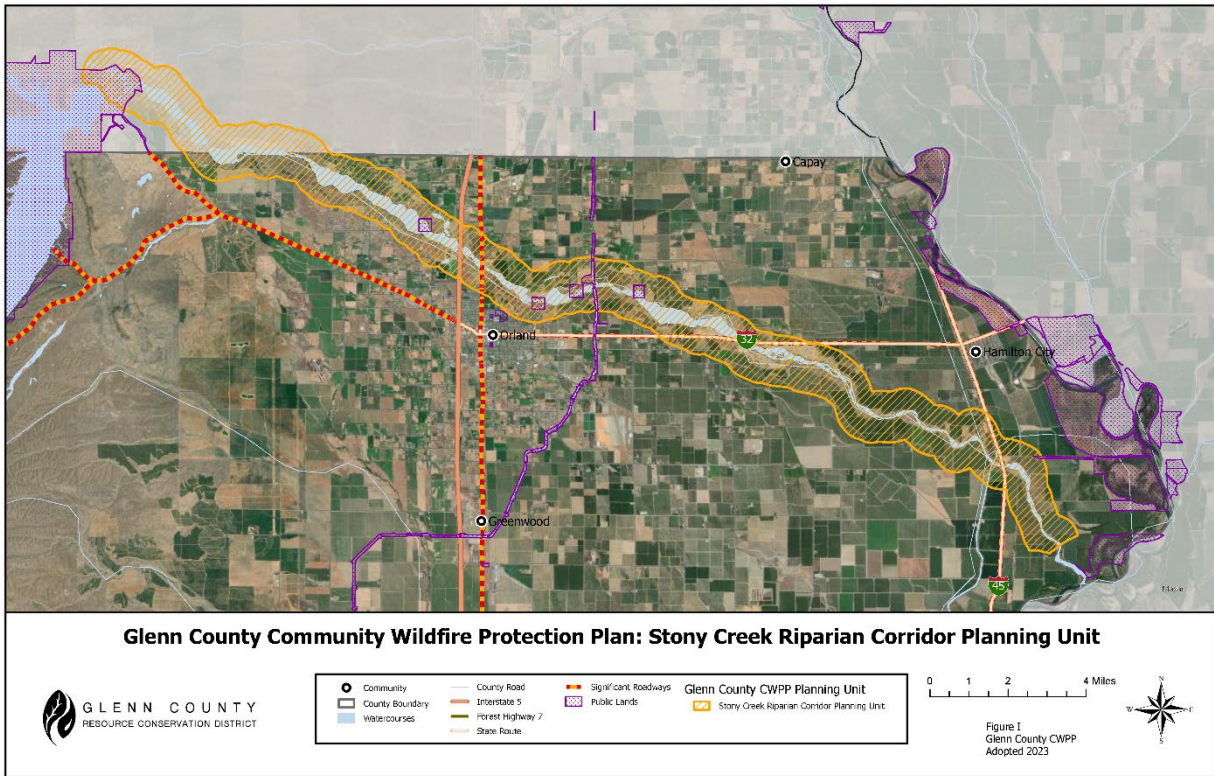
### **Summary of Completed Projects**

**LSCC#1 Lower Stony Creek Landowner Watershed Strategy, Visions and Stewardship Plan, Lower Stony Creek Landowners Manual, Lower Stony Creek Watershed Restoration Plan, Lower Stony Creek Permit Coordination Program and Related CEQA Environmental Analysis**

In response to landowner concerns regarding the substantial geomorphic changes that have occurred in the Lower Stony Creek Watershed since the 1963 completion of Black Butte Dam; a stakeholder group began meeting in Glenn County during 2000. The issues addressed included severe streambank and bed erosion along with the associated

loss of soil and riparian habitat on private property. The result of these meetings led to development of the Lower Stony Creek Landowner Watershed Strategy Visions and Stewardship Plan. Additional stakeholder meetings facilitated by the GCRCD specifically addressed streambank and bed erosion as it related to the need for eradication of the extremely invasive species, *Arundo donax* and Tamarisk. These plants exacerbate erosion, reduce wildlife habitat and pose a serious threat of fire to the City of Orland as well as rural residences and other developed sites along Stony Creek's lower reaches.

Out of these follow up discussions, the, the Glenn County RCD developed a Landowners Manual [updated 2023] and the Lower Stony Creek Watershed Restoration Plan that serve as guidance documents for implementing actions that achieve the goals developed in the original strategy and stewardship plan. The Manual and Watershed Restoration Plan describe specific measures that can be taken by landowners that will improve current invasive plant and erosion conditions within the Lower Stony Creek stream channel and watershed. In order to expedite the implementation of individual control measures, the GCRCD developed a Permit Coordination Program that provides necessary permits for impactful projects and practices described in the Landowners Manual and Restoration Plan. In order to analyze the impacts of activities covered under the permitting program, GCRCD personnel conducted environmental analysis that was incorporated into a California Environmental Policy Act Initial Study/Mitigated Negative Declaration document that was accepted by various agencies having jurisdiction over the watershed.



**Figure I: Lower Stony Creek Planning Unit**

***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. 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 described below.

***Interstate 5 / County Road 99W.*** Interstate 5 and County Road 99W (the frontage road for the freeway) parallel the Planning Unit on the west.

***County Road 60.*** 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 or is adjacent to refuge property from north to south. County Road 8013 is an east-west route that connects the refuge headquarters with County Road 99W. County Road 68 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 is located within the SNWR Planning Unit which provides fire protection to surrounding residential developments and other at-risk assets and thus assist in preventing wildfires from building in intensity and developing into a catastrophic wildfire. This infrastructure is described in the paragraphs below.

***Interstate 5/County Road 99W Roadside Fuels Treatments.*** Cal Trans conducts roadside fuel treatments along County Road 99W where it passes through or is adjacent to the SNWR Planning Unit. These treatments take the form of herbicide applications.

***SNWR Complex Fire Management Unit.*** This fire and fuels management unit is stationed at the SNWR. Unit staff include a Fire Management Officer, Two Engine Captains, one Fire Engine Operator, and Temporary Firefighters. The Fire Management Unit operates with one Type-3 engine, 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 are augmented by a contingent of collateral duty fire qualified personnel. Approximately 10 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:

- Vast wetlands, native uplands and watershed areas containing an array of important environmental values such as sensitive, threatened, and endangered plant and animal species along with their critical habitat;
- Internationally significant populations of wintering waterfowl and other migratory birds
- Water quality and quantity;
- Riparian habitats along major watercourses; and
- Areas of cultural and historical significance, including significant sites of human occupation.

**In-Process Projects (SNWIP).** Since the 2011 Glenn County Community Wildfire Protection Plan a number of projects proposed in the original CWPP along with newly identified efforts are now in process within the Sacramento National Wildlife Refuge Planning Unit including the following efforts. These projects are displayed in **Figure K: Sacramento National Wildlife Refuge Planning Unit.**

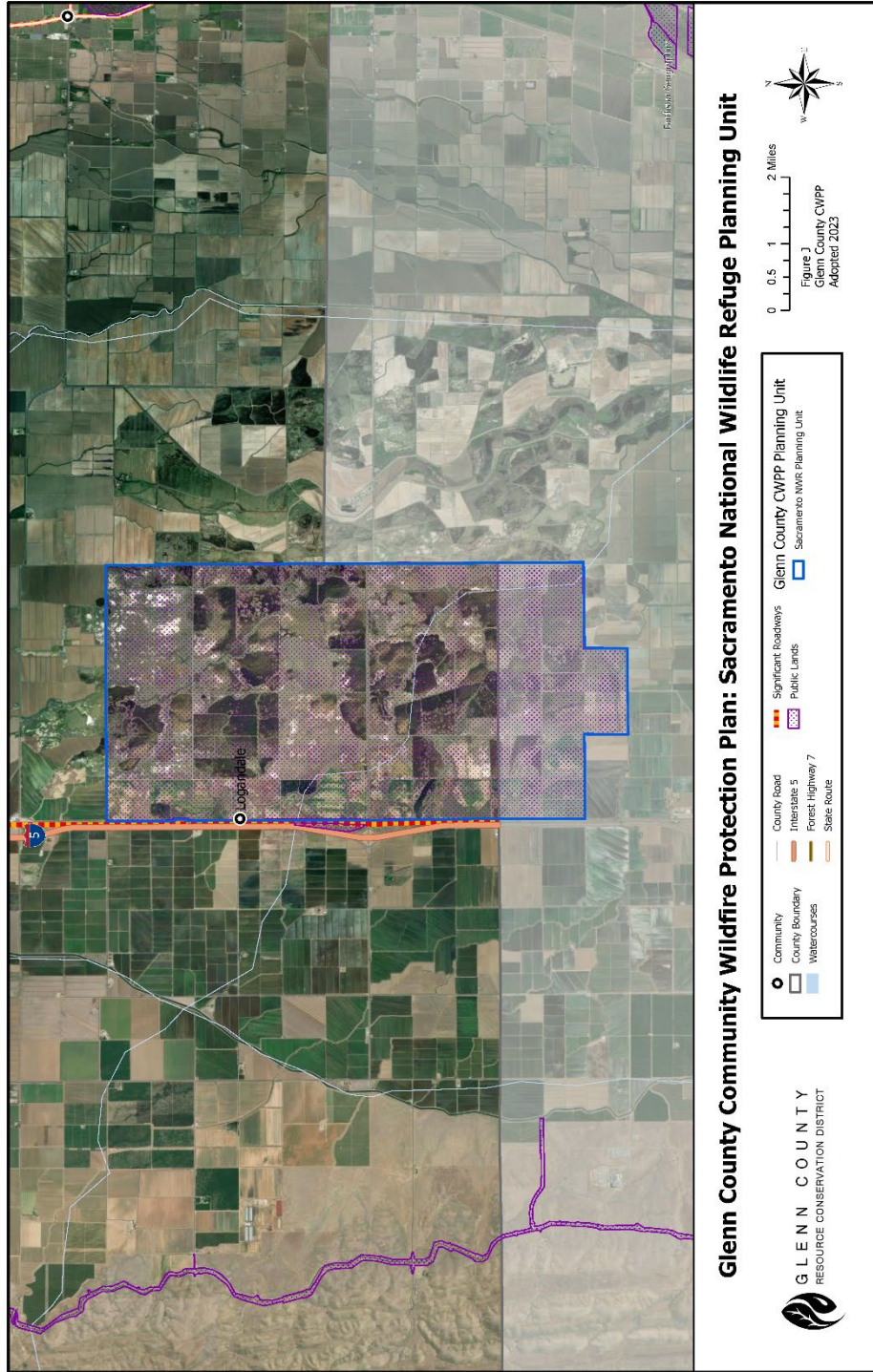
**SNWIP#1 Development of Roadside Mowing on Refuge Perimeter Roads, Primary Ingress and Egress Routes, and Along Roads with High Vehicle Use.** The USFWS annually completes approximately 143 miles of road and levee mowing prior to the peak of fire season. Some sites receive secondary mowing as needed depending on the grass growing season.

**SNWIP#2 Interior Unit Mowing.** USFWS staff mow approximately 340 acres of grass, smartweed, cocklebur, and tules to meet objectives with hazardous fuels reduction, water conveyance, and wildlife habitat enhancement.

**SNWIP#3 Broadcast Burning.** USFWS completes broadcast burning at a rate of 100 to 500 acres per year within the Sacramento NWR. Burning is completed around the headquarters buildings in May and June to reduce fire risk. Additional burning is completed throughout the refuge to reduce wildfire risk and to enhance wildlife habitat.

**SNWIP#4 Pile Burning.** USFWS completes between one and ten acres of pile burning annually. Piles are generated from thin and pile projects in the riparian areas, with some generated as fire crews maintain fire access roads throughout the refuge.

**SNWIP#5 Herbicide Treatment.** Herbicide treatments are employed along many refuge roads to prevent fire starts during summer work activities. Several treatments are completed along the west border of the refuge in order to establish a fuel break for fire spreading north to south in the event of fire starts along railroad tracts or County Road 99.



**Figure K: Sacramento National Wildlife Refuge Planning Unit**

## ***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 environmental resources found on private lands and those managed by federal and State agencies including the U.S. Fish and Wildlife Service, California Department of Fish and Wildlife and the California Department of Water Resources. Rural communities, transportation routes, and valuable waterways are found there as well, as described below.

***U.S. Fish & Wildlife Service, Sacramento River National Wildlife Refuge (SRNWR).*** The federally managed SRNWR 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 four 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 are 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 Wildlife (DFW), 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 14,000 acres of riparian habitat along the river.

***Hamilton City.*** Hamilton City has 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.

***Capay.*** The community of Capay is a developed area within the overall Capay 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 Glenn Codora Fire Protection District.

***Butte City.*** Butte City is located on the east side of the planning unit along Highway (State Route) 162. The community has a population of ~290 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 Glenn Colusa 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 (State Route) 162.** Highway (State Route) 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<sup>1/2</sup>, 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 non-natal anadromous species and play a significant role in maintaining 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.

**In-Place Fire Protection Infrastructure.** The US Fish and Wildlife Service has developed an ongoing program of fuels management within USFWS managed properties along the Sacramento River. This program of work entails the implementation of vegetation management techniques that involve mowing, grazing, disking, and application of herbicides along access roads. Actual fire breaks are also 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:

- 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 anadromous salmonids found within 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.

**Summary of Proposed Projects (SRCP).** The following descriptions and discussion related to projects that protect the resources within the Sacramento River Corridor Fire Planning Unit. The community input process for the Sacramento River Corridor Planning process, focused on private property, government as well as conservancy organization issues. This participation consisted of agency membership (USFWS), input into the core work group's efforts, along with members of the TGFSC, 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. Several general, yet significant issues that arose during various CWPP update community meetings was the need for fuel reduction efforts that better separate developed sites from wildland areas within the Sacramento River corridor. It was also recommended that local law enforcement authorities improve/increase efforts to reduce the presence of homeless persons and their encampments. Such use of wildland areas poses a risk of ignitions that can spread onto public and private developed sites.

**SRCP#1 USFWS Properties.** The presence of the USFWS within the Sacramento River Corridor Planning Unit includes that portion of the SRNWR Complex located within Glenn County and Butte County. The Sacramento River NWR 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 NWR. Adjacent to these properties are orchards, pastures, agricultural crops, 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.*** Since 1989, the USFWS and various partners have restored 2,026 acres from agriculture use to riparian forest and associated habitats for the benefit of wildlife. As a result, lands that were once considered “unburnable” (i.e., walnut orchards), are now “burnable” with a high grass fuel load mixed with brush and an overstory of trees. In some cases, the vigorous growth of trees and shrubs on

restoration properties has caused vegetation to encroach onto some fire access routes. Recent planting specifications were altered to provide more room between roadways and restored vegetation.

- ***Access to properties.*** Restoration projects increase fire risks due to vegetative growth adding to fuel loads. USFWS is considering the creation of 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 assesses roads annually and integrates road maintenance needs into the field staff annual program of work. Many refuge properties are closed to public and managed through locked gates.
- ***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 more burns for February through mid-June. This time frame also works well as crews are available during some of this period for training. Fall burning can be more challenging since agriculture burning increases from October through mid-November.
- ***Prioritization of Projects.*** Fire management staff coordinate with refuge managers to establish a list of hazardous fuels reduction projects for the coming year. The proposed list is evaluated at the Region level for funding potential. When prioritizing potential projects, USFWS analyzes whether the potential project is within a high or very high risk area. Fire managers consider the following when planning and submitting project proposals to the Refuge Manager:
  - Will the project reduce fuel conditions near values at risk?
  - Will the project have multiple benefits to include wildlife habitat improvement, access improvement, or noxious weed control?
  - Can the project be completed given the size of the fire workforce, cooperator availability, and non-fire staff capability.
  - Can the project be completed given the number of other projects scheduled in the same season?
  - Is there another resource dependent by the completion of this project (i.e. contracts, grants)?
  - Is project associated with a CWPP?
  - Every year, between all the local refuges, approximately 1,400 acres are burned. The Sacramento NWR fire crew has prescribed fire and fuels reduction workload on six national wildlife refuges and one national fish hatchery in six counties.

- The fire staff balances projects to ensure projects are completed at each of 6 refuges.
  - The following refuge units have existing Fuels and Fire Break Plans as a result of proximity to residences: McIntosh Landing, Capay, Phellan Island, Ord Bend, and South Ord, SulNorte, Codora, and Packer Units.
  - Fuels reduction plans work to incorporate cattle and/or goat grazing, thinning, mowing, disking, herbicide spraying and prescribed burns.
- ***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 star thistle 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 an FMP which details fire management guideline 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 staff, 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.
  - ***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 an 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 an FMP is ready for revision or amendment, CWPP objectives and treatments will be incorporated into the plan, if and when applicable.

**SRCP#2 Implementation of Project Work and Other Initiatives Developed in the USFWS Fire Plan and Other Planning Documents Created for Those Agency Lands Within the Sacramento River Corridor Planning Area.** USFWS properties within the Sacramento River Corridor Planning Area are located in a checkboard pattern often surrounded by private lands used for orchards and residences. It is recommended that USFWS personnel expedite the implementation of fire breaks and other improvements to fire management infrastructure described in that agency's Fire Management Plan and other SNWRC planning documents developed for parcels within the Sacramento River Corridor Planning Area. If delays in implementation are related to agency funding issues, the GCRC and TGFSC (or newly created local Fire Safe Council) could provide assistance in securing funding from outside sources by developing project proposals and preparing funding applications.

**SRCP#3 Development of a Roadside Fuel Break along County Road 203 Between Hamilton City and the Glenn Colusa Irrigation District Pumping Facility.** A recommendation was made for a fuel break to be created along County Road 203 from Hamilton City and State Route 32W to the Glenn-Colusa Irrigation District Pumping facility to the north, a distance of approximately four miles.

**SRCP#4 Participation of the Glenn County Fire Chief's Association and Local District Fire Chiefs in the Tehama-Glenn Fire Safe Council or Locally Developed Fire Safe Council.** A recommendation was made for the coordinator of the Tehama-Glenn Fire Safe Council or other locally developed Fire Safe Council to invite members of the Glenn County Fire Chief's Association and Local District Fire Chiefs to participate in TGFSC efforts.

**SRCP#5 Development of Nonplanted Buffer Zones Between Restoration Projects and Other Natural Areas and Roads.** As was suggested for lands within

Sacramento River National Wildlife Refuge Planning Unit, public and private landowners/land managers should be encouraged to create non-planted buffer zones between vegetation restoration sites and other natural areas and roads. Within planted sites and wildland areas, rates of vegetation development are often such that vegetative and dead fuels can quickly reach road edges, adding to the potential increased fire ignition and spread risk. Once installed, nonplanted buffer strips are expected to reduce this risk.

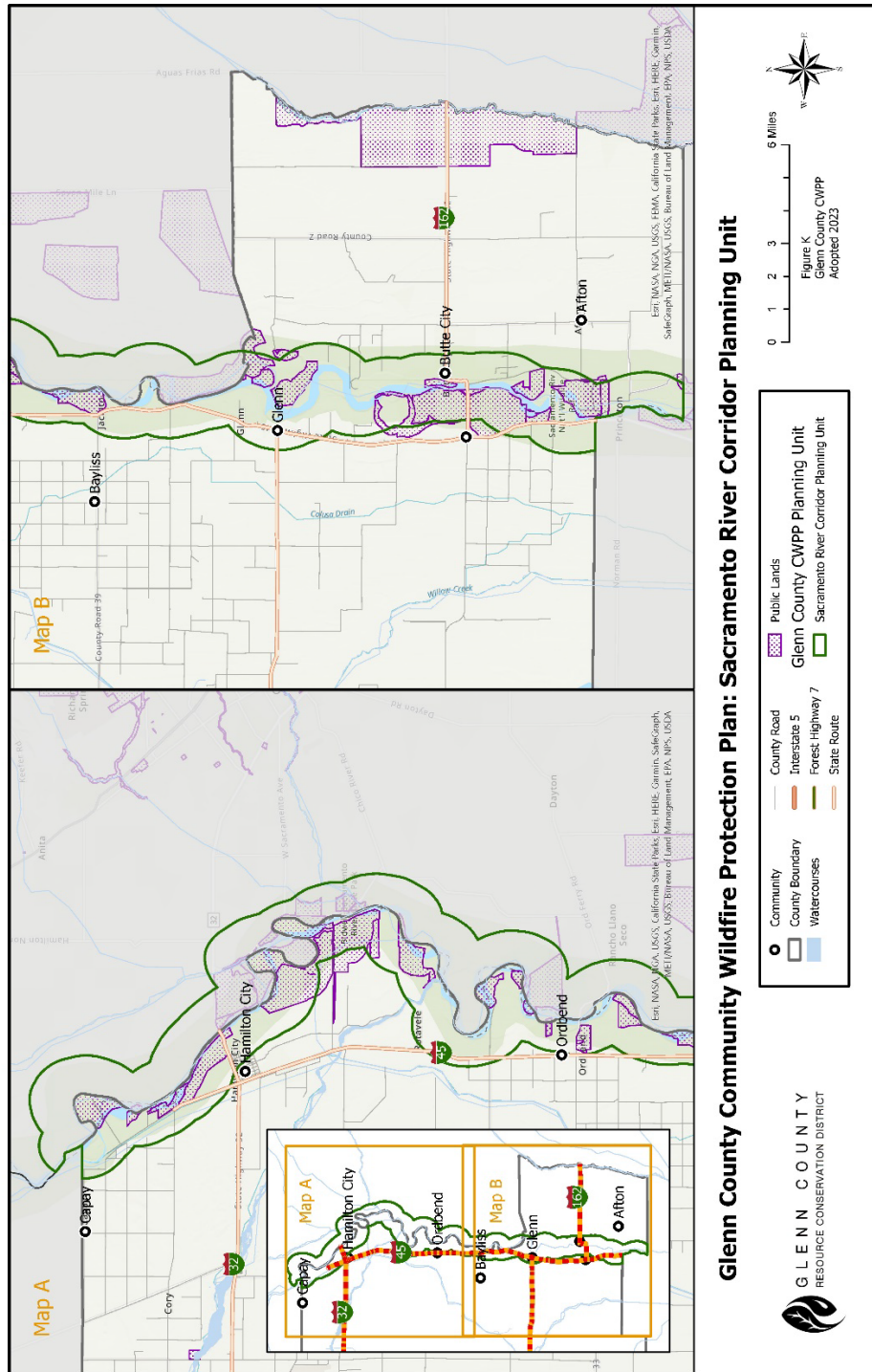
**SRCP#6 McKintosh South Fuel Break.** This effort entails the maintenance of a fuel break adjacent to houses along Road 8 where Lindsay Avenue/Road 8 dead ends at Sacramento River. Included among proposed treatments would be thinning, piling and burning of vegetation and down woody debris in order to maintain a fuel break along the north boundary of McKintosh South Unit of Sacramento River NWR.

**SRP#7 Sacramento River NWR fire road access.** A combination of chainsaw thinnings, mastication, mowing and spraying would be conducted to maintain primary road accesses through Sacramento River National Wildlife Refuge properties. Work may be completed with USFWS staff, CAL FIRE crews, CCC crews, or contracting.

**SRCP#8 Sacramento River NWR Upland Grass Burns.** Broadcast burning of grass units would be conducted to reduce hazardous fuels, restore native grasses, and control noxious weeds. Sacramento River NWR personnel plan to burn between 25 to 150 acres annually in Glenn County. Similar projects will be planned within other counties along the Sacramento River corridor.

**SRCP#9 Sacramento River NWR Oak Woodland Burns.** Oak woodlands and mixed riparian forest habitats would be broadcast burned to reduce both hazardous fuels competing understory vegetation within pure valley oak stands. The refuge plans to burn between five and 20 acres annually.

**SRCP#10 Sacramento River NWR Grazing.** Hazardous fuels would be reduced through targeted grazing by cattle, sheep, or goats. This grazing is also anticipated to enhance native plant species. Sacramento River NWR plans to implement grazing on between 50 and 840 acres annually. Active grazing units include Packer, Codora, Sul Norte, Capay in Glenn County. Grazing is also employed in other counties of the Sacramento River NWR each year.



**Figure K. Sacramento River Corridor Planning Unit**



# Section 11: SUMMARY AND CONCLUSIONS

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## *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 at risk communities as well as the development of WUI areas. Finally, planning initiatives were considered to be the least time critical. From this process, the following broad action items were developed by the GCRCDC with extensive input from the CWPP planning process Technical Advisory Committee, other stakeholders, members of the general Glenn County community and RCD of Tehama County.

- Tehama-Glenn Fire Safe Council or newly created local Fire Safe Council should develop a list of all currently unfunded fire and fuels management projects that have already been developed.
- The TGFSC or local Fire Safe Council should identify possible sources of public and private funding for unfunded project work. 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. Dollars from non-grant funding sources could be used to finance both initial completion of project work as well as the permanent maintenance of already completed fire and fuels management infrastructure improvements. Demonstrating an ability to adequately finance maintenance treatments in connection with publicly funded fire/fuels management efforts is of considerable importance. Although many public entities are interested in providing initial dollars for project implementation, there is normally little interest in funding continued maintenance as this task is generally considered the responsibility of grantees and other local beneficiaries. As a result, providing a clear explanation of how local funding will be developed to continue maintenance on newly developed fire related project work will be important in developing successful funding proposals to public entities.

- TGFSC or newly created Fire Safe Council, 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. Efforts of the TGFSC, a local Fire Safe Council, 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 county-wide coordination of fire management related projects and policies. With the completion of the Glenn County CWPP update process, the planning document, 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 or local Fire Safe Council 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 the Glenn County Planning Units/County Base Map. Members of the TGFSC or local Fire Safe Council 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 revising the Glenn County CWPP and GCRCDD will immediately begin to work with members of the TGFSC or newly created local Fire Safe Council to identify unfunded project work within Glenn County. The TGFSC Coordinator or local Fire Safe Council 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 updated 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: 10-16-23

Date: 10-16-2023

  
GILBERT GOEDHART  
President / Director

  
BOB FARIAS  
Chief, Tehama-Glenn Unit

GLENN COUNTY  
BOARD OF SUPERVISORS

TEHAMA-GLENN FIRE SAFE COUNCIL

Date: 10-25-23

Date: 10-16-2023

  
GRANT CARMON  
Chairman / Supervisor

  
KANDI MANHART-BELDING  
Co-Coordinator, Glenn County RCD

## APPENDIX A – Synopsis of Landowner / Community Advisory Committee Meetings

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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 held September 24, 2019 in Orland, CA - notes on file at GCRCD.

L/CAC held September 26, 2019 in Elk Creek, CA - notes on file at GCRCD.

TAC held February 26, 2020 in Willows, CA - notes on file at GCRCD.

All Stakeholder Meeting for Post Fire Recovery and Planning held September 23, 2021 in Elk Creek, CA - notes on file at GCRCD.

All Stakeholders' Survey was ensued via mail, email and online availability.

## APPENDIX B – Government Policies and Programs

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**Please refer to the 2011 Glenn County CWPP document  
related to Government Policies and Programs**

## APPENDIX C – Public Resource Code

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**Please refer to the 2011 Glenn County CWPP document related to those sections of the California Public Resources Code that pertain to fire prevention and fire safety on private land**

## APPENDIX D – California Government Code 51182

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**Please refer to the 2011 Glenn County CWPP document  
related to California Government Code 51182**

# APPENDIX E – Board of Forestry “Defensible Space”

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**Please refer to the 2011 Glenn County CWPP document related to Defensible Space Definition and Regulations**



# APPENDIX F – Glenn County General Plan

## Fire Hazards and Fire Protection

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The Glenn County General Plan Update was adopted on July 18, 2023. Please refer to the Glenn County website for most current copy:

<https://www.countyofglenn.net/>

# APPENDIX G – Prioritization Worksheet

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The Glenn County RCD will work with the TAC to populate the prioritization worksheet based on findings from this document. Please refer to Section 5: PLANNING RESULTS AND PROJECT PRIORITIZATION for additional information.

<b>Glenn County Community Wildfire Protection Plan</b>			
<b>PLANNING UNIT</b>	<b>NAME OF PROPOSED PROJECT</b>	<b>PLANNING UNIT RANKING NUMBER</b>	<b>COMMENTS</b>

## REFERENCES

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This list of references includes those used in the development of the original 2011 CWPP document and the 2023 update.

- Agee, J.K., B. Bahro, M.A. Finney, P.N. Omi, D.B. Sapsis, C.N. Skinner, J.W. van Wagtenonk, and C.P. Weatherspoon 2000. The use of fuelbreaks in LANDSCAPE FIRE MANAGEMENT. *FOREST ECOLOGY AND MANAGEMENT* 127: 55-66.
- Anderson, Hal E. 1982. Aids to Determining Fuel Models for Estimating Fire Behavior. United States Forest Service Intermountain Research Station General Technical Report Int-122. Ogden: U.S. Forest Service.
- Arno, Stephen F. 1996. The Seminal Importance of Fire in Ecosystem Management: Impetus for This Publication. In *The Use of Fire in Forest Restoration: A General Session at the Annual Meeting of the Society for Ecological Restoration in Seattle, Washington, September 14-16, 1995*, by the Society for Ecological Restoration, 3-5. United States Forest Service Intermountain Research Station General Technical Report INT-GTK-341: United States Forest Service.
- Aschmann, Homer. 1977. Aboriginal Use of Fire. In *Proceedings of the Symposium on Fire and Fuel Management in Mediterranean Ecosystems in Palo Alto, California, August 1-5, 1977*, by the United States Forest Service, 132-141. United States: United States Forest Service.
- Bass, Ronald E.; Herson, Albert I.; and Bogdan, Kenneth M. 2000. *CEQA Deskbook*. Point Arena: Solano Press.
- Bartolome, James. 2005. *Ecological History of California Mediterranean-Type Climate*. Department of Forestry and Range Management. University of California, Berkeley.
- Biswell, Harold. 1989. *Prescribed Burning In California Wildlands Vegetation Management*. Berkeley: University of California Press.
- Biswell, H.H. 1956. "Ecology of California Grasslands." *Journal of Range Management* 9, no.1 (January): 19-24.
- Biswell H.H. 1954. "The Brush Control Problem in California." *Journal of Range Management* 7, no.2 (March): 57-62.
- Bramhall, Jack, 2005. Western Shasta Resource Conservation District. Personal communications to Tom McCubbins.
- Bratcher, Tricia, 2004. California Department of Fish and Game. Personal

communications to Tom McCubbins.

- Bryant, Jeffrey. 2000. Testimony to United States House Resource Forest and Forest Health Subcommittee, June 7, 2000. Online:  
[http://www.humboldt.edu/~csy1/NorCalSAF/temparticles/fire\\_testimony.html](http://www.humboldt.edu/~csy1/NorCalSAF/temparticles/fire_testimony.html)
- California Board of Forestry Cooperative Fire Program. 2003. California Fire Plan. California Board of Forestry, Sacramento.
- California Board of Forestry. 2018. Strategic Fire Plan for California. California Board of Forestry, Sacramento.
- California Employment Development Department. 2000. Glenn County Demographics. <http://www.calmis.ca.gov/htmlfile/subject/DP2000.htm>. Accessed 12/03.
- California Department of Forestry and Fire Protection. 2005. CDF 2005 Fire Season Summary. Sacramento: California Department of Forestry and Fire Protection.
- California Department of Forestry and Fire Protection. 2019. CDF 2019 Fire Season Summary. Sacramento: California Department of Forestry and Fire Protection.
- California Department of Forestry and Fire Protection Tehama-Glenn Unit. 2010. Fire Management Plan 2010. California Department of Forestry and Fire Protection, Sacramento.
- California Department of Forestry and Fire Protection Tehama-Glenn Unit. 2018. Fire Management Plan 2018. California Department of Forestry and Fire Protection, Sacramento.
- California Department of Forestry and Fire Protection. 2004. California Forest Practices Rules 2004. Sacramento: California Department of Forestry and Fire Protection.
- California Department of Forestry and Fire Protection. 2018. California Forest Practices Rules 2018. Sacramento: California Department of Forestry and Fire Protection.
- California Department of Forestry and Fire Protection. 2001. Vegetation Management Program Handbook and Field Guide. Sacramento: California Department of Forestry and Fire Protection.
- California Department of Forestry and Fire Protection. 1999. CDF 1999 Fire Season Summary. Sacramento: California Department of Forestry and Fire Protection.
- California Department of Forestry and Fire Protection. 1989. A Discussion of the County General Plan and the Role of Strategic Fire Protection Planning. Sacramento: California Department of Forestry and Fire Protection.
- California Department of Finance. 2003. Demographic information for Glenn County. <http://www.dof.ca.gov/>.
- California Department of Fish and Wildlife. 2005. Atlas of the Biodiversity of California. The Sierra Nevada Climate of California: A cold winter

- Mediterranean. Sacramento: California Department of Fish and Game [cited May 2005]. Available from World Wide Web: <http://atlas.dfg.ca.gov>.
- California Department of Fish and Game. 2003. California Natural Diversity Database.
- California Department of Fish and Wildlife. 2004. Comprehensive Management Plan for the Sacramento River Wildlife Area. Sacramento: California Department of Fish and Wildlife.
- California, Government Code. 1992.
- California, Governor's Office of Planning and Research. 2000. Planning, Zoning, and Development Laws. Sacramento: Governor's Office of Planning and Research.
- California, Public Resources Code. 1992. Section 4130.
- CIMIS (California Irrigation Management Information System). 2005. California Irrigation Management Information System. Sacramento: California Department of Water Resources [cited May 2005]. Available from World Wide Web: <http://www.cimis.water.ca.gov/cimis>.
- City of Oakland. 2006. Annual Vegetation Management Plan for the Wildfire Prevention Assessment District-2006. Oakland: City of Oakland Fire Department Fire Prevention Bureau.
- Cohen, Jack C. 1999. "Reducing the Wildland Fire Threat to Homes: Where and How Much?". United States Forest Service Pacific Southwest Research Station PSW-GTR-173. Albany: U.S. Forest Service.
- Daubenmire, Rexford. 1978. Plant Geography. New York: Academic Press.
- EIP Associates and Monk, Ron. 2004. Amador County Fire Hazard Reduction Plan. Amador Fire Safe Council, Pine Grove.
- Federal Register. 2001. Urban Wildland Interface Communities Within the Vicinity of Federal Lands that Are at High Risk From Wildfire. Federal Register Vol. 66 no. 3 January 4, 2001. National Archives and Records Service. Washington D.C.
- Fowells, H.A., ed. 1965. Silvics of Forest Trees of the United States. U.S. Forest Service Agricultural Handbook No. 271. Washington: U.S. Government Printing Office.
- Fulton, William. 1999. Guide To California Planning. Point Arena: Solano Press.
- Fire Resource and Assessment Program. 2019. Fire Hazard Severity Zone Metadata. Sacramento: California Department of Forestry and Fire Protection.
- Fire Resource and Assessment Program. 2019. Fire Regime and Condition Class Severity Zone Metadata. Sacramento: California Department of Forestry and Fire Protection.
- Fire Resource and Assessment Program. 2019. Fire Rotation Metadata. Sacramento: California Department of Forestry and Fire Protection.
- Fire Resource and Assessment Program. 2019. Fire Perimeter Metadata. Sacramento:

- California Department of Forestry and Fire Protection.  
Fire Resource and Assessment Program. 2019. Fire Threat Metadata. Sacramento:  
California Department of Forestry and Fire Protection.
- Fire Resource and Assessment Program. 2019. Fuel Rank Metadata. Sacramento:  
California Department of Forestry and Fire Protection.
- Fire Resource and Assessment Program. 2019. Surface Fuels Metadata. Sacramento:  
California Department of Forestry and Fire Protection.
- Glenn County Local Agency Formation Commission, 2011. Draft Fire Protection  
Districts Service Review (MSR) and Sphere of Influence
- Glenn County Planning & Community Development Services. 1993. Glenn County  
General Plan.
- Glenn County Public Works and Development Services Agency. 2001. Lower Stony  
Creek Landowner Watershed Strategy Visions and Stewardship Plan.
- Glenn County Resource Conservation District. 2005 Landowners Manual and the Lower  
Stony Creek Watershed Restoration Plan
- Glenn County Resource Conservation District. 2005 Landowners Manual and the Lower  
Stony Creek Watershed Restoration Plan CEQA Initial Study/Mitigated Negative  
Declaration
- Goor, A.Y., and Barney, C.W. 1976. Forest Tree Planting in Arid Zones. New York:  
The Ronald Press.
- Governor’s Office of Planning and Research. 2002. “(Draft) Hazard Mitigation Fire  
Hazard Planning and the General Plan”. Sacramento: Governors Office of  
Planning and Research.
- Gresham, Rich; MacDonald, Stan, Heitz, Cliff. 1997. The Defensible Space and Healthy  
Forest Handbook A Guide to Reducing the Wildfire Threat. Auburn: Placer  
County Resource Conservation District.
- Hastings, Marla S., and DiTomaso, Joseph M. 1996. “Fire Controls Yellow Starthistle in  
California Grasslands Test Plots at Sugarloaf Ridge State Park .” Restoration  
and Management Notes 14, no 2 (Winter):124-128.
- Hawks, Greg, 2005, California Department of Forestry and Fire Protection. Personal  
communication to Tom McCubbins.
- Heady, Harold F. and Child, R. Dennis. 1994. Rangeland Ecology and Management.  
Boulder: Westview Press.
- Heady, Harold F. 1975. Rangeland Management. New York: McGraw-Hill Book  
Company.
- Isola, Craig, 2020, California Department of U.S. Fish and Wildlife Services. Personal  
communication to Tom McCubbins.

- Jones and Stokes Associates. 1998. Draft Environmental Impact Report for the Vegetation Management Program California Department of Forestry and Fire Protection. Sacramento: Jones and Stokes Associates.
- Lake County Fire Safe Council. 2004. Fire Safe Plan for the Communities of Lake County. Lake County Fire Safe Council, Lakeport.
- Ledbetter, Ian, 2019, County of Glenn Air Pollution Control District. Personal communication to Martin Spannaus.
- Martin, Robert E.; Anderson, Hal E.; Boyer, William D.; Dieterich, John H.; Hirsch, Stanley N.; Johnson, Von J.; McNab, W. Henry. 1979. "Effects of Fire on Fuels A State-of-Knowledge Review". United States Forest Service General Technical Report WO-13. Washington: U.S. Forest Service.
- Meko, D.M., M. D. Therrell, C. H. Baisan, and M. K. Hughes. 2001. Sacramento River Flow Reconstructed to A.D. 869 From Tree Rings. Journal of the American Water Resources Association, v.37, No.4, August.
- Moore, Howard E. 1981. "Protecting Residences From Wildfires". United States Forest Service Pacific Southwest Research Station PSW-GTR-50. Albany: U.S. Forest Service.
- Office of the State Fire Marshall. 1991. Fire Safe Inside and Out. Sacramento: Office of the State Fire Marshall: Sacramento.
- Oliver, W.W., and Uzoh, F.C.C. 1997. "Maximum Stand Densities for Ponderosa Pine And Red and White Fir in Northern California. In Proceedings of the 18<sup>th</sup> Annual Forest Vegetation Management Conference in Sacramento, California, January 14-16, 1997, by the California Vegetation Management Conference, 57-65. United States: United States Forest Service.
- Phillips, Clinton B. 1983. Instructions for Zoning Fire Hazard Severity in State Responsibility Area in California. Sacramento: California Department of Forestry and Fire Protection.
- Philpot, Charles W. 1977. Vegetative Features as Determinants of Fire Frequency and Intensity. In Proceedings of the Symposium on the Environmental Consequences of Fire and Fuels Management in Mediterranean Ecosystems.
- Plumas County Fire Safe Council Project Partners. 2004. Wildfire Mitigation Plan Plumas County Communities. Plumas County Fire Safe Council, Portola.
- Procter, Trent. 1995. "Working to Make the Clean Air Act and Prescribed Burning Compatible". United States Forest Service Pacific Southwest Research Station General Technical Report PSW-GTR-158. Albany: U.S. Forest Service.
- Radtke, Klaus W. 1992. "Living More Safely in the Chaparral-Urban Interface". United States Forest Service Pacific Southwest Research Station. PSW-GTR-50. Albany: U.S. Forest Service.
- Roak, Dave, 2005 United States Forest Service, Mendocino National Forest. Personal

- communications to Tom McCubbins.
- Rothermel, Richard C. 1983. "How to Predict the Spread and Intensity of Forest and Range Fires". United States Forest Service Intermountain Research Station General Technical Report INT-143. Ogden: U.S. Forest Service.
- Sapsis, David. 1999. "Development Patterns and Fire Suppression A FRAP Working Paper". Fire and Resource Assessment Program. Sacramento, CA: California Department of Forestry and Fire Protection.
- Shippelhoute, Dale, 2020, U.S Fish and Wildlife Service. Personal communication to Tom McCubbins.
- Skinner, Carl N.; and Chang, Chi-Ru. 1996. Fire Regimes Past and Present Sierra Nevada Ecosystem Project: Final Report to Congress, Vol.2, Assessments and Scientific Basis For Management Options. Center for Water and Wildland Resources. Davis, CA: University of California.
- Soil Conservation Service. 1967. Soil Survey Glenn County California. United States Department of Agriculture, Washington D C.
- Stephenson, J.R., and Calcarone, G.M. 1999. Southern California Mountains and Foothills Assessment: Habitat and Species Conservation Issues". United States Forest Service Pacific Southwest Research Station. Albany, CA: United States Forest Service.
- Tehama County Resource Conservation District. 2005. Tehama County Voluntary Oak Woodland Management Plan, Tehama County Resource Conservation District, Red Bluff.
- Tehama County Resource Conservation District. 2017. Tehama West Fire Plan, Tehama County Resource Conservation District, Red Bluff.
- United States Fish and Wildlife Service Sacramento River National Wildlife Refuge. 2006. U.S. Fish and Wildlife Service, Northern Central Valley Fire Management Zone Tehama-Glenn County Community Wildfire Protection Plan Guidance November 2006. United States Fish and Wildlife Service, Willows.
- United States Fish and Wildlife Service Sacramento National Wildlife Refuge. 2001. Wildland Fire Management Plan Sacramento National Wildlife Refuge. United States Fish and Wildlife Service, Sacramento.
- United States Fish and Wildlife Service Sacramento River National Wildlife Refuge. 2002. Wildland Fire Management Plan Sacramento River National Wildlife Refuge. United States Fish and Wildlife Service, Sacramento.
- United States Forest Service. 2004. The Healthy Forest Initiative and Healthy Forest Restoration Act Interim Field Guide. United States Forest Service. National Office, Washington D.C.
- United States Forest Service. 2002. "Wildland Fire in Ecosystems Effects of Fire on Air". United States Forest Service Rocky Mountain Research Station General



- Technical Report RMRS-GTR-42-Volume 5: Washington D C: United States Forest Service.
- United States Forest Service Pacific Southwest Region. “Wildland Fire: An Historical Perspective” Winter 1997.  
<http://www/r5.pswfs.gov/fuelsnewsletter/cfcwinter98.html> 2 August 2000.
- Van Wagtendonk, Jan W. 1994. Dr. Biswell’s Influence on the Development of Prescribed Burning in California. In The Biswell Symposium: Fire Issues and Solutions in Urban Interface and Wildland Ecosystem Walnut Creek, California, February 15-17, 1994, by the United States Forest Service Pacific Southwest Research Station, 11-15. United States Forest Service Pacific Southwest Research Station General Technical Report PSW-GTK-158: United States: United States Forest Service.
- Wade, Dale., and Brenner, James. 1995. “Florida’s Solution to Liability Issues”. United States Forest Service Pacific Southwest Research Station PSW-GTR-158.
- WRCC (Western Regional Climate Center). 2005. Historical Climate Information, Northern California, Various Sites. Reno: Western Regional Climate Center [cited May 2005]. Available from World Wide Web: <http://www.wrcc.dri.edu>.
- Yool, Stephen A.; Eckhard, David W.; Estes, John E.; and Cosentino, Michael J. 1985. Describing the Brush Fire Hazard in Southern California. *Annals of the Association of American Geographers* 75 (September): 417-430.

# 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
DFW	California Department of Fish and Wildlife
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
GCRCD	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
OES	Office of Emergency Services
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”