MAY 2025

MENDOCINO COUNTY

COMMUNITY WILDFIRE PROTECTION PLAN

Working together to build fire-adapted communities, resilient to wildfire

We would like to formally thank the Core Team and all stakeholders, notably CAL FIRE, all the Volunteer Fire Departments, the Mendocino County Fire Safe Council, and the Neighborhood Fire Safe Councils and Firewise communities for contributing their time and expertise throughout the planning process. Your participation has contributed to creating resilient landscapes, implementing public education, reducing structural ignitability, and ensuring safe and effective wildfire response.

Mendocino County Office of Emergency Services

MENDOCINO COUNTY

IN COLLABORATION WITH:

NON-GOVERNMENTAL ORGANIZATIONS

LOCAL FIRE AGENCIES

LOCAL GOVERNMENT AGENCIES

STATE & TRIBAL AGENCIES

CONSULTANT

The entities listed below participated in the development of and/or reviewed and are in support of the Mendocino Community Wildfire Protection Plan:

John Haschak _____
Signature

Mendocino County Board of Supervisors, Chair _____
Date

Brandon Gunn _____
Signature

CAL FIRE Mendocino Unit, Chief _____
Date

Douglas Hutchison _____
Signature

Mendocino County Fire Chiefs Association, President _____
Date

CONTENTS

APPENDICES

FIGURES

TABLES

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EXECUTIVE SUMMARY

WHAT IS THE PURPOSE OF THIS COMMUNITY WILDFIRE PROTECTION PLAN UPDATE?

The 2025 CWPP is an update to the 2015 CWPP. Thus, this CWPP builds on previous planning efforts and incorporates new information and data.

The purpose of the 2025 Mendocino County Community Wildfire Protection Plan (CWPP) is to:

1. Provide a countywide scale of wildfire hazards and protection needs.
2. Protect human life from wildfire and reduce property loss due to wildfire throughout the community.
3. Bring together all the responsible wildfire management and suppression entities in the county to address the identified needs.
4. Provide a framework for future planning and implementation of necessary mitigation measures.
5. Review recommendations in the 2015 CWPP as well as actions taken to date in building fire adaptation and resilience across the county since the last update (2015).
6. Assess changes since the last CWPP update, including changes in the fire environment (e.g., weather, fuels, tree mortality, significant fires, and population distribution), progress on fire risk reduction projects, and changes in fire protection services.

This CWPP aims to assist in protecting human life and reduce property loss due to wildfire throughout the county. This 2025 plan was compiled from reports, documents, and data developed by a wide array of contributors, including input from the Core Team and the public. This CWPP has been developed in response to the federal Healthy Forests Restoration Act of 2003 (HFRA).

The CWPP meets the requirements of the HFRA by addressing the following:

1. Having been developed collaboratively by multiple agencies at the state and local levels in consultation with federal agencies and other interested parties.
2. Prioritizing and identifying fuel reduction treatments and recommending the types and methods of treatments to protect at-risk communities and pertinent infrastructure.
3. Suggesting multi-party mitigation, monitoring, and outreach.
4. Recommending measures and action items that residents and communities can take to reduce the ignitability of structures.
5. Soliciting input from the public on the draft 2025 Mendocino County CWPP.

WHERE IS THE PLANNING AREA?

The planning area includes the entirety of Mendocino County as delineated by its geographic and political boundaries (refer to Figure 1.2 in Chapter 1).

WHAT ARE THE KEY ISSUES ADDRESSED?

The issues addressed in this CWPP, representing key focus areas for the county, are listed below.

- Investing and supporting fire response at all levels, including resources for local fire departments to increase capacity to serve the community
- Implementing programs to assist homeowners with defensible space and structural hardening.
- Increasing community organization and action directed at reducing wildfire risk.
- Developing and supporting the workforce needed to reduce wildfire risk through both fuel reduction (including prescribed burning) and implementing home retrofitting.
- Developing and/or upgrading water resources for fire suppression.
- Ingress and egress issues, including evacuation routes, fire response access, and shelter-in-place locations.
- Home addressing, street signage, and directional signage.
- Encouraging collaboration with Tribal partners to enhance wildfire readiness, preparedness, and protection in Tribal areas, and to promote the role of Traditional Ecological Knowledge (TEK) in leading the mitigation and continued stewardship of Mendocino County Tribal and public lands.
- Managing fire to protect values and accomplish resource management goals, including protection and enhancement of wildlife habitat, water supply and quality, ecosystem restoration, invasive species, and forest health.
- Addressing human ignitions through education and outreach programs.
- Fuel treatment recommendations for land management agencies and homeowners to mitigate hazard and risk.
- Prioritizing hazardous fuels reduction within the perimeter of the communities and along critical ingress and egress routes.
- Public education and outreach to homeowners, including second-home owners and absentee homeowners, to enable individuals to reduce the risk of fire to their properties, particularly regarding defensible space implementation, structural hardening measures, and community pre-fire planning.
- Recent climate patterns and associated changes to the wildland fire environment.
- Tree mortality and hazard trees.
- Raising awareness about the natural role that fire plays in the ecosystem and maintaining resilient landscapes, along with education about how Indigenous people used fire and other TEK methods for stewardship on a landscape level.

HOW IS THE PLAN ORGANIZED?

The CWPP provides a hazard assessment, project recommendations, and background information about the community's wildland fire environment as well as land management plans and agencies. Most of the background information is housed in several appendices.

Chapter 1 provides a general overview of CWPPs, the Core Team, Mendocino County, land ownership, and public involvement.

Chapter 2 presents an overview of the wildland-urban interface (WUI) and fire environment and specific information about vegetation and fire history, traditional land management strategies (TEK), and fire management and response.

Chapter 3 describes the hazard assessment, results of the assessment, community values, and methods to identify wildfire risk.

Chapter 4 provides mitigation strategies at both the county and community level, in accordance with the National Cohesive Wildfire Strategy, ongoing application of TEK methods as mitigation and restoration strategies, and post-fire protocols and rehabilitation strategies.

Chapter 5 presents monitoring strategies to assist in tracking project progress and in evaluating work accomplished.

Appendix A contains background information on the planning process steps, state, municipal, and federal wildfire policy and direction, past planning efforts, and an overview of current land management strategies, including TEK.

Appendix B contains background information on the community, including demographic and social information, land ownership, natural resources, climate and environmental information, and education and outreach programs.

Appendix C presents additional mapping.

Appendix D provides community wildfire hazard summaries for the hazard assessment.

Appendix E details funding opportunities.

Appendix F contains additional resources for community members, including a homeowner wildfire mitigation guide and a list of outside resources covering a variety of topics.

Appendix G presents information on public outreach and engagement with regard to this CWPP.

Appendix H houses project recommendations.

Appendix I outlines fuels treatment types and methods.

Appendix J contains information on post-fire response and recovery including response agencies, safety information, and post-fire treatment methods.

WHAT IS THE GOAL OF A CWPP?

The goal of a CWPP is to enable local communities to improve their wildfire-mitigation capacity, while working with government agencies to identify high fire risk areas and prioritize areas for mitigation, fire suppression, and emergency preparedness. Another goal of the CWPP is to enhance public awareness by helping residents better understand the natural- and human-caused risks of wildland fires that threaten lives, safety, and the local economy. The minimum requirements for a CWPP, as stated in the HFRA, are (Society of American Foresters [SAF] 2004):

- **Collaboration:** Local, state, and Tribal government representatives, in consultation with federal agencies or other interested groups, must collaboratively develop a CWPP.

- **Prioritized Fuel Reduction:** A CWPP must identify and prioritize areas for hazardous fuels reduction and treatments and recommend the types and methods of treatment that will protect one or more communities at risk and their essential infrastructures.
- **Treatments of Structural Ignitability:** A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the plan.

The Core Team established the following overarching goals for the plan:

- **Regular Updates**: Leverage online tools, such as the Mendocino County Fire Safe Council (MCFSC) web application, to ensure priority projects remain visible, relevant, and continuously updated.
- **Engagement**: Ensure wide visibility of the CWPP within communities throughout the county and gain local support.
- **Transparency**: Involve and engage the community and relevant stakeholders throughout all phases of project planning and implementation to ensure transparency.
- **Implementation**: Utilize the CWPP to identify specific projects and drive them toward completion.
- **Data Sharing Infrastructure**: Develop a robust and efficient data sharing infrastructure to foster seamless collaboration and information exchange among relevant stakeholders, enabling a proactive and unified approach to wildfire protection.

HOW WAS THE MENDOCINO CWPP UPDATE DEVELOPED?

A Core Team, consisting of federal, state, and local agencies, organizations, Tribal representatives, and residents, collaboratively developed this CWPP. Many Core Team members bring extensive experience in local fire management, contributing their expertise to this document. The list of Core Team members can be found at the end of this section (Executive Summary).

The CWPP planning process served multiple key purposes. It involved mapping and identifying physical hazards within the county that could exacerbate the wildfire threat to communities. This mapping process allowed the Core Team to prioritize treatments customized for the community to reduce fire risk.

The 2025 Mendocino County CWPP update also prioritized public engagement. Community members actively provided input through public events, meetings, and various online platforms, including surveys and emails. Additionally, the CWPP planning process established a Core Team, bringing together wildfire responders and land managers, fostering lasting working relationships, and encouraging collaboration.

By incorporating both public and Core Team input into the recommendations, treatments are precisely tailored for Mendocino County. Overall, the Mendocino County CWPP underscores the significance of collaboration among multijurisdictional agencies and the public to develop fuels mitigation treatment programs that effectively address wildfire hazards.

Information on outreach efforts is included in Appendix G, where the community outreach process is explained in detail.

In addition, several fire, land, vegetation, and emergency management planning documents were consulted during the development of this CWPP, including the 2020 Mendocino County Multi-Jurisdiction Hazard Mitigation Plan update, the 2015 Mendocino County CWPP update, and the 2024 CAL FIRE

Mendocino Unit Strategic Fire Plan. Consequently, the projects identified in this CWPP align with multiple relevant planning documents produced by various agencies.

WHAT HAS BEEN DONE SINCE 2015?

- The County of Mendocino has worked diligently to increase the resiliency and preparedness of the Mendocino Operational Area in the aftermath of the devastating 2017 Redwood Complex Fire. This has been accomplished through the aggressive pursuit of grant funding for a broad range of recovery, preparedness, and resiliency projects throughout the County, the creation of several new divisions, and the reorganization of the County Office of Emergency Services.
- The Prevention, Recovery, Resiliency, and Mitigation (PRRM) Division was created to work directly with state, federal, and local partners in the physical and financial recovery of the County. The division works across public and private sectors to ensure that unmet needs are addressed within the community.
- The newly established County Grants Unit has advanced County objectives by optimizing the impact of grant funding. This is accomplished through the identification of optimal funding opportunities and the implementation of efficient grant administration, as well as the development of long-term capacity. The unit is tasked with securing and overseeing external funding to support various county initiatives and is currently managing over $15,000,000 in active grants.
- The Office of Emergency Services (OES) was relocated from the Mendocino County Sheriff's Office to the County Executive Office where it now works very closely with the PRRM Division and Grants Unit. This has allowed OES to focus its efforts on its core missions of planning and response coordination in the Mendocino County Operational Area.
- The County has successfully secured approximately $15,000,000 in grant funding to enhance response, preparedness, mitigation, recovery, and resilience across the County. This includes the creation of and/or updating of numerous planning documents, hazardous fuels reduction projects, home hardening projects, critical infrastructure projects, public outreach campaigns, the provision of funding and financial support for key partners, such as the MCFSC, the Mendocino Resource Conservation District and other non-profit partners.
- In the last few years, the MCFSC has led tremendous growth and progress, including the establishment of the Defensible Space Assistance for Income Eligible (DSAFIE) program in 2021, rapidly increasing the number of neighborhood fire safe councils in the county, creating new education and outreach products (e.g., media stories and podcasts), funding the wildfire-science education program for 5th through 9th graders (in collaboration with the Hopland Research Extension Center), and hosting and attending many public events throughout the county.
- The MCFSC has secured millions of dollars in federal, state, and other funding for Mendocino County, enabling the completion of numerous fuel reduction projects and other wildfire risk reduction initiatives. Its ongoing programs include chipper days, defensible space clearing, reflective address signs, support for neighborhood fire safe councils, micro-grants, and a variety of additional services.
- The California Department of Forestry and Fire Protection Mendocino Unit (CAL FIRE MEU) continues to maintain established fuels reduction projects, initiate new efforts, and identify additional priority projects to address wildfire risk across its battalions and the communities they serve.
- In recent years, CAL FIRE MEU has expanded its capacity in fuels management, fire response, and pre-fire planning with the establishment of the Mendocino Unit Pre-Fire Planning Division, the Howard Forest Fuels Reduction Crew, the California National Guard Crew, the California

Conservation Corps Fire Crew, and two fire and fuels management crews at the Chamberlain Creek Fire Center.

- CAL FIRE MEU and the MCFSC have collaborated on numerous fuel reduction efforts, particularly roadside clearing and fuel break creation projects. They plan to expand their collaboration in the coming years to leverage resources and engage the community in implementing CAL FIRE MEU priority projects and MCFSC-identified initiatives.

WHO PARTICIPATED IN DEVELOPING THE PLAN?

The development of the Mendocino County CWPP was overseen by the Mendocino County Office of Emergency Services (Mendocino County OES). Representatives from various government agencies, including Local Fire Departments, CAL FIRE MEU, California Governor's Office of Emergency Services (Cal OES), along with Tribal representatives and other community or organization representatives such as MCFSC, served as Core Team for this CWPP and drove the decision-making process. Several Core Team members have many years of experience working together in fire management for Mendocino County and have contributed their expertise to this CWPP.

WHAT WAS THE PUBLIC INVOLVEMENT?

SWCA Environmental Consultants (SWCA), Mendocino County Office of Emergency Services (Mendocino County OES), the MCFSC, and the Core Team engaged in public outreach using community surveys, community events, and information distributed through emails, press releases, and social media. The Core Team met virtually on May 16, 2024, and January 31, 2025, and in person in Ukiah on October 22, 2024. Mendocino County OES hosted a public meeting, attended by SWCA and the MCFSC, at Behavioral Health Regional Training Center on October 21, 2024, hosted a booth at the Ukiah Pumpkinfest on October 19, 2024, and hosted a public webinar on February 7, 2025. Feedback, comments, and suggestions received from community members during community events, the community survey, the public webinar, and CWPP review were synthesized and used to craft project recommendations for the Mendocino County CWPP. Therefore, the project recommendations are specifically tailored to address the concerns and priorities of the county.

WHAT IS THE CURRENT WILDFIRE SITUATION?

Mendocino County's diverse and complex topography, which includes mountains, rolling hills, valleys, canyons, and steep slopes, plays a significant role in shaping the area's wildfire environment. The county's main mountain ridges, oriented north-northwest to south-southeast, are intersected by numerous riparian corridors. These features, combined with a Mediterranean climate characterized by dry summers and cool, moist winters, create conditions ripe for wildfire activity. The weather in Mendocino County is highly variable due to the presence of microclimates, and strong winds frequently interact with the county’s intricate topography, intensifying and redirecting wind speed and direction.

Powerful winds can rapidly move upslope, downslope, and through canyons, significantly increasing the spread of fires. The majority of Mendocino County's communities are nestled within this complex topography, often surrounded by dense vegetation and with limited ingress and egress routes. Additionally, many of these communities are remote, with limited proximity to vital water resources and fire stations, which, coupled with small fire protection agencies serving large areas, exacerbates the fire risks. The county experiences relatively frequent ignitions, mostly human-caused, and the expanding wildland-urban interface and intermix further heightens the vulnerability.

WHAT RECENT FIRES OCCURRED HERE?

As of August 2024, California has faced an especially severe fire season, with 5,411 wildfires burning nearly a million acres, damaging or destroying 1,209 structures, and resulting in one civilian fatality. This marks a significant increase compared to the 5-year average, with the acreage burned being over 30 times that of the total fires in 2023. This troubling trend highlights the growing intensity and frequency of wildfires across the state.

Mendocino County has not been spared from this increasing wildfire threat. In the county, the total acreage burned per decade has been rising sharply, with hundreds of thousands of acres consumed in the past 4 years alone. Although the county has experienced five fires as of August 2024, each burning less than 100 acres, the region remains highly susceptible to large-scale wildfires. The recent Grange Fire in 2024, while burning only 90 acres, exhausted resources and damaged infrastructure, knocking out telecommunications and utilities, exhausting public water sources, and burning homes and outbuildings (*MendoFever* 2024). The 2020 August Complex and the 2018 Mendocino Complex, two of California's largest wildfires in recent history, occurred in and around Mendocino County, collectively burning nearly 1.5 million acres and 1,215 structures. Additional notable fires include the 2017 Redwood Complex Fire that burned over 36,000 acres, destroying 350 residences and forcing 8,000 residents to evacuate (Mendocino County 2023).

WHAT IS THE PURPOSE OF THE HAZARD ASSESSMENT?

The purpose of the hazard assessment is to evaluate and provide information about wildland fire hazards and potential risks in Mendocino County. This hazard assessment incorporates two components: a geographic information system (GIS)-based hazard model derived from fire behavior and fuels modeling technology and an analysis of existing hazard data provided by state and federal sources. Additionally, input from the Core Team guides, refines, and enhances the assessment of hazards and potential risks throughout the county.

The hazard assessment considers:

- Fire behavior modeling, which includes:
  - Type of fire (i.e., crown or surface)
  - Rate of spread
  - Flame length (intensity)
  - Fuel type
  - Weather
- Ember exposure
- Fire history
- Exposure and susceptibility of buildings, structures, highly valued resources and assets, and critical infrastructure to wildfire based on their locations
- Fire suppression difficulty
- Tree mortality
- Utility-related ignition hazards
- CAL FIRE's statewide fire hazard severity zones (which includes weather, topography, drought conditions, climatic factors, and vegetation, among other factors)

HOW WILL THE HAZARD ASSESSMENT IMPACT MY INSURANCE?

The wildfire hazard assessment conducted for this CWPP is not intended for the determination of insurance premiums for homes and properties. Both states and insurance companies have clarified that wildfire hazard and risk assessments and associated maps in planning documents, such as CWPPs, do not influence insurance rates or coverage determinations. Instead, insurance companies use their own internal, proprietary maps and methods, which consider factors that change more frequently than state and local planning documents (U.S. Department of Agriculture [USDA] 2023a).

Additionally, a partnership between Insurance Commissioner Ricardo Lara, the California Governor's Office of Emergency Services (Cal OES), California Public Utilities Commission, CAL FIRE, and California Governor's Office of Planning and Research has resulted in regulatory action that creates incentives for insurance companies to promote actions that enhance home and community resilience to wildfires. This new wildfire safety regulation aims to make insurance more affordable while increasing public involvement in risk mitigation and raising awareness of local hazards (California Department of Insurance [CDI] 2022a).

Wildfire risk reduction actions identified in this CWPP (such as home hardening, creating defensible space, and community collaboration) are in alignment with the mitigation actions specified in the Safer from Wildfires initiative.

For information on how you can make your home, immediate surroundings, and community safer from wildfire, please see the following flyer from CDI: https://www.insurance.ca.gov/01-consumers/200-wrr/upload/Safer-from-Wildfires-one-pager.pdf.pdf.

See Appendices A and F for more information on the Safer from Wildfire initiative as well as additional homeowner's resources related to insurance as of February 2025.

WHAT ARE THE PROPOSED STRATEGIES TO ADDRESS WILDFIRE HAZARDS?

Goal 1 of the Cohesive Strategy and the Western Regional Action Plan is to **Restore and Maintain Landscapes**: Landscapes across all jurisdictions are resilient to fire and other disturbances in accordance with management objectives.

Recommendations for hazardous fuels treatments include:

- Maintain and expand fuel breaks.
- Identify key ingress/egress routes throughout the county and implement fuel reduction and maintenance plans along these routes.
- Identify essential facilities (e.g., cell and radio towers, evacuation centers, medical and fire prevention facilities, schools) throughout the county, and implement fuel reduction and maintenance plans at those locations.
- Execute ecosystem projects across jurisdictions, including Tribal organizations, for wildfire resilience.
- Establish best practices for fuel reduction work in common Mendocino County ecotypes and require contractors working on public projects to incorporate these best practices.

- Launch an invasive species management program.
- Survey and mitigate hazard trees in high-risk areas.
- Expand prescribed burning efforts, including cultural burn practices by Tribes.
- Develop strategies and targets for maintaining fuel reduction treatments.

Goal 2 of the Cohesive Strategy/Western Regional Action Plan is **Fire-Adapted Communities:** Human populations and infrastructure can withstand a wildfire without loss of life and property.

Recommendations for public outreach/education and structural ignitability include:

- Enhance resident and visitor education regarding fire safety.
- Create a countywide defensible space ordinance and support property owners with defensible space implementation.
- Maintain and expand free chipper days and community programs for those needing assistance to develop defensible space.
- Develop and implement programs to assist home retrofitting needed to improve home hardening.
- Develop strategies and programs to assist vulnerable non-property owners, such as residents in apartments, senior housing complexes, and mobile home parks, to implement defensible space and home hardening improvements.
- Employ relevant professionals (e.g., contractors, hardware store employees, realtors, landscapers) and homeowners groups (e.g., neighborhood fire safe councils, road associations, HOAs) to help accelerate the pace of defensible space and home hardening improvements.
- Reduce human-caused ignitions.
- Streamline the residential burn permit process.
- Increase awareness of the emergency notification system.
- Collaborate with neighboring counties on projects.
- Support Tribal communities with wildfire preparedness.

Goal 3 of the Cohesive Strategy/Western Regional Action Plan is **Wildfire Response:** All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions:

Recommendations for improving fire response capabilities include:

- Evaluate and acquire equipment, staffing, and infrastructure for fire departments and emergency evacuation facilities.
- Assess and enhance existing water resources for fire suppression.
- Develop and test community-specific evacuation plans throughout the county.
- Develop volunteer firefighting programs and training.
- Create a unified naming and signage system for street signs and home addressing.
- Identify areas without sufficient emergency ingress and egress and develop strategies for improved access.
- Establish and improve collaboration among agencies and groups involved in wildfire mitigation and response work.

HOW WILL THE PLAN BE IMPLEMENTED?

The CWPP does not mandate the implementation of any of the recommendations, but the message throughout this document is that the greatest fire mitigation can be achieved through the joint actions of individual homeowners, Tribes, and local, state, and federal governments.

The recommendations for fuels reduction projects are general in nature; site-specific planning that addresses location, access, land ownership, topography, soils, and fuels needs to be employed upon implementation. Also, it is important to note that the recommendations are specific to WUI areas and are expected to reduce the loss of life and property.

In addition, implementation of fuels reduction projects needs to be tailored to the specific project and will be unique to the location depending on available resources and regulations. On-the-ground implementation of the recommendations identified in this CWPP will require the use of the action plan (recommendation matrices in Chapter 4) as well as an assessment strategy for completing each project.

WHO WILL LEAD THE IMPLEMENTATION OF THIS PLAN?

Implementation of most projects identified in this CWPP will require the collaboration and cooperation of multiple individuals and entities such as community residents, fire safe councils, Tribal governments, and local, state, and federal agencies. However, to ensure that projects move forward, the plan will be governed by the Mendocino County OES in conjunction with the CAL FIRE Mendocino Unit, local fire districts, and the MCFSC.

PLAN RELEVANCE AND UPDATES

This CWPP provides an overview of fire hazards, potential risks, community descriptions, and proposed fire risk mitigation projects as of 2025. However, these factors are dynamic and subject to change. A static plan cannot fully account for this ongoing evolution, underscoring the importance of regular updates to maintain relevance. The CWPP should be treated as a living document, revised annually or immediately following significant fire events, to reflect changes, modifications, or new information. These updates are essential for effectively mitigating wildfire risk and ensuring the plan continues to align with community priorities and objectives. Chapter 5 offers an evaluation framework to guide the update process.

To further support ongoing relevance, the MCFSC hosts a live mapping application featuring real-time data on fire hazards, risks, community details, and mitigation projects. Key components of this plan, including proposed projects and community boundaries, will be continuously updated through this application, accessible at: https://www.arcgis.com/apps/instant/media/index.html?appid=7c3b669ce753411d9cbcfe9b410f640f.

CORE TEAM LIST

Name	Organization
Garrett James	Mendocino County Office of Emergency Services
Jeff Adair	Mendocino County Office of Emergency Services
Travis Killmer	Mendocino County Office of Emergency Services
Xuyen Mallela	Mendocino County Executive Office
Kelly Hansen	Mendocino County Executive Office
Brittney O'Ferrall	Mendocino County Executive Office
Howard Dashiell	Mendocino County Department of Transportation
Stephen White	Mendocino County Department of Social Services
Jennifer Thompson	Mendocino County Department of Social Services
Kiley Heath	Mendocino County Office of Education
Nicole Glentzer	Mendocino County Superintendent of Schools
Scott Cratty	Mendocino County Fire Safe Council
Emily Tecchio	Mendocino County Fire Safe Council
Doug Turk	Mendocino County Resource Conservation District
Ned Formaker	Mendocino County Resource Conservation District
Michael Rees	Albion Little River Fire Protection District
Andres Avila	Anderson Valley Fire Department
Jon Noyer	Brooktrails Community Service District Fire Department
Mitch Franklin	Hopland Fire Department
Ely Reighter	Leggett Valley Fire Department
Michael Suddith	Redwood Coast Fire Protection District
Jason Warner	South Coast Fire Department
Douglas Hutchison	Ukiah Valley Fire Authority
Mike Leskar	Whale Gulch Valley Fire Department
Blake Adams	City of Ukiah
Traci Boyl	City of Ukiah
Neil Davis	City of Ukiah
Walter Kolon	City of Willits
Brandon Gunn	CAL Fire Mendocino Unit
Chris Holmes	CAL Fire Mendocino Unit
Chris Vallerga	CAL Fire Mendocino Unit
Andrew Ward	California Governor's Office of Emergency Services
Beck Blair	California Governor's Office of Emergency Services

Name	Organization
Loren Rex	California State Parks
Dave Sentak	United States Forest Service
Mike Shaver	Potter Valley Tribe
Anna FarPorte	Sherwood Valley Band of Pomo Indians
Lourance Hall	Covelo Prescribed Burn Association
Dillon Williams	Hybrid Indigenous Stewardship
Rachel Campbell	Hybrid Indigenous Stewardship
Daren Dalrymple	Pacific Gas and Electric Company
Imil Ferraro	Round Valley Fire Safe Council
Cindy Panzer	Cherry Creek Fire Safe Council
Keith Rutledge	Sherwood Firewise
Brian Ferri-Taylor	Sherwood Firewise
Carla Thomas	Westport Fire Safe Council
Jayden Peterson	SWCA
Montiel Ayala	SWCA
Ryan Saggese	SWCA
Vicky Amato	SWCA
Liz Hitzfelder	SWCA
Lexi Roberts	SWCA

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CHAPTER 1 – INTRODUCTION

The United States is facing urgent forest and watershed health concerns. In recent years, wildfires have shown a trend of increasing severity, with the total acres burned and the average acres burned per fire rising significantly over time (National Oceanic and Atmospheric Administration [NOAA] 2024). Since 2000, there has been a clear increase in the total acreage burned, with particularly high spikes observed in 2007, 2012, 2015, and 2020 (NOAA 2024). From 2013 to 2022 an average of 7.2 million acres were impacted annually due to wildfire, more than doubling the annual average of acres burned in the 1990s (Congressional Research Service [CRS] 2023). The 2015 fire season had the most acreage impacted in a single year (between 1960 and 2022) at 10.13 million acres. 2020 was the second most extensive year for wildfire with 10.12 million acres burned (CRS 2023). These statistics demonstrate that wildfires are becoming larger and harder to control.

California's Forests and Rangelands 2017 Assessment states that California, like other western states, faces urgent issues concerning frequent and severe pest and wildfire events that are unprecedented and threaten the sustainability of these ecosystems. These issues require reexamination of land and fire management policies and practices as human populations demand more from natural systems and climate change continues (California Department of Forestry and Fire Protection [CAL FIRE] 2018a). While an updated assessment is underway (CAL FIRE 2023a), recent strategic documents like the 2020 California Forests and Rangelands Strategy Report underscore the urgency of implementing robust wildfire mitigation and resilience measures (CAL FIRE 2020a). These include addressing forest density, prioritizing vegetation treatments, and increasing adaptive management to mitigate wildfire risks and climate impacts (CAL FIRE 2020a).

As of August 2024, California has faced an especially severe 2024 fire season, with 5,411 wildfires burning nearly a million acres, damaging or destroying 1,209 structures, and resulting in one civilian fatality (*Los Angeles Times* 2024). This marks a significant increase compared with the 5-year average, with the acreage burned being over 30 times that of the total fires in 2023. This trend highlights the growing intensity and frequency of wildfires across the state.

As wildfire acreage burns and severity increases, communities need a plan to help prepare for, reduce the risk of, and adapt to wildland fire events. Community wildfire protection plans (CWPPs) help accomplish these goals. A CWPP provides recommendations that are intended to reduce, **but not eliminate**, the extreme severity or risk of wildland fire.

The development of the CWPP is rooted in meaningful collaboration among many stakeholders, including local, state, Tribal, and federal officials. The planning process involves looking at past fires and treatment accomplishments using the knowledge and expertise of the professional fire managers who work for the various agencies and governing entities in the community. From there, the CWPP ultimately identifies the current local wildfire risks and needs that occur in the community, which is further supported with relevant science and literature from the western region of the United States.

In addition, this document, the 2025 Mendocino County CWPP, reviews, verifies, and/or identifies potential priority areas where mitigation measures are needed to protect from wildfire the irreplaceable life, property, and critical infrastructure in the community. However, this CWPP does not attempt to mandate the type and priority for treatment projects that will be carried out by the land management agencies and private landowners. The responsibility for implementing wildfire mitigation treatments lies at the discretion of the landowner; the 2025 Mendocino County CWPP will only identify potential treatments and a suggested priority for these projects.

A homeowner mitigation actions guide and resources (e.g., defensible space and home hardening) are provided in Appendix F.

1.1 GOAL OF A COMMUNITY WILDFIRE PROTECTION PLAN

The goal of a CWPP is to enable local communities to improve their wildfire-mitigation capacity, while working with government agencies to identify high fire risk areas and prioritize areas for mitigation, fire suppression, and emergency preparedness. Another goal of the CWPP is to enhance public awareness by helping residents better understand the natural and human-caused risk of wildland fires that threaten lives, safety, and values at risk in the local economy. The minimum requirements for a CWPP, as stated in the Healthy Forests Restoration Act of 2003 (HFRA), are (Society of American Foresters [SAF] 2004):

- **Collaboration:** Local and state government representatives, in consultation with federal and Tribal agencies or other interested groups, must collaboratively develop a CWPP.
- **Prioritized Fuel Reduction:** A CWPP must identify and prioritize areas for hazardous fuels reduction and treatments and recommend the types and methods of treatment that will protect one or more communities at risk and their essential infrastructures.
- **Treatments of Structural Ignitability:** A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the plan.

In addition, the Core Team established the following overarching goals for the plan:

- **Regular Updates**: Leverage online tools, such as the Mendocino County Fire Safe Council (MCFSC) web application, to ensure priority projects remain visible, relevant, and continuously updated.
- **Engagement**: Ensure wide visibility of the CWPP within communities throughout the county and gain local support.
- **Transparency**: Involve and engage the community and relevant stakeholders throughout all phases of project planning and implementation to ensure transparency.
- **Implementation**: Utilize the CWPP to identify specific projects and drive them toward completion.

- **Data Sharing Infrastructure**: Develop a robust and efficient data sharing infrastructure to foster seamless collaboration and information exchange among relevant stakeholders, enabling a proactive and unified approach to wildfire protection.

It is the intent of this 2025 Mendocino County CWPP update to provide a countywide scale of wildfire hazards, potential risks, and protection needs, as well as bring together the responsible wildfire management and suppression entities in the area to support planning and implementation of the necessary mitigation measures. Detailed descriptions of the jurisdictions that make up Mendocino County and their roles in fire management are provided in Appendix B, and potential funding sources for projects identified in this CWPP are in Appendix E.

1.2 ALIGNMENT WITH THE NATIONAL COHESIVE STRATEGY

The 2025 CWPP is aligned with the Cohesive Strategy and its Phase III Western Regional Action Plan by adhering to the nationwide goal “to safely and effectively extinguish fire, when needed; use fire where allowable; manage our natural resources; and as a Nation, live with wildland fire.” (Forests and Rangelands 2014:3).

The primary, national goals identified as necessary to achieving the vision are:

- **Restore and maintain landscapes:** Landscapes across all jurisdictions are resilient to fire-related disturbances in accordance with management objectives.
- **Fire-adapted communities:** Human populations and infrastructure can withstand wildfire without loss of life and property.
- **Wildfire response:** All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions.

For more information on the Cohesive Strategy, please visit: https://www.forestsandrangelands.gov/strategy/documents/strategy/CSPhaseIIINationalStrategyApr2014.pdf.

Alignment with these Cohesive Strategy goals is described in more detail in Chapter 4, Mitigation Strategies.

In addition to aligning with the Cohesive Strategy, the CWPP also incorporates information on post-fire recovery, the significant hazards of a post-fire environment, and the risk that post-fire effects pose to communities (Figure 1.1). Appendix J discusses post-fire restoration techniques and methods.

Figure 1.1. This CWPP incorporates the three primary goals of the Cohesive Strategy and post-fire recovery and serves as a holistic plan for fire adaptation and resilience.

1.3 ALIGNMENT WITH PLANS AND AGREEMENTS

This CWPP is aligned with multiple local, state, and federal plans, which are summarized in further detail within Appendix A (a number of these plans are listed below). Through various strategies, these planning documents and agreements aim to mitigate wildfire impacts by reducing fire risk, protecting communities and natural resources, and enhancing overall fire resilience.

- 2015 Mendocino County CWPP
- 2024 Albion Little River Fire Protection District CWPP
- 2022 Hopland Area CWPP
- 2020 Mendocino County Multi-Jurisdictional Hazard Mitigation Plan
- 2020 Mendocino County Evacuation Plan

- 2020 Mendocino Fire Vulnerability Assessment
- 2020 Mendocino Public Outreach Plan
- Mendocino County General Plan (Safety Element)
- 2024 CAL FIRE Mendocino Unit Strategic Fire Plan
- 2018 Strategic Fire Plan for California

1.4 CORE TEAM

The development of the 2025 Mendocino County CWPP update was overseen by the Mendocino County Office of Emergency Services (Mendocino County OES). Representatives from various government agencies—along with members of fire departments and local communities—formed a Core Team and participated in decision-making activities that led to the development of the 2025 Mendocino County CWPP update. Stakeholder involvement is critical in producing a meaningful document that includes all collaborators' diverse perspectives. The Core Team drives the planning process in its decision making, data sharing, experience, and communication with community members who are not on the Core Team. The project was kicked off on March 22, 2024; the Core Team met for the first time on May 16, 2024, convened again on October 22, 2024, and met for the final time on January 31, 2025.

The Core Team list is provided in the Executive Summary.

1.5 RECENT ACCOMPLISHMENTS

1.5.1 MENDOCINO COUNTY FIRE SAFE COUNCIL

The Mendocino County Fire Safe Council's (MCFSC's) annual reports (2019–2024) detail the community's greatest accomplishments in fire planning, mitigation, and management efforts each year (MCFSC 2024a). Highlights of the 2023–2024 annual report include:

- 612 acres of county lands treated with fuels reductions.
- 101 free chipper days with the Community Chipper Program.
- 54 new home assessments.
- $3 million in total grant awards:
    - Sponsored over $300,000 in grants for fire districts and neighborhood fire safe councils.
    - Issued $130,000 in micro-grant funds for local wildfire-safety projects with matching fund support from the Pacific Gas and Electric Company (PG&E) Corporation Foundation.
    - MCFSC received a $1.3 million Community Wildfire Defense Grant (CWDG) that will largely support staffing to create Firewise communities in the county over the next 4 years, plus support helping them design projects and base funding for 30 projects. MCFSC is working with an additional eight communities to achieve Firewise recognition.
    - Awarded a $994,000 grant that will support road clearing in a major portion of Bell Springs Road and expand Defensible Space Assistance for Income-Eligible (DSAFIE), MCFSC's defensible space assistance program for low-income seniors and persons with disabilities.
- 159 free DSAFIE assistance, providing home-hardening services to low-income seniors or individuals with disabilities.

- 676 new reflective signs installed.
- Staff attended 27 community events.
- Supported over 70+ neighborhood fire safe councils.
- Funded a wildfire-science education program for 5th through 9th graders in conjunction with the Hopland Research Extension Center.
- Launched a Community Work Party program, where MCFSC works with local fire safe councils to tackle projects together with MCFSC crew and volunteers.
- Launched a series of semi-monthly feature media stories with corresponding podcasts and working on an improved/easier-to-navigate website.

Accomplishment reports from previous years can be found here: https://firesafemendocino.org/mcfsc-annual-reports/

An interactive, dynamic, and live map with current fuels reduction projects can be accessed at: https://www.arcgis.com/apps/instant/media/index.html?appid=7c3b669ce753411d9cbcfe9b410f640f

1.5.2 CAL FIRE

CAL FIRE's recent fuels reduction projects are detailed in the 2024 Mendocino Unit Fire Plan (CAL FIRE 2024a). A few of these projects are summarized in Tables 1.1 and 1.2 below.

Table 1.1. CAL FIRE Ongoing Fire Planning Efforts

Year	Project Name	Project Type	Location	Status
2022	Brushy	VTP*	Willits	Submitting 1/3/21
2022	Covelo South	VTP	Covelo	Planned
2022	HREC	VTP	Hopland	In Progress
2022	Shamrock	VTP	Laytonville	In Progress
2022	Cold Springs FRP	NOE*	Elk	In Progress
2022	Golden Rule Roadside FRP	NOE	Willits	Approved
2022	Green Gate Run SFB	NOE	Willits	Submitted
2022	Mill Creek Rd SFB	NOE	Ukiah	In Progress
2022	Three Chop/Road 1000	NOE	JDSF	Approved
2020	Elk Evacuation Fuel Break – Phase I	Fire Plan	Elk	In Progress
2019	Sherwood Road – Phase I Timber Blue Lake Ridge	Fire Plan	Willits	In Progress
2018	West Hills – Ukiah Fuels and Fire Break	Fire Plan	Ukiah	In Progress
2017	Brooktrails Fuels 2017	Fire Plan	Willits	In Progress
Unknown	Parlin Shaded Fuel Break	THP*	JDSF	In Progress
Unknown	Brooktrails/Willits Fuel Reduction	Unknown	Willits	Unknown

* VTP = vegetation treatment program, NOE = Notice of Exception, JDSF = Jackson Demonstration State Forest, and THP = timber harvest plan

Table 1.2. CAL FIRE Completed Fire Planning Efforts

Year	Project Name	Project Type	Status
2021	Ukiah Fuels Reduction – Eastside VMP	Governor's Priority	Completed
2021	Ukiah Fuels Reduction – Westside VMP	Governor's Priority	Completed
2021	Willits Fuels Reduction	Governor's Priority	Completed
2021	Elk Wildfire Mitigation Mapping	Grand Admin	Completed
2021	Redwood Complex Fire Recovery and Hazardous Tree Removal	Grand Admin	Completed
2021	Elkhorn Road Shaded Fuel Break	MEU Project	Completed
2021	Mitchell Creek Fuels Reduction	MEU Project	Completed
2021	Robinson Creek Shaded Fuel Break	MEU Project	
2021	Corson Ranch	VMP*	
2021	Hopland Research and Extension Center 1	VMP	

* VMP = vegetation management plan

CAL FIRE maintains a live mapping application containing active and completed fuels reduction projects, including roadside clearance, broadcast burns, fuel breaks, and others. The mapping application can be accessed at:
https://experience.arcgis.com/experience/dfb8672f201145a4a8bf04cd9d3e37c1/page/Overview/

1.6 PLANNING AREA

The planning area includes the entirety of Mendocino County as delineated by its geographic and political boundaries (refer to Figure 1.2).

Mendocino County encompasses 3,510 square miles, the fifteenth largest county in the state of California. Mendocino County is bordered to the west entirely by the Pacific Ocean and has a varying topography from sea level to over 6,000 feet with steep slopes, river valleys, and grassland plains characterizing the county. The highest point in the county is in Mendocino National Forest and reaches an elevation of 6,954 feet. Approximately a fifth of the land in the county is owned by federal, state, or county agencies, making it openly accessible to the public. Federally owned lands include those managed by the U.S. Forest Service (USFS) and Bureau of Land Management (BLM) and include wilderness areas and National Forest lands. The county contains a number of state parks, beaches, preserves, and state forests, as well as land owned by Native American Tribes. In 2022, the population of the county was estimated at 89,783 with 34,557 households (U.S. Census Bureau 2022).

Appendix B details the county's geography, major transportation corridors, population, vegetation and land cover, and wildlife.

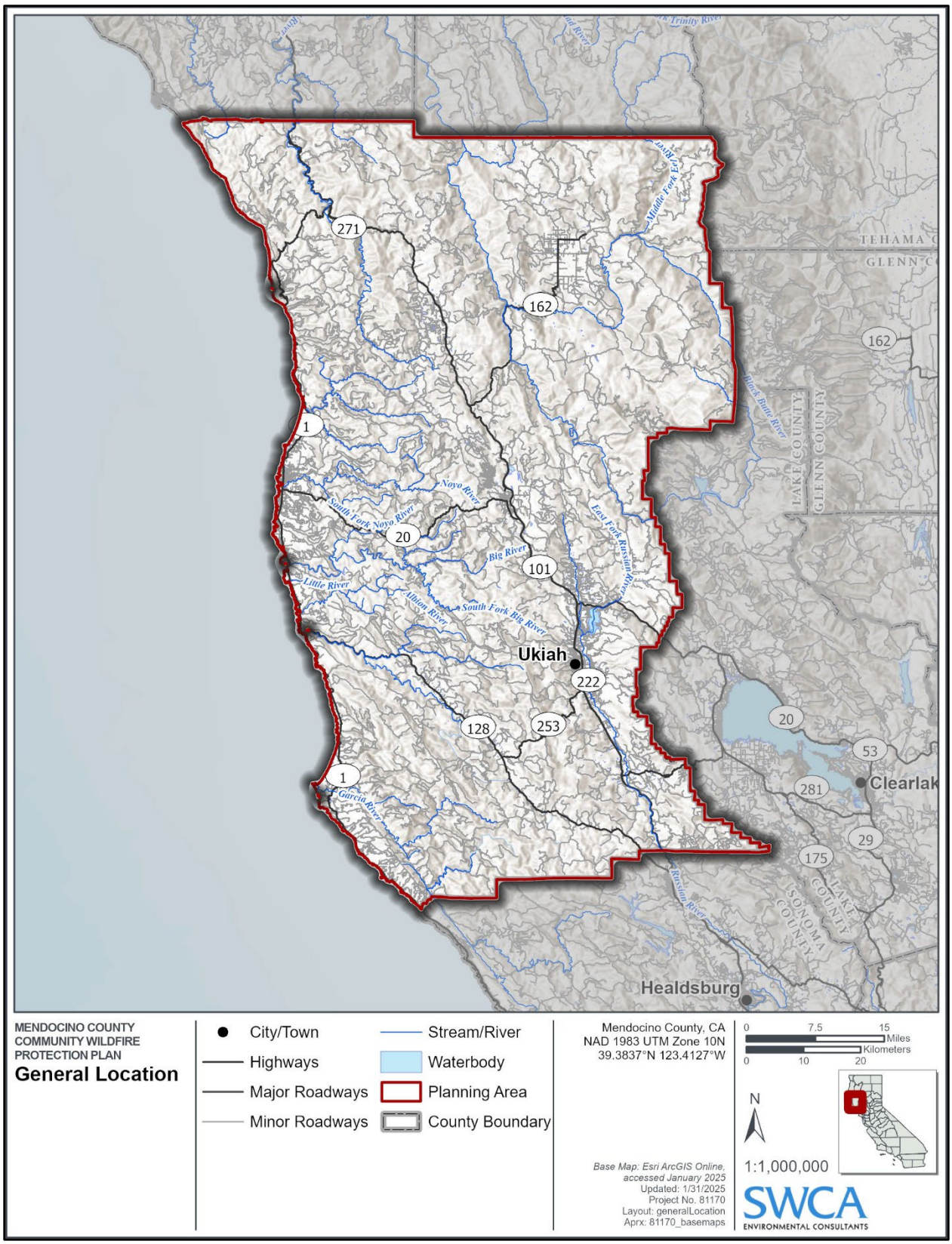

Figure 1.2. Mendocino County CWPP planning area.

1.6.1 TRIBAL HISTORY AND CULTURAL PRACTICES

For millennia, the lands in Mendocino County were stewarded by Indigenous peoples who lived in harmony with the environment. The cultural land stewardship applied by Tribal groups utilized their place-based understanding of how and when to manage vegetation to suppress or encourage growth. Tribes used the application of cultural fire and re-seeding to steward a beautifully biodiverse, abundant, and fire-safe environment. However, with colonization, these lands were taken from them without consent and their cultural practices made illegal (the 1850 California Act for the Government and Protection of Indians). Today, Mendocino County is home to 11 Tribal nations that continue to preserve their cultural heritage and connection to the land: Cahto Tribe, Coyote Valley Band of Pomo Indians, Guidiville Rancheria of California, Hopland Band of Pomo Indians, Manchester Band of Pomo Indians, Pinoleville Pomo Nation, Potter Valley Tribe, Redwood Valley Little River Band of Pomo Indians, Round Valley Indian Tribes, Sherwood Valley Band of Pomo Indians, and Yokayo Tribe (Mendocino Area Parks Association 2024). These nations are described below.

Cahto Tribe

The Cahto Tribe, also known as the Kato, are historically known as the "People of the Lake" or "Lake People," referring to an ancient lakeshore where they once lived. The inhabitants of the six villages of the Long Valley called themselves the Tlokyáhan, or "Grass People." The principal language of the Cahto was Wailakian, an Athapascan language (Cahto Tribe at Laytonville 2024).

The Cahto were hunters and gatherers, relying on a diverse range of food sources including nuts, seeds, berries, roots, bulbs, tubers, deer, rabbits, quail, and fish. They were partially nomadic, traveling within their homeland to where food was plentiful. This included yearly treks to the Mendocino coast to harvest seaweed and fish, a tradition they continue to honor today by retracing sacred trails.

Their traditional homeland is characterized by mountainous and hilly terrain covered with fir, pine, oak, and redwood forests, interspersed with streams. The Cahto lived in circular houses built over excavations and moved seasonally to different areas within their territory to access various food and resources (Cahto Tribe at Laytonville 2024).

The Cahto Tribe owns the Laytonville Rancheria, a 264-acre reservation located in Laytonville, Mendocino County. This land continues to serve as a central place for the Tribe, preserving their cultural heritage and providing a base for community activities.

Coyote Valley Band of Pomo Indians

The Coyote Valley Band of Pomo Indians has a deep-rooted history that extends long before European settlement. Situated in the foothills alongside the east fork of the Russian River, Coyote Valley was once described in the 1800s as a "bare trace of land" supporting a thriving population of Native Americans. In 1835, Spanish troops led by Captain Sepulveda Vallejo came to Coyote Valley to procure Indians for labor on houses and forts in Sonoma. Despite various challenges, including the loss of the "Old Rancheria" in the 1920s, the community has persisted. The Old Rancheria was originally purchased by a group of Indians in 1878, demonstrating the Tribe's resilience and determination to maintain their land and heritage (Coyote Valley Band of Pomo Indians 2024a).

Traditionally, the Coyote Valley Band of Pomo Indians lived in "grass homes" on their property, rejecting housing provided by ranchers. They did not have running water, instead transporting buckets of water from the river or a year-round spring located near their homes (Coyote Valley Band of Pomo Indians 2024a).

The Coyote Valley Reservation is located in Redwood Valley, California, and serves as the home for the Coyote Valley Tribe, who are descendants of the Shodakai Pomo. The reservation spans approximately 82.36 acres of trust land and supports a community of over 300 members. Membership is based on inclusion in the Tribal Base Roll or lineal descent from individuals listed on the Tribal Base Roll (Coyote Valley Band of Pomo Indians 2024b).

Guidiville Rancheria of California

The Guidiville Rancheria of California is a federally recognized Tribe of Pomo people located in Mendocino County. During the California Gold Rush, the influx of non-Indian settlers drove the Guidiville Pomo from their ancestral lands near Lake County into Mendocino County. The U.S. government negotiated treaties with the Tribe in 1851, but these were not ratified, leaving the Guidiville Band landless. Between 1909 and 1915, the federal government purchased small parcels of land for homeless California Indians, called rancherias. However, the Guidiville Rancheria lacked water and infrastructure for subsistence, leading to harsh conditions and early deaths for many members. During the Indian termination policy, the federal government terminated the status of the Guidiville Rancheria in 1958, but the Tribe successfully sued for wrongful termination and regained federal recognition in 1992 (Bureau of Indian Affairs [BIA] n.d.a).

The Guidiville Rancheria is dedicated to providing educational and cultural resources for the Guidiville Indian Tribe and the surrounding community. They offer academic programs and extracurricular activities that promote Native American heritage and traditions (BIA n.d.a).

The Tribe has obtained a 44-acre parcel of land located two miles east of Ukiah, California, which serves as a base for the Tribe's operations and cultural activities. The Tribe is known to have reorganized and is governed by an elected council, headed by a chairperson (BIA n.d.a).

The Tribe is headquartered in Talmage, California, and the Guidiville Indian Rancheria is located east of Ukiah.

Hopland Band of Pomo Indians

The Hopland Band of Pomo Indians' traditional land is located in the Sanel Valley and the surrounding areas of southeastern Mendocino County, California. Known as Sho-Ka-Wah, meaning "east of the river" in the Central Pomo language, their main village was Shanel, which translates to "of the roundhouse." This village was notable for having five assembly houses and many leaders or "captains." Before European contact, the population of the Sho-Ka-Wah people was estimated at 1,500. Their lives were deeply spiritual and balanced with nature, but they faced significant challenges with the arrival of Spanish and later American settlers (Hopland Band of Pomo Indians 2024).

Historically, Sho-Ka-Wah men hunted and fished in the valley and nearby hills, while women gathered acorns and sedge roots for food and basket making. The Tribe's basketry and clamshell bead necklaces were highly prized. They held annual trade gatherings known as "Big Time" to exchange goods with neighboring Tribes, reflecting a vibrant tradition of trade and cultural exchange (Hopland Band of Pomo Indians 2024).

Manchester Band of Pomo Indians

The Manchester Band of Pomo Indians, also referred to as the Manchester-Point Arena Band of Pomo Indians, is a federally recognized Tribe with deep roots in the region. The Bokeya society, part of this band, gained recognition with the approval of their constitution and bylaws in 1936 (Native Ministries International 2022).

Historically, the Tribe's social structure featured residential units led by kin-group chiefs, with ceremonial chiefs possessing greater authority. Leadership was traditionally hereditary; however, following the rancheria period, the Tribe adopted a democratic system for selecting its leaders.

The Tribe's reservation encompasses both Manchester and Point Arena lands, totaling 364 acres. The Tribe has over 800 actively enrolled members and an estimated total population of approximately 1,300 (BIA n.d.b).

Pinoleville Pomo Nation

The Pinoleville Pomo Nation is a federally recognized Tribe of Pomo people residing in Mendocino County, California. The Tribe's origins trace back to the lush Potter Valley, known as Be-lo-kai, meaning "verdant valley." Before European contact, the Pomo people thrived in three principal villages: Pomo, Sedam (or Tse tum), and Canel (or Shanel, Sanel), alongside several smaller villages and camps. These communities spoke Northern Pomo, with the name "Pomo" deriving from the village Pomo poma, where some ancestors of current Tribal members resided. An ethnographer later applied the term to encompass a linguistic group of seven distinct languages (Pinoleville Pomo Nation 2020).

Traditionally, the Pinoleville Pomo Nation's people adapted to the changing seasons, migrating to gather resources at their peak availability. Coastal journeys provided essential food sources like seaweed, abalone, and shellfish, which were dried for winter sustenance. Year-round hunting of small game complemented their diet, alongside the harvest of various seeds used to make yuhu, or pinole—a staple food (Pinoleville Pomo Nation 2020).

Today, the Pinoleville Pomo Nation is based in Ukiah, with its reservation, the Pinoleville Rancheria, covering 99 acres in Mendocino County, where approximately 70 Tribal members reside. A second parcel of land in Lake County spans 6.7 acres.

Potter Valley Tribe

The Potter Valley Tribe, a federally recognized Tribe of Pomo people in Mendocino County, California, was formerly known as the Little River Band of Pomo Indians and the Potter Valley Rancheria of Pomo Indians of California. The Tribe descends from the valley's first-known inhabitants, referred to by the Pomo as Ba-lo Kai.

The Tribe's constitution underscores a commitment to the health, safety, and welfare of its members, with a focus on promoting economic development, preserving cultural heritage for future generations, maintaining community harmony, and achieving fairness and justice. The Tribe honors its traditions, ancestors, and elders, while also asserting its sovereignty and working to affirm and build upon the natural resources of their aboriginal lands and any other acquired territories (Potter Valley Tribe 2024).

In line with these values, the Potter Valley Tribe actively engages in various initiatives aimed at environmental stewardship and community development. One notable event is the Inter-Tribal Environmental Youth Campout, which aims to educate and involve youth in environmental stewardship and conservation (Potter Valley Tribe 2024).

The Potter Valley Tribe currently owns and manages 893 acres of forested lands along the main stem Eel River, with one property held in federal trust at Van Arsdale Reservoir (four houses). These properties are at moderate to high hazard risk of wildfires (see Appendix D). In addition, the Tribe owns three properties in Potter Valley (four houses), one along the East Fork Russian River (in trust, one house) and two within the Potter Valley Irrigation District jurisdictional area.

The Tribe also has the following properties: four houses in Redwood Valley, one house in Fort Bragg, and 250 acres of open forest along the Mendocino coast. All of these properties are either within the WUI or forests with fuels reduction as a high priority (Personal Communication, 2025, Hybrid Indigenous Stewardship)

Redwood Valley Little River Band of Pomo Indians

The Redwood Valley Little River Band of Pomo Indians, also known as the Redwood Valley Rancheria, is a federally recognized Tribe located in Redwood Valley, Mendocino County, California. The Tribe's ancestors have inhabited the area for thousands of years, particularly along the West Fork of the Russian River, north of Calpella, California. Throughout their history, they engaged in trade and cultural exchange with other Pomo Tribes across the Russian River and Eel River watersheds, as well as along the coasts of Clearlake and the Pacific Ocean (Redwood Valley Little River of Pomo Indians 2024).

The arrival of European settlers brought significant challenges, particularly during and after the California Gold Rush. In 1908, the Redwood Valley Rancheria was established as a refuge for "Homeless Indians." However, in 1958, the Tribe faced termination under the California Rancheria Termination Act, a decision that was later declared illegal in 1983 following the landmark Tillie Hardwick lawsuit (Redwood Valley Little River of Pomo Indians 2024).

Today, the Redwood Valley Little River Band of Pomo Indians operates as a sovereign Tribe with self-governance powers. The Tribe has a Tribal Council responsible for enacting ordinances and resolutions, conducting Tribal business, and managing various social, educational, environmental, and infrastructure programs. The Tribe currently holds 159 acres of land in trust (Redwood Valley Little River of Pomo Indians 2024).

Round Valley Indian Tribes

The Round Valley Indian Tribes are a federally recognized Tribe that shares the Round Valley Reservation, a territory encompassing a confederation of Tribes, including the Yuki, Wailacki, Concow, Little Lake Pomo, Nomlaki, and Pit River peoples. This land was originally occupied by the Yuki Tribe but was forcibly taken and designated as a reservation (Round Valley Indian Tribes n.d.).

The history of the Round Valley Indian Tribes is marked by the establishment of the reservation in 1856 as the Nome Cult Farm, which served as an administrative extension of the Nome Lackee Reservation. This initiative was part of a broader strategy by the U.S. government to remove Native peoples from lands sought by settlers. Despite its status as a reservation, the area gradually filled with farms and ranches, and the Indigenous people endured "drives" that forcibly relocated them like cattle to the reservation, where they were confined by high fences. Over time, through intermarriage and shared experiences, a unified community emerged, leading to the formation of the Covelo Indian Community, which later became known as the Round Valley Indian Tribes (Round Valley Indian Tribes n.d.).

Today, the Round Valley Indian Tribes thrive as a vibrant community, offering various programs and initiatives. Their Tribal Council manages Tribal business and oversees social, educational, environmental, and infrastructure programs, fostering a commitment to the well-being and cultural preservation of their members.

Sherwood Valley Band of Pomo Indians

The Sherwood Valley Band of Pomo Indians is a federally recognized Tribe whose ancestral lands stretch from the Highway 101 corridor through the majestic Redwood Forests to the California Coast. As the original stewards of this land, they have inhabited and used these areas since time immemorial, retaining

rights to protect their homeland's land, air, water, and food sources (Sherwood Valley Band of Pomo Indians n.d.).

The Sherwood Valley Rancheria was established under Secretarial Order in 1909 and serves as the successor in interest to the Mendocino Indian Reservation, which was created by Act of Congress on March 3, 1853. The Tribe is governed by a constitution and bylaws that were adopted and approved by the Secretary of the Interior on July 25, 1974 (Sherwood Valley Band of Pomo Indians n.d.).

Historically, the community was known as Kulá Kai Pomo, and they traditionally lived along the upper course of the Eel River, speaking the Pomo language and maintaining a rich cultural heritage that they continue to preserve and promote today.

Yokayo Tribe

The Yokayo Tribe of Indians is a small, non-federally recognized Tribe located southeast of Ukiah, California, on their private Tribal property, where they have resided since before 1880. The term "Yokayo" is derived from the Pomo word meaning "deep valley," situating the Tribe within the Pomo group of Tribes, which belong to the larger Hokan family. Historically, the Pomo people, including the Yokayo, occupied the rich landscapes of the Russian River watershed (Kasch 1947).

In 1881, the Yokayo Rancheria was established as a communal society, where its members have lived in accordance with both state and national laws. Situated along the Russian River, approximately 5 miles southeast of Ukiah and about 100 miles north of San Francisco, the rancheria has been validated by the Supreme Court of California. The title to its lands is protected in perpetuity for the children of the original incorporators and their descendants (Kasch 1947).

The Yokayo band of Pomo people, who have inhabited the Russian River valley since the pre-Columbian era, remains unrecognized as a Tribe in the United States today. Their history mirrors that of the broader Pomo Tribes in the region, reflecting the challenges and transformations they have faced over time, particularly due to the encroachment of European settlers and the significant changes to their traditional ways of life.

1.6.2 SOCIAL VULNERABILITY

The Federal Emergency Management Agency (FEMA) defines social vulnerability as the susceptibility of social groups to the negative impacts of natural hazards (e.g., wildfire), which include disproportionate death, injury, loss, or disruption of livelihood (FEMA 2022). A sole hazard occurrence can bring about considerably different impacts for distinct individuals, even if the magnitude of the hazard was the same for the entire community. Specific groups of individuals may be more susceptible to natural hazards because of socioeconomic status, physical state, or other factors. For instance, elderly individuals may have more difficulty in quickly evacuating during wildfire emergencies, which may make them more susceptible to entrapment. In other cases, low-income individuals may be less able to harden and improve their homes to reduce structural ignitability, indicating that they can face a higher probability of their homes being damaged or destroyed should a wildfire event occur.

There are multiple social factors identified in the 2020 Fire Vulnerability Assessment (Mendocino County 2020a) that contribute to consistent social vulnerability throughout the county. This includes factors like average income that is below the state average, higher levels of poverty, more elderly residents, and more disabled residents relative to other California counties. To address these additional risk factors, the county developed an evacuation plan that identifies special concerns for response and evacuation of communities in the county (Mendocino County 2020b).

State Designation

At the state level, the California Environmental Protection Agency (CalEPA) designates disadvantaged communities with respect to environmental pollution. The designation is based on pollution burden, prior designation as a disadvantaged community, and federal land status (i.e., federally recognized Tribes) (California Office of Environmental Health Hazard Assessment [OEHHA] 2023). CalEPA has designated Hopland Rancheria, Guidiville Rancheria, Manchester-Point Arena Rancheria, Pinoleville Rancheria, Coyote Valley Reservation, Redwood Valley Rancheria, Sherwood Valley Rancheria, Laytonville Rancheria, and Round Valley Reservation as “disadvantaged” communities (Figure 1.3). This designation makes these communities a priority for funding through the California Climate Investments Program (CCIP), including the Wildfire Prevention Grants Program, which is a part of the CCIP and is administered by CAL FIRE (OEHHA 2023). In 2023, both the City of Ukiah and the Coyote Band of Pomo Indians received federal funding to implement hazardous fuel reduction projects through the Community Wildfire Defense Grant program (USFS 2023a).

The CCIP recognizes that certain populations lack the capacity to invest in projects that aim to increase climate resilience. These “priority populations” include low-income communities, disadvantaged communities, and vulnerable populations disproportionately affected by climate change impacts. Many of these groups often experience high levels of pollution, limited access to clean resources, and other socioeconomic disadvantages. The CCIP aims to allocate resources and funding toward projects that directly benefit these priority populations. As of November 2022, approximately 73% of California climate investment projects had been designated to enhance the well-being and resilience of these communities, promoting equity and environmental justice across the state (State of California n.d.). Most communities within the county have been identified as “priority populations” (Figure 1.4).

For more information on state designations, please visit:

Priority populations: https://www.caclimateinvestments.ca.gov/priority-populations

SB 535/disadvantaged communities: https://calepa.ca.gov/envjustice/ghginvest/

Federal Designation

The Justice40 Initiative, signed through Executive Order 14008,[1] aims to ensure that 40% of the benefits from specific federal investments are directed toward disadvantaged communities facing marginalization, underservice, and pollution burdens. The initiative encompasses various categories of investment, including climate change, clean energy, clean transit, affordable housing, workforce development, pollution reduction, and clean water infrastructure. Federal agencies are undergoing significant transformations to reallocate resources to these communities, addressing decades of underinvestment and environmental hazards. The White House has issued guidance to agencies on identifying covered programs, engaging in stakeholder consultation, and reporting data to fulfill the initiative's goals.

The majority of Mendocino County falls under either “disadvantaged” or “partially disadvantaged,” with the higher proportion of the county designated as disadvantaged (Figure 1.5). There are a total of 11 census tracts in the county designated as disadvantaged. The partially disadvantaged areas have been identified as such because they are home to federally recognized Tribes. The areas that have been identified as disadvantaged, while also home to federally recognized Tribes, meet the criteria based on several factors, including climate change, energy, health, housing, legacy pollution, and workforce development.

For more information on federal designations through the Justice40 program, please visit: https://www.esri.com/arcgis-blog/products/arcgis-living-atlas/local-government/justice40/

[1] Executive Order 14008 was rescinded in early 2025, when this document was nearing completion.

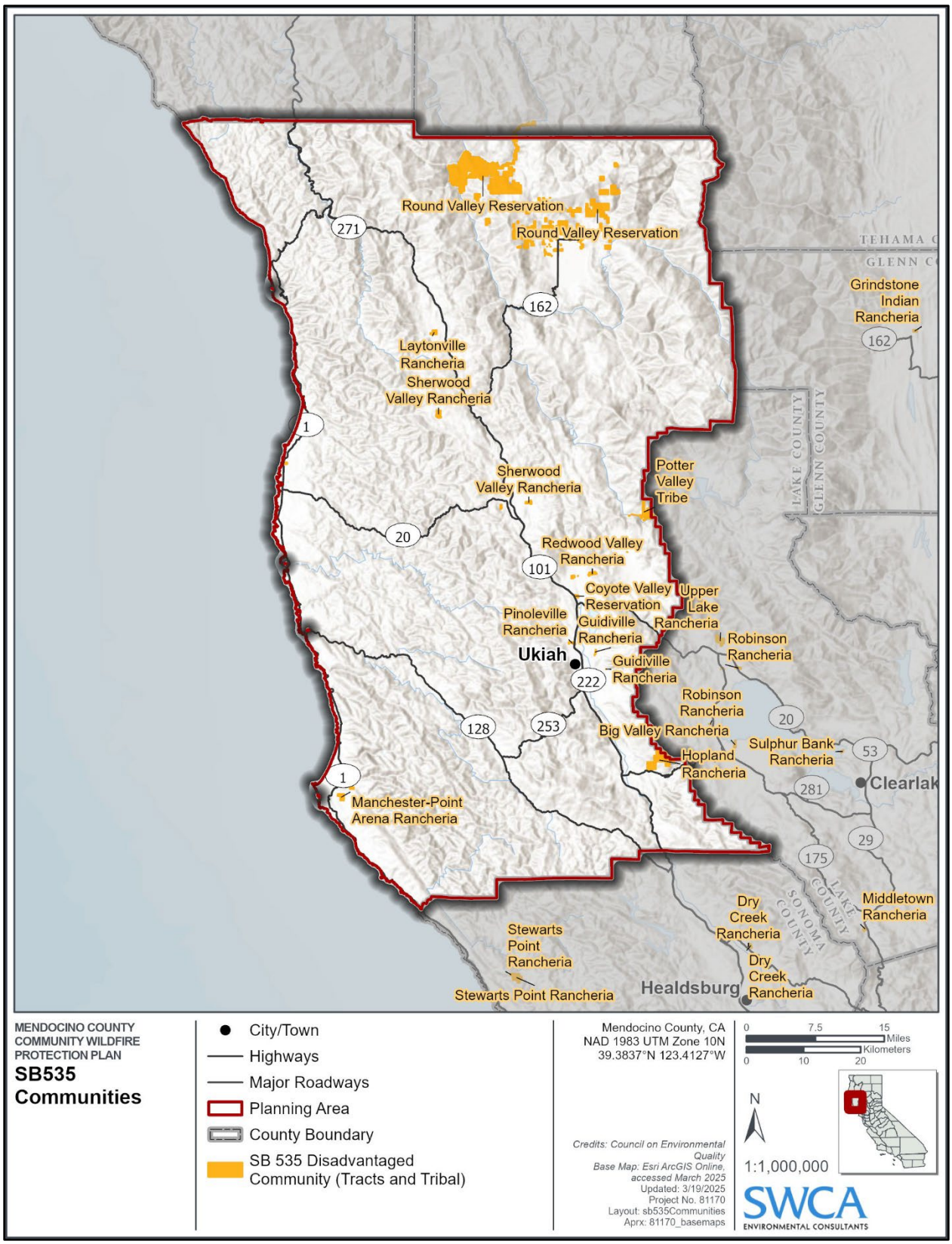

Figure 1.3. Disadvantaged communities in Mendocino County as designated by CalEPA.

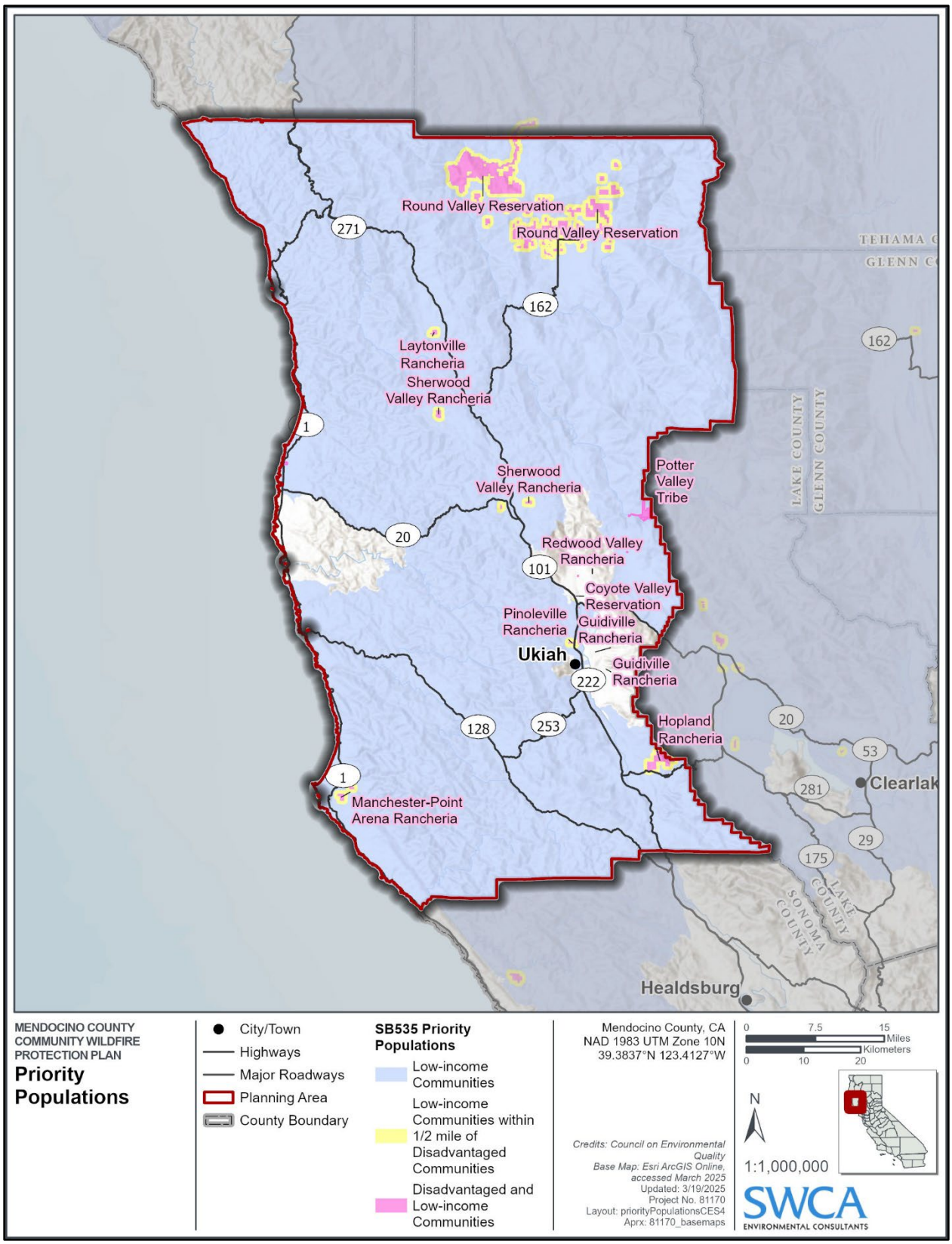

Figure 1.4. Priority populations within Mendocino County as designated by the California Air Resources Board.

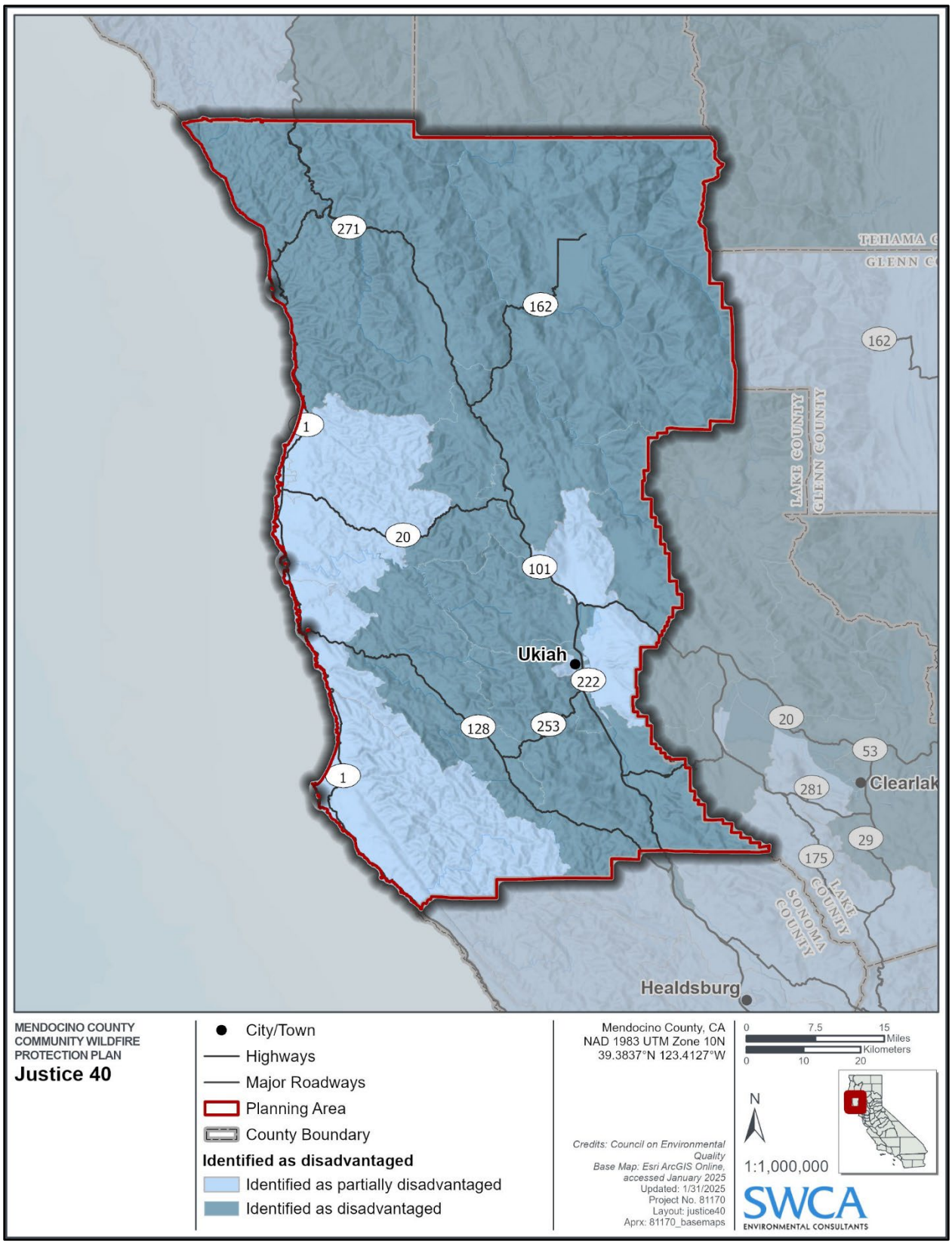

Figure 1.5. Mendocino County Justice40 Initiative designations.

1.7 STATE AND FEDERAL RISK-DESIGNATED COMMUNITIES

1.7.1 COMMUNITIES AT RISK DESIGNATION (FEDERAL AND STATE)

The National Fire Plan allocates funding to reduce wildfire risks to communities, with an initial list of high-risk communities within the wildland-urban interface (WUI) published in the Federal Register in 2001, designated through collaboration between states and federal agencies. Briefly after its inception, states took over the responsibility for updates. For California, the State Forester (CAL FIRE Director) manages the list, and it is important to note that California's unique WUI situation has resulted in an extension of the list beyond communities adjacent to federal lands (CAL FIRE 2023b). Table 1.3 outlines Mendocino County's communities listed as high-risk.

Table 1.3. Communities at Risk within Mendocino County

Community Name	Community Name
Albion	Little River
Anchor Bay	Longvale
Boonville	Manchester
Brooktrails	Manchester Rancheria
Calpella	Mendocino
Camp Rest	Navarro
Caspar	Northspur
Cleone	Philo
Comptche	Piercy
Covelo	Point Arena
Coyote Valley Indian Reservation	Pomo
Cummings	Potter Valley
Dos Rios	Redwood Valley
El Roble	Regina Heights
Elk (Greenwood)	Talmage
Fort Bragg	The Forks
Gualala	Ukiah
Hopland	Vichy Springs
Inglenook	Westport
Laytonville	Willits
Leggett	

Source: CAL FIRE (2023b)

1.7.2 FIRE RISK REDUCTION COMMUNITY DESIGNATION

Assembly Bill 1823 amended Public Resources Code (PRC) 4290.1 to require that on or before July 1, 2022, the State Board of Forestry and Fire Protection to develop criteria for and maintain a "Fire Risk Reduction Community" List of local agencies located in a State Responsibility Area (SRA) or a very high fire hazard severity zone (FHSZ) that meet best practices for local fire planning. The first Fire Risk Reduction Community List was released in 2022, and it is updated every 2 years. There are two non-city/county agencies communities designated as Fire Risk Reduction Communities in Mendocino County: **Leggett Valley Fire Protection District** and **Elk Community Services District**.

For more information about the Fire Risk Reduction Community List, visit https://bof.fire.ca.gov/projects-and-programs/fire-risk-reduction-community-list/.

1.8 LAND OWNERSHIP

Ownership percentages of land in Mendocino County are distributed as follows: private ownership constitutes the largest portion, accounting for 77.4% of the land. The USFS is the second largest owner, with ownership of 8.0% of the land. The BLM manages 5.4% of the land, while the nonprofit conservancies and trusts oversee 2.8%. CAL FIRE holds 2.2% of the land, and the remaining 4.3% of the land is distributed among the Bureau of Indian Affairs (BIA), Department of Defense, local governments, California Department of Parks and Recreation, California Department of Fish and Wildlife (CDFW), and other state lands (Table 1.4; Figure 1.6).

Additional detailed information on the county's geography, infrastructure, demographics, recreation, and wildlife is provided in Appendix B.

Table 1.4. Land Ownership within Mendocino County

Land Ownership	Acres	Percent
Private	1,738,327.3	77.4
USFS	178,979.5	8.0
BLM	120,746.0	5.4
Nonprofit Conservancies and Trusts	62,802.6	2.8
CAL FIRE	48,683.3	2.2
California Department of Parks and Recreation	30,805.9	1.4
BIA	30,127.0	1.3
Other State Lands	23,939.6	1.1
CDFW	5,032.9	0.2
Local Government	3,563.9	0.2
Department of Defense	3,279.1	0.1

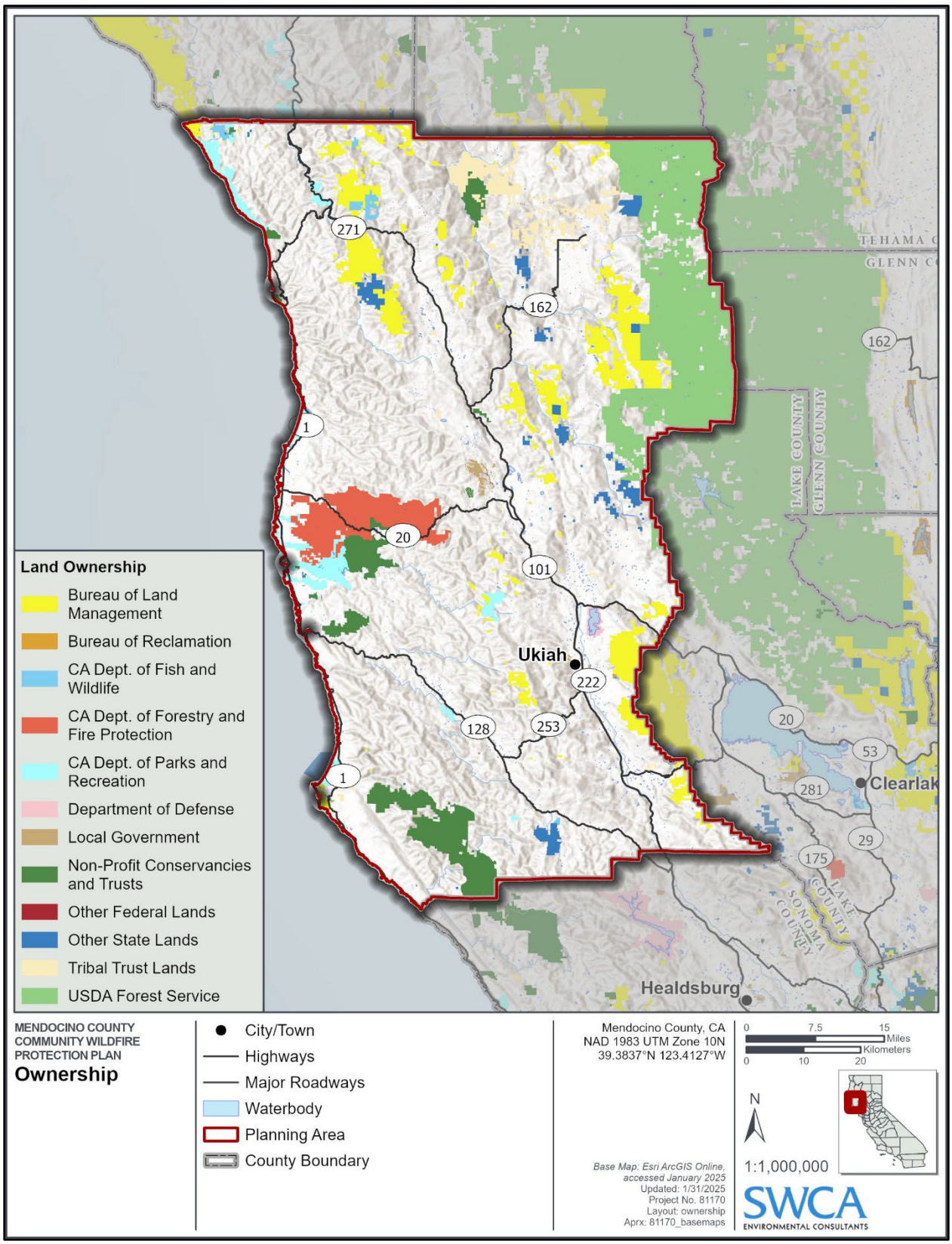

Figure 1.6. Mendocino County land ownership.

1.9 PUBLIC INVOLVEMENT

A key element in the CWPP process is the meaningful discussions it generates among community members regarding their priorities for local fire protection and forest management (SAF 2004). The draft CWPP was made available for public review from February 10 through March 3, 2025. In addition to the CWPP document review, public meetings and events were held to gather community input. These efforts are described in detail in Appendix G, where a detailed description of the community outreach process and community survey results are located.

Every effort was made to include a broad cross section of the community in the outreach process, and different communication channels were used to engage as many members of the public as possible (e.g., social media postings, email distributions, and in-person activities). All community members were welcomed and encouraged to participate in in-person activities such as the tabling event at the Ukiah Pumpkinfest and the public meeting at the Behavioral Health Regional Training Center. Moreover, all community members were provided multiple opportunities to provide input, such as the community survey and CWPP document review.

Recommendations for future community engagement and outreach are provided in Chapter 4, Table 4.2.

Public education and outreach programs are a common factor in virtually every agency and organization involved with the wildfire issue. Detailed information on these programs is provided in Appendix G.

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CHAPTER 2 – FIRE ENVIRONMENT

2.1 WILDLAND-URBAN INTERFACE

The WUI is composed of both interface and intermix communities and is defined as areas where human habitation and development meet or intermix with wildland fuels (U.S. Department of the Interior and U.S. Department of Agriculture [USDA] 2001:752–753). Interface areas include housing developments that meet or are in the vicinity of continuous vegetation. Intermix areas are those areas where structures are scattered throughout a wildland area where the cover of continuous vegetation and fuels is often greater than cover by human habitation.

In addition, the WUI has an area of influence, or influence zone. This area is described with respect to wildland and urban fire; it is an area with a set of conditions that facilitate the opportunity for fire to burn from wildland fuels to the home and or structure ignition zone (National Wildfire Coordinating Group [NWCG] 2021a).

According to the HFRA, the WUI can be defined by a CWPP Core Team. This provides the opportunity for local stakeholders to establish the definition and boundary for the local WUI based on their understanding of the unique resources, fuels, topography, and climatic and structural characteristics of the area. The WUI establishes an area within which to prioritize and plan fuels treatments to mitigate for fire risks.

Given the fuels, topography, wind patterns, and scattered distribution of structures across the region, the Core Team collectively determined that the entire county be designated as WUI, except for the urban cores or developed environments (Figure 2.1).

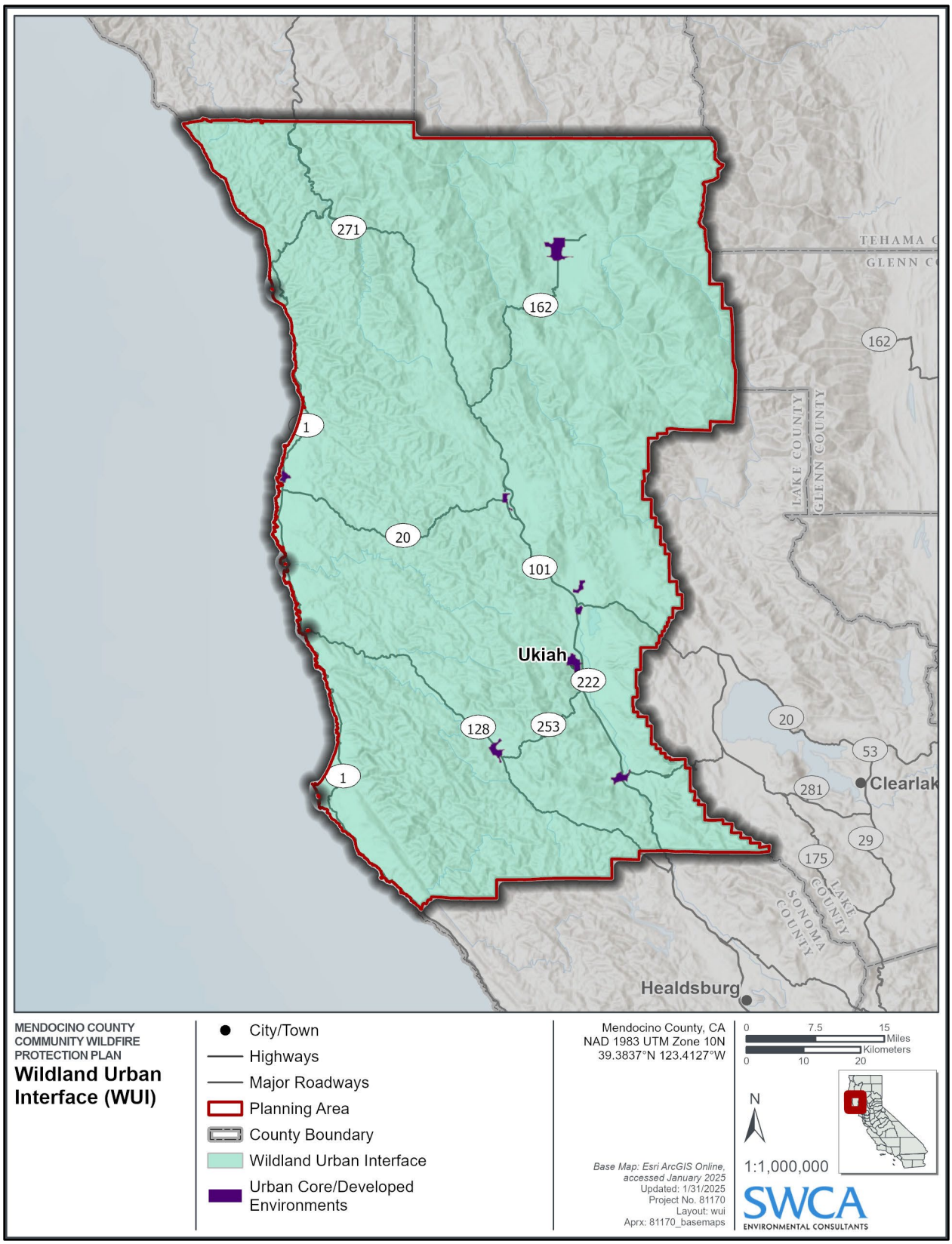

Figure 2.1. Mendocino County WUI delineation.

The WUI creates an environment in which fire can move readily between structural and vegetative fuels, increasing the potential for wildland fire ignitions and the corresponding potential loss of life and property. Human encroachment upon wildland ecosystems within recent decades is increasing the extent of the WUI throughout the country, which is having a significant influence on wildland fire management practices. Combined with the collective effects of aggressive suppression policies, resource management practices, land use patterns, climate change, and insect and disease infestations, the expansion of the WUI into areas with high fire risk has created an urgent need to modify fire management practices and policies and to understand and manage fire risk effectively in the WUI (Pyne 2001; Stephens et al. 2005). Mitigation techniques for fuels and fire management can be strategically planned and implemented in WUI areas (Figure 2.2), for example, with the development of defensible space around homes and structures.

Figure 2.2. Example of the WUI in Mendocino County (Ukiah's Western Hills).
Photo credit: Matt LaFever via https://mendofever.com/2024/11/15/city-of-ukiah-gains-approval-to-annex-western-hills/

2.1.1 WUI LAND USE

Cities and counties are continuously challenged to accommodate both current and future residents in need of safe and affordable housing. In California, approximately 180,000 homes need to be constructed annually to meet demand (California Department of Housing and Community Development 2018). Over the past few decades, jurisdictions across the state have approved many new housing units. These are often placed within or near to wildland areas, creating "wildland-urban interface" (WUI) conditions. Today, more than 46 million residences in 70,000 communities are at risk for WUI fires (U.S. Fire Administration [USFA] 2021a). When it comes to wildfire, this trend is of special concern since WUI conditions are linked with an increased risk of loss of human life, property, natural resources, and economic assets. According to the 2018 Strategic Fire Plan for California, "since the turn of the century there has been a steep increase in structures lost compared to the 1990s" (CAL FIRE 2018b).

Development in high or very high fire hazard areas is required to be constructed in a way that reduces the risk from fire hazards and meets all appropriate county and state fire standards. The requirement includes the use of fire-resistant materials produced to minimize fire susceptibility within high or very high fire hazard areas according to the 2001 California Fire Code, Fire Safe Regulations, and other standards.

New development schemes must contain certain fire protection plans, codes, and actions for fire engineering components for buildings and structures in very high fire hazard zones.

The following sections describe important wildfire attributes within and around the WUI in the county.

Additional Fire Code information, planning processes, and other legislation pertaining to wildfire is described in Appendix A.

Appendix D provides hazard summaries for each community identified during the planning process, and Chapter 4 contains community concerns, potential risks, and project priorities.

2.2 CLIMATE AND WEATHER PATTERNS

The climate of Mendocino County varies based on elevation and coastal proximity but is generally a temperate, Mediterranean climate. There are four climactic influence zones in the county that heavily dictate average temperature and precipitation.

The interior portions of the county experience a wider range of temperatures with winter lows dropping below freezing and summer temperatures above 100 degrees Fahrenheit. For coastal areas, temperatures generally range from winter lows in the 20s to temperatures in the 70s and 80s in the summer. Precipitation in the county is highest during the winter months, November through March. During these months, precipitation ranges between 6 and 9 inches per month. Precipitation is lowest in July through September when weather stations across the county have recorded averages of less than an inch of rain per month. Precipitation is greatest in the northwestern portion of the county. Snowfall is primarily limited to high-elevational portions of the county in the northeast where seasonal totals can reach or exceed 20 inches. Some lower-lying terrain experiences occasional snowstorms, but the accumulation often melts within a few days. Mean annual temperatures and precipitation are listed in Table 2.1 below for three weather stations in Mendocino County.

In addition, Mendocino County is subject to extreme wind events. Indeed, strong wind events are one of the primary types of severe weather events to occur in Mendocino County since the year 2000. Severe wind events can happen anywhere in the county but are more damaging to areas that are heavily wooded (Mendocino County Executive Office, Office of Recovery, and Office of Emergency Services 2020).

Table 2.1. Climate Summaries for Weather Stations in Mendocino County

			Mean Annual Temperature (°F)		
Station	**Period of Record**	**Mean Annual Precipitation (inches)**	**Max**	**Min**	**Mean Annual**
Fort Bragg	1991–2020	43.16	58.7	44.4	51.5
Willits	1991–2020	49.23	67.4	38.7	53.1
Potter Valley Powerhouse	1991–2020	45.03	75.0	43.2	59.1

2.2.1 FUELS AND TOPOGRAPHY WITHIN THE WILDLAND-URBAN INTERFACE

Mendocino County is composed of a diverse landscape with variable topographic features and associated vegetation. The higher-elevation portions of the county, mostly the northeastern portions, contain

mountainous, rugged terrain with steep canyons and valleys that drain larger rivers such as the Eel. Vegetation in this area is composed of grassland, oak woodland, mixed chaparral, and coniferous forests in higher elevations (Mendocino County 2020b).

The southwestern portion of the county comprises lower-elevation valleys and foothills. Vegetation is similar, but with more hardwood buildup in ravine and lower laying areas. Chaparral dominates much of the foothills (Griffith 2016). There are some quick transition areas between foothills and steeper mountainous areas. As you move closer to the coast, grasslands and mixed hardwood tend to dominate (Mendocino County 2020b). Some grasslands have become overgrown with invasive species such as Gorse.

The northwestern portion of the county is the most heavily populated and contains the largest mix of vegetation types ranging from hardwood, grasslands, coniferous communities, and intermixed forests (Griffith 2016). Present species include Douglas-fir, redwood, madrone, coast live oak, coastal scrub and chaparral, and annual grasses. Invasive shrubs and grasses also tend to infiltrate some of the grassland areas (Mendocino County 2020b).

Specific fuel classifications and their respective acreages in Mendocino County are described in Chapter 3.

2.3 FIRE REGIMES

A fire regime refers to the pattern, frequency, and intensity of fires in an ecosystem, including when they occur, how often they happen, how intense they are, and how much area they cover.

The mean fire return interval (MFRI) is a crucial metric in fire ecology that represents the average time between successive fires in a specific area. This measure helps to understand the historical fire regime of an ecosystem, providing insights into the natural frequency of fires that the local vegetation and wildlife have adapted to over time. By analyzing the MFRI, land managers can assess whether current fire frequencies are aligned with these natural patterns, which is essential for maintaining the ecological health and fire resilience of the area. Most of the west half of the planning area has a relatively short MFRI of 16 to 20 years, indicating relatively frequent fire occurrences, and the east half exhibits a mosaic of MFRIs (36–40 years, 61–70 years, and 71–80 years) (Figure 2.3).

Without adequate documentation, it is difficult to assess which fires were purely natural and which were intentionally set cultural fires by Native people. However, it is known that the Native people would routinely set fires in intervals in order to suppress the growth of some plants and to encourage the growth of others: 1 to 3 years in grasslands and oak savannahs where acorns were gathered, 3 to 7 in woody or forested areas, and 10+ years in forested areas with large trees.

LANDFIRE's Vegetation Condition Class is a classification system that describes the degree of departure from natural or historical disturbance regimes, focusing on the associated vegetation structure, composition, and diversity. This system helps in understanding the ecological health of an area and guides land management to restore and maintain resilient ecosystems. The Vegetation Condition Class system categorizes landscapes into three classes based on the degree of departure from historical conditions:

- **Class 1** represents areas that are within the natural range of variability, with low departure from historical conditions. These areas typically maintain healthy ecosystems with vegetation structures and compositions similar to pre-settlement conditions.
- **Class 2** denotes a moderate departure from historical conditions. In these areas, vegetation structure and composition have changed enough to alter ecosystem function. This class often requires some level of management to restore ecological balance and maintain ecosystem health.

- **Class 3** indicates a high departure from historical conditions, with significant changes to vegetation structure, composition, and diversity. These areas are often heavily altered and may require extensive restoration efforts to reduce risks and improve ecological health.

Within each class, there are two subclasses, such as IA and IB, with “B” designating a higher degree of departure. Most of the western portion of the planning area is classified as Vegetation Condition Class IIIA, indicating a very high degree of departure from historical conditions. The majority of the eastern portion of the planning area is classified as Vegetation Condition Class IIB, indicating a high degree of departure (Figure 2.4).

In order to classify, prioritize, and plan for fuels treatments across a fire management region, methods have been developed to stratify the landscape based on physiographic and ecological characteristics. Dominant communities and species present in the planning area are summarized below.

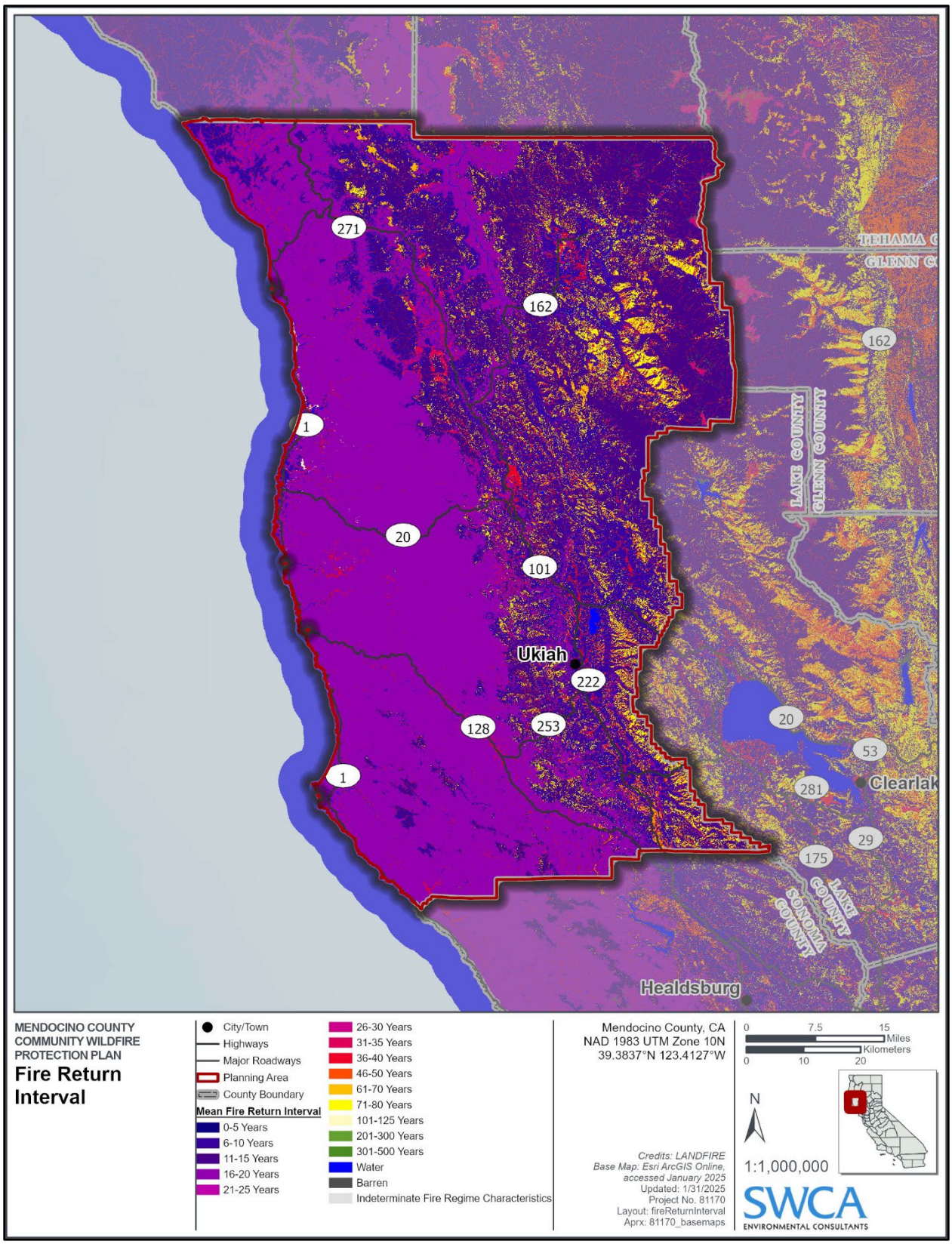

Figure 2.3. Mean fire return intervals across the planning area.

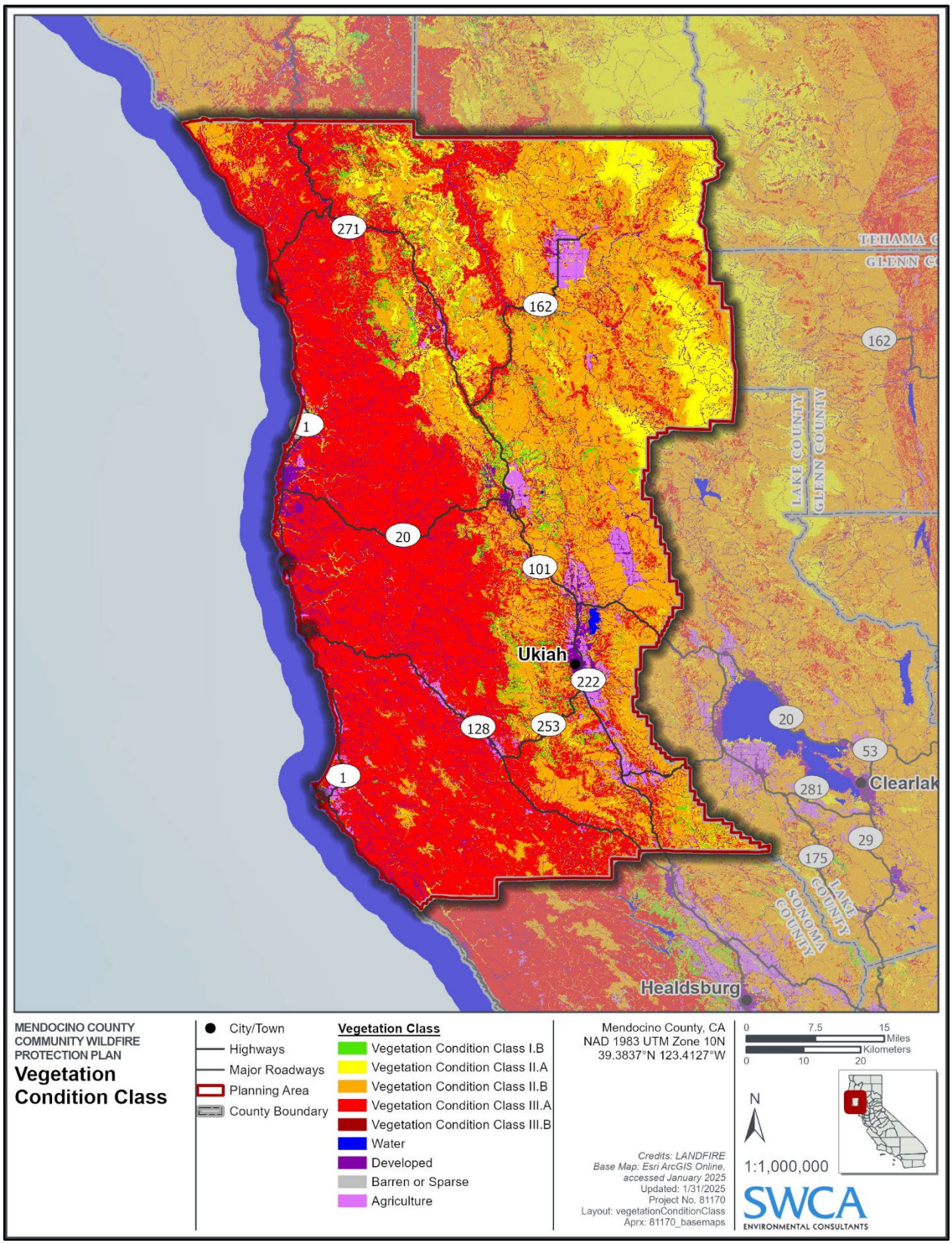

Figure 2.4. Vegetation condition class across the planning area.

2.3.1 ANNUAL GRASSLANDS

Annual grasslands in Mendocino County experience frequent fires, with natural fire return intervals typically ranging from 1 to 10 years. Historically, these grasslands were shaped by both natural ignitions and Indigenous burning practices, which maintained the open grassland structure and promoted biodiversity. Fires in these grasslands are characterized by rapid spread and high intensity due to the fine, continuous fuels provided by annual grasses, often occurring during the dry summer months when conditions are most conducive to fire (University of California, Agriculture and Natural Resources [UCANR] n.d.).

The severity of fires in these grasslands is generally low to moderate, as the fine fuels burn quickly and do not produce prolonged heat that can damage soil structure or deeply affect root systems. However, repeated fires can lead to changes in species composition, favoring fire-adapted and invasive species over native perennials. The fire return interval has been altered by human activities, including fire suppression and land use changes, leading to a dominance of nonnative species such as brome grasses (*Bromus* spp.) and wild oats (*Avena* spp.) (UCANR n.d.).

2.3.2 CHAPARRAL

The mixed chaparral ecosystem in Mendocino County, dominated by species like chamise and red-shank chaparral, is shaped by a fire regime characterized by stand-replacement crown fires occurring every 30 to 90 years, with an average interval of about 55 years. These periodic fires are essential for maintaining the health and diversity of the chaparral landscape, where many species have adapted to fire for regeneration (USFS 2018).

Fire behavior in mixed chaparral is typically intense and fast-moving, driven by the dense, woody shrubs that dominate these habitats. Factors such as fuel load, weather conditions, and topography contribute to this intense fire activity, often leading to complete combustion of aboveground vegetation and a reset of the ecological succession process. The severity of these fires is generally high, which is crucial for the regeneration of many chaparral species, as their seeds often require heat or smoke to germinate (CDFW n.d.a; USFS 2018).

However, fire suppression efforts have disrupted these natural fire intervals, potentially leading to larger and more severe fires when they do occur. The dense shrub layer in these ecosystems, which includes species like ceanothus, manzanita, and scrub oak, not only fuels these intense fires but also provides essential habitat for various wildlife, including birds, mammals, and insects (CDFW n.d.a).

2.3.3 MONTANE HARDWOOD

Montane hardwoods in Mendocino County, including canyon live oak, California black oak, and Oregon white oak, experience a fire regime characterized by low- to moderate-intensity fires occurring at intervals of 5 to 15 years. Historically, these frequent fires played a crucial role in maintaining the health and structure of these woodlands by reducing competition from shrubs and promoting the growth of fire-adapted oak species. However, fire suppression efforts have lengthened these intervals, leading to increased fuel accumulation and potentially more intense fires when they do occur (CDFW n.d.b; UCANR 2024a).

Fires in montane hardwoods typically spread as surface fires, consuming leaf litter, grasses, and small shrubs. These fires generally do not reach the canopy, allowing mature oak trees to survive and continue providing habitat and ecological benefits. The severity of these fires is generally low to moderate, helping to clear the understory without causing significant damage to the mature oak trees. This low severity is

beneficial for the regeneration of oak species, which are adapted to survive and even thrive following fire disturbances (CDFW n.d.b; UCANR 2024a).

Montane hardwoods in this region are dominated by species such as canyon live oak, California black oak, and Oregon white oak. These woodlands provide important habitat for a variety of wildlife, including birds, mammals, and insects. The open canopy and diverse understory support a rich array of plant and animal species, contributing to the overall biodiversity of the region (CDFW n.d.b).

2.3.4 REDWOOD

Redwood habitats, including coast redwood, grand fir, and Sitka spruce, typically experience low- to moderate-severity fire regimes. Historically, these forests saw frequent, low-intensity surface fires every 6 to 25 years, which helped reduce understory vegetation and maintain forest health by preventing the buildup of flammable materials. The dense canopy and moist forest floor influence fire behavior, with the coast redwood's thick bark providing significant protection against fire, while grand fir and Sitka spruce are more susceptible due to their thinner bark and higher resin content (UCANR 2024b).

Fire severity in these habitats can vary, with low-severity fires generally burning the understory without significantly damaging mature trees. However, during droughts or when dry fuels accumulate, fires can become more severe, leading to crown fires that can cause substantial damage (UCANR 2024b).
The historical fire return interval has allowed for the regeneration of fire-adapted species and ecological balance, but 20th-century fire suppression efforts have led to denser forests with higher fuel loads, increasing the risk of severe fires.

2.3.5 DOUGLAS-FIR

Douglas-fir habitats, which include Douglas-fir, tanoak, and ponderosa pine, are adapted to a mixed-severity fire regime. Historically, these forests experienced fires every 10 to 30 years, which helped maintain an open forest structure and reduced competition among species. Frequent, low-intensity fires were common, but occasional high-severity fires also played a role in shaping the landscape. These fires helped to reduce understory vegetation and promote the growth of fire-adapted species like ponderosa pine (Fitzgerald 2005).

Fire behavior in these habitats is influenced by the composition and structure of the forest. Douglas-fir and ponderosa pine have thick bark that provides protection against low-intensity fires, while tanoak can resprout after being top-killed by fire. However, in the absence of regular fire, these forests can become dense with understory growth, increasing the risk of high-severity fires. The historical fire return intervals allowed for the regeneration of these fire-adapted species, but modern fire suppression has led to denser forests with higher fuel loads, making them more susceptible to severe fires (Fitzgerald 2005).

2.4 FIRE HISTORY

Fire is a natural part of California's diverse landscapes and is essential to many ecosystems across the state. Almost all of California's diverse ecosystems are fire-dependent or fire-adapted. For centuries, many California Native American Tribes recognized this interdependence between fire and the ecosystem and used fire to maintain and restore ecosystem health. However, in the 1800s, removal of the Native people's influence on the ecosystem—settlers began enforcing strict fire suppression regimes—led to issues such as dense stand conditions and increased vulnerability to fire. Wildland fire suppression operations, in conjunction with other management actions such as human expansion into wildlands and

climate change, have resulted in an imbalance between wildfire and ecosystem interactions (CDFW 2021).

2.4.1 PAST FIRE MANAGEMENT POLICIES AND LAND MANAGEMENT ACTIONS

Beginning in the early 1900s, wildland fire policy leaned heavily toward aggressive suppression. Over the years, other agencies, such as the BLM, BIA, and National Park Service, have followed the lead of the USFS and adopted fire suppression as the proper means for protecting the nation from wildfire. As a result, many areas now have excessive fuel buildups, dense and continuous vegetative cover, and tree and shrub encroachment into open grasslands. However, more recently, there has been acknowledgment of the active stewardship methods used by California's Native people, as well as the need to reintroduce fire at a significant scale and to utilize natural ignitions for natural resource management and benefit. For example, in 2023, the Biden-Harris administration established the Wildland Fire Mitigation and Management Commission, which emphasizes the need for a proactive approach to wildfire management. Their comprehensive recommendations include strategies for transforming the nation's relationship with wildfire, which involves using prescribed fire and cultural burning to restore fire-adapted ecosystems (USDA 2023b).

2.4.2 RECENT FIRE OCCURRENCE

The analysis below was developed using fire history data from CAL FIRE's Fire and Resource Assessment Program (FRAP) (CAL FIRE 2023c). Although the fire history data from CAL FIRE is the most comprehensive digital record of fire perimeters in California, it has its limitations. CAL FIRE states that the earlier data (i.e., prior to 1950) is subject to significant uncertainty due to poor and inconsistent record keeping (CAL FIRE 2023c). Given the limitations of the data, the fire history analysis below may contain discrepancies. It should also be noted that the most recent decade (2020–2029) contains data only up until 2023.

As of August 2024, California has faced an especially severe fire season, with 5,411 wildfires burning nearly a million acres, damaging or destroying 1,209 structures, and resulting in one civilian fatality (CAL FIRE 2024b). This marks a significant increase compared to the 5-year average, with the acreage burned being over 30 times that of the total fires in 2023. This troubling trend highlights the growing intensity and frequency of wildfires across the state (*Los Angeles Times* 2024).

Mendocino County has not been spared from this increasing wildfire threat. In the county, the total acreage burned per decade has been rising sharply, with nearly 400,000 acres consumed in the past 4 years alone. Although the county has only experienced five fires as of August 2024, each burning less than 100 acres, the region remains highly susceptible to large-scale wildfires. The recent Grange Fire in 2024, while burning only 90 acres, exhausted resources and damaged infrastructure, knocking out telecommunications and utilities, exhausting public water sources, and burning outbuildings and homes (*MendoFever* 2024). The 2020 August Complex and the 2018 Mendocino Complex, two of California's largest wildfires in recent history, occurred in and around Mendocino County, collectively burning nearly 1.5 million acres and 1,215 structures. Additional notable fires include the 2017 Redwood Complex Fire that burned over 36,000 acres, destroying 350 residences and forcing 8,000 residents to evacuate (Mendocino County 2023).

Over the past century, Mendocino County has exhibited a distinct oscillating pattern in fire frequency, alternating between decades of high and low fire occurrences (Figure 2.5). This pattern is also reflected in the fire size, with most fires being of moderate to large size (Figure 2.6). However, despite this oscillation,

the total acreage burned per decade has been increasing significantly (Figure 2.7). Nearly 400,000 acres have burned in the past 4 years alone, a figure that eclipses that of previous decades (1920–2019). The fire history analysis period (1920–2023) shows that Mendocino County has a rich history of fire incidents, with the majority of fires occurring along the central and eastern portions of the county (Figures 2.8 and 2.9). Notably, fire ignitions are mostly concentrated along highways and major thoroughfares (see Figure 2.9). For fires with known ignition dates, the majority are predominantly human caused (Mendocino County 2020a; CAL FIRE 2024a) and occur between June and September, with July having the highest number of fire starts (Figure 2.10). However, the majority of fires in Mendocino County have unknown ignition dates.

Information regarding land management strategies, legislative direction, and wildfire planning within the county can be found in Appendix A.

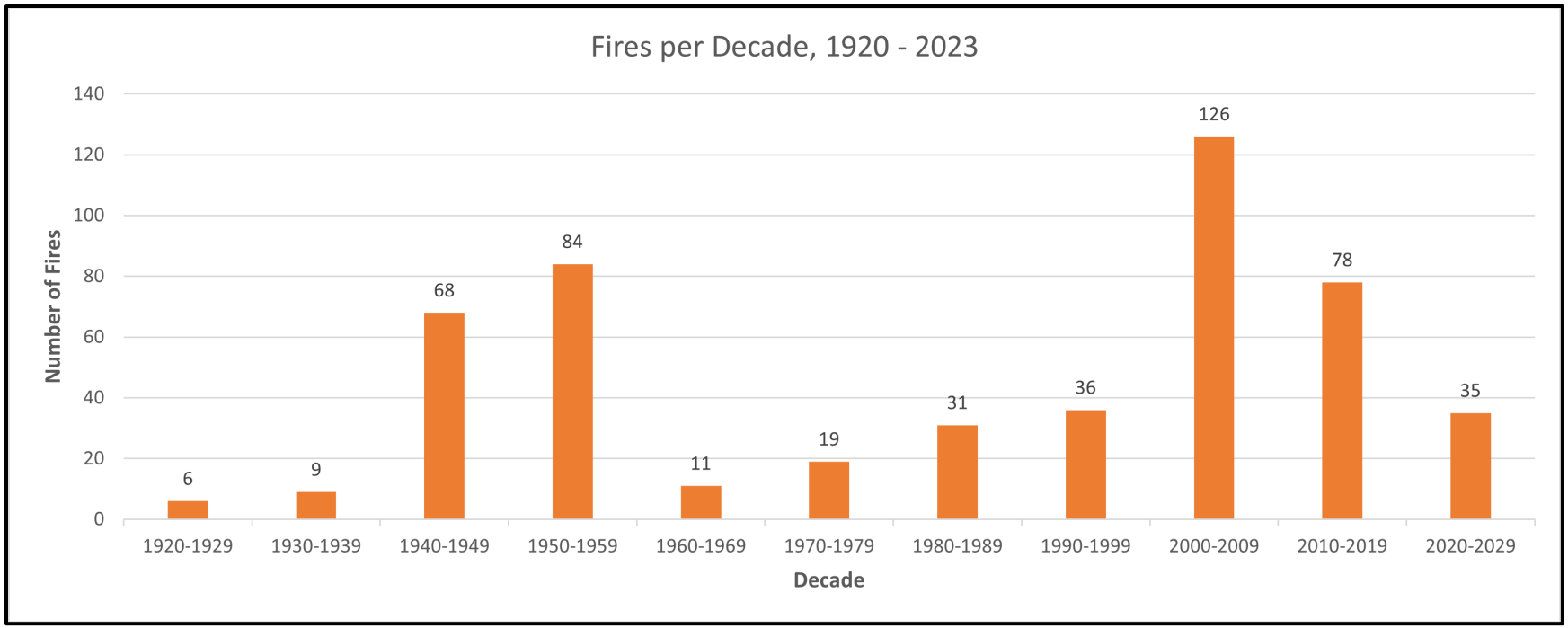

Figure 2.5. Decadal wildfire frequency in Mendocino County from 1920 through 2023, based on available data.

Note: the most recent decade (2020–2029) contains data for 2020 through 2023 only.

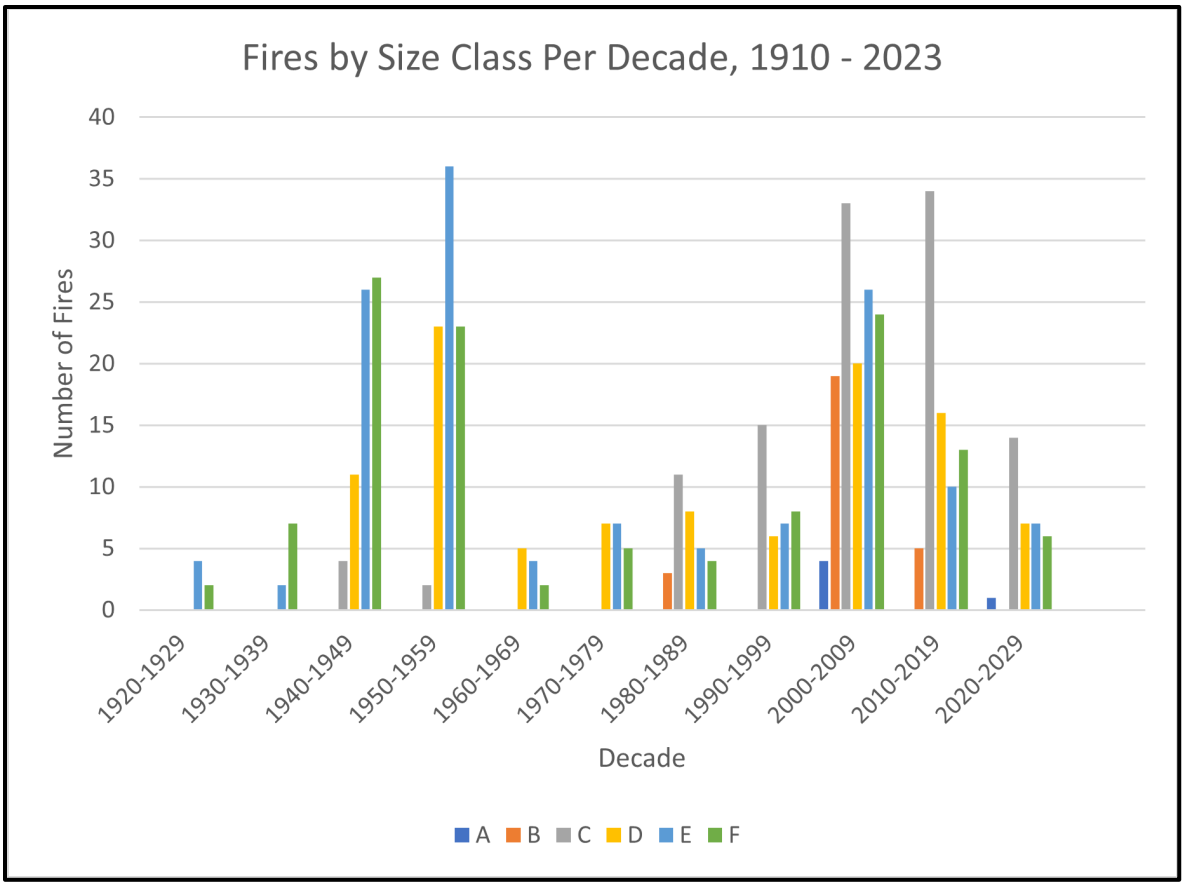

Figure 2.6. Fire size statistics per decade for Mendocino County based on fire history data from 1920 through 2023.

Size Class: A = 0.25 acre or less; B = greater than 0.25 to 10 acres; C = 10 to 100 acres; D = 100 to 300 acres; E = 300 to 1,000 acres; F = 1,000+ acres.

Note: the most recent decade (2020–2029) contains data for 2020 through 2023 only.

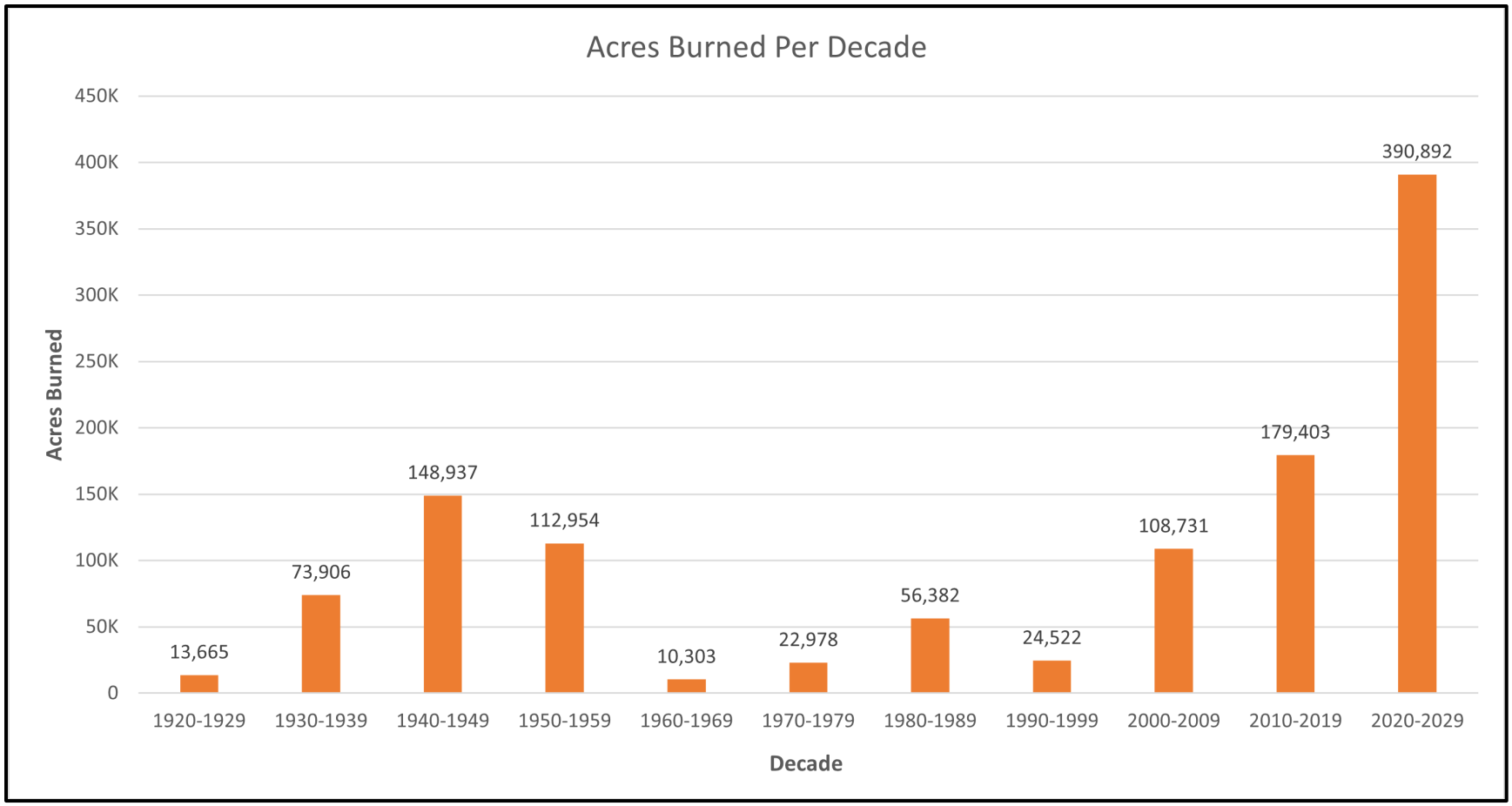

Figure 2.7. Acres burned per decade for Mendocino County based on fire history data from 1920 through 2023.

Note: the most recent decade (2020–2029) contains data for 2020 through 2023.

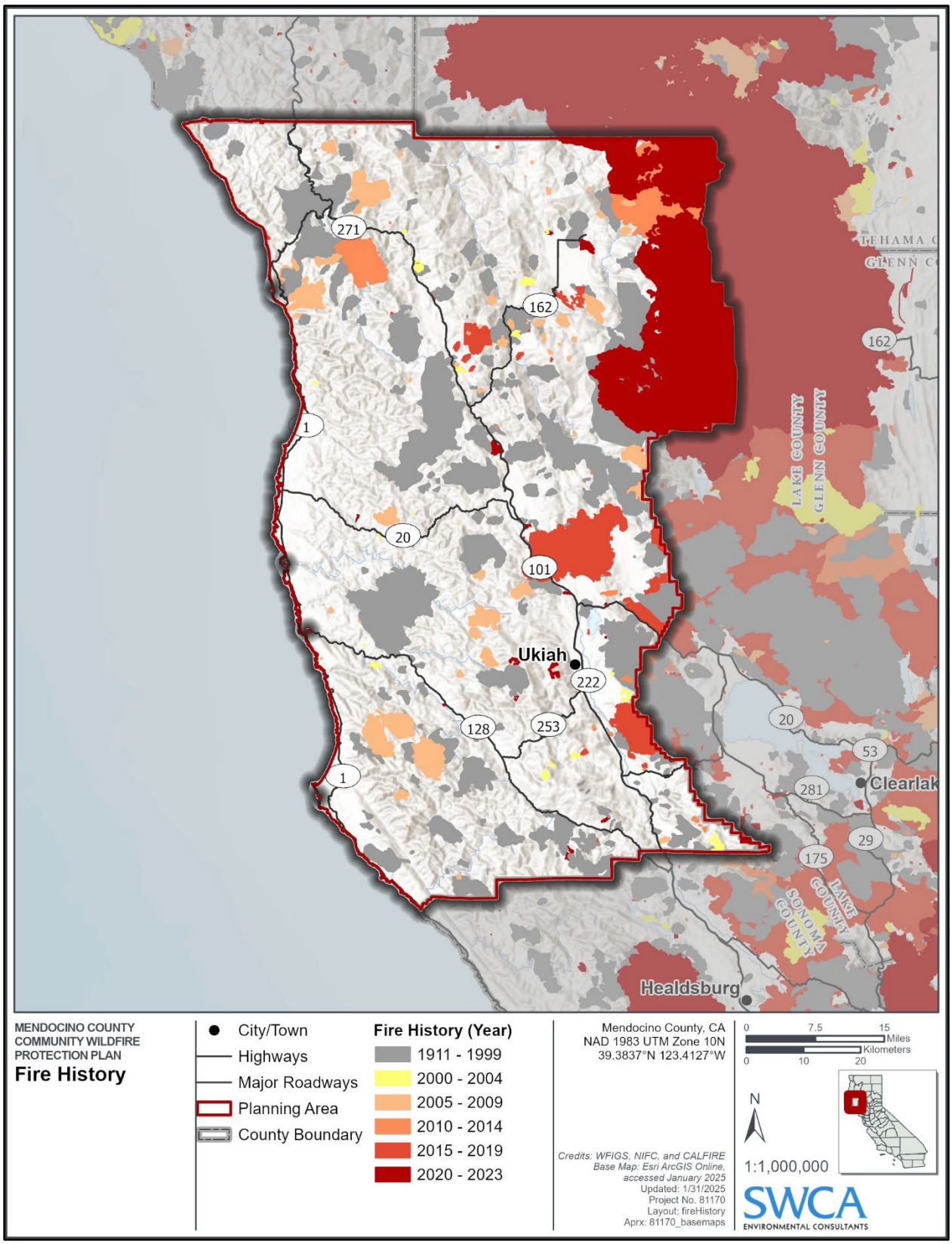

Figure 2.8. Historic fire perimeters for Mendocino County from 1911 through 2023.

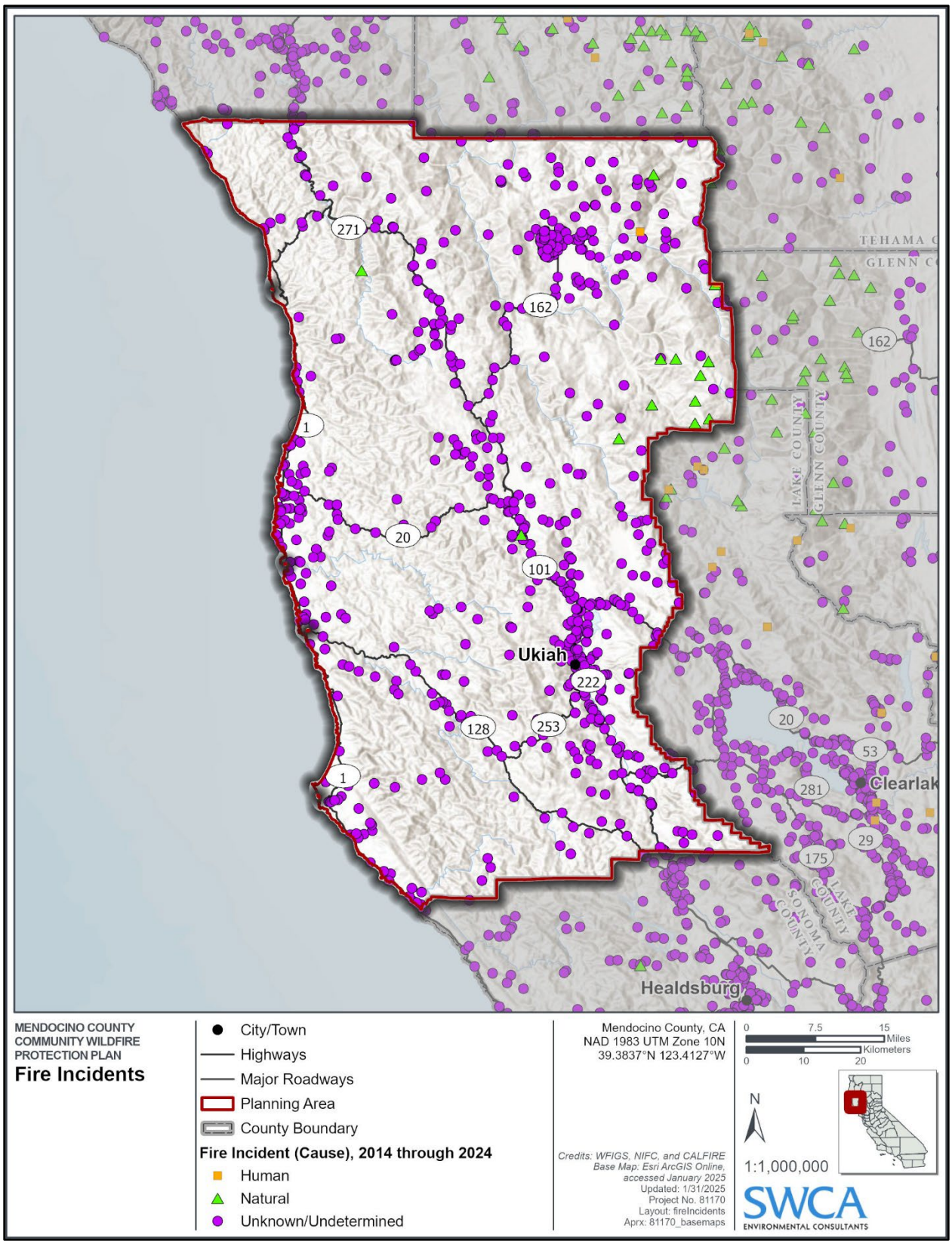

Figure 2.9. Historic fire incidents for Mendocino County from 2014 through 2024.

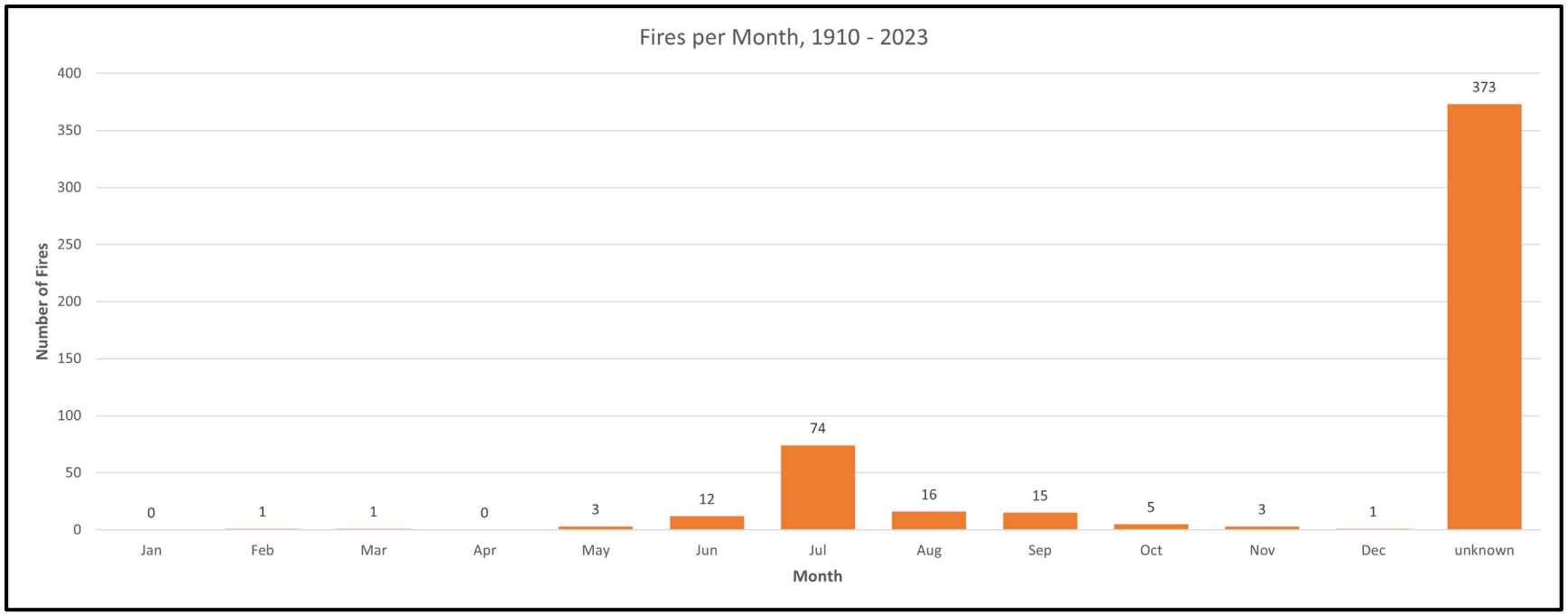

Figure 2.10. Monthly fire frequency in Mendocino County based on data from 1920 to 2023.

2.4.3 FUTURE CHALLENGES

California faces significant challenges in wildfire management due to climate change, changes in fuel composition, and the expansion of the WUI. Frequent drought and suppression-based forest management practices, paired with extractive logging and poor timber reforestation practices, have compounded the problem to increase forest vulnerability resulting in increased fuel buildup and alterations to vegetation composition (CDFW 2021). These factors have led to larger, more severe wildfires that threaten infrastructure and ecosystems.

As fire seasons lengthen and extreme fire weather becomes more frequent, suppressing fires effectively is increasingly difficult. Climate models predict that rising temperatures and more frequent droughts will exacerbate fire conditions by reducing fuel moisture and extending fire seasons. Altered precipitation patterns and increased temperatures are expected to shift vegetation cover, affecting fuel loads and fire regimes (Keely and Syphard 2016). Land managers must adapt and adjust mitigation strategies in response to these evolving conditions.

A major challenge is balancing short-term fire suppression with long-term forest health. Historically, aggressive suppression has led to fuel accumulation, worsening fire severity. Advanced fire management tools often emphasize suppression over broader objectives like ecosystem restoration and sustainable fuel reduction. Future efforts must focus on promoting resilient, fire-adapted landscapes through landscape-scale fire planning (O'Conner, Thompson, and Rodríguez y Silva 2016).

Within the last 10 years, a record number of acres have burned, and numbers have surged since the turn of the century (National Interagency Fire Center [NIFC] 2024). Iglesias et al. (2022) found that average fire occurrences in regions of the United States are up to four times larger in size, more extensive, and triple the frequency during the last two decades. In 2023, 56,580 fires were reported nationwide, burning well over 2.6 million acres (NIFC 2024). Of these, over 324,917 acres were burned in California (CAL FIRE 2023d). With increased fires comes increased suppression costs. The fire year of 2021 beat all previous records, with federal firefighting costs hitting over $4 billion, and 2023 following closely with more than $3.1 billion (NIFC 2024).

Impacts of climate change and tree mortality are discussed in Appendix B.

2.4.4 FIRE RESPONSE CAPABILITIES

California contains many federal, state, and local fire protection organizations that are well integrated through a variety of mutual aid and fire protection agreements and coordinated by organizations such as the California Wildfire Coordinating Group, the Northern and Southern California Geographic Area Coordination Centers, and FIRESCOPE (an interagency resource coordination system for fire and other emergencies in the southern California). Agencies such as California Emergency Management, USFS, BLM, National Park Service, and CAL FIRE contribute to the substantial wildfire response capacity, which can be deployed to incidents throughout the state. California comprises one of the strongest wildfire suppression capabilities in the nation.

Within California, fire responsibility is broken down into three areas: Local, State, and Federal Responsibility Areas (Figure C.1 in Appendix C). Local Responsibility Area (LRA) is a legal term defining the area where the local government has financial responsibility for the prevention and suppression of wildfire. State Responsibility Area (SRA) defines where the state government is responsible for wildfire response, and Federal Responsibility Area (FRA) defines where the federal government is responsible. The majority of the county is within the SRA, followed by the FRA. Additionally, scattered throughout the county are LRAs (see Figure C.1 in Appendix C).

Similarly, Direct Protection Areas (DPAs) are established geographic areas where cooperative fire protection agreements exist between state, federal, and local government agencies. These agreements aim to efficiently deliver fire protection services, safeguarding life, property, and natural resources in areas of mutual concern. While the fire responsibility area designations described above determine the governmental level (local, state, or federal) responsible for fire protection, DPAs further specify the agency that holds this responsibility. DPAs comprise boundaries that transcend statutory responsibilities, with the protecting agency within the DPA assuming both the responsibility for fire suppression and associated fiscal obligations as outlined in the cooperative fire protection agreement. These arrangements ensure effective collaboration and resource allocation during emergencies, with assistance provided either through mutual aid or reimbursement agreements (FIRESCOPE n.d.). The majority of the county is under CAL FIRE's DPA, while the Mendocino National Forest is under the USFS's DPA and local municipalities are under local DPAs (Figure 2.11).

Local Response

At the local level, the commitment to safeguarding communities from the threat of wildfires is a shared responsibility among the 21 local fire agencies (MCFSC 2024b) (Figure 2.12). These departments are listed below.

1. Albion-Little River Fire Protection District
2. Anderson Valley Fire Department
3. Brooktrails Fire Department
4. Comptche Volunteer Fire Department
5. Covelo Fire Protection District
6. Elk Volunteer Fire Department
7. City of Fort Bragg Fire Department
8. Fort Bragg Rural Fire Protection District
9. Hopland Fire Protection District
10. Leggett Valley Fire Protection District
11. Little Lake Fire Protection District
12. Long Valley Fire Protection District (Laytonville Volunteer Fire Department)
13. Mendocino Volunteer Fire Department
14. Piercy Fire Protection District
15. Potter Valley Fire Department
16. Redwood Valley-Calpella Fire Protection District
17. Redwood Coast Fire Protection District
18. South Coast Fire Protection District
19. Ukiah Valley Fire Authority (Ukiah Fire Department merged with Ukiah Valley Fire District)
20. Westport Volunteer Fire Department
21. Whale Gulch Volunteer Fire Company

The fire protection districts (FPDs) are primarily serviced by dedicated volunteer fire departments, each facing common challenges in their mission to protect lives and property. These overarching challenges are listed below.

- **Underfunding:** Lack of consistent, sufficient funding sources.
- **Understaffing:** Many FPDs experience challenges related to understaffing, requiring solutions for recruiting and retaining dedicated volunteers.
- **Aging or Lack of Equipment:** The presence of aging equipment or lack of equipment poses a significant concern, necessitating upgrades and maintenance of critical assets such as vehicles, fire stations, and personal protective equipment.
- **Capacity Constraints:** Limited capacity often hinders FPDs' ability to engage in public education and outreach initiatives.

- **Grant Accessibility:** Securing grants and financial support is vital to bolster resources but accessing them can be challenging.
- **Communication Challenges:** The reliability of radio and cellular coverage in some areas is suboptimal, impacting communication during critical fire response operations.
- **Water Resources:** Access to reliable water resources is essential for an effective firefighting effort, but several FPDs encounter challenges with underdeveloped, faulty, or nonexistent water resources.
- **Recruitment and Retention:** Ensuring a consistent pool of well-trained volunteers is a priority. Addressing recruitment and retention issues is vital to maintain an active and effective fire response force.
- **Resource Allocation:** Some FPDs experience strain on their resources due to responding to calls beyond their designated service areas, requiring optimization of resource allocation for efficient response.

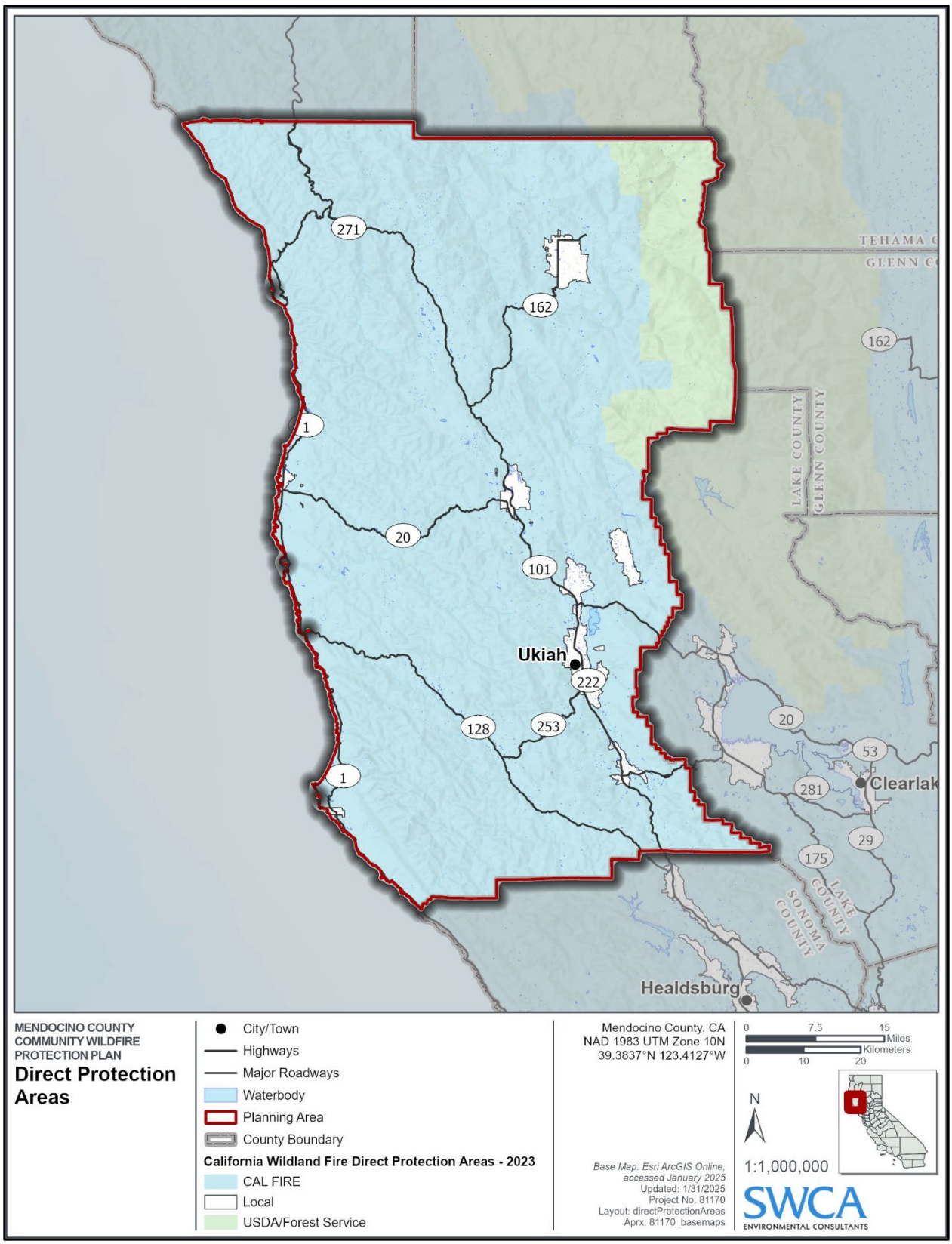

Figure 2.11. DPAs throughout Mendocino County.

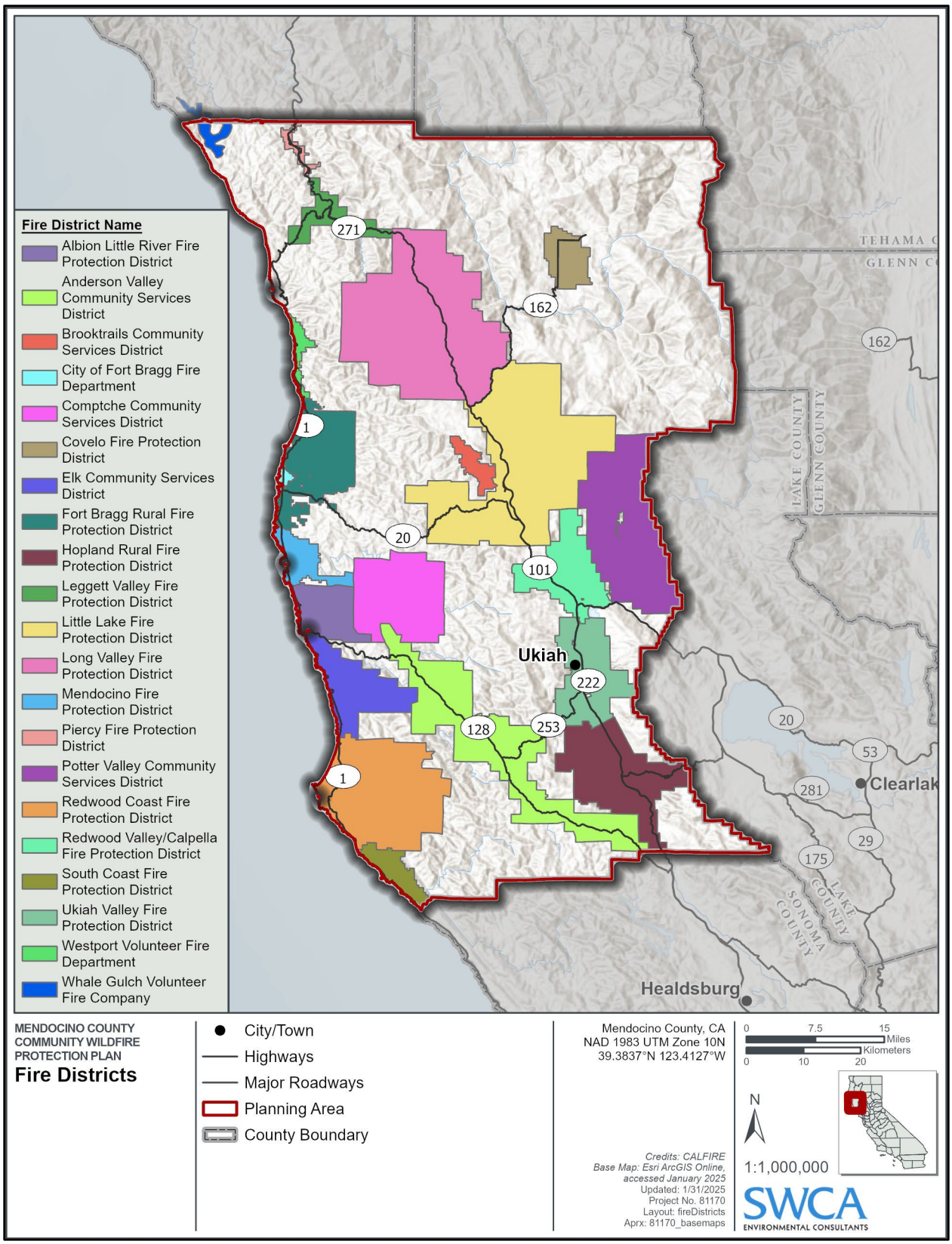

Figure 2.12. FPDs in Mendocino County.

Other Fire Services

Although not an official fire department or fire protection district, the Bell Springs Volunteer Fire Brigade is an organization made up of volunteers who assist locally with fire protection in northern Mendocino County.

State Response

California Department of Forestry and Fire Protection (CAL FIRE) Mendocino Unit

The CAL FIRE Mendocino Unit (CAL FIRE MEU), within Mendocino County, operates with the mission of safeguarding communities, property, and resources across the jurisdiction. This unit aims to reduce total cost and losses from wildland fire by focusing on the goals outlined in California's Strategic Fire Plan. These goals include the evaluation of wildland fire hazards, the collaborative development of local, county, and regional plans to address fire protections, an increase of fire prevention awareness and knowledge, and the development or resources to protect values and to implement fire prevention using adaptive management strategies.

The Mendocino Unit encompasses 2,360,646 acres, with 1,856,728 acres designated as SRA as of 2021 and a DPA covering 2,022,764 acres. Geographically, the unit is divided into six battalions (Figure 2.13). During fire season, suppression resources include approximately 190 career personnel and up to 214 seasonal personnel with augmented staffing. These staff 10 fire stations, 16 engines, five bulldozers, and other essential equipment, providing round-the-clock coverage.

Current fire response resources and personnel are detailed in the 2024 CAL FIRE MEU Unit Plan: 2024 Mendocino Unit Fire Plan

Federal Response

The management of wildfire ignitions for multiple resource objectives (managing naturally burning fires in forests as a tool for helping to restore forest health and mitigating the escalating costs of fire suppression) is practiced on federal land but depends on a thorough assessment of risk to highly valued resources and assets (HVRA) in the WUI. Depending on the location and nature of a wildfire, policies developed through interagency collaboration outline appropriate management responses to guide district personnel in the application of specific suppression techniques. All large wildfire response would be based on assessment using the Wildland Fire Decision Support System (WFDSS) (U.S. Geological Survey [USGS] 2023).

Mendocino National Forest

Overall, the USFS provides wildfire response and management for over 193 million acres of National Forest System land within the United States (CRS 2023). In California, National Forest lands are considered FRAs, which are regions where the federal government is responsible for fire response. On USFS land, the USFS has the responsibility for initial attack (initial response). Fire response in the Mendocino National Forest is dispatched via the Mendocino Interagency Dispatch Center. The USFS maintains mutual aid agreements with CAL FIRE and local fire departments. Under the agreements, agency personnel may respond to incidents outside their agency boundaries.

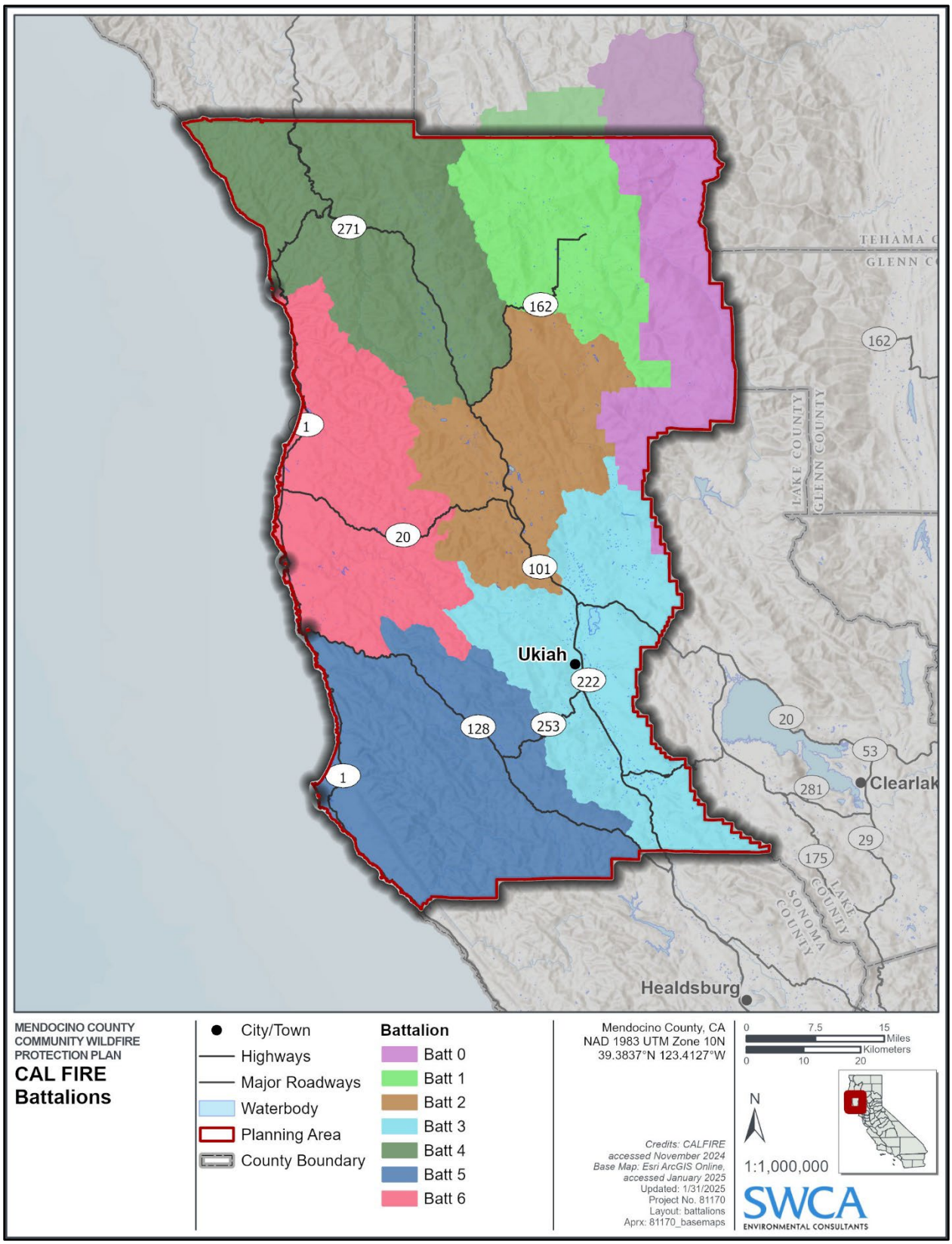

Figure 2.13. CAL FIRE MEU and battalion boundaries.

Mutual Aid

The wildland fire community is well known for its development of mutual aid agreements at the federal, state, and local levels. Such agreements allow for the closest forces to respond to an incident as quickly as possible regardless of jurisdiction. Such agreements may also describe how reimbursement will be conducted; state resources responding to wildfires on federal land may have their associated costs reimbursed by the responsible federal agency, and the reverse is true for federal resources suppressing a wildfire on state land.

The CAL FIRE MEU participates in the statewide mutual aid system and maintains agreements with local response organizations, including incorporated cities, neighboring counties, and state and federal wildland agencies.

Evacuation Resources

Evacuation planning is a joint effort among county departments, with law enforcement as the lead agency. At a county level, evacuation routes and procedures are detailed in the Mendocino Evacuation Plan, which is part of the Mendocino County Emergency Operations Plan (Mendocino County 2020b), and the Mendocino County Hazard Mitigation Plan (Mendocino County 2020c).

Mendocino County offers two services for emergency notifications. The primary system is MendoAlert (Everbridge), and the secondary system is Nixle. The County encourages residents to register for both.

Sign up for MendoAlert here: https://mendoready.org/

Sign up for Nixle here: https://mendoready.org/

For more information about emergency notifications and preparedness, please visit https://mendoready.org/.

In addition, Mendocino County uses the Genasys Protect emergency communications platform to inform and notify residents about important emergency information, such as evacuation orders and zones, shelters, road closures, and more.

The Evacuation Maps Platform can be found here: https://mendoready.org/

Animals and Livestock

In the event of a wildfire, it is important that residents and fire responders have a plan for evacuation of pets and livestock. Evacuation planning often neglects to describe how animals will be evacuated and where they will be taken. The loading of horses, for example, during a fire and smoke situation, and transport of stock vehicles down narrow roads under stressful situations, can be very difficult. Public education could emphasize the need for individuals to have a plan for the evacuation of pets in addition to their family, ensuring a lack of planning doesn't slow or prevent evacuation.

There is also a need to pre-identify where animals can be taken, such as county fairgrounds, for large animal shelter. Similarly, locations where small animals such as dogs and cats are picked up in the fire area should also be pre-identified, as well as the lead agencies, such as humane societies, coordinating this work.

Mendocino County helps with evacuating small and large animals from fire areas, including horses and livestock. You can find animal evacuation planning resources for the county here: https://www.mendocinocounty.gov/departments/animal-care-services/community/disaster-preparedness-planning

Agricultural Pass Program

Mendocino County's Agricultural Pass (Ag Pass) program was developed with local agencies to allow commercial livestock owners, agricultural producers, authorized cannabis operators, and kennel operators essential access to care for their animals or farming commodities during restricted access times, such as wildfires. For livestock operators, the program is designed to enable them to feed, water, transport, and medically treat their animals when emergencies occur. The California Department of Food and Agriculture provides an overview of the process:

1. **Application:** Eligible operators apply for the Ag Pass through the Mendocino County Agricultural Department. This process includes verification of eligibility and completion of required training.
2. **Training:** Applicants must complete the USFA's *Introduction to Wildland Fire Behavior* (S-190) training, which helps them understand fire behavior and how to safely navigate restricted areas.
3. **Issuance:** Upon completing the application and training, operators receive an Ag Pass, allowing limited access to their properties during emergencies for essential animal care tasks.
4. **Access:** In an emergency, passholders must request entry from public safety officials. The pass does not guarantee re-entry, as safety remains the priority. Public safety officials will assess conditions before granting access.

For more information, please visit the following links:

https://www.mendocinocounty.gov/departments/agriculture/agpass

https://www.cdfa.ca.gov/AHFSS/Animal_Health/eprs/docs/livestock_agricultural_pass_program_process.pdf

Water Availability and Supply

Water availability for firefighting within communities depends on the local water system. Broadly speaking, the larger communities, such as incorporated municipalities, in Mendocino County have dependable water sources and infrastructure, while the smallest and remote communities generally depend on individual wells for residences and lack a hydrant system. Water sources are variable throughout the county, depending on location and may include hydrants, water tanks, water tenders, cisterns, swimming pools, streams, and wells.

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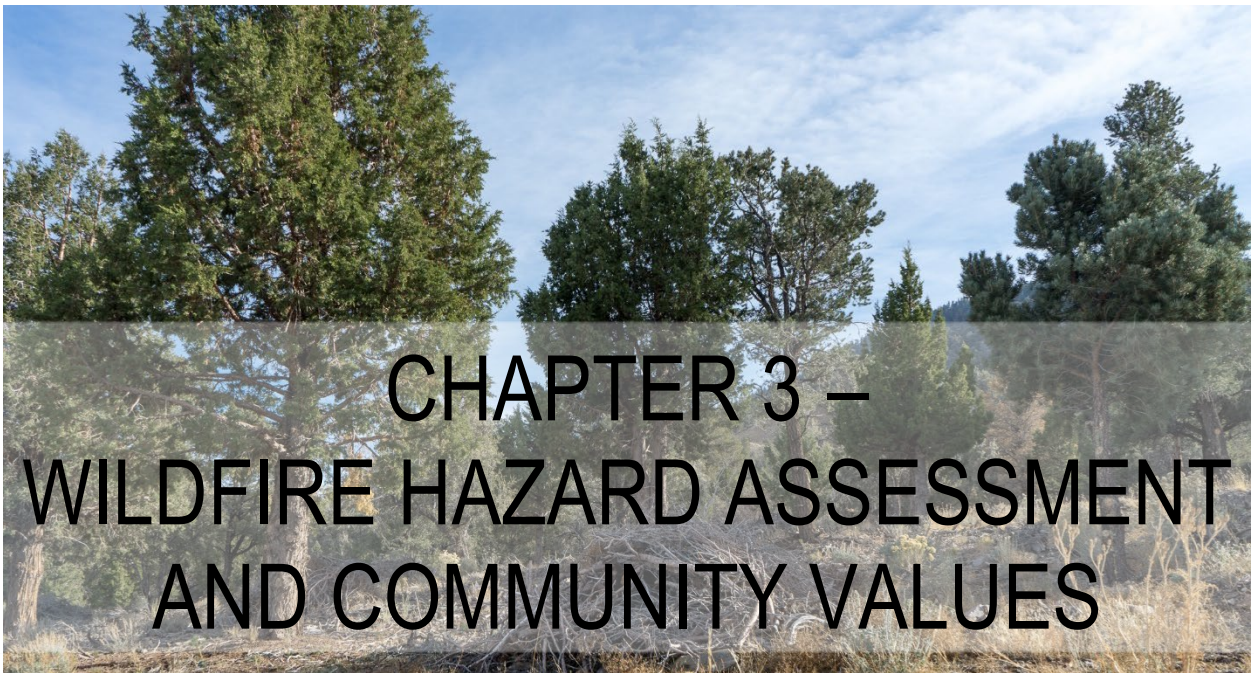

CHAPTER 3 – WILDFIRE HAZARD ASSESSMENT AND COMMUNITY VALUES

3.1 PURPOSE

The wildfire hazard assessment aims to provide insights into the hazards and potential risks of wildland fires to communities within Mendocino County's WUI areas. The wildfire hazard assessment combines the findings from a GIS-based fire behavior and fuels modeling technology and an analysis of existing hazard data provided by state and federal sources. In addition, Core Team input further refines and enhances the assessment of hazards and potential risks.

It is important to recognize that hazard sources, such as fuel type, condition, loading, and arrangement, are dynamic and constantly evolving. Fuels play a critical role in wildfire hazard assessments, as they directly influence fire behavior (e.g., intensity) and form the foundation for existing hazard analyses like CAL FIRE's fire hazard severity zones (FHSZs). Consequently, fuel loading and moisture conditions may differ by the time the priority projects outlined in this plan are implemented.

From this wildfire hazard assessments, land use managers, fire officials, planners, and others can begin to prepare strategies and methods for reducing the threat of wildfire, as well as work with community members to educate them about methods for reducing the damaging consequences of fire. The fuels reduction treatments can be implemented on both private and public land, so community members have the opportunity to actively apply the treatments on their properties, as well as recommend treatments on public land that they use or care about.

The Mendocino County Multi-Jurisdictional Hazard Mitigation Plan (Mendocino County Executive Office, Office of Recovery, and Office of Emergency Services 2020) lists wildfire as a high-priority countywide hazard.

Disclaimer

The purpose of this hazard assessment is to provide a community- and landscape-level overview of wildfire hazards and is not recommended for use at smaller scales (such as for a property level analysis). It is also not recommended for use in determining insurance rates or policies. This hazard assessment is a model, and as such has inherent biases, missing data, and other shortcomings, though every effort has been made to include the best available data and use the most robust scientific processes. Also note that just because an area is shown as having hazards or lacking hazards does not mean that the area will be burned or not burned in a wildfire—an area with a relatively low number of hazards can still be affected by wildfire if the conditions are right. This hazard assessment is also not intended for use during active wildfire events, but rather only as a tool for pre-fire planning. It is not recommended that this hazard assessment be used for any other purpose than what is stated here.

3.2 HAZARD ASSESSMENT

The hazard assessment evaluates wildland fire hazards and potential risks in Mendocino County using a combination of GIS-based fire behavior and fuels modeling, existing hazard data from state and federal sources, and input from the Core Team to refine and enhance the analysis. Key factors considered include fuel type and loading, weather and fire danger, fire behavior (such as type, rate of spread, and flame length), fire history, ember exposure, building and infrastructure exposure, egress challenges, suppression difficulty, tree mortality, utility-related ignition hazards, and CAL FIRE's statewide FHSZs. While providing a detailed snapshot of current wildfire hazards, this assessment may not fully reflect future conditions as they evolve.

Hazard summaries as well as community-level maps for each community are in Appendix D.

3.2.1 EXISTING HAZARDS ANALYSIS

CAL FIRE's Fire Hazard Severity Zones

In accordance with PRC 4202, CAL FIRE maintains fire hazard severity zone (FHSZ) data for the entire state. The FHSZs rely on the most advanced scientific data and are determined by considering key factors such as vegetation, topography, and weather (CAL FIRE 2023e). There are three classes of fire hazard severity ratings within FHSZs: moderate, high, and very high (California Governor's Office of Planning and Research [CA GOPR] 2022). These zones represent hazards across the landscape, with "hazard" defined by physical conditions that indicate the likelihood and expected fire behavior over a 30- to 50-year period, excluding mitigation measures such as home hardening, recent wildfires, or fuel reduction efforts. It's important to note that hazard levels do not directly indicate the potential damage a fire may cause. Figure 3.1 shows the FHSZs for Mendocino County based on data available at the time of plan development. The majority of the county is classified as high or very high hazard, with the eastern portion of the county having considerably higher portions of very high hazard areas. Additionally, many urban centers such as Ukiah, Covelo, and Willits are bordered by very high hazard landscapes. CAL FIRE recently reviewed and updated FHSZs for SRAs in 2023 and approved county maps in April 2024. Updated SRA FHSZ maps and interactive viewer can be found here: Fire Hazard Severity Zones | OSFM (ca.gov). FSHZs for the LRA are currently in development and expected for release in early 2025.

Regulatory background regarding the development and updates of FHSZs are summarized in Appendix A.

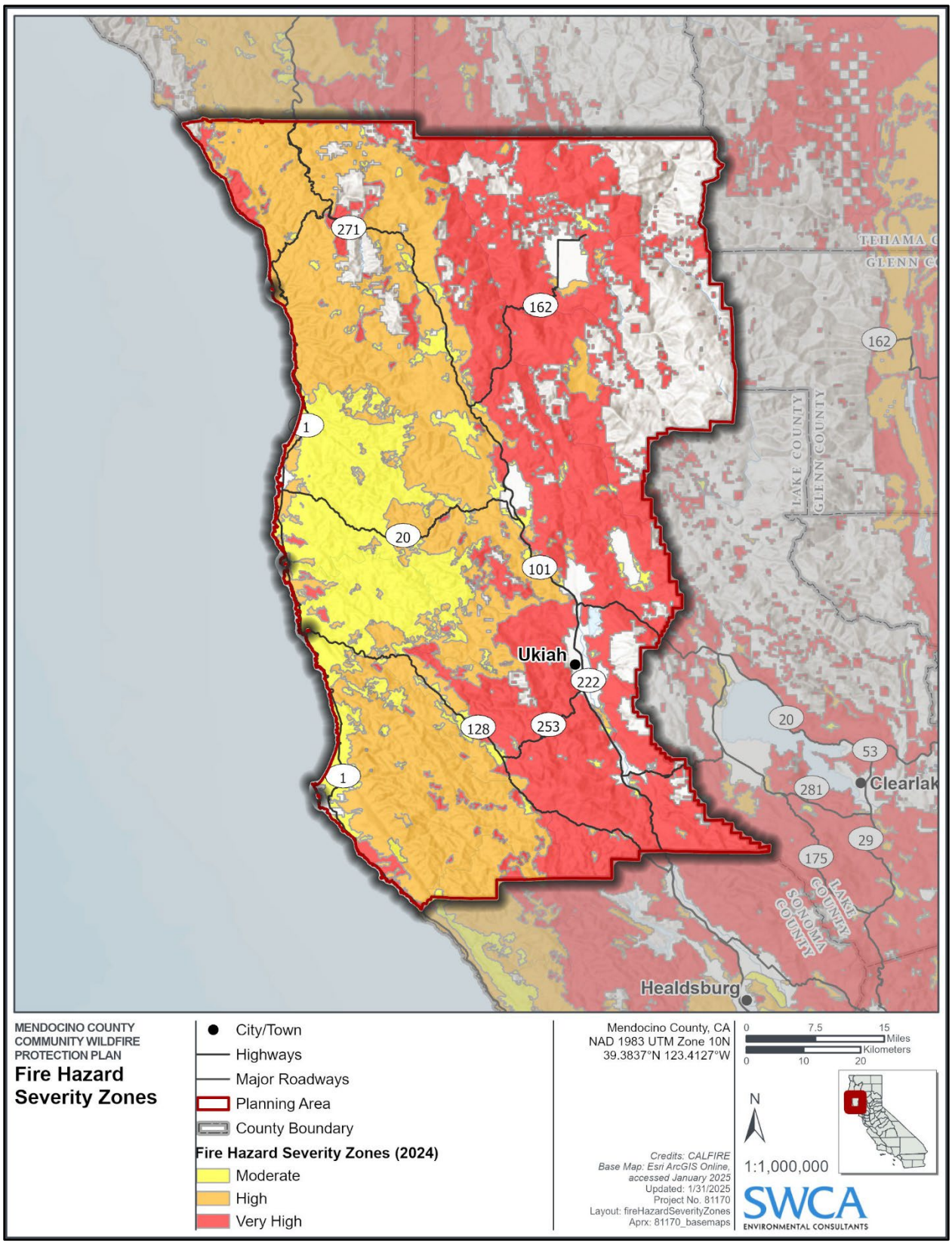

Figure 3.1. CAL FIRE's FHSZs for Mendocino County

Egress Challenges

California State Board of Forestry and Fire Protection Subdivision Review Program

California PRC 4290.5 establishes the Subdivision Review Program. The California Board of Forestry and Fire Protection consults with the State Fire Marshal and relevant local governments through the program to identify subdivisions with over 30 dwelling units in the SRA or very high FHSZs that lack a secondary egress route and are at significant fire risk. As part of this program, recommendations must be created to improve the fire safety of all identified subdivisions. The Subdivision Review Program partners with CAL FIRE and local governments to provide communities with assistance in fire hazard planning (CAL FIRE 2024c).

There are 44 subdivisions in Mendocino County that fall within the criteria of the Subdivision Review Program and are at significant fire risk and lack a secondary egress route. These subdivisions are identified in Figure 3.2 and Table 3.1. Table 3.1 provides linked CAL FIRE reports for each subdivision, detailing specific recommendations and information on access and evacuation, water sources, residential structure types, local topography, and vegetation types.

For more information about the Subdivision Review Program, visit https://osfm.fire.ca.gov/what-we-do/community-wildfire-preparedness-and-mitigation/subdivision-review-program.

In addition, CAL FIRE maintains a live mapping application with all identified subdivisions, including those in the review process and those that weren't approved. The mapping applications can be accessed at: https://experience.arcgis.com/experience/74787e13de0c443eb80e27abc176b8fa.

It should be noted that there are many communities, subdivisions, and other inhabited areas in Mendocino County that lack secondary egress options (e.g., the Eel River/Van Arsdale Reservoir area). Areas such as these are not currently captured in the Subdivision Review Program.

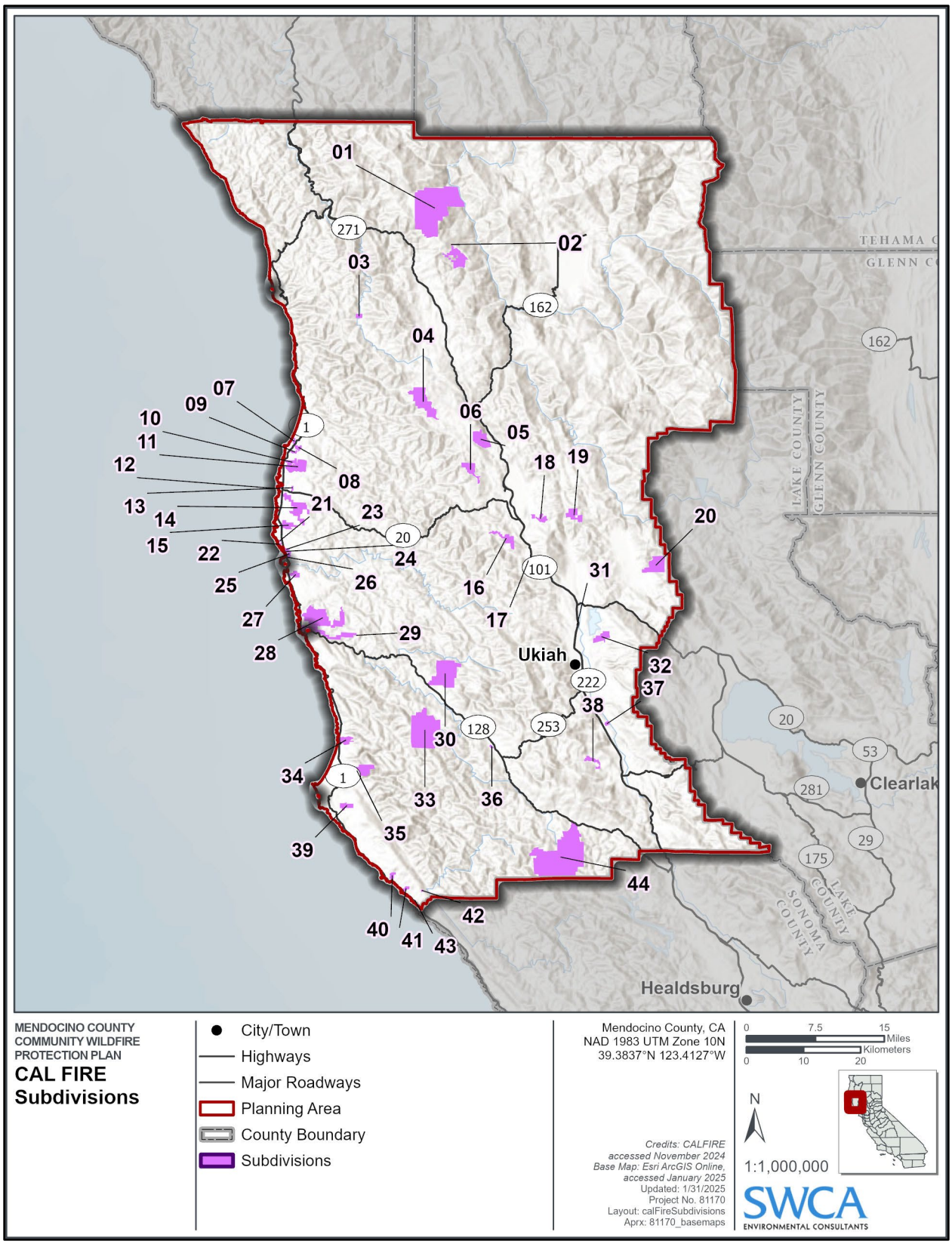

Figure 3.2. CAL FIRE subdivisions without a secondary means of egress that are at significant fire risk, as of December 2024.

Table 3.1. Mendocino County CAL FIRE Subdivisions without a Secondary Means of Egress, as of December 2024

Map ID	Subdivision Name	FHSZ	Address	City/Town	Report and Recommendations Link
1	Spyrock	High	4200 Spyrock	Laytonville	Link
2	Stivers	Very High	48301 Stivers Rd	Laytonville	Link
3	Wilderness Lodge	High	40000 Wilderness Lodge Rd	Branscomb	Link
4	Sherwood Ranch	Moderate	33500 Sherwood Rancheria Rd	Willits	Link
5	Third Gate	High	7401 Third Gate Rd	Willits	Link
6	Goose	High	2535 Goose Rd	Willits	Link
7	Ward	Moderate	25800 Ward Ave	Fort Bragg	Link
8	Mill Creek	Moderate	32901 Mill Creek Dr	Fort Bragg	Link
9	Westwood	Moderate	32200 Westwood Dr	Fort Bragg	Link
10	Airport	High	32820 Airport Rd	Fort Bragg	Link
11	Pudding Creek	Moderate	32700 Pudding Creek Rd	Fort Bragg	Link
12	Del Mar	Moderate	19201 Del Mar Dr	Fort Bragg	Link
13	Noyo Acres	Very High	19070 Noyo Acres Dr	Fort Bragg	Link
14	Simpson	Moderate	32950 Simpson Ln	Fort Bragg	Link
15	Fern Creek	High	44800 Fern Creek Rd	Caspar	Link
16	Ridgeview	High	14981 Ridgeview Rd	Willits	Link
17	Mobile Village Way	Moderate	10755 Mobile Village Way	Redwood Valley	Link
18	Ridgewood	High	2800 Ridgewood Rd	Willits	Link
19	Scenic	Very High	19500 Scenic Dr	Redwood Valley	Link
20	Pine	Moderate	12000 Pine Ave	Potter Valley	Link
21	Point Cabrillo	Moderate	13070 Point Cabrillo Dr	Mendocino	Link
22	Cypress	Moderate	45100 Cypress Dr	Mendocino	Link
23	Woodstock	High	44930 Woodstock Dr	Mendocino	Link
24	Baywood	Very High	44901 Baywood Dr	Mendocino	Link
25	Larkin	Very High	45020 Larkin Rd	Mendocino	Link
26	Hills Ranch	High	10881 Hills Ranch Rd	Mendocino	Link
27	Gordon	High	44900 Gordon Ln	Mendocino	Link
28	Albion Ridge	Very High	33730 Albion Ridge Rd	Albion	Link
29	Navarro Ridge	High	33821 Navarro Ridge Rd	Albion	Link
30	Nash Mill	High	78050 Nash Mill Rd	Philo	Link
31	Pomo	High	480 Pomo Ln	Ukiah	Link
32	Deerwood	High	2400 Deerwood Dr	Ukiah	Link
33	Signal Ridge	High	6101 Signal Ridge Rd	Philo	Link
34	Sea Cypress	High	43981 Sea Cypress Dr	Manchester	Link
35	Crispin	High	43971 Crispin Rd	Manchester	Link
36	Airport Rd	Moderate	13461 Airport Rd	Boonville	Link

Map ID	Subdivision Name	FHSZ	Address	City/Town	Report and Recommendations Link
37	Sanel	Moderate	760 Sanel Dr	Ukiah	Link
38	Feliz Creek	Moderate	4550 Feliz Creek Rd	Hopland	Link
39	Pine Reef	High	24001 Pine Reef Rd	Point Arena	Link
40	Sunset	High	46650 Sunset Dr	Gualala	Link
41	Glennen	High	37160 Glennen Dr	Gualala	Link
42	Moonrise	High	44910 Moonrise Dr	Gualala	Link
43	S Highway 1	Moderate	38851 S Highway 1	Gualala	Link
44	Elkhorn	High	27430 Elkhorn Rd	Yorkville	Link

Tree Mortality

CAL FIRE Tier 1 Tree Mortality Zones

Large standing snags are often structurally weakened and more likely to fall during or after a wildfire. Burning snags can complicate control efforts by lofting embers, firebrands, and burning debris, which can breach control lines. Additionally, fallen snags can obstruct ingress and egress routes, posing safety risks and potentially necessitating the cordoning off of areas to protect firefighters. This can further hinder line construction efforts. From a wildfire management perspective, prioritizing snag removal in high-probability fire zones should be considered to mitigate these risks.

Tier One High Hazard Zones are considered as having the highest potential of being a safety issue to people, buildings, and infrastructure. Designated by state and local governments, these zones are considered the highest priority for tree removal. Additionally, they support broader forest health and landscape-level fire planning efforts (CAL FIRE 2021a). Tier One High Hazard Zones in Mendocino County are displayed in Figure 3.3.

CAL FIRE's live mapping application, "California Tree Mortality Viewer," can be accessed at: https://hub-calfire-forestry.hub.arcgis.com/apps/CALFIRE-Forestry::california-tree-mortality-viewer/explore.

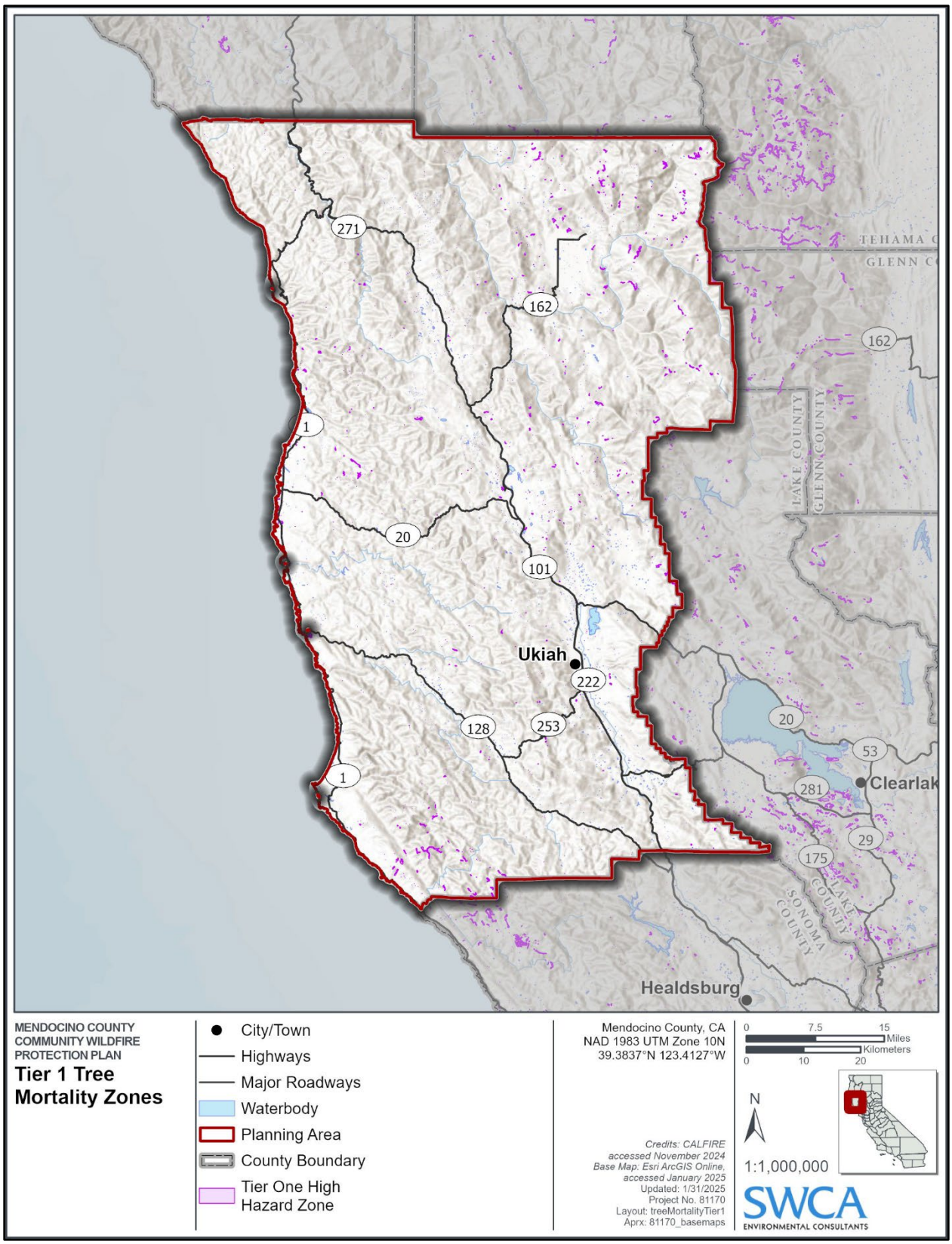

Figure 3.3. Tier 1 Tree Mortality Zones.

Suppression Challenges

Suppression Difficulty Index

Figure 3.4 shows the level of difficulty in performing fire control work on the landscape. The index considers topography, fuels, expected fire behavior under severe fire weather conditions, firefighter line production rates in various fuel types, and accessibility (distance from roads/trails).

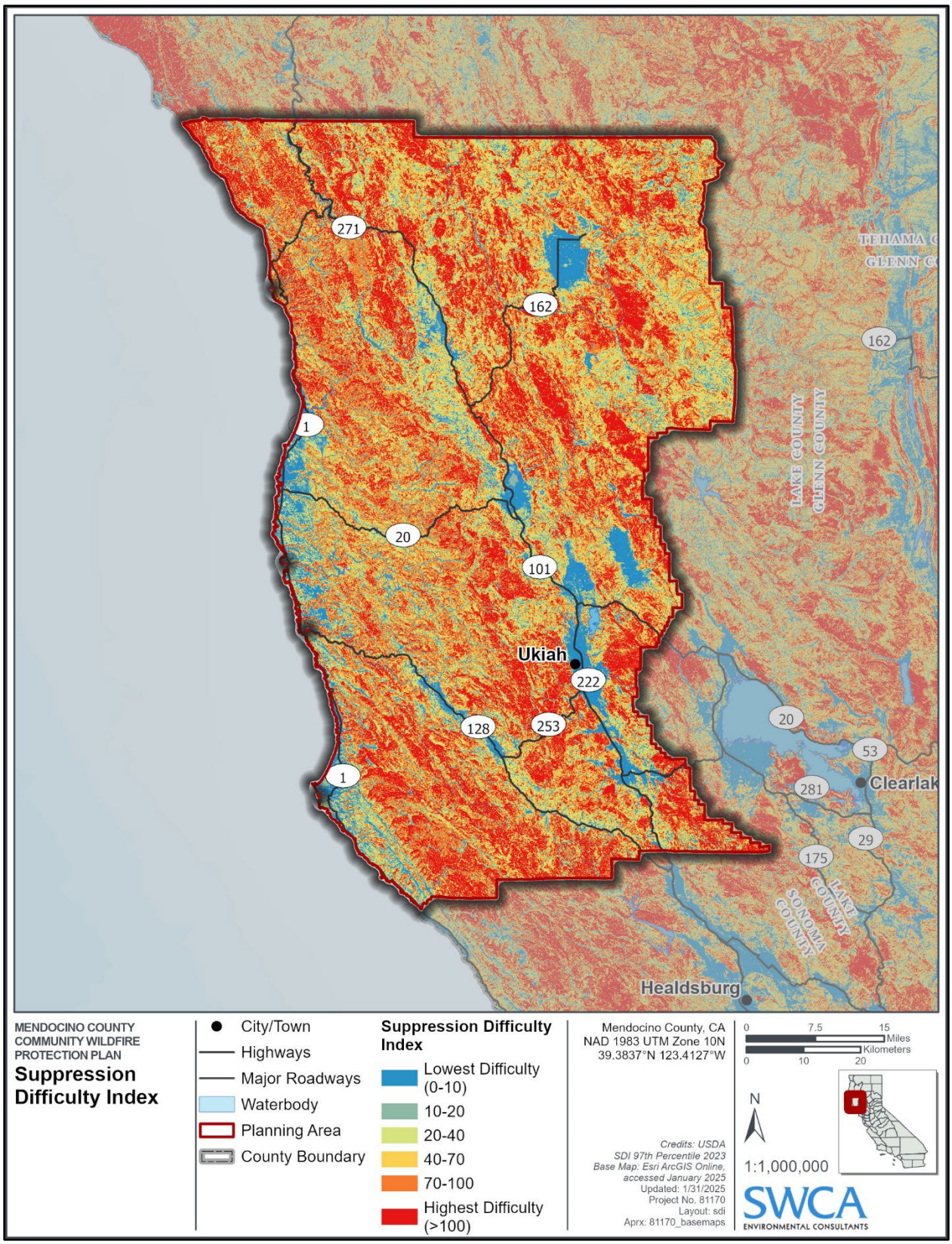

Figure 3.4. Suppression difficulty index.

Utility-Related Wildfire Threats

California Public Utilities Commission Fire Threat Maps

Tier 3 fire threat areas identify regions with an extreme risk of wildland fire spread caused by utility-related ignitions, including the likelihood of occurrence and potential impacts on people and property (California Public Utilities Commission 2024a). Figure 3.5 displays Tier 3 fire threat areas in Mendocino County.

An interactive mapping application that shows all fire threat tiers can be accessed at: https://www.arcgis.com/apps/webappviewer/index.html?id=5bdb921d747a46929d9f00dbdb6d0fa2.

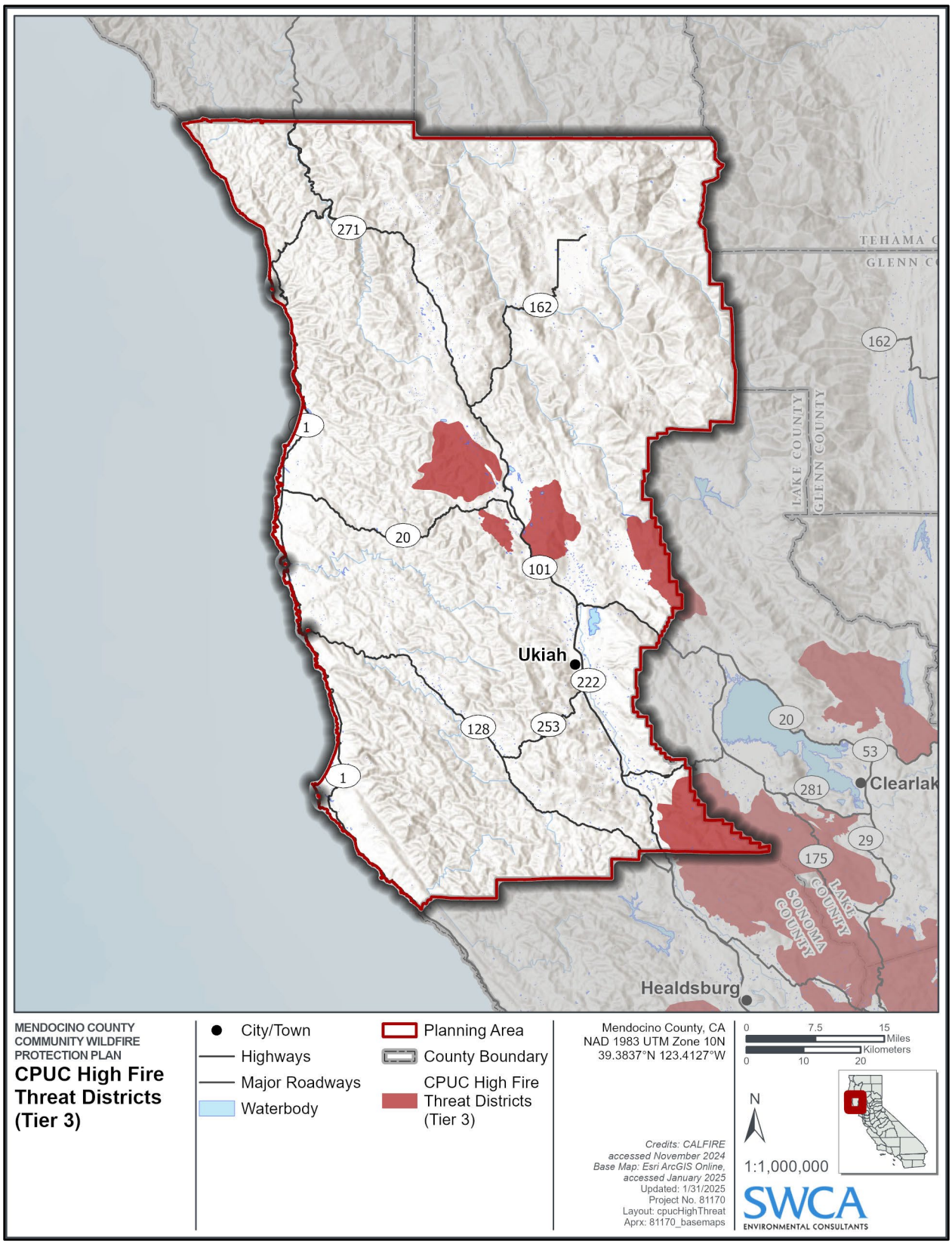

Figure 3.5. California Public Utilities Commission Tier 3 High Fire Threat Districts.

PG&E Ignitions

Figure 3.6 shows PG&E ignition incident data from 2020 to 2023. These points represent all ignitions PG&E is aware of involving their equipment where a self-propagating fire traveled over 1 linear meter from the ignition point. Fires involving only electrical and communication facilities and no other materials are excluded from these points. Data on past ignitions have value in demonstrating that fire ignitions can occur from utility infrastructure but do not necessarily represent where the future risk resides. Data were acquired from the California Public Utilities Commission (2024b).

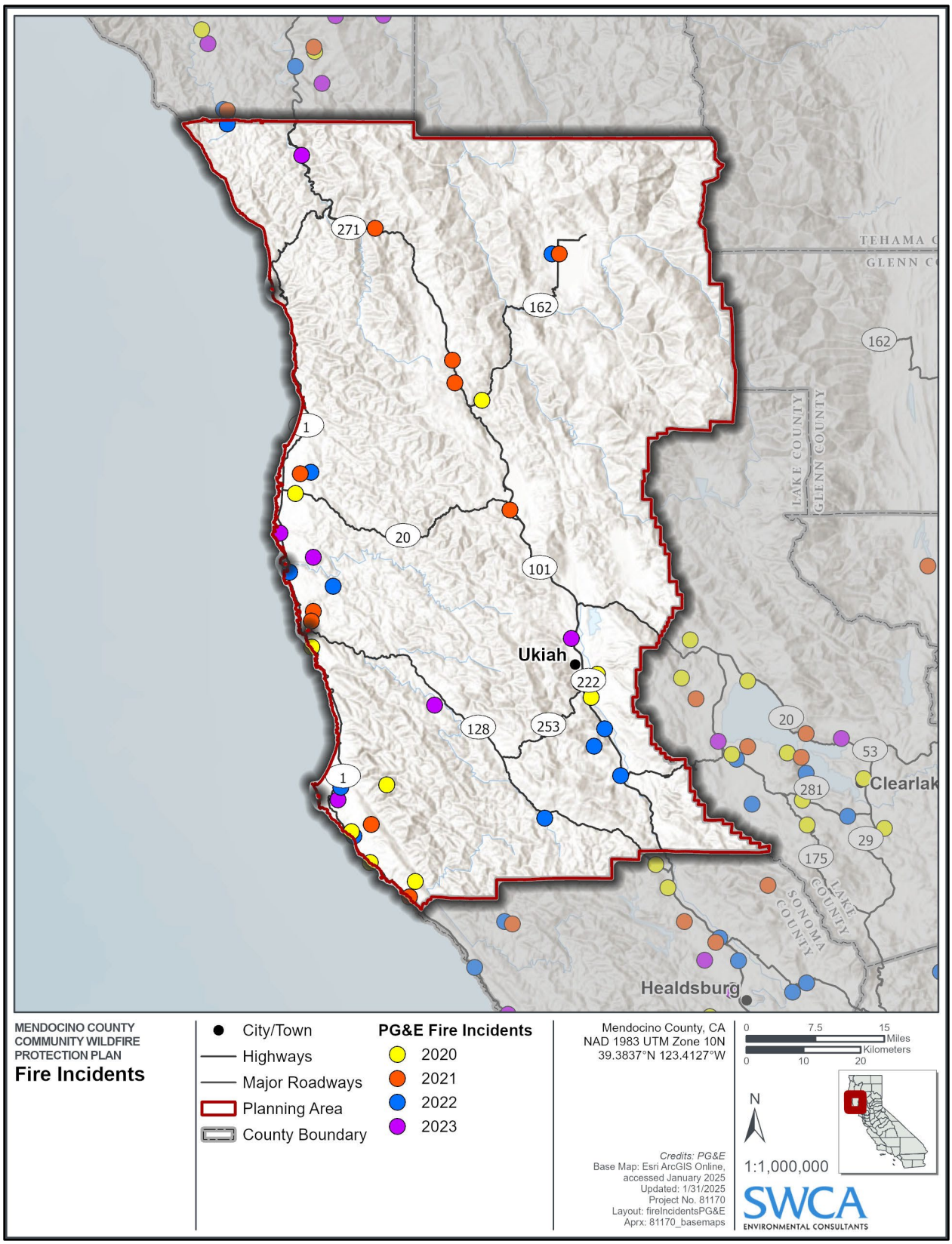

Figure 3.6. PG&E fire incidents.

3.2.2 FIRE BEHAVIOR MODELING

The wildland fire environment consists of three factors that influence the spread of wildfire: fuels, topography, and weather. Understanding how these factors interact to produce a range of fire behavior is fundamental to determining treatment strategies and priorities in the WUI. In the wildland environment, vegetation is synonymous with fuels. When sufficient dry fuels for continued combustion are present, the level of risk for those residing in the WUI is heightened.

There are three primary modes of fire spread: surface fire spread, crown fire, and spotting (Figure 3.7). Surface fire spread occurs at ground level, crown fire spreads through the upper forest canopy, and spotting involves the transportation of embers ahead of the main fire.

For this plan, an assessment of fire behavior has been carried out using well-established fire behavior models: FARSITE, FlamMap, BehavePlus, and FireFamily Plus, housed within the Interagency Fuel Treatment Decision Support System (IFTDSS), as well as ArcGIS Desktop Spatial Analyst tools. Data used in the hazard assessment are largely obtained from LANDFIRE (2023).

Fire Behavior Models

LANDFIRE

LANDFIRE is a national remote sensing analysis project that provides managers with a data source for inputs needed for FARSITE, FlamMap, and other fire behavior models. Topography, wildland fire behavior fuel models, and canopy characteristic layers were obtained from LANDFIRE for the modeled landscapes. The database is managed by the USFS and the U.S. Department of the Interior and is widely used throughout the United States for land management planning. More information can be obtained from http://www.landfire.gov.

FARSITE

FARSITE is a computer model based on Rothermel's spread equations (Rothermel 1983) and Huygen's principle of wave propagation (Anderson et al. 1981); the model also incorporates crown fire models. FARSITE uses spatial data on fuels, canopy cover, crown bulk density, canopy base height, canopy height, aspect, slope, elevation, and hourly wind and weather to model fire behavior across a landscape. FARSITE is a spatial and temporal fire behavior model. FARSITE is used to generate fuel moisture and landscape files as inputs for FlamMap. Information on fire behavior models can be obtained from http://www.fire.org.

FlamMap (Grid)

Like FARSITE, FlamMap (grid) uses a spatial component for its inputs but provides fire behavior predictions for a single set of wind and weather inputs only, burning every cell on the landscape without a fire perimeter to ignite from. In essence, FlamMap gives fire behavior predictions across a landscape for a snapshot of time; however, FlamMap grid outputs do not display fire spread across the landscape. FlamMap has been used for the CWPP to predict fire behavior across the landscape under extreme (97% worst case) fire danger scenarios. For this CWPP assessment, the model was run within the IFTDSS modeling platform.

(1) Surface Fire

(2) Crown Fire

(3) Embers (airborne burning debris)

Figure 3.7. Images depicting the three methods by which wildfire can spread: surface fire, crown fire, and spotting.

Image 1 shows fire spread along the surface (e.g., grasses, shrubs), Image 2 shows fire spreading through the tree canopy (e.g., ladder fuels), and Image 3 depicts spotting (embers). Image 3 source: https://www.nist.gov/feature-stories/piecing-together-timeline-californias-deadliest-wildfire

Fire Behavior Model Inputs

Topography

Topography is important in determining fire behavior. Steepness of slope, aspect (direction the slope faces), elevation, and landscape features can all affect fuels, local weather (by channeling winds and affecting local temperatures), and the subsequent rate of spread and intensity of wildfire.

Weather

Of the three fire behavior components, weather is the most likely to fluctuate, especially on a daily basis. Accurately predicting fire weather remains a challenge for forecasters. Downslope and upslope winds, combined with rising temperatures and drying fuels in the spring and summer, can rapidly deteriorate conditions, creating an environment highly susceptible to wildland fires. Fine fuels (grass and leaf litter) can cure rapidly, making them highly flammable in as little as 1 hour following changes in relative humidity. Low live fuel moistures of shrubs and trees can significantly contribute to fire behavior in the form of crowning and torching. With high wind, grass and shrub fires can spread rapidly, engulfing communities, often with limited warning for evacuation. The creation of defensible space is of vital importance in protecting communities from this type of fire. For instance, a carefully constructed fuel break placed in an appropriate location could protect homes or possibly an entire community from fire. This type of defensible space can also provide safer conditions for firefighters, improving their ability to suppress fire and protect life and property.

One of the critical inputs for FlamMap is the fuel moisture files. The run of the hazard assessment utilized the IFTDSS Auto 97th modeling parameters, integrates historic fire weather data from nearby Remote Automated Weather Stations.

Fuels

The fuels in Mendocino County are classified using Scott and Burgan's (2005) Standard Fire Behavior Fuel Model classification system. This classification system is based on the Rothermel surface fire spread equations, and each vegetation and litter type is broken down into 40 fuel models.

The general classification of fuels is by fire-carrying fuel type (Scott and Burgan 2005):

- (NB) Non-burnable
- (GR) Grass
- (GS) Grass-Shrub
- (SH) Shrub
- (TU) Timber-Understory
- (TL) Timber Litter
- (SB) Slash-Blowdown

Table 3.2 provides a description of each fuel type, and Table 3.3 contains the major fuel types in Mendocino County. Figure 3.8 illustrates the fuel types throughout the county.

The fuels model was created using the LANDFIRE 2023 dataset. However, as the landscape is a dynamic environment, the data may not accurately reflect on-the-ground conditions when the projects outlined in this plan are implemented.

Table 3.2. Fuel Model Classification for Mendocino County

1.	**Nearly pure grass and/or forb type (Grass)**
i.	**GR1:** Grass is short, patchy, and possibly heavily grazed. Spread rate is moderate (5–20 chains/hour); flame length low (1–4 feet); fine fuel load (0.40 ton/acre).
ii.	**GR2:** Moderately coarse continuous grass, average depth about 1 foot. Spread rate high (20–50 chains/hour); flame length moderate (4–8 feet); fine fuel load (1.10 tons/acre).
iii.	**GR3:** Very coarse grass, average depth 2 feet. Spread rate high (20–50 chains/hour); flame length moderate (4–8 feet).
iv.	**GR4:** Moderately coarse continuous grass, average depth 2 feet. Spread rate very high (50–150 chains/hour); flame length high (8–12 feet).
v.	**GR5:** Dense coarse continuous grass, average depth 1-2 feet. Spread rate very high (50–150 chains/hour); flame length high (8–12 feet).
vi.	**GR6:** Dryland grass about 1 to 2 feet tall. Spread rate very high (50–150 chains/hour); flame length very high (12-25 feet).
vii.	**GR7:** Moderately coarse continuous grass, average depth about 3 feet. Spread rate very high (50–150 chains/hour); flame length very high (12-25 feet).
viii.	**GR8:** Heavy, coarse, continuous grass 3 to 5 feet tall. Spread rate very high (50–150 chains/hour); flame length very high (12-25 feet).
ix.	**GR9:** Very heavy, coarse, continuous grass 5 to 8 feet tall. Spread rate extreme (>150 chains/hour); flame length extreme (>25 feet).
2.	**Mixture of grass and shrub, up to about 50% shrub cover (Grass-Shrub)**
i.	**GS1:** Shrubs are about 1-foot high, low grass load. Spread rate moderate (5–20 chains/hour); flame length low (1–4 feet); fine fuel load (1.35 tons/acre).
ii.	**GS2:** Shrubs are 1–3 feet high, moderate grass load. Spread rate high (20–50 chains/hour); flame length moderate (4–8 feet); fine fuel load (2.1 tons/acre).
iii.	**GS3:** Moderate grass and shrub load, average depth less than 2 feet. Spread rate high (20–50 chains/hour); flame length moderate (4–8 feet).
iv.	**GS4:** Heavy grass/shrub load, depth greater than 2 feet. Spread rate high (20–50 chains/hour); flame length very high (12–25 feet).
3.	**Shrubs cover at least 50% of the site; grass sparse to nonexistent (Shrub)**
i.	**SH1:** Low fuel load, depth about 1 foot, some grass fuels present. Spread rate very low (0–2 chains/hour); flame length very low (0–1 foot).
ii.	**SH2:** Moderate fuel load (higher than SH1), depth about 1 foot, no grass fuels present. Spread rate low (2–5 chains/hour); flame length low (1–4 feet); fine fuel load (5.2 tons/acre).
iii.	**SH3:** Moderate shrub load. Fuel bed depth 2–3 feet. Spread rate low (2–5 chains/hour), flame length low (1–4 feet).
iv.	**SH4:** Low to moderate shrub and litter load, possibly with pine overstory. Fuel bed depth about 3 feet. Spread rate high (20–50 chains/hour); flame length moderate (4–8 feet).
v.	**SH5:** Heavy shrub load, depth 4 to 6 feet. Spread rate very high (50–150 chains/hour); flame length very high (12–25 feet).
vi.	**SH6:** Dense shrubs, little to no herb fuels. Fuel bed depth about 2 feet. Spread rate high (20–50 chains/hour); flame length high (8–12 feet).
vii.	**SH7:** Very heavy shrub load, possibly with pine overstory. Fuel bed depth 4–6 feet. Spread rate high (20–50 chains/hour); flame length very high (12–25 feet).

viii.	**SH8:** Dense shrubs, little to no herb. Fuel bed depth about 3 feet. Spread rate high (20–50 chains/hour); flame length high (8–12 feet).
ix.	**SH9:** Dense shrubs, significant fine fuel. Fuel bed depth 4-6 feet. Spread rate high (20–50 chains/hour); flame length very high (12–25 feet).
4.	**Grass or shrubs mixed with litter from forest canopy (Timber-Understory)**
i.	**TU1:** Low load of grass and/or shrub with litter. Spread rate low (2–5 chains/hour); flame length low (1–4 feet); fine fuel load (1.3 tons/acre).
ii.	**TU2:** Moderate litter load with shrub component. Spread rate moderate (5–20 chains/hour); flame length low (1–4 feet).
iii.	**TU3:** Moderate litter load with grass and shrub components. Spread rate high (20-50 chains/hour); flame length moderate (4–8 feet).
iv.	**TU4:** Fuel bed is short conifer trees with grass or moss understory. Spread rate moderate (5-20 chains/hour); flame length moderate (4–8 feet).
v.	**TU5:** High load conifer litter with shrub understory. Spread rate moderate (5–20 chains/hour); flame length moderate (4–8 feet).
5.	**Dead and downed woody fuel (litter) beneath a forest canopy (Timber Litter)**
i.	**TL1:** Low to moderate load, fuels 1–2 inches deep. Spread rate very low (0–2 chains/hour); flame length very low (0–1 foot).
ii.	**TL2:** Low load, compact. Spread rate very low (0–2 chains/hour); flame length very low (0-1 foot).
iii.	**TL3:** Moderate load. Spread rate very low (0–2 chains/hour); flame length low (1–4 feet); fine fuel load (0.5 ton/acre).
iv.	**TL4:** Moderate load. Spread rate very low (0–2 chains/hour); flame length low (1–4 feet).
v.	**TL5:** High load conifer litter. Spread rate low (2–5 chains/hour); flame length low (1–4 feet).
vi.	**TL6:** Moderate load, less compact. Spread rate moderate (5–20 chains/hour); flame length low (1–4 feet).
vii.	**TL7:** Heavy load, includes larger diameter downed logs. Spread rate low (2–5 chains/hour); flame length low (1-4 feet).
viii.	**TL8:** Long needle litter; long needle fuel. Spread rate moderate (5–20 chains/hour); flame length low (1–4 feet).
ix.	**TL9:** Very high load fluffy dead and downed fuel littler. Spread rate moderate (5–20 chains/hour); flame length moderate (4–8 feet).
6.	**Insufficient wildland fuel to carry wildland fire under any condition (non-burnable)**
i.	**NB1:** Urban or suburban development; insufficient wildland fuel to carry wildland fire.
ii.	**NB2:** Snow/ice.
iii.	**NB3:** Agricultural field, maintained in non-burnable condition.
iv.	**NB8:** Open water.
v.	**NB9:** Bare ground.
7.	**Activity fuel (slash) or debris from wind damage (blowdown) (Slash-Blowdown)**
i.	**SB1:** Fine fuel load is 10 to 20 tons/acre, weighted toward fuels 1 to 3 inches diameter class, depth is less than 1 foot. Spread rate moderate (5–20 chains/hour); flame length low (1–4 feet).
ii.	**SB2:** Fine fuel load is 7 to 12 tons/acre, evenly distributed across 0 to 0.25, 0.25 to 1, and 1-to-3-inch diameter classes, depth is about 1 foot. Spread rate moderate (5–20 chains/hour); flame length moderate (4–8 feet).
iii.	**SB3:** Fine fuel load is 7 to 12 tons/acre, weighted toward 0-to-0.25-inch diameter class, depth is more than 1 foot. Spread rate high (20–50 chains/hour); flame length high (8–12 feet).

iv. **SB4:** Blowdown is total, fuel bed not compacted, foliage still attached. Spread rate very high (50–150 chains/hour); flame length very high (12–25 feet).

Notes: Based on Scott and Burgan's (2005) 40 Fuel Model System.

Table 3.3. Major Fuel Types in Mendocino County

Fuel Type*	Acres	Percent
TU5	685,101.9	30
TL5	377,674.1	17
GR2	261,233.8	12
TU2	153,123.2	7
GS2	129,435.5	6
TL3	104,528.9	5
NB1	89,782.6	4
SH5	70,665.5	3
TL8	57,415.6	3
SH4	47,116.8	2
SH2	38,377.5	2

* Fuel types representing less than 2% of total county acreage were omitted.

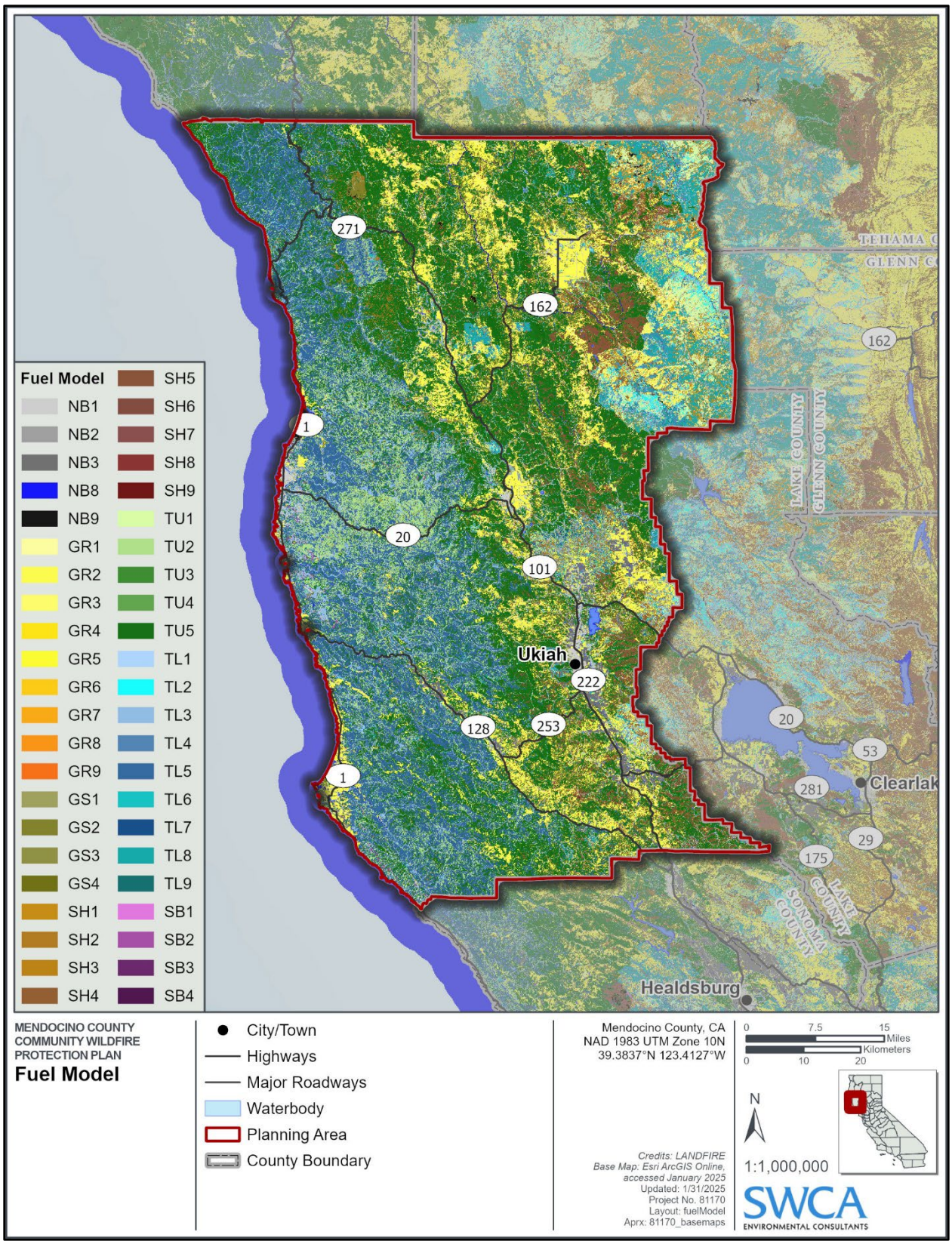

Figure 3.8. Fuel types in Mendocino County (Scott and Burgan 40 Fire Behavior Fuel Models).

Fire Behavior Model Outputs

Rate of Spread

The rate of spread, or the speed at which flames are moving across the land surface, is influenced by the slope. Fire moves at a faster rate uphill than downhill, thus the steeper the slope the faster the rate of spread. Additionally, steep slopes bring the fuels above the fire closer to the flames and the head of the fire, making them more susceptible to ignition. Another issue with steep slopes is the possibility of burning debris rolling down the hill and igniting fuel below the main fire. This is illustrated in Figure 3.9.

The rates of fire spread vary widely in the county. Low rates of spread are generally associated with surface spread in timber-dominated areas, while moderate and high rates of spread are associated with grass and shrub fuels and riparian vegetation.

Figure 3.10 illustrates the rate of spread classifications for the county.

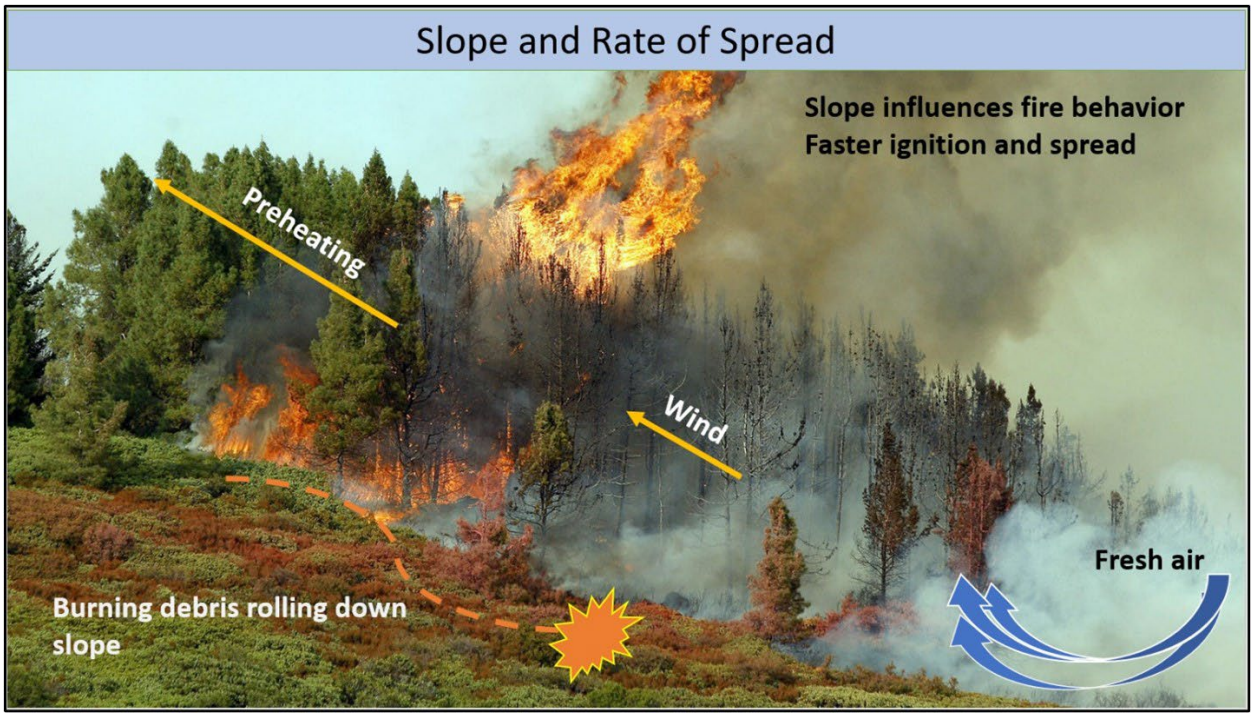

Figure 3.9. Effect of topography on fire behavior.

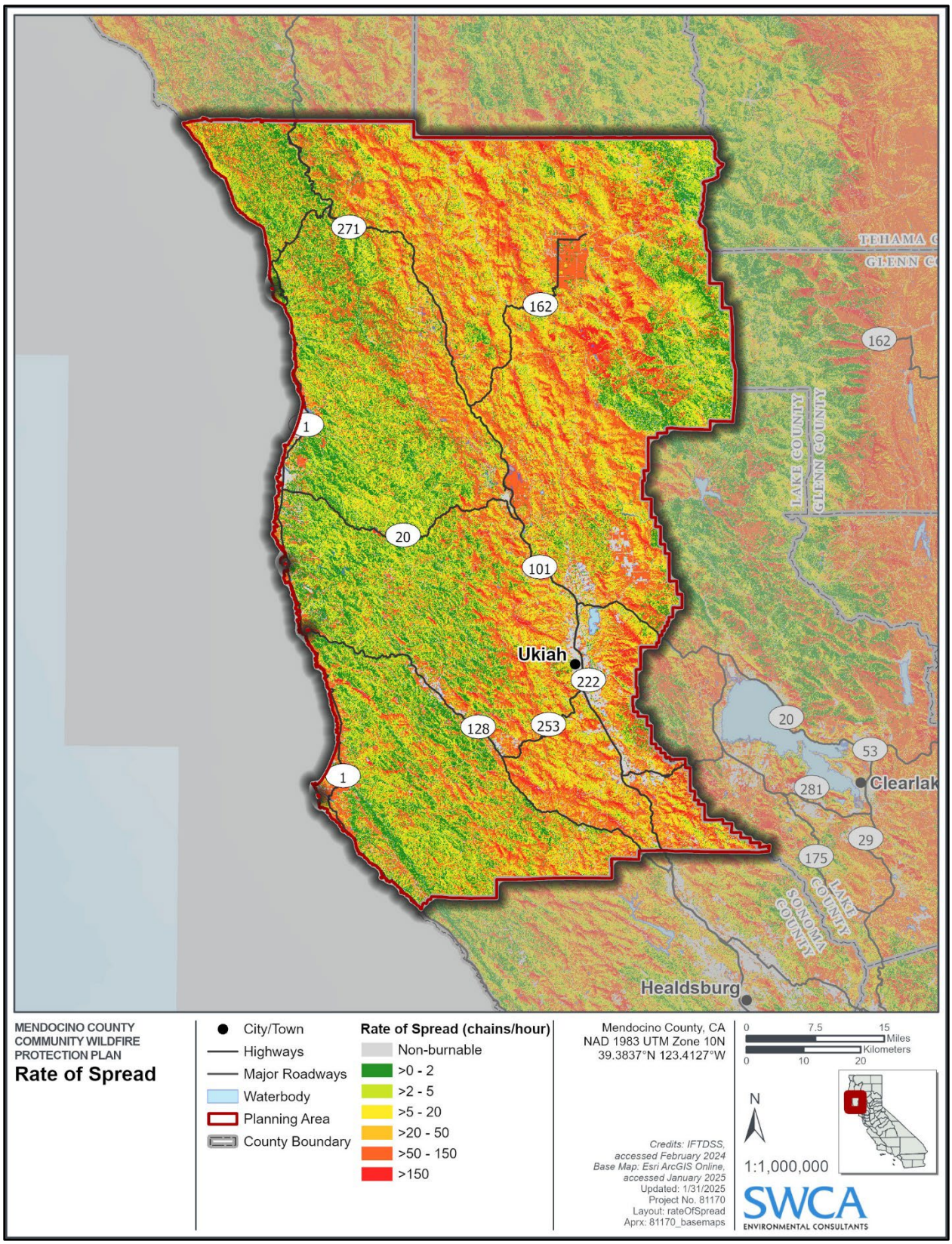

Figure 3.10. Rate of spread classifications for Mendocino County. Note: one chain is 66 feet and is a common measure in wildland firefighting. A spread rate of 80 chains per hour is 1 mile per hour.

Flame Length

Flame lengths are determined by fuels, weather, and topography and it is a measure of fire intensity. Direct attack by hand lines is usually limited to flame lengths less than 4 feet. In excess of 4 feet, with hand crews, indirect suppression is the dominant tactic. Suppression using engines and heavy equipment will move from direct to indirect with flame lengths in excess of 8 feet.

Flame lengths vary across the county. Lower-elevation grass fuels typically produce shorter flame lengths and have the highest likelihood of successful suppression, while higher-elevation timber fuels are more susceptible to crown fires. Mid-elevation brush and timber fuels exhibit flame lengths and suppression potential that fall between these extremes.

Figure 3.11 illustrates the average conditional flame length classifications for Mendocino County under very high to extreme fire danger conditions.

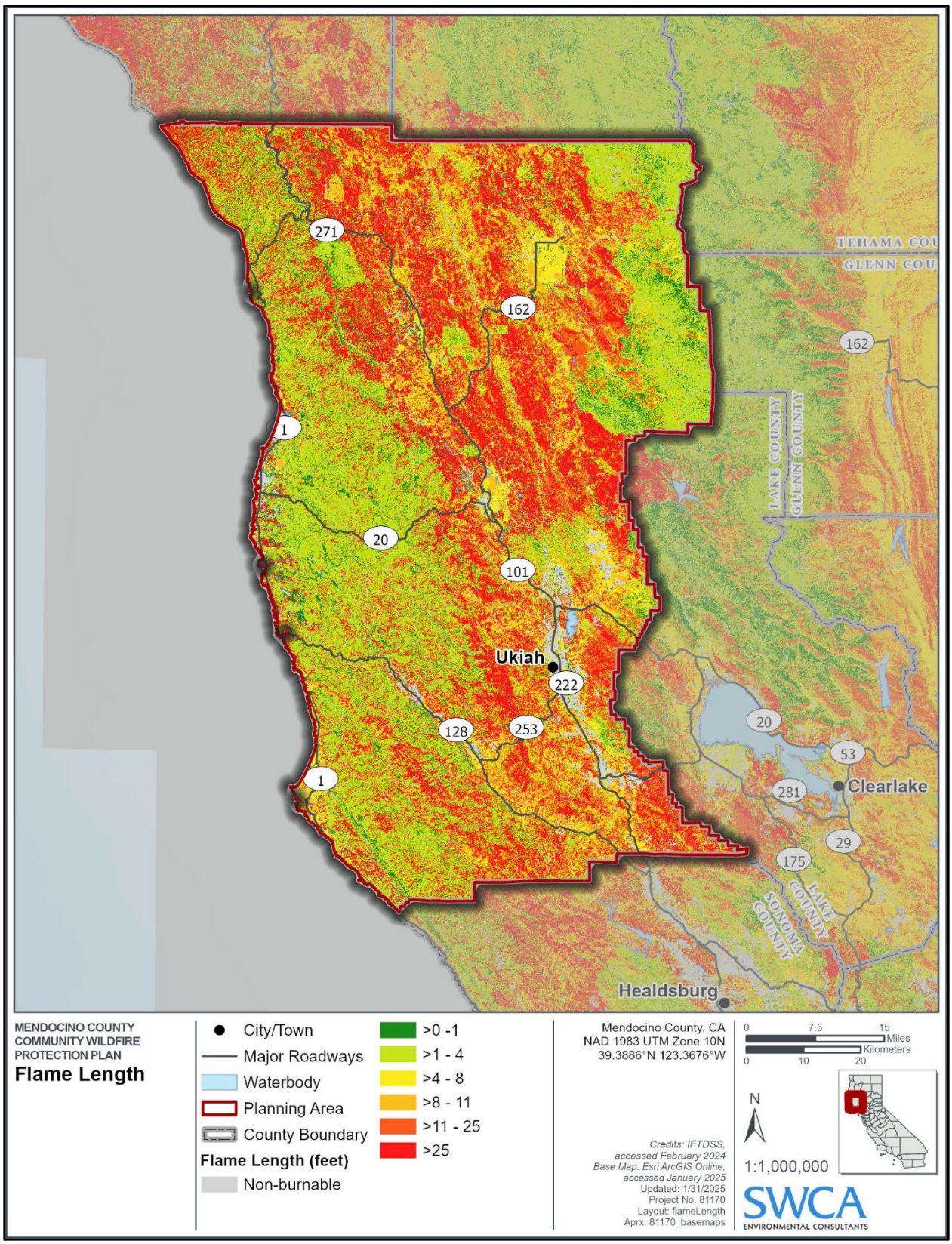

Figure 3.11. Flame length classifications for Mendocino County.

Crown Fire Potential

Figure 3.12 illustrates the range of crown fire activity from surface fire (in grass-dominated areas) to passive and active crown fire (in riparian fuel beds and areas with timber fuels) under very high to extreme fire danger conditions.

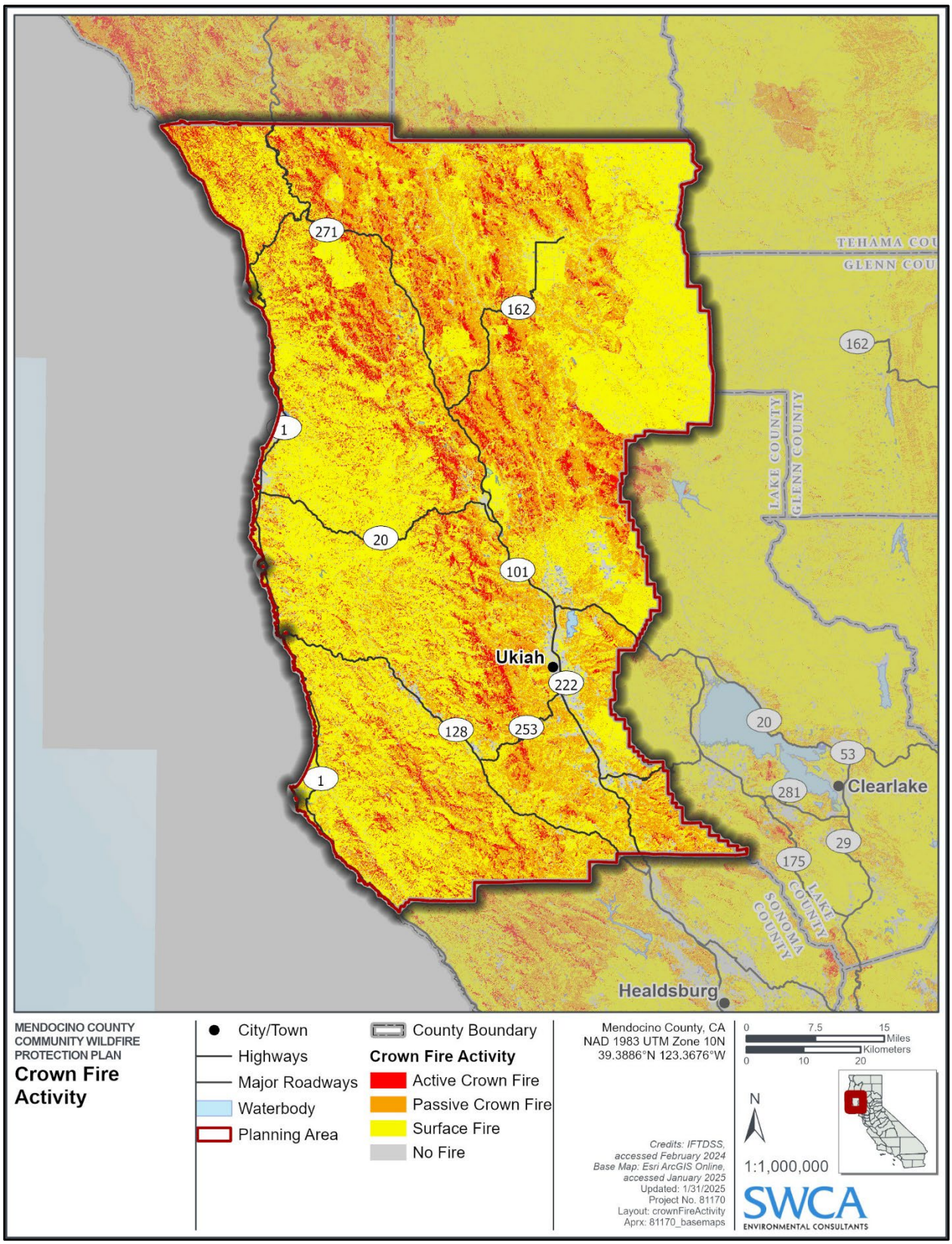

Figure 3.12. Crown fire activity classifications for Mendocino County.

Burn Probability

Figure 3.13 illustrates the likelihood of a specific location on the landscape burning, represented as burn probability, from the RANDIG model. This metric accounts for various factors, including fire size, frequency, and rate of spread under peak fire season weather conditions. Burn probability is modeled as "higher" and "highest" across much of eastern Mendocino County. Although the map is presented at a countywide scale, making it challenging to discern smaller details, it is important to note that areas with the "higher" burn probabilities are identified in small pockets scattered throughout Mendocino County.

Also important to note is that during peak fire weather conditions, an area with a 20% burn probability will ignite from a fire start originating in the county one out of every five times. While this probability may be considered low compared to other areas, it is not rare. From a risk perspective, the burn probability map should be analyzed alongside flame length and crown fire outputs. Low-probability areas may still experience very intense fire behavior, whereas high-probability areas may exhibit lower fire intensity.

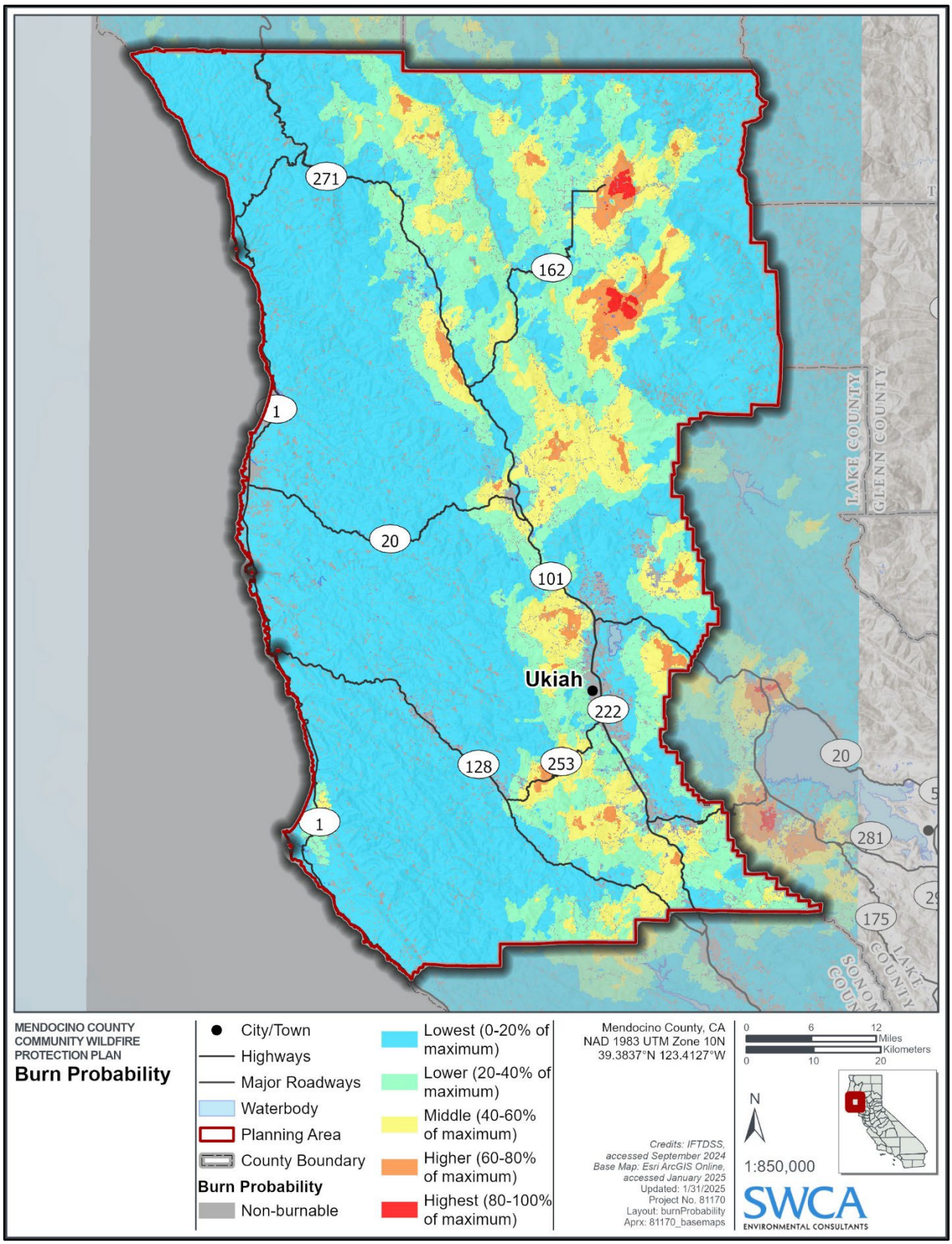

Figure 3.13. Burn probability in Mendocino County. Note: in addition to the larger patches, areas with the "higher" burn probabilities are identified in small pockets scattered throughout Mendocino County.

Ember Exposure Zones

Ember exposure from wildfires can pose a significant threat to homes and other structures in the WUI (Maranghides and Mell 2013). Spotting occurs when embers travel in advance of the flaming front; long-range spotting can be miles ahead of the main fire (Figure 3.14). Many factors determine whether an ember will result in an ignition (firebrand source and size, wind, receiving materials, exposure duration, etc.), but the potential for structure ignition from embers exists. Burning structures and other materials (vehicles and ornamental vegetation) have been identified as another source of embers that can ignite additional combustible materials in the WUI, particularly when structures are not well separated; however, only wildland fuels were considered in this model (Maranghides et al. 2022; Suzuki and Manzello 2019).

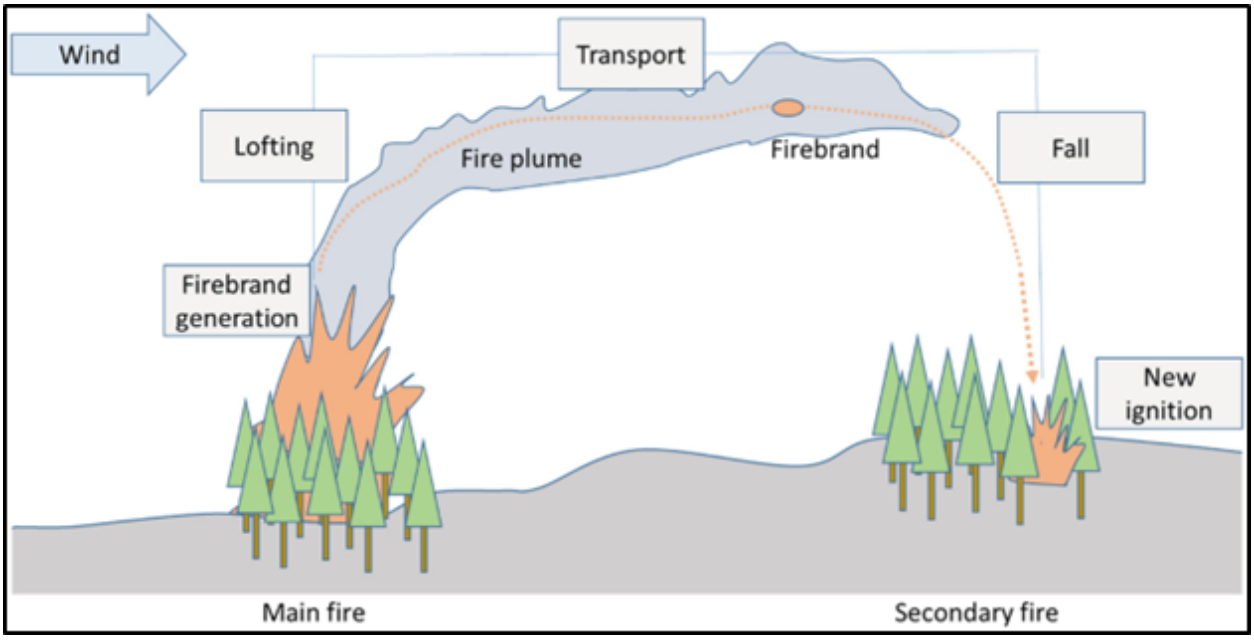

Figure 3.14. Factors associated with embers (firebrands) on the landscape. Vegetation type, wind, and topography all influence ember production and travel distances.

Source: Martin and Hillen (2016).

Ember exposure levels were determined using the National Institute of Standards and Technology Framework for Addressing the National Wildland Urban Interface Fire Problem (Maranghides and Mell 2013). Four levels (E1–E4) were used to categorize ember exposure threat, with increasing intensity per level. This categorization focuses solely on ember exposure from wildland fuels, not fire exposure (radiant and convective heat). The exposure matrix considered terrain, wind, and wildland fuel types (based on the 2005 Scott and Burgan 40 Fire Behavior Fuel Models). Descriptions of each category are shown in Table 3.4, and the ember exposure zones are displayed in Figure 3.15.

Table 3.4. Ember Exposure Categorization

Terrain	Wind	Fuels
• **Flat:** 0%–10% slope • **Steep Slope:** 11%–40% slope • **Ravine:** >40% slope	• **None:** 0–2 mph • **Low**: 3–7 mph • **High:** >7 mph	• **Homogenous surface fuels:** all GR fuel models, GS1, and GS3 • **Inhomogenous surface fuels**: SH5 and SH7 (decadent chaparral) • **Inhomogenous shrubs and low vegetation:** all remaining SH fuel models, GS2, GS4, and SB1 • **Canopied forest:** SB2, SB3, SB4, all TL fuel models, all TU fuel models

The exposure matrix generally defined E1 as being flat, having zero to light winds, and having light fuel loading. E2 is defined as having a moderate to steep slope, low winds, and light to moderate fuel loading. E3 is defined as having a steep slope, high winds, and moderate fuel loading. E4 is defined as having a steep slope or ravines, high winds, and high fuel loading.

While these metrics and categories are generalized and not all-encompassing, they are a realistic representation of the major influences in the fire environment. Ember generation can be defined as the function of wildland fuels, topography, and local winds together.

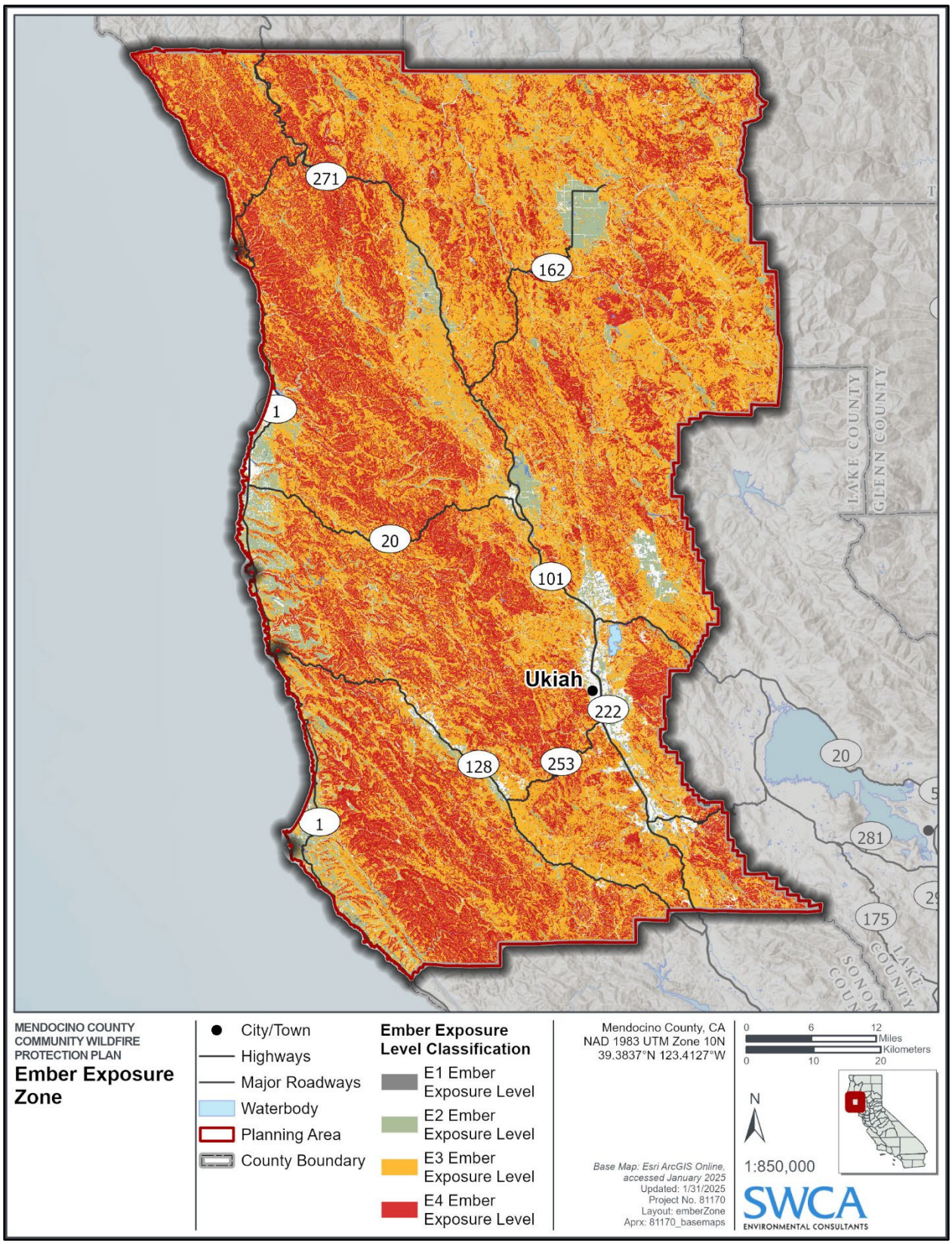

Figure 3.15. Ember exposure zones in Mendocino County

3.3 HAZARD ASSESSMENT TAKEAWAYS

The wildfire hazard assessment above combined a review of existing hazard information with a county-scale fire behavior analysis. Existing information included CAL FIRE's Subdivision Review Program (egress challenges), FHSZs, tree mortality tiers, fire suppression challenges, and utility-related wildfire threats. The fire behavior modeling evaluated flame length (intensity), rate of spread, crown fire potential, ember exposure zones, and burn probability.

This dual approach provides a comprehensive county-scale assessment to identify regions where wildfire mitigation efforts should be prioritized. The multi-hazard analysis also enables tailored recommendations and actions based on location and type of hazard.

However, this analysis is limited to a county-level perspective and does not fully account for community-scale wildfire hazards or risks. Many local factors influencing vulnerability and resilience—such as water availability, completed mitigation work (e.g., fuels reduction, home hardening, road clearance), community capacity, firefighting resources, emergency communication systems, and road conditions—are not included in this assessment.

To bridge this gap, site-specific hazard and risk information was collected from Core Team members and community leaders, including representatives from fire safe councils and Firewise communities. These insights are documented in Section 4.5 of Chapter 4 to ensure the plan reflects both county-level and community-scale priorities.

Community values and critical infrastructure are discussed and identified in the rest of this chapter to further refine regions where mitigation work should be prioritized.

3.4 ASSESSING RISK

Hazard and threat identification are critical components of risk assessment, but they are not synonymous with risk. Risk is defined as the likelihood of an event occurring (probability) multiplied by the consequences to values of concern if the event were to happen. When evaluating risk, it is important to consider the interplay between probability and consequence, as scenarios can range from low-probability, high-consequence events to high-probability, low-consequence events.

For example, an area with few or no properties, natural resources, or other HVRA might have a very high probability of wildfire but low consequences, making it a lower-priority area. Conversely, consider an urban core with numerous buildings, important facilities, and critical infrastructure but a very low probability of wildfire due to the absence of wildland fuels (urban conflagrations notwithstanding). Prioritization will depend on this nuanced relationship.

In summary, probability × consequence = risk (in a quantitative framework). This concept is further illustrated in Figure 3.16 below.

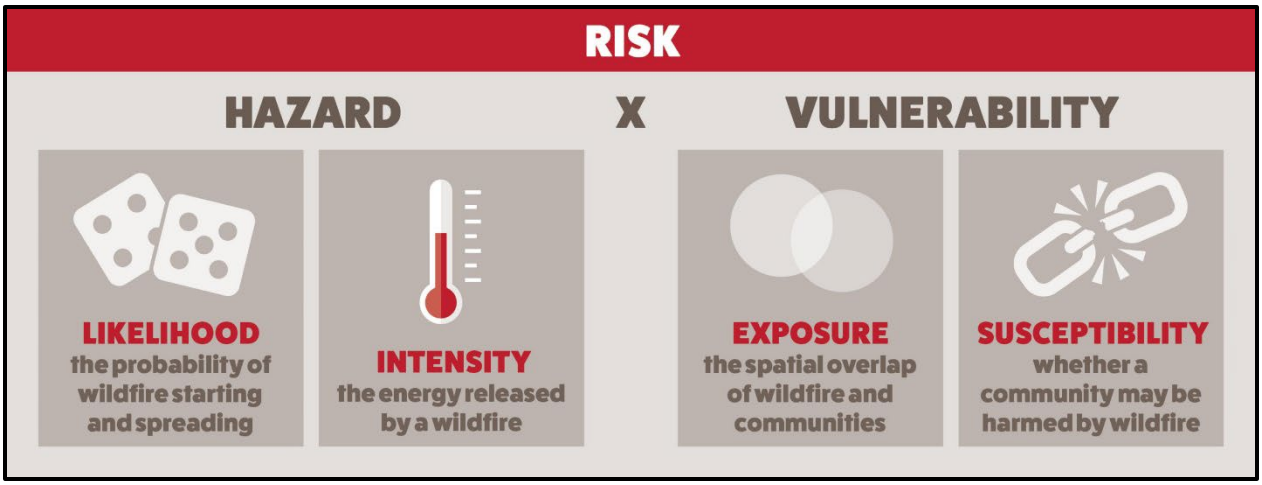

Figure 3.16. Quantitative wildfire risk assessment formula. Source: Wildfire Risk to Communities

Using this formula as a guide, a variety of questions regarding wildfire risk can be addressed qualitatively or quantitatively using the hazard information above and the values information below. For instance, when assessing the potential risk to a community under extreme fire conditions, start by identifying the community and its characteristics from the community values information in the following section. Evaluate the community's overall vulnerability by examining factors such as home construction and defensible space.

Next, use the hazard data above to determine:

1. At what intensity (flame length) would the average home in this community sustain severe damage or loss?
2. What is the probability of a wildfire occurring in this area?

Numerical values can be assigned for a more quantitative approach, or the analysis can be conducted subjectively. Either way, multiplying hazard (probability and intensity) by the vulnerability of the community's values produces a risk assessment. This assessment can inform mitigation efforts, guide prioritization, and support strategic planning.

Information presented in this section and chapter can be used in conjunction with community hazard attributes (Appendix D) to assist in identifying wildfire risks.

3.5 COMMUNITY VALUES

A primary goal of the CWPP is to identify, prioritize, and protect the diverse values and assets within Mendocino County at potential risk from wildfire. Through the CWPP process, data collection coupled with stakeholder and public outreach helped develop a list of community values and assets exposed to wildland fire hazards. These values encompass natural, cultural, and socioeconomic values as well as lives and property. **It is important to note that available datasets have limitations, and this CWPP represents only a portion of the values, assets, and resources within Mendocino County.**

3.5.1 NATURAL VALUES

Mendocino County, with all its public land, has a variety of natural resources of particular concern to land managers, such as rare habitats and listed plant and wildlife species (Figure 3.17). It is important to note that Figure 3.17 provides an overview of natural resources in the county based on available data. **Due to data limitations, it may not capture every natural resource present in the area.**

Public outreach throughout the communities in the county has emphasized the importance of protecting natural/ecological values. Examples of natural values identified by the public and the Core Team include the following:

- Public land (e.g., Jackson Demonstration State Forest, Mendocino National Forest, Cow Mountain Recreation Area)
- State Parks (e.g., Montgomery Woods State Natural Reserve, Mendocino Headlands State Park, Van Damme State Park, Russian Gulch State Park) (Figure 3.18)
- Trail systems (e.g., Pygmy Forest Discovery Trail, Mendocino Headlands and Mendocino Cliffs Trails)
- Coasts and beaches
- Living cultural resources, including the plants and animals that are culturally significant to Native peoples
- Agricultural land
- Scenic viewsheds
- Wildlife habitat and sensitive species
- Watersheds and preservation of water quality for the communities
- Wilderness areas (e.g., South Fork Eel River Wilderness, Elkhorn Ridge Wilderness)

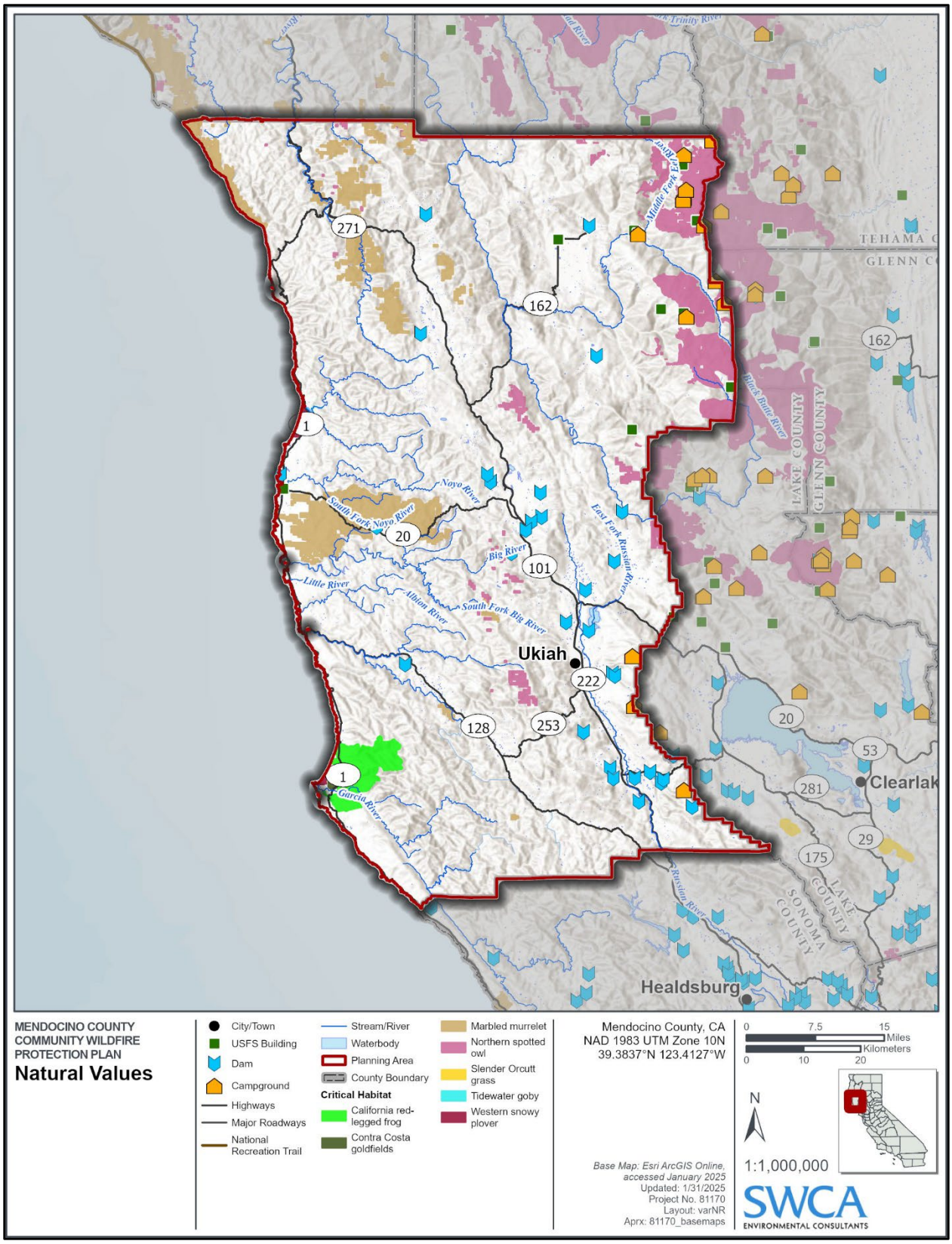

Figure 3.17. Natural values in Mendocino County.

Figure 3.18. Example of a natural value, Van Damme State Park.
Source: https://www.calwild.org/elkhorn-ridge-wilderness-story/

3.5.2 SOCIOECONOMIC VALUES

Social values include population, recreation, infrastructure, and the built environment (Figure 3.19). Public outreach throughout the communities in the county has emphasized the importance of protecting social values. Socioeconomic values are of heightened concern when the state of the local economy is partially dependent on said resource. For instance, the closure of designated campgrounds due to wildfires can reduce revenue generated by outdoor recreation. Please see Appendix F for information regarding wildfire smoke, evacuation due to wildfire, and other planning homeowner resources to better protect against wildfire hazards. Socioeconomic values include:

- Communications infrastructure (e.g., cell phone, weather stations, and radio towers)
- Public safety infrastructure
- Highways
- American Viticultural Areas (Figure 3.20)
- Tribal administrative buildings
- Care homes, senior housing, day care, and other group homes
- Water storage tanks
- Water conduits and irrigation ditches
- Critical infrastructure (e.g., power lines)
- Recreation sites
- Tourism values

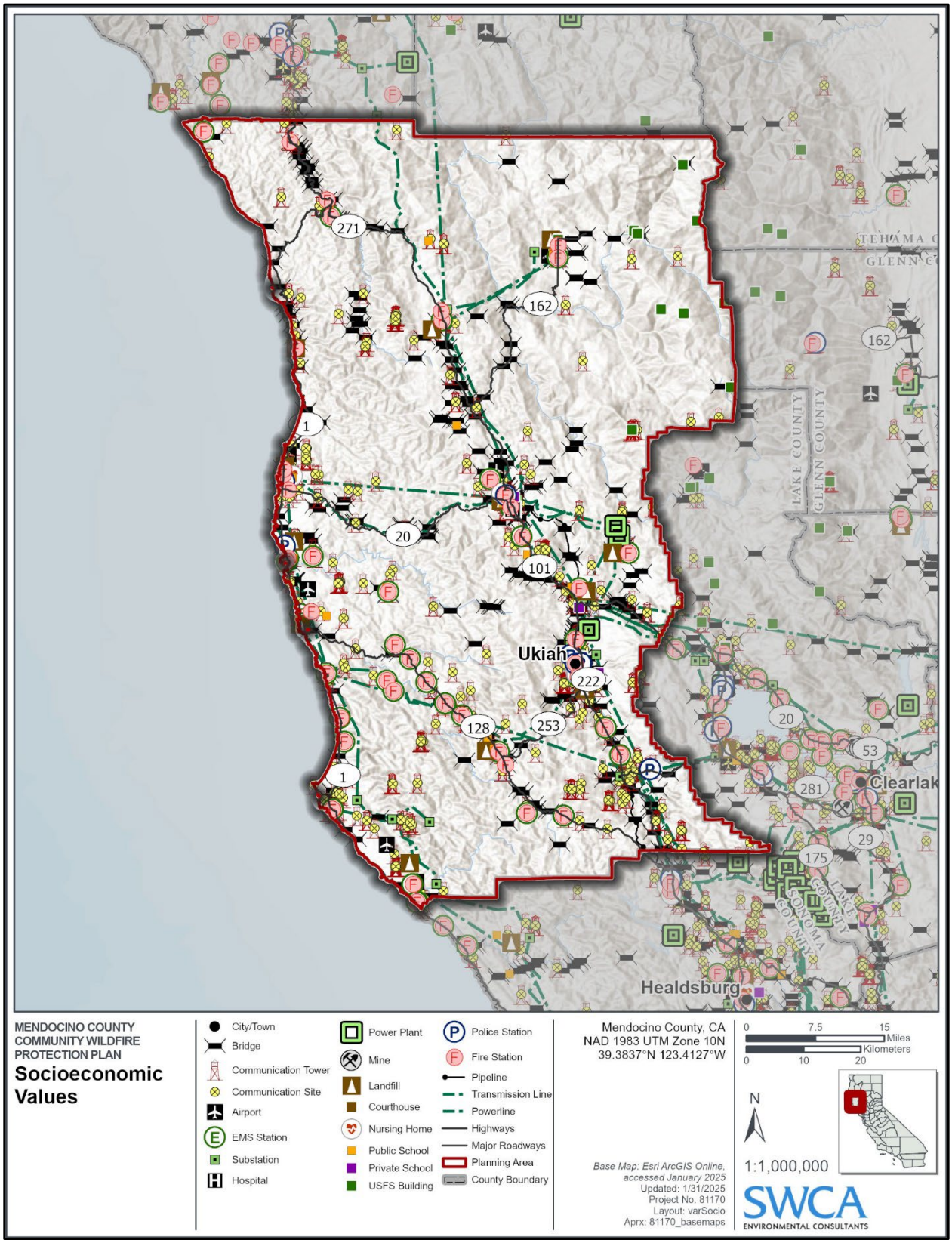

Figure 3.19. Socioeconomic resources in Mendocino County.

Figure 3.20. Example of a socioeconomic value, vineyards of Mendocino Wineries, which could be heavily impacted by smoke during the growing season.

3.5.3 CULTURAL VALUES

Many historical landmarks are scattered throughout the county (Figure 3.21). It is important to note that Figure 3.21 provides an overview of cultural resources in the county based on available data. **Due to data limitations, it may not capture every cultural resource present in the area.**

Public outreach throughout the communities in the county has emphasized the importance of protecting cultural values. Adherence with federal and state cultural resource laws and regulations, and notification of affected Tribes and local stakeholders will insure protection of cultural resources during on-the-ground project implementation. Examples of cultural values that have been identified by the Core Team and the public in Mendocino County are the following:

- Historically significant sites
  - Albion River Bridge (Figure 3.22)
  - Point Arena Light Station and Point Cabrillo Light Station
  - Willits Depot
  - Fort Bragg
- Cemeteries
- Churches
- Archaeological sites
- Historic and cultural landscapes of Tribal significance, including culturally significant plants and animals
- Museums
- Tribal lands

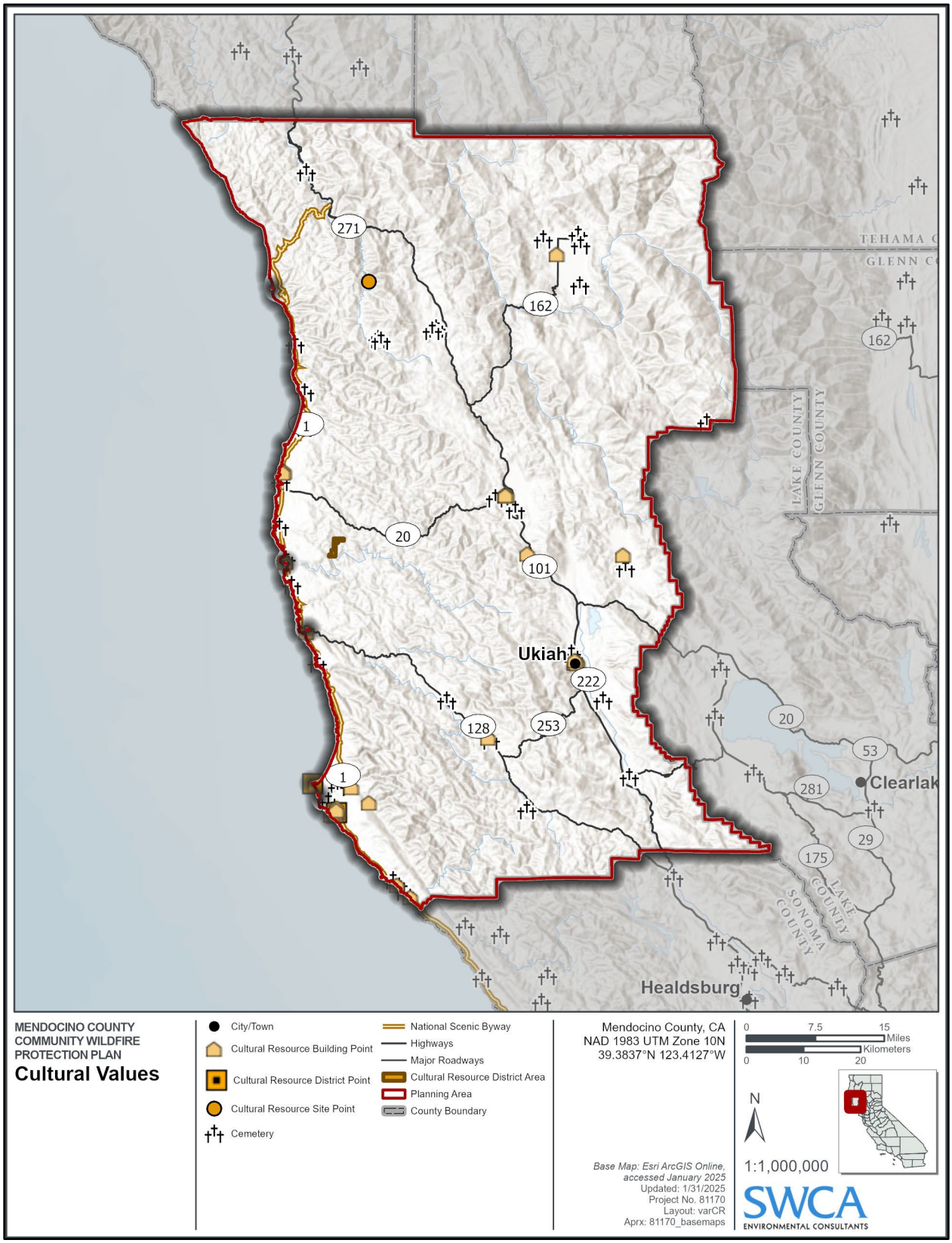

Figure 3.21. Cultural values in Mendocino County.

Figure 3.22. Example of a cultural VAR, the Albion River Bridge, which is mostly composed of wooden support beams.

3.5.4 CRITICAL INFRASTRUCTURE

A myriad of critical infrastructure supports the cities, communities, and unincorporated areas of Mendocino County. These include fire and police stations, communication towers, roadways and bridges, power lines, transmission lines, hospitals, and power plants, as well as various other features shown in Figure 3.23. Please note that the extent of the map does not allow for detailed viewing of all infrastructure. Refer to Figures C.5 through C.10 in Appendix C.

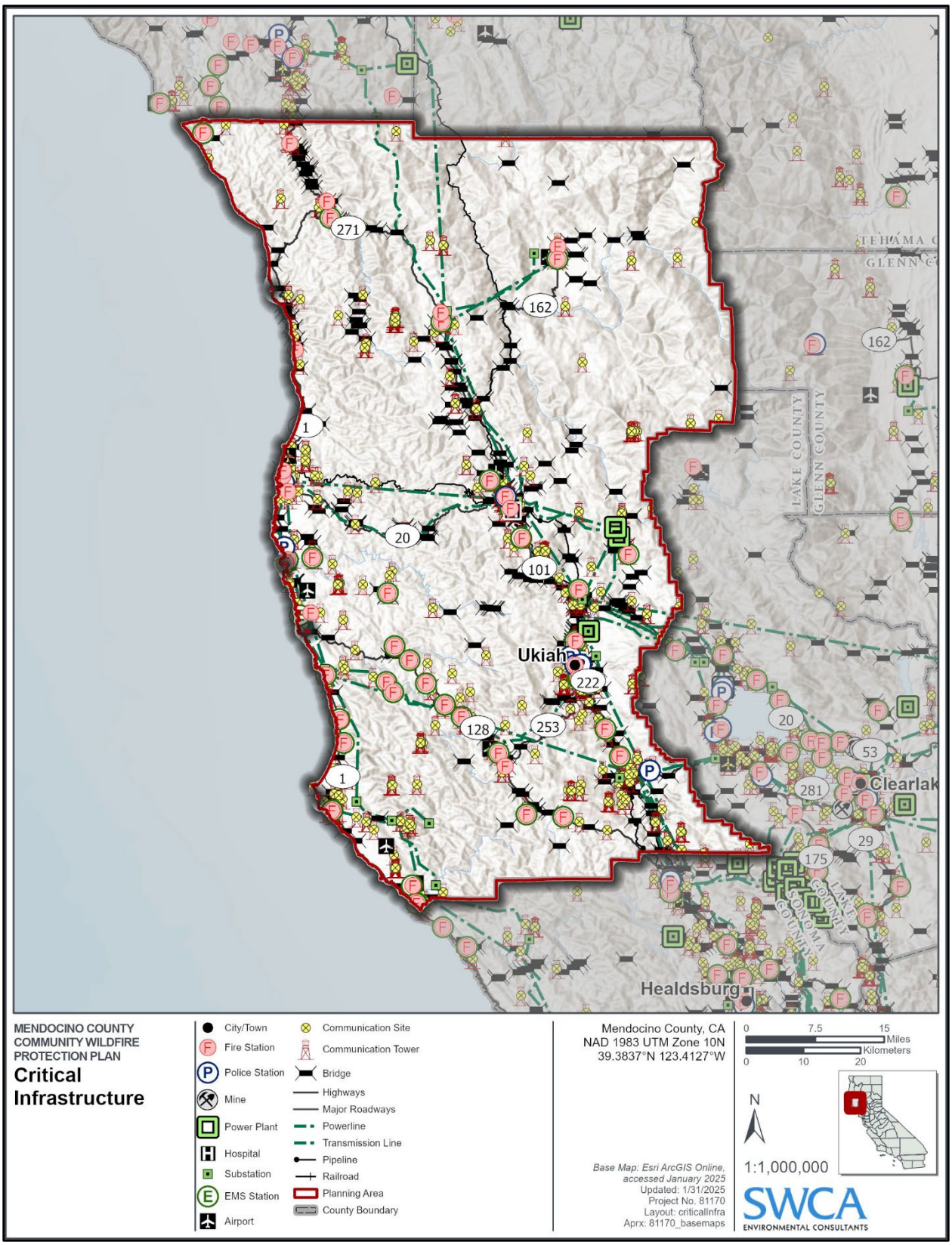

Figure 3.23. Critical infrastructure in Mendocino County.

For detailed maps, refer to Figures C.5 through C.10 in Appendix C.

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CHAPTER 4 – MITIGATION STRATEGIES

This chapter provides project recommendations and implementation guidance. However, mitigation does not stop there. In addition to the recommendations, recognizing wildfire mitigation, preparedness, and resilience, means being prepared both pre- and post-fire. Post-fire response and rehabilitation information can be found in Appendix J.

This plan has been aligned with the Cohesive Strategy and its Phase III Western Regional Action Plan by adhering to the nationwide goal:

> *"To safely and effectively extinguish fire, when needed; use fire where allowable; manage our natural resources; and as a Nation, live with wildland fire."* (Forests and Rangelands 2014:3).

Thus, CWPP recommendations have been structured around the three main goals of the Cohesive Strategy: restoring and maintaining landscapes, fire-adapted communities, and wildfire response. Many of the recommendations listed can be implemented at the homeowner or community level. Projects requiring large-scale support can be prioritized based on the wildfire hazard assessment.

Recommendation matrices are used throughout this chapter to serve as an action plan for implementation. Recommendations have been aligned with the goals and strategies in many of the existing county plans, for example, the Mendocino County 2015 CWPP, 2020 Multi-Jurisdictional Hazard Mitigation Plan, 2020 Fire Vulnerability Assessment, 2020 Public Outreach Plan, and 2020 Evacuation Plan. Moreover, the recommendations are in alignment with the 2018 Strategic Fire Plan for California and the 2021 California's Wildfire and Forest Resilience Action Plan (California Forest Management Task Force [CA FMTF] 2021).

Sections 4.2, 4.3, and 4.4 contain county-level recommendations; Section 4.5 details specific community, fire agency, and other organizations' concerns and priorities for wildfire risk reduction. These projects are integral to Mendocino County's wildfire resiliency strategy and are incorporated into this CWPP's action plan.

This CWPP aims to capture Mendocino County's wildfire resiliency priority projects; however, it is not possible to include all of them. Given the constantly evolving wildfire environment, the County may implement additional projects beyond those outlined in this plan.

Overall, Mendocino County aims to enhance its wildfire resiliency through the following overarching project themes:

Fuels Reduction

- **Defensible space**: reducing materials around properties and public infrastructure.
- **Creating fuel breaks**: establishing wider areas of reduced vegetation to slow or stop the spread of fires.
- **Prescribed burns**: conducting burns to remove fuels under safe conditions around communities.
- **Roadside clearance**: keeping evacuation routes free of flammable vegetation.
- **Public outreach and education**: conducting campaigns to inform the public of the benefits of proper fuels reductions projects.

Home Hardening

- **Improving building materials**: using fire-resistant materials.
- **Creating fire-resistant landscapes**: using nonflammable plants and invasive species management.

Risk Identification and Management

- **Identifying vulnerabilities**: identifying areas of high risks or heightened vulnerability and developing specific risk-reduction strategies.
- **Evaluating hazards**: identifying and evaluating potential hazards, historical fire activity, and climate change.

Community Preparedness

- **Public education and outreach**: raising awareness about wildfire risks and mitigation strategies.
- **Collaboration**: fostering collaboration between community-based organizations, fire agencies, and other community stakeholders.

Land Use Planning

- **Regulations and ordinances**: exploring opportunities to incorporate wildfire risks into future planning decisions.
- **WUI management**: exploring strategies to enforce existing ordinances and regulations related to the WUI (e.g., defensible space and home hardening requirements).

4.1 ONGOING EFFORTS IN FIRE PREVENTION AND MITIGATION

Mendocino County has demonstrated a robust commitment to wildfire prevention, mitigation, and education through the proactive efforts of the County government, MCFSC and CAL FIRE MEU. These organizations have led numerous initiatives to reduce wildfire risk and enhance community resilience.

The MCFSC has achieved significant progress in recent years, including the launch of the Defensible Space Assistance for Income-Eligible (DSAFIE) program in 2021, which has provided critical support to vulnerable residents. The council has also facilitated the rapid growth of neighborhood fire safe councils, fostering a network of engaged and prepared communities. Additionally, MCFSC has developed

innovative educational resources such as media stories, podcasts, and a wildfire-science education program for 5th–9th graders in collaboration with the Hopland Research Extension Center. Their participation in public events across the county has further strengthened their connection to the communities they serve.

Securing millions of dollars in federal, state, and private funding, MCFSC has completed numerous fuels reduction projects and wildfire risk reduction initiatives. Ongoing programs such as chipper days, defensible space clearing, reflective address sign distribution, and micro-grants exemplify their dedication to supporting local communities.

CAL FIRE MEU has also expanded its efforts to address wildfire risk. Recent advancements include the creation of the Pre-Fire Planning Division, the Howard Forest Fuels Reduction Crew, and partnerships with the California National Guard Crew and the California Conservation Corps Fire Crew. Additionally, two new fire and fuels management crews have been established at the Chamberlain Creek Fire Center to enhance fuels reduction and fire suppression capabilities.

Collaboration between CAL FIRE MEU and the MCFSC has been a cornerstone of wildfire risk reduction, particularly in the implementation of roadside clearing, fuel break projects, and vegetation management projects. These efforts are set to grow in the coming years, leveraging resources and community engagement to implement both CAL FIRE MEU priority projects and MCFSC-identified initiatives.

The MCFSC maintains a live and updated map and list of projects (mostly fuels treatment projects) in its “Mendocino Project Tracker” data layer, which is available in the MCFSC web app (online mapping application). The application can be accessed at: https://www.arcgis.com/apps/instant/media/index.html?appid=7c3b669ce753411d9cbcfe9b410f640f.

Similarly, CAL FIRE maintains a live mapping application containing active and completed fuels reduction projects, including roadside clearance, broadcast burns, fuel breaks, and others. The mapping application can be accessed at: https://experience.arcgis.com/experience/dfb8672f201145a4a8bf04cd9d3e37c1/page/Overview/.

4.2 COHESIVE STRATEGY GOAL 1: RESTORE AND MAINTAIN LANDSCAPES

Goal 1 of the Cohesive Strategy and the Western Regional Action Plan is Restore and Maintain Landscapes: Landscapes across all jurisdictions are resilient to fire and other disturbances in accordance with management objectives.

> *"Sustaining landscape resiliency and the role of wildland fire as a critical ecological process requires a mix of actions that are consistent with management objectives. The West will use all available methods and tools for active management of the landscape to consider and conserve a diversity of ecological, social, and economic values. The West will coordinate with all partners and seek continued stakeholder engagement in developing market-based, flexible and proactive solutions that can take advantage of economies of scale. All aspects of wildland fire will be used to restore and maintain resilient landscapes. Emphasis will be placed on protecting the middle lands near communities."* (Western Regional Strategy Committee [WRSC] 2013:14).

In this CWPP, recommendations to restore and maintain landscapes focus on vegetation management and hazardous fuel reduction.

As outlined in the previous section, the County government, the MCFSC and CAL FIRE MEU are actively engaged in fuels reduction efforts throughout the county. Figure 4.1 illustrates fuels treatment projects, including roadside clearance, thinning, fuel breaks, and vegetation management, that have been completed, are currently underway, or are proposed. Building upon the existing momentum of these treatments will be essential to enhancing fuel treatment effectiveness across the broader landscape.

Cultural practitioners intend to conduct cultural burns within their traditional territories and homelands, which encompass public and private lands, according to California Assembly Bill 52 (Tribal Cultural Resources) and Senate Bill 310 (Prescribed Fire: Civil Liability: Cultural Burns). Cultural burning is supported by the CAL FIRE MEU Chief and Mendocino County Prescribed Burn Association (PBA). Cultural burning outcomes are in line with the strategies of the CWPP to restore and maintain landscapes and to mitigate dense fuel loads. Mendocino County can support this work through conducting education campaigns and outreach to state and county departments, including the Air Quality Management District, Sheriff's Department, and other relevant agencies or organizations.

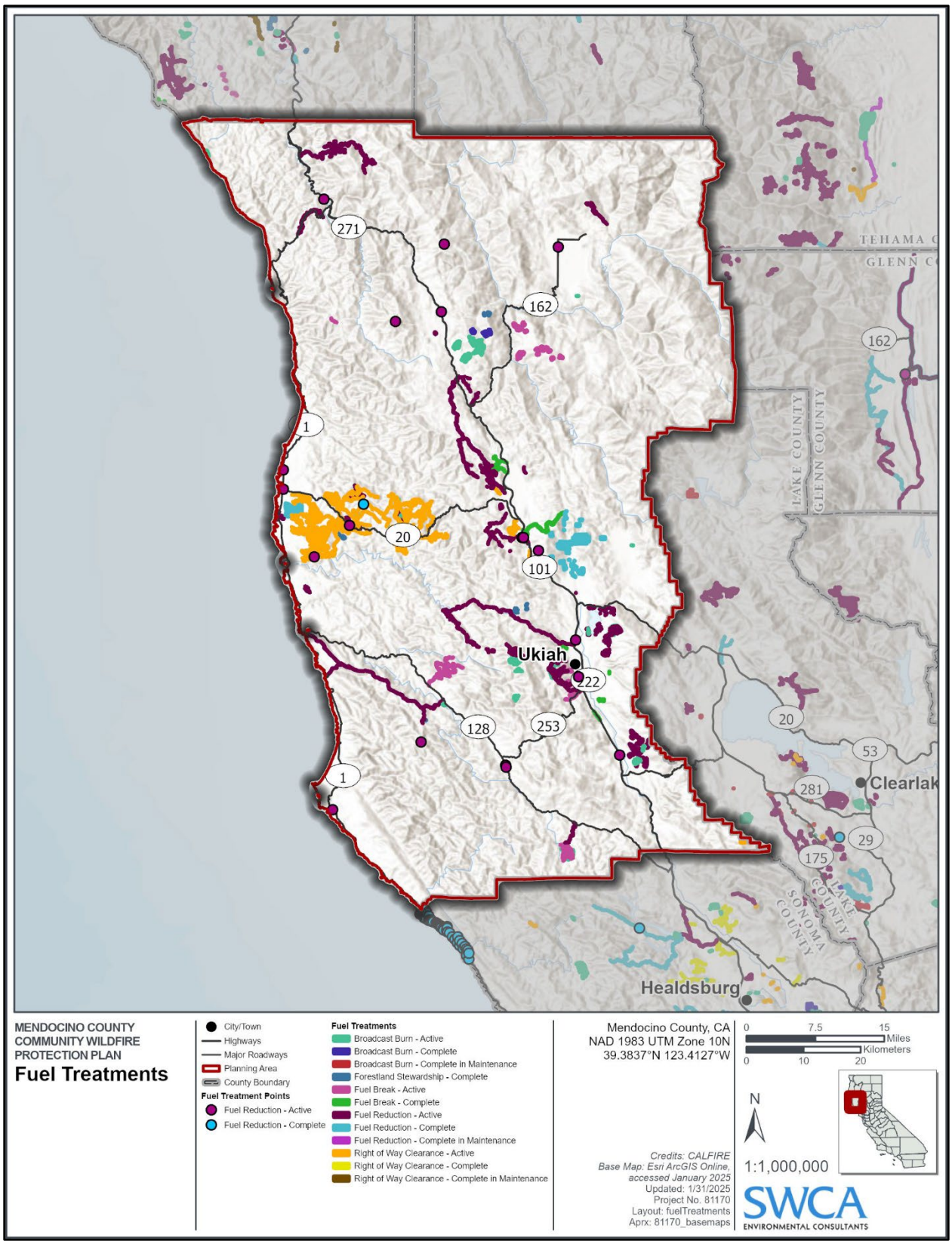

Figure 4.1. CAL FIRE MEU fuel treatment projects.

4.2.1 RECOMMENDATIONS FOR HAZARDOUS FUEL REDUCTION

Fuels management of public and private land in the WUI is key to the survival of homes during a wildfire event, as well as the means to meet the criteria of Goal 1. Research has shown how fuel treatments in the WUI can change fire behavior to support suppression activities and protect homes (Evans et al. 2015).

Fuels should be modified with a strategic approach to reduce the threat that high-intensity wildfires pose to lives, property, and other values. This section provides information on fuel treatment methodologies that can be applied to protect structures (defensible space) as the top priority, then near community boundaries (fuel breaks, cleanup of adjacent open spaces), and finally in the wildlands beyond community boundaries (larger-scale forest health and restoration treatments). The emphasis of each of these treatment types is unique. Proximate to structures, the recommendations focus on reducing fire intensity and fire spread rates consistent with Firewise and International Fire Code standards. Further into open space areas, treatments tend to emphasize forest health and increasing resiliency to catastrophic wildfire and other disturbances.

Table 4.1 summarizes the types of treatments recommended throughout the county. **It should be noted that the table (project list) is not comprehensive, and Mendocino County will likely need to implement projects beyond those listed here.** Tables 4.1, 4.2, and 4.3 also address the requirement for an action plan and assessment strategy by providing monitoring guidelines and a timeline for implementation. This timeline is obviously dependent on available funding and resources, as well as National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) protocols for any treatments pursued on public land.

Figures 4.2 and 4.3 show the CEQA process for California Vegetation Treatment Program (CalVTP) implementation and the CalVTP treatable landscape, respectively. Treatable areas are defined by the California Vegetation Treatment Program Environmental Impact Report. It is important to note that while the treatable landscape identifies areas suitable for CalVTP vegetation treatments, not all locations within this landscape will necessarily host projects. Lands outside of the treatable landscape area may also qualify with proper paperwork and justification. The CalVTP Final Programmatic Environmental Report is also applicable to projects at least partially within the SRA, including projects on private land, if they receive state or local government grants for vegetation treatment. It should also be noted that CalVTP is not the only option available to comply with CEQA requirements; project-specific negative declarations or mitigated negative declarations may also be employed.

When applying fuel treatments, every effort should be made to align treatments with the State Forest Action Plan Assessment and Strategy (CAL FIRE 2018a, 2018b) with consideration of all appropriate best management practices and sound science. In addition, treatments should be strategically located in areas to maximize effectiveness of other existing and ongoing projects (see Figure 4.1). A compilation of detailed descriptions of fuels treatment types and methods, including defensible space practices and larger-scale landscape projects, is housed in Appendices F and I.

The treatment list is by no means exhaustive and serves to provide a baseline of required projects for the future management of the county. Many projects may be eligible for grant funds available from federal and/or state sources. For a list of funding sources, please refer to Appendix E.

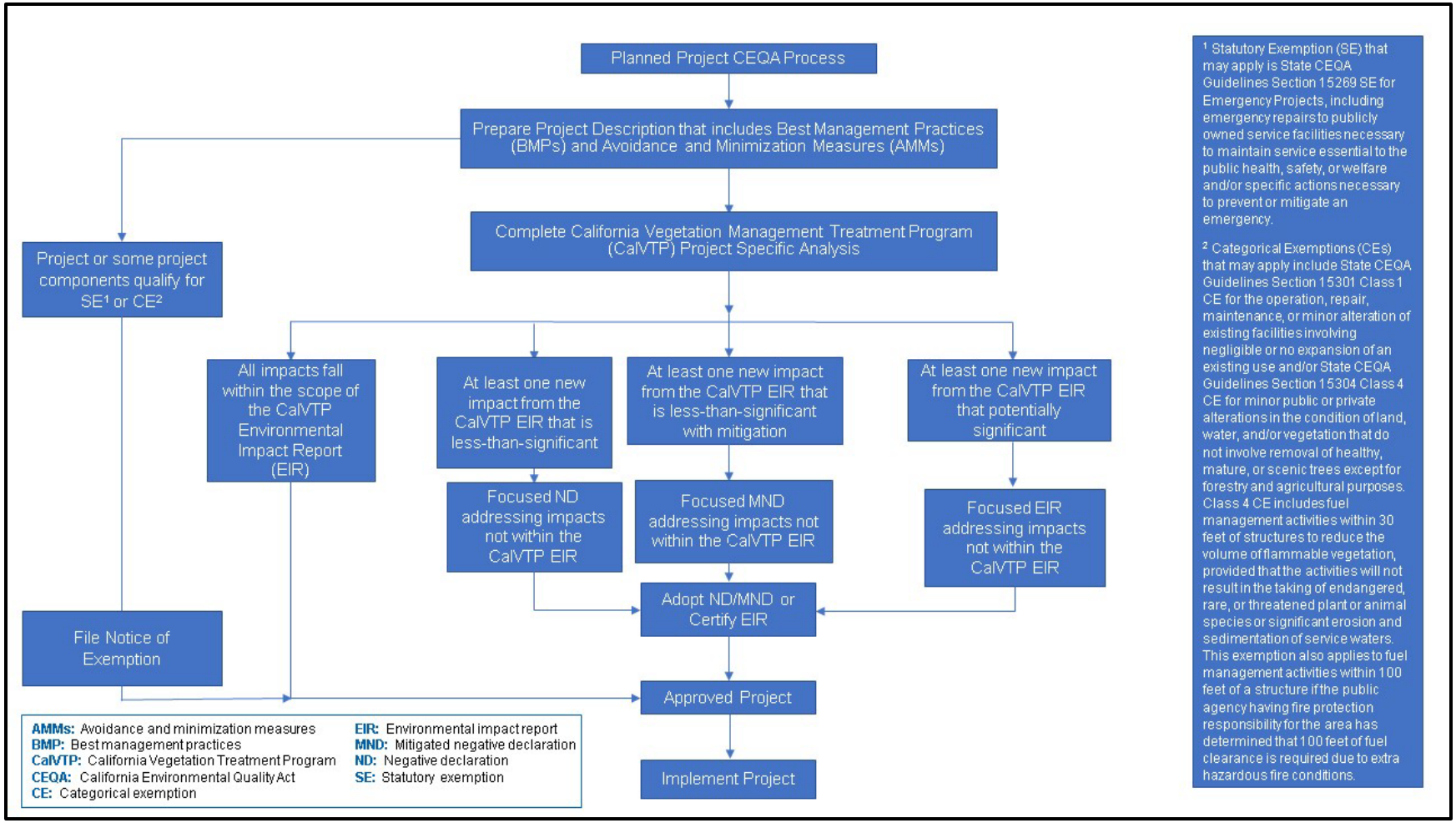

Figure 4.2. CEQA process for CalVTP implementation.

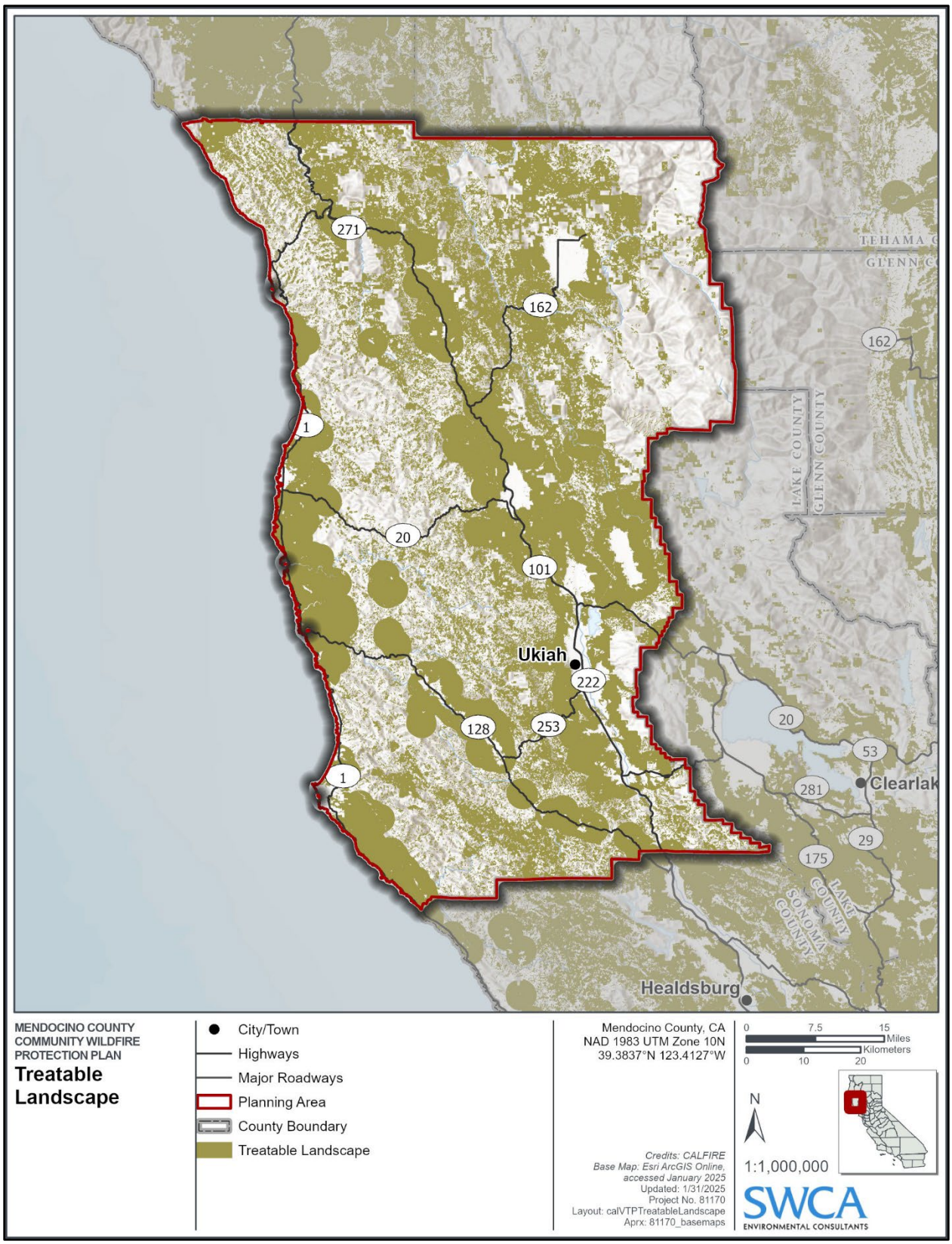

Figure 4.3. CalVTP treatable landscape.

Potential Partners: CAL FIRE MEU, USFS, MCFSC, neighborhood FSCs, Mendocino County departments, BLM, BIA, Tribal communities

Potential Funding Sources: CAL FIRE, California State Coastal Conservancy, Cal OES, California FSC, CA GOPR, County of Mendocino, NRCS, North Coast Resource Partnership (NCRP), USFS, U.S. Department of Housing and Urban Development, U.S. Environmental Protection Agency (EPA), U.S. Economic Development Administration, U.S. Department of Labor, U.S. Department of Education, BLM, FEMA, PG&E, Coalitions and Collaboratives, California Fire Foundation, Community Foundation of Mendocino County, National Forest Foundation, Western Forestry Leadership Coalition

Table 4.1. Recommendations to Create Resilient Landscapes (Fuel Treatments)

Project ID	Status	Priority	Target Date	Project Description	Methodology/Approach	Monitoring/Maintenance Requirements
RL #1		High	When funded	Specific proposed fuel reduction projects are listed and mapped on the MCFSC "Project Tracker" website at: https://www.firesafemendocino.org/project-tracker-map The projects listed in the project tracker in the link above are in alignment with this table (recommendations to create resilient landscapes).	• See individual projects in the project tracker.	• Multiple
RL #2		High	When funded (target year: 2026)	Identify a funding source to help landowners remove hazardous trees and develop programs.	• Review existing programs in other jurisdictions. • Draft several templates specific to best practice programs appropriate for climate, soils, and topography (for example, best management practices for Round Valley vs. coastal areas). • Apply for funding. • Implement program. • Include and encourage collaboration with Tribal partners. • Target high-risk areas with vulnerable populations. • Cooperate with adjacent LRA/municipal districts in vegetation management planning, funding, and implementation.	• N/A
RL #3		High	2026	Support the implementation of protective prescribed burns.	• Identify, map, and prioritize areas where burning would be plausible currently or in the future with prior fuel reduction work. • Identify which priority areas can be managed by CAL FIRE, a fire protection district, or a fire department. • Prioritize areas around at-risk population centers. • Plan for California Environmental Quality Act (CEQA) where needed. • Identify locations where important burns could be managed on private land by landowners or in coordination with the prescribed burn association (PBA). • Determine land ownership and landowners who are interested in supporting burn projects. • Develop and implement burn projects. • Include effective smoke management plans.	• Ongoing, annually, or every few years depending on fuel types

Project ID	Status	Priority	Target Date	Project Description	Methodology/Approach	Monitoring/Maintenance Requirements
RL #4		High	2026	Maintain roadside clearance for fire protection along main transportation corridors and other critical ingress and egress routes, including highways.	• Conduct outreach to Caltrans, county public works, other appropriate agencies, and private landowners with significant roadside properties to ensure that proper roadside clearance for fire protection is maintained along the main transportation corridors. • Identify key ingress/egress routes throughout the county and implement fuel reduction and maintenance plans along these routes. • Map locations where roadside clearing is or is not accomplished annually, particularly in grassy areas. • Conduct a cost assessment. • Convey fire risk to appropriate agencies and/or jurisdictions. • Address landslide-prone roadside slopes to ensure that evacuation routes remain navigable. • Collaborate with neighborhood fire safe councils (FSCs) to identify concerning roads. • Coordinate and collaborate with the Mendocino Department of Transportation to ensure adherence with all guidelines and restrictions. • Ensure roadside clearance projects consider that county rights-of-way are typically “easements.” In such cases, projects need to involve the right-of-way’s adjacent landowners. • Develop a “streamlined” permit process for CEQA/NEPA and County Encroachment permits, including coastal zone special permits. • Plan and implement fuels reduction on critical roads, for example, Comptche-Ukiah/Orr Springs Road, Mill Creek, Spyrock and surrounding areas, Bell Springs, Anderson Valley outlet roads, and Branscomb Road. • Refer to the CAL FIRE Unit Plan and MCFSC countywide project list for additional focus areas. ○ Include Tribal partners in every step of the process where applicable. • Target high-risk communities with vulnerable populations. • Explore formation of a Special Benefit Assessment District to raise funding for long-term fuel reduction along critical corridors.	• Annually
RL #5		High	2025	Establish plans and programs for maintaining fuel reduction projects.	• Establish protocols for follow-up work and maintenance for each type of fuel management program implemented in Mendocino County. • Explore formation of a Special Benefit Assessment District to raise funding for long-term fuel reduction along emergency access routes (as was done for the Sherwood corridor recently). • Establish monitoring programs for key fuel management areas.	• N/A
RL #6		High	Ongoing	Use the hazard assessment and Core Team member input to identify priority areas for treatments throughout Mendocino County and determine compliance requirements (e.g., CEQA, and California Vegetation Treatment Program [CalVTP]).	• Establish a consensus methodology. • Obtain data to perform assessment. • Perform and post results. • Determine best methods for meeting compliance requirements in priority areas. • Include and encourage collaboration with Tribal partners. • Consider potential areas for fuel reduction, i.e., Faulkner Park. • Collaborate with relevant land managing agencies, e.g., Mendocino National Forest and adjacent counties.	• Biannually

Project ID	Status	Priority	Target Date	Project Description	Methodology/Approach	Monitoring/Maintenance Requirements
RL #7		Medium	2027	Seek to develop a process for monitoring tree mortality and invasive species in Mendocino County and a subsequent process for addressing increased wildfire risk where tree mortality is significant and/or where invasive species are abundant.	• Evaluate strategies to enforce protocols and regulations to reduce the spread of invasive species and/or virulent pathogens that lead to increased tree mortality. • Seek to develop and implement a countywide strategic invasive species management plan to address invasive plant species in the county. This strategic plan should prioritize species and occurrences of species for subsequent treatment. • Investigate the viability of establishing an ordinance (or applying an existing one) for invasive species compliance on private lands. • Evaluate vegetation management options for the eucalyptus grove on Cahto Street, e.g., fuels reduction or removal. • Explore an ordinance that includes language that restricts the planting of nonnative plants. • Include Traditional Ecological Knowledge (TEK) in species preference post-treatment. ○ Identify high-priority invasive species. • Develop and provide public materials to help identify key invasive species and best practices for reducing/eliminating and disposing these species. • Develop a mapping system for locating invasive populations; research existing systems. • Identify lead organizations to organize invasive removal workdays throughout the county. • Explore the use of prescribed fire for invasive species management. • Work with the UC Extension to publish best practices for areas with all types of tree mortality (i.e., insect, fire, etc.). • Monitor for forest health grant opportunities to address areas with substantial tree mortality. • If tree mortality and invasive species monitoring and management programs are determined to be feasible and practicable, transition them to development.	• Ongoing
RL #8		Medium	2025	Support regulatory changes that allow Tribes to implement cultural burns.	• Plan and facilitate meetings with Tribes interested in the implementation of cultural burns, document what they consider are the most significant impediments to implementing cultural burns. • Identify key opportunities to help reduce implementation barriers and implement activities to address these barriers.	• N/A
RL #9		Low	2025	Establish best practices for fuel reduction work in common Mendocino County ecotypes and require contractors working on public projects to incorporate these best practices.	• Review existing scientific literature on best practices for fuel reduction work in Mendocino County, include an assessment of all ecotypes and vegetation communities that exist in the county. • Specify best practices for processing slash by ecotype. • Specify best thinning practices by ecotype. • Evaluate situations, landscapes, and species that are better suited for specific treatments, e.g., prescribed burning vs grazing, vs mechanical. • Publish and distribute best practices guidelines to fuel management contractors.	• Biannually
RL #10		Low	2026	Establish a plan to incorporate grazing into the county fuel reduction strategy.	• Review best practices in other parts of California (and/ or other states) with similar ecosystems to Mendocino County. • Develop a list of providers of grazing services, including their availability and capacity. • Identify which priority areas identified within the fuel management plan would benefit from grazing. • Identify when and how to time and structure grazing projects in order to have the best long-term impact on the local environment (e.g., targeting the reduction of high fire risk invasive plants). • Identify where implementation of annual grazing would require grant funding support and where grazing could be funded by landowners. • Identify and apply for funding and implement grazing programs.	• Annual progress report
RL #11		Low	2025	Establish procedures to use county, CAL FIRE, and Mendocino fire department resources to support Mendocino PBA projects.	• Meet with each group to determine resources that can potentially be made available; document the process and timeline for requests and detail any conditions/limits to participation. • Coordinate with CCC and the new regional facility in Willits to involve their crews in implementing regional vegetation management projects. • Make documentation available to PBA leadership.	• N/A
RL #12		Low	2026	Inventory fuel reduction equipment in the county that may be available to exchange, share, or rent.	• Poll relevant agencies, organizations, and Tribes to identify underutilized equipment and terms for its use by other groups. • Create a centralized list of available equipment that may be available, include the condition of the equipment. • For rental agreements, develop a cost comparison (e.g., county or state agency rental rate vs local rental businesses rental rates) to determine the most efficient use of funds.	• Biannually

Project ID	Status	Priority	Target Date	Project Description	Methodology/Approach	Monitoring/Maintenance Requirements
RL #13		Low	Ongoing	Explore strategies to develop programs and infrastructure that can make productive use of the biomass generated from fuel reduction projects.	• Conduct a feasibility study. • Monitor industry developments in the use of woody biomass from fuel reduction projects. • Cooperate with economic development programs utilizing fuel reduction generated biomass. • Partner with relevant entities.	• Ongoing
RL #14		Low	When funded	Create an updated, fine-scale fuels model for Mendocino County	• Solicit a contractor to gather high-resolution imagery and/or LIDAR data of fuel types in Mendocino County. • Quantitatively assess total fuel/biomass in the county.	• As needed
RL #15		Low	When funded	Seek opportunities to simplify and streamline the residential burn permit process.	• Reduce red tape for residential pile and broadcast burns. • Explore options to simplify the permitting process.	• N/A

4.3 COHESIVE STRATEGY GOAL 2: FIRE-ADAPTED COMMUNITIES

Goal 2 of the Cohesive Strategy/Western Regional Action Plan is: Fire-Adapted Communities: Human populations and infrastructure can withstand a wildfire without loss of life and property. The basic premise of this goal is:

> *"Preventing or minimizing the loss of life and property due to wildfire requires a combination of thorough pre-fire planning and action, followed by prudent and immediate response during a wildfire event. Post-fire activities can also speed community recovery efforts and help limit the long-term effects and costs of wildfire. CWPPs should identify high-risk areas and actions residents can take to reduce their risk. Fuels treatments in and near communities can provide buffer zones to protect structures, important community values and evacuation routes. Collaboration, self-sufficiency, acceptance of the risks and consequences of actions (or non-action), assisting those who need assistance (such as the elderly), and encouraging cultural and behavioral changes regarding fire and fire protection are important concepts. Attention will be paid to values to be protected in the middle ground (lands between the community and the forest) including watersheds, viewsheds, utility and transportation corridors, cultural and historic values, etc."* (WRSC 2013:15).

In this CWPP, recommendations for fire-adapted communities include public education and outreach actions and actions to reduce structural ignitability.

4.3.1 RECOMMENDATIONS FOR PUBLIC EDUCATION AND OUTREACH

Just as environmental hazards need to be mitigated to reduce the risk of fire loss, so do human hazards. Lack of knowledge, lack of positive actions (e.g., failing to create adequate defensible space), and negative actions (e.g., keeping leaf litter and exposed propane tanks close to structures) all contribute to increased risk of loss in the WUI.

Most residents in the WUI understand the risk that wildfire poses to their communities. However, it is important to continually engage the community as a partner in order to expand wildfire mitigation options across land ownership (McCaffrey 2004, 2020; McCaffrey and Olsen 2012; Winter and Fried 2000).

Methods to improve public education could include increasing awareness about fire department response and resource needs; providing workshops at demonstration sites showing Firewise landscaping techniques or fuels treatment projects; organizing community cleanups to remove green waste; publicizing availability of government funds for treatments on private land; and, most importantly, improving communication between homeowners and local land management agencies to improve and build trust, particularly since the implementation of fuel treatments and better maintenance of existing treatments needs to occur in the interface between public and private land.

Please see Appendix F for a list of educational resources.

Table 4.2 lists public education recommendations to be implemented in the county. **It should be noted that the table (project list) is not comprehensive, and the County will likely need to implement projects beyond those listed here.**

4.3.2 RECOMMENDATIONS FOR REDUCING STRUCTURAL IGNITABILITY

Table 4.2 provides a list of community-based recommendations to reduce structural ignitability that should be implemented throughout the county. **It should be noted that the table (project list) is not comprehensive, and the County will likely need to implement projects beyond those listed here.** Reduction of structural ignitability depends largely on public education which provides homeowners with the information they need to take responsibility for protecting their own properties. Carrying out fuels reduction treatments on public land may only be effective in reducing fire risk to some communities; if homeowners have failed to provide mitigation efforts on their own land, the risk of home ignition remains high, and firefighter lives are put at risk when they carry out structural defense.

A list of action items that individual homeowners can take regarding defensible space practices and to reduce structural ignitability can be found in Appendix F.

Preparing for wildland fire by creating defensible space around the home is an effective strategy for reducing structural ignitability as discussed under Cohesive Strategy Goal 1: Resilient Landscapes. Studies have shown that burning vegetation beyond 120 feet of a structure is unlikely to ignite that property through radiant heat (Butler and Cohen 1996), but fire bands that travel independently of the flaming front have been known to destroy or damage houses that had not been impacted by direct flame impingement. Hardening the home to ignition from embers, including maintaining vent coverings and other openings, is also strongly advised to protect a home from structural ignitability. Managing the landscape around a structure by removing weeds, leaves, pine needles, woody materials and combustible debris within a 30-foot radius and keeping the roof and gutters of a home clean are two maintenance measures proven to limit combustible materials that could provide an ember bed and ignite the structure. Combustible materials can include stacks of firewood and lawn furniture. In essence, reducing structural ignitability and creating defensible space are key for protecting from the potential loss and damage due to intense wildfires.

The paragraphs below contain pertinent information regarding recent legislation related to Goal 2 of the Cohesive Strategy.

Assembly Bill 38: Assembly Bill 38 (2019) amended sections of the Civil, Government, and Public Resources Codes to set forth a comprehensive wildfire mitigation financial support program, which facilitates cost-effective home/structure hardening and retrofitting to create fire-resistant homes, businesses, and public structures. The amendments require the State Fire Marshal, in consultation with the Director of Forestry and Fire Protection and the Director of Housing and Community Development to identify building retrofits and hardening measures eligible for financial assistance under the program. Additionally, the amendments require that CAL FIRE identify defensible space, vegetation management, and fuel treatment procedures eligible for financial assistance. Wildfire hazard areas eligible for financial assistance under the program include LRAs situated within very high FHSZs and SRAs within any FHSZ (CA GOPR 2022).

California Fire Code Chapter 49: This chapter of the California Fire Code is designed to reduce ember intrusion and minimize total losses to conflagrations. The chapter provides minimum standards for buildings with the aim of decreasing overall structural ignitability. Also discussed within the chapter are requirements regarding defensible space and vegetation management.

California Building Code Chapter 7A: This chapter of the California Building Code establishes requirements for structures located within the WUI. Among these minimum standards are vegetation management practices, defensible space guidelines, use of ignition resistant construction material, fire-resistant exterior windows, and attic vent coverings.

Potential Partners: CAL FIRE MEU, USFS, MCFSC, neighborhood FSCs, Mendocino County departments, BLM, BIA, Tribal communities

Potential Funding Sources: CAL FIRE, California State Coastal Conservancy, Cal OES, California FSC, CA GOPR, County of Mendocino, NRCS, North Coast Resource Partnership (NCRP), USFS, U.S. Department of Housing and Urban Development, U.S. Environmental Protection Agency (EPA), U.S. Economic Development Administration, U.S. Department of Labor, U.S. Department of Education, BLM, FEMA, PG&E, Coalitions and Collaboratives, California Fire Foundation, Community Foundation of Mendocino County, National Forest Foundation, Western Forestry Leadership Coalition

Table 4.2. Recommendations for Creating Fire-Adapted Communities (Public Education and Reducing Structural Ignitability)

Project ID	Status	Priority	Target Date	Project Description	Methodology/Approach	Monitoring/Maintenance Requirements
FAC #1		High	2026	Conduct an initial assessment of ingress/egress issues to identify service and planning gaps regarding evacuation efforts. Develop a prioritized list of areas in need of a second access route.	• Perform an assessment to identify problem roads and potential solutions. • Prioritize high-risk areas. • Identify temporary and/or potential refuge areas on public or private property (if there are agreements with landowners). • Explore feasibility of adding additional access points and widening existing roads. • Prioritize the maintenance of fire access roads. • Create and maintain a map with emergency access roads. • Ensure CAL FIRE and all local fire agencies have ready access to map. • Assess evacuation route impacts in areas with limited access when considering land use or zoning changes. • Collaborate with Mendocino County Department of Transportation and other relevant agencies to assess and inventory bridge capacities. • Consider vulnerable populations and/or populations with special needs. • Collaborate with private landowners that may have roads that can be used in case of emergencies. • Develop an emergency access route between Primrose Dr in Brooktrails and Highway 20 near the railroad crossing (old KOA) Mendocino County and Sherwood Firewise are in the process of securing owner permissions. • Assess the feasibility of safe evacuations from camps, recreational areas, and other high-use natural spaces located in high wildfire hazard and risk areas. This includes evaluating access routes, identifying potential bottlenecks, and determining necessary improvements to enhance evacuation safety.	• Assess progress and needs on a yearly basis.
FAC #2		High	Ongoing	Continue to increase awareness of Mendocino County's emergency notification system.	• Inform residents in areas with poor coverage about receiving alerts and using alternative methods to receive messages. • Increase subscriptions to MendoAlert and Nixle (or Everbridge). • Offer free technical assistance for residents with limited computer capabilities to register with MendoAlert system. • Assess the feasibility of new alerting system technologies and how they incorporate with best practices. • Reinforce the public education campaign on "knowing your zone."	• Conduct periodic testing to ensure the system is working correctly. • Conduct community surveys to gauge effectiveness.
FAC #3		High	2027	Ensure county animal care facilities, nonprofit animal care providers, and local veterinarians have resources to evacuate animals and develop and publicize (online and print) a comprehensive guide for animal (pet and livestock) emergency evacuation.	• Determine best practices and plan for implementation. • Expand the Ag Pass program to include non-commercial operations and small-scale ranchers.	• Conduct regular review of guide and update as needed. • Track and record engagement.
FAC #4		High	2026	Develop comprehensive evacuation strategies for remote communities, encompassing the identification of alternative evacuation routes and the implementation of tailored evacuation plans and drills. Additionally, focus on educating residents in these isolated communities with limited access on effective evacuation procedures. Note: These strategies are for planning and preparedness purposes only. Residents should evacuate where evacuation orders designate.	• Collaborate with land management agencies and fire protection agencies to discuss and develop evacuation procedures. • Increase awareness of evacuation issues through community events, workshops, and practice drills. • Develop detailed maps that show all alternative roads with potential ingress and egress points into and out of the community and distribute to the respective community members. • Include "turnout" and "turnaround" locations along routes. Focus efforts on communities with limited ingress and egress, e.g., Sherwood FSC. • Connect refuge locations with backup batteries and generators. • Work with landowners who are willing to provide access to their property as a means of alternative ingress/egress. • Consider vulnerable populations and/or populations with special needs.	• Conduct yearly updates.

Project ID	Status	Priority	Target Date	Project Description	Methodology/Approach	Monitoring/Maintenance Requirements
FAC #5		Low	TBD	Evaluate the feasibility of lowering statutory and other legal barriers to creating special assessment districts (such as homeowner's associations or California's Mello-Roos). Special assessment districts can provide a mechanism for existing communities—particularly those in higher-risk areas—to help fund community mitigation efforts. This funding may also help support those who may not be able to afford the necessary parcel level mitigation.	• Work with relevant agencies to investigate approaches to lowering or modifying statutory and other legal barriers to creating special assessment districts.	• N/A
FAC #6		Low	2027	Explore and compile a list of potential funding sources for post-fire recovery and assistance for individuals.	• Research state and federal programs. • Engage local and regional agencies. • Leverage nonprofit and private funding sources. • Create a centralized funding resource page. • Partner with fire safe councils and community organizations.	• N/A

4.4 COHESIVE STRATEGY GOAL 3: WILDFIRE RESPONSE

Goal 3 of the Cohesive Strategy/Western Regional Action Plan is Wildfire Response: All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions:

> *"A balanced wildfire response requires integrated pre-fire planning with effective, efficient, and coordinated emergency response. Pre-fire planning helps tailor responses to wildfires across jurisdictions and landscape units that have different uses and management objectives. Improved prediction and understanding of weather, burning conditions, and various contingencies during wildfire events can improve firefighting effectiveness, thereby reducing losses and minimizing risks to firefighter and public health and safety. Wildfire response capability will consider the responsibilities identified in the Federal Response Framework. Local fire districts and municipalities with statutory responsibility for wildland fire response are not fully represented throughout the existing wildland fire governance structure, particularly at the NWCG, NMAC, and GACC levels."* (WRSC 2013:15).

This section provides recommended actions that jurisdictions could undertake to improve wildfire response.

4.4.1 RECOMMENDATIONS FOR IMPROVING FIRE RESPONSE CAPABILITIES

Educating members of the public so they can reduce dependence on fire departments is essential because these resources are often stretched thin due to limited personnel and equipment. Education to enhance community preparedness is a key factor in supporting local fire departments in fire response, particularly educating residents about emergency notifications and evacuation protocols so that residents can safely evacuate an area while emergency responders prepare to protect life and property.

Table 4.3 provides recommendations for improving firefighting capabilities. Many of these recommendations are general in nature to be tailored for response agencies across the county.

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Potential Partners: CAL FIRE MEU, USFS, MCFSC, neighborhood FSCs, Mendocino County departments, BLM, BIA, Tribal communities

Potential Funding Sources: CAL FIRE, California State Coastal Conservancy, Cal OES, California FSC, CA GOPR, County of Mendocino, NRCS, North Coast Resource Partnership (NCRP), USFS, U.S. Department of Housing and Urban Development, U.S. Environmental Protection Agency (EPA), U.S. Economic Development Administration, U.S. Department of Labor, U.S. Department of Education, BLM, FEMA, PG&E, Coalitions and Collaboratives, California Fire Foundation, Community Foundation of Mendocino County, National Forest Foundation, Western Forestry Leadership Coalition

Note: The term "fire agencies" was developed by the Mendocino County Association of Fire Districts, and it is recognized by the Chiefs Association and is used by the County of Mendocino as the basis for funding disbursements. "Fire agencies" are defined as local government entities or tax-exempt 501(c)(3) organizations authorized by California Statutes to provide fire response fire, rescue, and emergency medical services (EMS) public safety services to the general public in Mendocino County. Additionally, these agencies must 1) participate in the Mutual Aid Coordinating System (MACS) and have an assigned MACS ID Agency Designator, and 2) be regularly dispatched by the Emergency 911 dispatch center.

Table 4.3. Recommendations for Safe and Effective Wildfire Response

Project ID	Status	Priority	Target Date	Project Description	Methodology/Approach	Monitoring/Maintenance Requirements
FR #1	Unfunded/ Needs to Start	Low	2027	Explore strategies and opportunities to establish early fire detection warning cameras enhanced by artificial intelligence in high-risk areas throughout the county.	• Secure funding for network of early warning cameras. • Evaluate locations to determine best strategic placement of cameras and install them. • Establish monitoring system for camera network and ensure it is maintained, especially during periods of high wildfire risk.	• Conduct annual review of effectiveness of camera locations and monitoring system.
FR #2	Unfunded/ Needs to Start	High	2029	Explore opportunities to fund all county fire agencies so that they can achieve an Insurance Services Office (ISO) rating of 5 for their districts.	• Conduct a needs assessment. • Establish fire protection services contracts with communities that don't contribute to the tax base but receive services. • Encourage fire agencies to establish service contracts with communities that don't fall under a specific jurisdiction. ○ Continue to assist fire agencies with grant applications and to find new sources of funding. • Create online resources to facilitate sharing of information between fire chiefs in the county. • Inform communities about the challenges faced by fire agencies to emphasize the significance of supporting these organizations through volunteering, fundraising, and personal actions. • Identify and acquire funding sources to fulfill existing needs.	• Report fire department and FPD ISO ratings.
FR #3	Unfunded/ Needs to Start	High	2028	Develop a long-term dedicated funding source for the county's consolidated fire and emergency dispatch center.	• Identify potential funding source(s) as well as a plan to acquire and maintain funding.	• Conduct yearly review to ensure sufficient funding is maintained.
FR #4	Unfunded/ Needs to Start	High	2028	Continue assessment to ensure that emergency evacuation facilities in the county are sufficient for both humans and animals.	• Review capacity of existing facilities. • Ensure that emergency shelters in the county are properly equipped. • Assess feasibility of using fairgrounds as staging areas and resource deployment. • Assess facilities to determine whether they are sufficient for large-scale evacuation efforts. The Anderson Valley Fair Grounds are a high priority. • Estimate and find funding support for needed facilities upgrades. • Collaborate with voluntary organizations active in disaster (VOAD) regarding a designated shelter. • Ensure that fairgrounds are retrofitted as needed. • Ensure resiliency in fairgrounds. • Rodeo grounds may also serve as emergency evacuation facilities. • Provide parallel capabilities on the coast as on 101 corridor and Round Valley. • Develop backup power/water/first aid capacity at local and remote schools such as the Sherwood School to serve as emergency shelters.	• Conduct annual capacity and needs assessment.

Table of Contents

Project ID	Status	Priority	Target Date	Project Description	Methodology/Approach	Monitoring/Maintenance Requirements
FR #5	Unfunded/ Needs to Start	High	2027	Identify and address needs for emergency fire suppression water supplies.	• Survey fire agencies and CAL FIRE to determine fire suppression water needs and target locations where assistance is most needed. • Develop sufficient water storage in Navarro to compensate for the loss of pond storage. • Assess emergency water capacity and distribution in Gualala. • Increase water sources and add hydrants in Brooktrails. • Develop new “tank hydrant” locations along remote access routes such as Sherwood-Fort Bragg Road and elsewhere as identified by fire agencies (minimum 30,000-gallon capacity). • Evaluate options to install and/or improve water sources and systems in Round Valley. • Brooktrails Township CSD allows up to 2,500 gallon residential water storage systems – develop program to provide Brooktrails owners water storage options. • Provide assistance to Albion and Mendocino area businesses to meet water storage requirements. • Develop emergency water resources for Comptche. • Ensure sufficient water supplies for aerial fire suppression are distributed throughout the county. • Ensure that private water tanks available for fire suppression are adequately marked. • Maintain or add strategic dip sites, e.g., HeloPods in airports.	• Conduct a yearly review of water resources. • Maintain and update water resources as needed based on annual review.
FR #6	Unfunded/ Needs to Start	Medium	2025-2026	Assist the Fire Chiefs Association in obtaining sufficient resources to provide the full range of professional training for their crews.	• Collaborate with the Fire Chiefs Association to identify existing needs and opportunities for funding. • Assist in the pursuit of funding opportunities.	• Schedule check-ins to assess remaining needs and monitor progress.
FR #7	Unfunded/ Needs to Start	Medium	2028	Evaluate options to upgrade existing communications facilities and mediums as well as to establish new ones.	• Investigate methods, strategies, and technology to address the critical need for communication during power outages and for residents in low cell service coverage areas (e.g., district teams of trained/licensed extra class ham radio operators equipped with a high-frequency transceiver, software, a dipole antenna, a power supply and all connecting cables). • Assess deficiencies of current communications facilities (e.g., communication sites and towers). and develop a list of needs. • Explore the use of mobile low power AM emergency radio systems using the Tourism Notice bands – see Lake Tahoe and many other remote communities with large amounts of tourism. • Continue the assessment of the countywide ham radio emergency network capacity and assist with seeking grant funding to meet any training and equipment needs. • Support emergency capabilities of local radio communications. • Assess emergency communication capabilities in remote areas of the county and develop plans for additional networks and capacity where needed, including for local GSM-R networks. • Include and encourage collaboration with Tribal partners.	• Conduct an annual capacity review.

FR #8	Unfunded/ Needs to Start	Medium	2026-2027	Investigate ways to support fire prevention and protection services in the county	• Identify fiscal support for fire protection districts and fire departments.
					• Assess possible cost saving collaboration between fire departments and fire protection districts.
					• Develop and implement training programs for seasonal wildland firefighters, hand crews (project work, manage chipper program), resident/sleeper/student firefighters (sleep at stations), and improved response times.
					• Increase capacity in communities with expanding development.
					• Promote volunteerism and recruitment; potential actions may include:
					  ○ Expanding high school programs.
					  ○ Creating an apprentice firefighter program where qualifications can be attained through different avenues (e.g., seasonal firefighter, resident firefighter, volunteer firefighter).
						• Convene annually to assess firefighting capabilities.
						• Conduct a yearly review and update of programs.

Project ID	Status	Priority	Target Date	Project Description	Methodology/Approach	Monitoring/Maintenance Requirements

FR #9	Unfunded/ Needs to Start	Medium	2025	Identify and create a map of environmentally sensitive areas in the county (e.g., protected wildlife habitats, natural resources, cultural resources, hazardous waste sites, and contaminated waters.	• Develop maps and create a spatial database that display the locations of:
					  ○ Areas where disturbance to soil is prohibited due to sensitive cultural and natural resources or potential contamination.
					  ○ Off-limit water resources (e.g., contaminated water).
					• Develop internal and external versions of these maps, include a key Distribute maps to all fire departments and fire protection districts, CAL FIRE, and other agencies involved in fire response.
						• Revise map as needed.

FR #10	Unfunded/ Needs to Start	Medium	2027	Assess the viability of establishing a sustainable funding source to support countywide fire prevention, preparedness, response, and recovery efforts.	• Evaluate county leadership and public support for such endeavors.
					• Conduct an assessment to determine base level funding needs for all county departments.
					• Clearly identify the measures that will be executed and how the funds will be spent, including:
					  ○ What programs will be implemented?
					  ○ How and where are the resources being spent?
					• Provide transparency on funding spent, projects, and program effectiveness.
					• Provide an annual report on projects completed and the value they bring to the communities.
					• Develop a long-term dedicated funding source for the county's Redwood Empire Hazardous Incident Team (REHIT) department.
						• As needed

FR #11	Unfunded/ Needs to Start	Low	2026	Provide support to Cooperative Air Patrol.	• Collaborate with Cooperative Air Patrol to identify avenues to assist their work in Mendocino County.	• Schedule check-ins to monitor progress and identify new opportunities.
FR #12	Unfunded/ Needs to Start	Low	2025	Create and digitize first-responder maps for all roads in the county, including building locations, water resources, key infrastructure, and turnaround opportunities, among other critical information.	• Assess current data and mapping to determine opportunities for turnaround.	• Conduct regular reviews and updates of maps.
FR #13	Unfunded/ Needs to Start	Low	2029	Explore opportunities to lobby for additional fiber-optic lines as a backup.	• Install backup fiber-optic lines to ensure communication in the case that one of the lines is compromised.	• Schedule check-ins to monitor progress. • Conduct regular maintenance of fiber-optic lines.
FR #14	Unfunded/ Needs to Start	Low	2027	Assist residents in correcting and updating data on misnumbered street addresses, streets with duplicate names, and other address issues that can slow emergency response.	• Fire districts, CAL FIRE, or the Mendocino County Sheriff's Office can request that the County facilitate the naming of duplicate, unnamed, or new private roads. • The process is relatively straightforward for private residents, provided they have the support of local public safety entities. Fire safe councils are ideal applicants, given their valuable local knowledge.	• N/A

Table of Contents

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4.5 FIRE DEPARTMENT, LOCAL ORGANIZATION, AND COMMUNITY CONCERNS AND PRIORITIES

This section outlines the concerns and priorities of various fire agencies, volunteer fire departments and brigades, communities, and local organizations, based on available data. These priorities are in alignment with the broader county-level priorities identified in Sections 4.2 through 4.4 above. Additionally, these projects align with Mendocino County's wildfire resiliency strategy—encompassing fuel reduction, home hardening, risk identification and management, community preparedness, and land use planning—and are incorporated into this CWPP's action plan. It should be noted that all projects listed in each section below can be applied to all agencies and communities across the county.

4.5.1 ALBION LITTLE RIVER FIRE PROTECTION DISTRICT

Concerns and Priorities

Albion Little River FPD identified the following needs and priorities for their department:

- Fire response and equipment:
  - New centrally located modern fire station district headquarters with the capability to serve as a community hub, emergency operations center, shelter, storage of 30,000 gallons of water, community meeting hall, and other purposes.
  - High-capacity water storage locations with 30,000 gallons or more at each site located strategically throughout the FPD.
  - Develop mutual aid agreements.
  - District-owned chipper and dump trailer.
  - Purchase a fire department utility vehicle (4x4 pickup truck); a Quick Attack UTV with firefighting capabilities; and two Type 1 tactical water tenders.
  - Upgrade handheld and mobile radios to state standard (eight mobile radios and 25 handheld).
  - Purchase one Type 6 fire engine/brush truck for quick wildland attack and access to remote areas.
  - Develop an additional fire station.
  - Develop local standalone technology and communications systems for the FPD.
  - Volunteer staffing, with an emphasis on hiring during the tourist season.
- Planning and community outreach needs:
  - Expand the local fire safe council to the entire Navarro Ridge, Albion Ridge, Middle Ridge and Little River Airport Road neighborhoods.
  - Obtain Firewise community designation for entire district.
  - Develop districtwide prescribed burn plan with forest health and fire suppression as the objective.
  - Develop additional wildfire education programs and outreach for defensible space for residents.
  - Help community navigate losses to insurance.
  - Tourist education on wildfire threat, preparedness, and response.

  - Develop resources and aid for aging populations.
  - Develop and maintain alternative evacuation routes for Albion Ridge Road, Middle Ridge Road, and Navarro Ridge Road.
- Wildfire mitigation project needs:
  - Roadside clearing along all district roads.
  - Create fuel breaks along timberland residential interface to protect property and resources.
  - Assistance in creating defensible space for elderly and low-income residents.

Albion Little River FPD identified the following structures and areas at risk:

- Albion School
- Albion Village
- Station 810
- Station 811
- Station 814
- Station 815
- Areas west of Highway 1, South of Dark Gulch
- Areas west of Highway 1, Dark Gulch and northward
- Albion Ridge Road, entire length
- Navarro Ridge Road, entire length
- Albion Little River Road
- Area east of Highway 1 and North of Albion Bridge up to Dark Gulch
- Highway 121 and Highway 1
- MC Little River Airport
- The Woods (manufactured home community)
- Pygmy forests
- Little River Airport Road
- Station 812

Community Fire Clearance Needs

Issue To Be Addressed	Solution/Action Plan	Priority	Success Metric at 5 years (2029)
Hyperreflective green and white street signage	Continued emphasis at District community functions	Very High	80% conversion to green and white signage
Street and road naming	District Board to work with residents on unnamed roads and lanes	Very High	All (100%) roads and lanes named

Issue To Be Addressed	Solution/Action Plan	Priority	Success Metric at 5 years (2029)
Development of neighborhood Firewise communities	Support the development of at least five Firewise USA communities within District within 5 years	High	National Fire Protection Association (NFPA) recognition of five Firewise communities within District
Go-bag training	District FSC	Very High	Special focus for all individuals with disabilities and senior residents, especially those who are identified as needing evacuation assistance along with those who will be assisting the evacuations
Evacuation Training	Tabletop exercises	High	Develop with District FSC; distribute "EVACUATED" signs to every home; identify and mark every home needing evacuation assistance; special pairing and specific training for those assisting in evacuations
Development of 10 NEAR Pods in areas that do not pursue Firewise Status	Continued use of NEAR Questionnaire to identify interested residents; door to door organizational efforts; active use of Pod residents in community clearance projects	High	Six functioning Pods in 5 years
Join Prescribed Burn Association and conduct prescribed burns	Focus on the intersections and first 100 yards of all four major roads that intersect Highway 1; include areas adjoining Caltrans easements along Highway 1	Very High	Prescribed burns on at least three intersections
100-foot clearance around Albion School	Work with private landowners adjacent to school, Request CAL FIRE assistance	Very High	100% by 2029
30-foot fuel clearance on roads adjacent and leading to Little River Airport; remove standing and fallen dead trees an additional 15 feet into forest on all airport property	Apply for grants to pay for work crews; coordinate grant-funded work crews with department of transportation dump truck, MCFSC chipper and chipper crew and plant removal tools; coordinate volunteers for traffic control, brush removal, and stacking for chipper	Very High	0.5 mile of treated road along Albion Little River, all of Airport Road, and 0.5 mile in both directions from intersection of Airport Road on Little River Airport Road
No egress for residents of Albion Ridge and Navarro Ridge Roads; all roads east of Highway 1 are narrow, overgrown with significant trees overhanging roads and no fuel breaks	Work with interested property owners to identify and develop adequate “Safe Haven” clearances; create educational program to inform residents about “Safe Haven” locations; hold annual fire evacuation tabletop drills for each “Safe Haven”	Very High	At least one Safe Haven created for three of the four main roads; tabletop drills conducted for each Safe Haven by 2029

Issue To Be Addressed	Solution/Action Plan	Priority	Success Metric at 5 years (2029)
Van Damme State Park fire Road adjacent to the Woods cleared	District Board and Fire Safe Council, MCFSC, OES, and District 5 Supervisor to write letters requesting this fire road to be cleared	Very High	Fire road cleared and maintained
Fire clearances for common areas of the Woods	Woods maintenance staff, Woods' residents and MCFSC to do annual maintenance on all common areas	Very High	Includes clearing and removal of ladder fuel in area next to the Van Damme State Park firebreaks and along frontage on Little River Airport Road and Zone 0 clearance around community buildings, especially the lodge
Scotch broom and pampas grass removal	ALRFSC in conjunction with the MCFSC and DOT and Pod and Firewise community and other community volunteers to remove broom along roadways	Very High	Targeted areas along Little River, Albion Little River, Albion Ridge, and Navarro Ridge Roads including side roads; At least 5 miles of removal completed and maintained by 2029
Continued promotion of the MCFSC DSAFIE Home Clearance Program for Seniors and the Disabled throughout the District	ALRFSC, MCFSC DSAFIE work crew	Very High	Ongoing promotion of this program; Success measured by at least 50 homes throughout District cleared by DSAFIE work crews per year
Promotion of MCFSC chipper program	ALRFSC	Very High	Schedule at least two community Chipper days per year in Little River and five per year in Albion
Increase stored water for firefighting use only	ALRFPD and North Coast Resource Partnership	Very High	Technical Assistance Grant in progress, including assistance for obtaining funding for ten to twelve 30,000-gallon rainfall filled water tanks for fire use only; estimated completion date by 2028

Home Hardening Needs by 2029

Strategy	Responsible Parties	Community Value	Measure of Success
Educate Community on New Standards	ALRFSC along with MCFSC	High	At least one demonstration event by volunteer fire department and/or MCFSC and/or NFPA Certified HMS per year in three neighborhoods
Educate local hardware stores on importance of only carrying products that promote home hardening	ALRFSC and VFD	High	Meet with owners, managers, and sales staff at Rossi's, Coast to Coast, Mendo Mill, and Mendocino Hardware and Village Hardware within first year of CWPP; Inform managers of every new standard recognized or expected by CAL FIRE within 12 months of new standards

Strategy	Responsible Parties	Community Value	Measure of Success
Train at least two firefighters or retired firefighters and Chief to become NFPA Certified Wildfire Hazard Mitigation Specialists	ALRFSC, District Board	Very High	At least three people holding NFPA Wildfire Hazard Mitigation Specialists Certificates. Each specialist to accomplish at least five home inspections per year
Write grants to pay for training of Chief and firefighters to become Wildfire Hazard Mitigation Specialists and for the promotion of residents obtaining NFPA-certified inspections	ALRFSC	High	At least one grant by 2025 to pay for or reimburse training expenses and in program maintenance
At least 10 home inspections by each NFPA Certified Hazard Mitigation Specialist	NFPA Certified Hazard Mitigation Specialists	High	50% of these inspections should focus on low-income senior or disabled resident households; Use MCFSC DSAFIE staff to assist with low-cost improvements such as caulking, mesh venting, etc.
The Lodge at the Woods	Woods staff, residents, and MCFSC DSAFIE	High	Upgrade and maintain lodge hardening, entire building

4.5.2 ANDERSON VALLEY FIRE DEPARTMENT

Concerns and Priorities

The Anderson Valley Fire Department (AVFD) designated 18 communities in their jurisdiction as “at risk.” These communities received an “at risk” designation due to a compilation of factors, including the presence of fuels, topography, population density, and one-way road systems. Figure 4.4 shows these communities and was provided by the AVFD.

In addition, the following concerns and priorities were identified for the AVFD:

- Lack of power for critical facilities (e.g., Boonville and Navarro gas stations) during an emergency event.
- Improvements and upgrades to fairgrounds (e.g., Boonville) to serve as staging areas, evacuation shelter, temporary refuge areas, and resource deployment.
- Improvements to communication systems and escape routes as well as additional emergency training and properly equipped rural fire response teams (the Redwood Complex fires highlighted many of these vulnerabilities).
- Lack of community capacity to accomplish sufficient fire mitigation efforts (e.g., aging population).
- Lack of reliable water sources.
- Lack of portable water storage located strategically throughout the FPD.
- Acquire funding for firefighting equipment and PPE, mitigation and education programs, vegetation mapping within the community, and post-wildfire recovery efforts.

- Collect data on current evacuation routes, including road conditions and ingress/egress, and hydrants to better manage evacuation response.
- Partner with the Mendocino County PBA and other partners to empower private landowners to conduct prescribed burns on their lands.

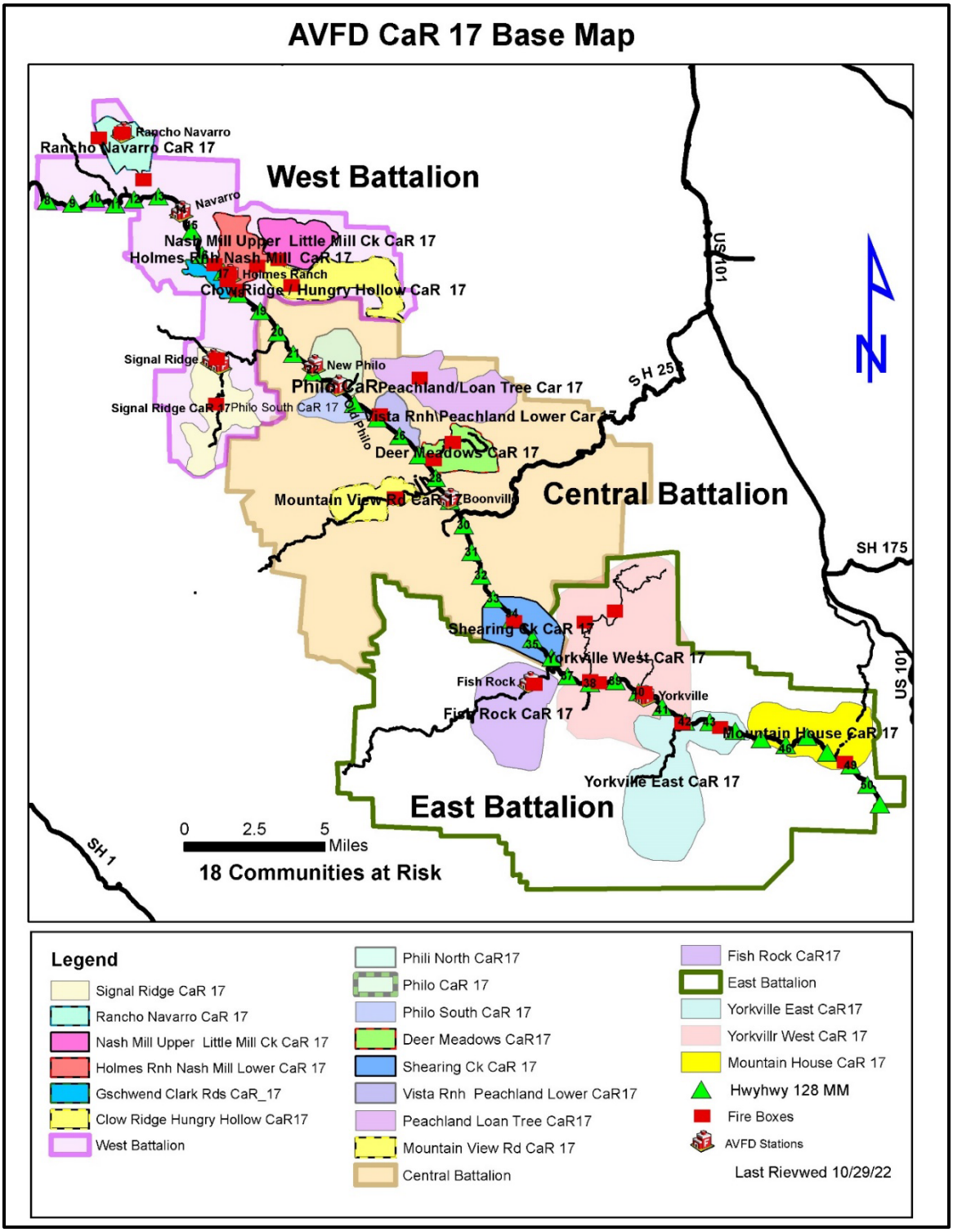

Figure 4.4. Anderson Valley Fire Department designated communities at risk.

4.5.3 BELL SPRINGS VOLUNTEER FIRE BRIGADE

Concerns and Priorities

The Bell Springs Volunteer Fire Brigade has identified the following concerns and priorities for their community:

- Official recognition of Bell Springs Volunteer Fire Brigade.
- A firehouse needed for the Bell Springs Volunteer Fire Brigade.
- A lack of community capacity (i.e., an aging population) to complete fire mitigation work.
- Assistance needed in evacuating vulnerable populations (i.e., aging population) during wildfires.
- Fuel reduction needed along Bell Springs Road.

4.5.4 BROOKTRAILS TOWNSHIP CSD FIRE DEPARTMENT

Concerns and Priorities

The Brooktrails Township CSD Fire Department has jurisdiction in Brooktrails, Spring Creek, and Sylvandale subdivisions. The fire department identified the following concerns and priorities for their community:

- Access in and out of the subdivisions under their jurisdiction, particularly Spring Creek and Sylvandale which have dirt, single-lane roads.
- Replacements and upgrades of old equipment including: a Type 3 wildland engine; a Type 1 fire engine; a utility pickup; personal protective equipment (PPE); and mobile, handheld, and base radios.
- Development of the Brooktrails Community Services facility into an emergency operations preparedness center with emergency power, radio, and satellite communications for use by HAM radio/ Community Emergency Response Team (CERT)/voluntary organizations active in disaster (VOAD)/Red Cross/Mendocino County OES.

4.5.5 CHERRY CREEK RANCH FIRE SAFE COUNCIL

Concerns and Priorities

The Cherry Creek Fire Safe Council identified the following concerns and priorities for their community:

- Engage in community outreach efforts and collaborative projects among environmentally similar parcels within the community to recruit more landowners to participate in fuel reduction, forest health/fire resilience, and home hardening projects.
- Need for financial and professional assistance to help homeowners improve the home's chances of surviving a fire, thereby also protecting their neighbors from fire spread, by replacing wood siding, decks, or shingled roofs with fire-resistant materials; moving/replacing ignitable outbuildings that are too close to the home or to fuel tanks; and other similar projects.

- Conduct roadside fuel reduction on main Cherry Creek roads in the east half of Cherry Creek Ranches as proposed for possible grants through MCFSC (2023), including the east half of Cherry Creek and Helms Roads, South Ford Road, Outlet Creek Road, Turtle Road, the "Unmaintained Trail" fire road between South Fork and Helms Roads, and Fawn Road.
- Conduct roadside fuel reduction on smaller roads not previously funded by grants or targeted by grant applications within Cherry Creek Ranches (e.g., Grouse Gulch Road).
- Conduct roadside fuel reduction maintenance on previously treated community roads as needed over 3- to 7-year intervals to help cover costs if local community funds are not sufficient.
- Engage in forest thinning/trimming and ladder fuels reduction along property lines and in forests between and within parcels to create fuel breaks beyond the 100-foot defensible space guidelines throughout Cherry Creek properties.
- Upgrade/improve the "Unmaintained Trail" fire trail emergency access route between South Fork and Helms Roads.
- Fuel reductions, repairs, and grading of other emergency escape/access routes (e.g., the northern route through neighboring Morosi property and Fawn Road between Cherry Creek Road east and Outlet Creek Road).
- More staging/safe refuge areas (preferably with water supply) throughout the community.
- Develop Forest Management Plan for the Cherry Creek Ranches community developed by a qualified forester/fire management professional to identify best areas for fire/fuel breaks and areas needing treatment for better fire safety or forest health, etc.
- Implement larger fire breaks along identified fire management strategic defense areas.
- Use grazing animals for control on grasslands and brush.
- Education about treatments for invasive or other plants that create a fire hazard.
- Centralized water supply and hydrants for refilling fire engines.

4.5.6 COMPTCHE COMMUNITY

Concerns and Priorities

Comptche identified the following concerns and priorities for their community:

- Increase the East Comptche water supply.
  - Increase water storage at the Redwood Empire timberlands and property at Tahiti Ridge, potentially through a well, at least two 10,000-gallon tanks, and a helipod.
- Additional plumbing needed for one or two ponds around the community to increase access to water for tenders and mobile units during a fire emergency.
- Create a fuel break on each side of Comptche Ukiah Road along with additional shaded fuel breaks, and remove dead and leaning trees that threaten the county road, which is a main evacuation route.
- Funding sources are needed to support Preparedness Team projects so the fire department can focus their financial resources to best serve their core missions.
  - New radios needed in the next 5 years.

- Funding for battery replacement, maintenance, and programming of the Preparedness Team radios needed.

- Community training and outreach needed regarding defensible space and home hardening as well as funding for property owners to accomplish wildfire safety projects, including ingress and egress clearing on private roads and driveways, chipping, and mowing.

4.5.7 COVELO COMMUNITY

Concerns and Priorities

Covelo identified the following concerns and priorities for their community:

- Design and implement a hydrant system for central Covelo by developing plans for the system, assessing costs, and seeking grants to fund the project. This effort is intended to be completed by 2028 but is currently unfunded and has not started.
- Address ingress and egress for Shady Lane, Oak Lane, Barnes East, south end of Ledger Lane, Chicken Ridge, Pigeon Ridge, Little Valley and Bauer Ranch Subdivisions.
- Shaded fuel breaks on Chicken (Eel River Ranch) and Pigeon Ridge Roads (also labeled as part of Hill Road historically).
- Address agency mutual threat zones.
- Funding for training and staffing to develop qualified staff at local fire district level.
- Expand facilities to allow for additional equipment needs at local fire district.
- Develop inspection process with in the local fire district.
- Open and maintain trails on public lands to give access to wilderness areas and function as fuel breaks.
- Local CWPP.
- Critical infrastructure through prescribed fire.
- Improvement of prescribed fire capacity.

4.5.8 ELK COMMUNITY SERVICES DISTRICT

Concerns and Priorities

The Elk Community Services District identified the following concerns and priorities for their community:

- Redo the Elk Evac Fuel Break project (shaded fuel break) to include wider swath and higher vertical fuels removal.
- Acquire funding for the grazing of ladder fuels within 100 feet of either side of Greenwood Ridge on willing landowners' properties.
- Conduct vegetation management (fuels reduction) to ensure proper ingress/egress on private roads for residents and emergency apparatus.

- Replace the 1996 Type I pumper 7180, 1996 Type IV Ford F-350 quick response/rescue engine 7131, 1990 Type IV international rescue engine 7130, structure turnout gear (primary turnout gear), and wildland turnout gear.
- Implement a program to retrofit existing private water storage tanks with approved fire department connections.
- Expand the main fire station to increase engine bay areas and implement ADA improvements.
- Establish a prescribed burn program on willing private property owners' lands along Greenwood Ridge within 0.25 to 0.5 mile of Philo-Greenwood and Cameron Roads.
- Purchase a radio repeater for Elk residents' emergency communications (similar to Comptche's).
- Construct a new 3-bay fire station including restrooms, a sleeping area, a conference room, and parking lot.
    - Hire a consultant to promote volunteer recruitment and increase community participation.
    - Seek funds to ensure fire apparatus road access and turnarounds for Greenwood State Beach.
    - Expand brush-chipper program to more private landowners in coordination with MCFSC.
    - Acquire funding for concrete or metal burner rings, address signage, and fire extinguishers for hip-camp sites.
    - Acquire SCBA equipment and tanks and a SCBA fixed-air compressor to refill tanks.
- Seek funds to conduct study for potential future merging of fire agencies/departments.

4.5.9 FIRE CHIEFS ASSOCIATION

Concerns and Priorities

The Mendocino County Fire Chiefs Association (MCFCA) identified the following concerns and priorities within Mendocino County:

- Investigate and pursue ways to fund pool purchases of equipment, supplies, and personal protective equipment (PPE).
- Ensure funding and support for the Mendocino County Fire Chiefs Academy.
- Assist agencies in identifying funding sources for additional full-time firefighters, EMTs, and paramedics.
- Develop a plan for funding investigations and compliance enforcement, including the addition of a County Fire Marshal to oversee inspection and enforcement.
    - Investigate the viability of enacting a countywide fuel (vegetation) and ignitable material ordinance with authority to mandate compliance. The ordinance should address:
    - Regular vegetation management on entire property in accordance with CAL FIRE's defensible space standards
    - Enforcement of the county's adopted WUI code
    - Fire code amendments to address ladder fuels and fuel continuity
    - Hazardous fuels and ignitable material buildup on property
    - Unmanaged properties with absentee landowners

- Identify all possible funding sources for county fire agencies to meet all state and federal training and safety requirements.
- Conduct a comprehensive assessment for wildfire and emergency response needs, and develop a long-term funding strategy to meet those needs.
- Develop and maintain funding for a fire services representative to monitor fire, EMS, and prevention issues at the local, state, and federal level that may affect fire agencies and chiefs, report to agencies and chiefs, facilitate coordination, act as oversight for current funding streams and develop opportunities for fire agencies to increase their funding. Ensure continued funding for MCFCA administration and operations.
    - Work closely with the County of Mendocino to improve efficiency, coordination, and information sharing between agencies and the County for improved public safety outcomes.
    - Solicit information sharing from fire agencies across the state to identify options for and methods of adapting local fire services to meet ever-increasing needs and challenges.
- Implement a fire agency website that allows for public content and intra-agency content hosting.
    - Develop a robust countywide data recording system for agencies to use and MCFCA to analyze and report on the state of fire and EMS services countywide.
    - Support the Mendocino County Association of Fire Districts by facilitating meetings and information sharing.
    - Support all-agency WUI training drills.

4.5.10 FORT BRAGG FIRE DEPARTMENT

Concerns and Priorities

The Fort Bragg Fire Department identified the following concerns and priorities for their community:

- Simpson Lane is an area of concern.

4.5.11 HOPLAND FIRE PROTECTION DISTRICT

Concerns and Priorities

The Hopland Fire Protection District identified the following concerns and priorities for their community:

- Only one access road in and out of Russian River Estates.
- McNab Ranch and Feliz Creek are areas of concern.
- Additional full-time and volunteer staff are needed as well as equipment replacement, including engines, additional fire station, substation, and additional PPE.
- Hydrant data need to be updated.
- High-capacity water storage located strategically throughout the district.

A comprehensive list of priority projects for the Hopland area can be accessed at:
https://firesafemendocino.org/wp-content/uploads/2021/12/Hopland-CWPP-Action-Plan-2.29.21.pdf

4.5.12 LONG VALLEY FIRE PROTECTION DISTRICT

Concerns and Priorities

The Long Valley Fire Protection District identified the following wildfire concerns and priorities for their community:

- Funding for the placement of fire water tanks in outlying areas. Areas of concern include Bell Springs, Spy Rock and Iron Peak, Woodman Creek, Dos Rios Road, Hargus Road, Ten Mile Creek, and the Cherry Creek subdivisions.
- Continue cooperating with outlying road associations on obtaining grants to improve the following: fire water tanks, roadside clearing, shaded fuel breaks, and addressing and road signage. Collaboration should continue to improve residential defensible space.
- Continue the great working partnership with the MCFSC, including their financial support for the defensible space inspection program.
- Securing a future funding source to aid the fire district in upgrading an aging firefighting fleet.
- Secure funding to increase paid staff to ameliorate the district's declining volunteer personnel.

4.5.13 LEGGETT VALLEY FIRE PROTECTION DISTRICT

Concerns and Priorities

The Leggett Valley Fire Protection District identified the following priorities for their community:

- Implement a CAL FIRE Wildfire Prevention Grant for fuel reduction along 250 acres of private roads.
- Conduct roadside fuel reduction on smaller roads not previously funded by grants and on previously treated community roads as needed over 3- to 7-year intervals.
- Implement the East South Leggett Forest Health pilot project, which is being conducted in collaboration with Mendocino County Resource Conservation District and is funded through a National Coast Resource Partnership Forest Health Grant.
- Assess the need for financial and professional assistance to help homeowners improve their homes' chances of surviving a fire and protect their neighborhoods from fire spread by replacing wood siding, decks, or shingled roofs with fire-resistant materials; moving/replacing ignitable outbuildings that are too close to the home or to fuel tanks; and other similar projects.
- Acquire funding for districtwide fuel reduction and prescribed fire (Rx burns) and for increasing the emergency water supply.
- Completion of a fire station upgrade
- Acquire funding for paid personnel, as well as for UTV and river rescue equipment.
- Develop a districtwide prescribed burn plan with forest health and fire suppression as the objective.
- Replace aging Type 3 fire apparatus.

- Entire district is in a high or very high fire severity zone with many single-lane, narrow driveways and only Highway 101 and Highway 1 as evacuation routes.

4.5.14 MENDOCINO COUNTY FIRE SAFE COUNCIL

Concerns and Priorities

The Mendocino County Fire Safe Council (MCFSC) identified the following concerns and priorities for their community:

- Secure consistent and stable funding for core operations/programs and staff.
- Investigate the feasibility of funding permanent/long-term expansion of the MCFSC fuels management crew and/or other public-purpose fuel reduction crews. The fuels management crews will be used as a countywide resource to achieve significant progress in fuels reduction projects and help those otherwise unable to maintain their defensible space. This effort has a target date of 2025 but is currently unfunded and has not started.
- Explore funding sources to increase the number of Firewise communities throughout the county. These efforts are ongoing, and include the following:
    - Obtain funding to maintain a community outreach coordinator.
    - Target 10 new Firewise communities annually.
    - Target high-risk areas with vulnerable populations.
    - Ensure the Firewise Community Action Plans items are incorporated into larger county planning effort.
    - Involve social media, print media, and local radio stations in creating ongoing content for safety and emergency preparedness public service announcements regularly as MCFSC has done.
- Develop educational materials on wildfire risk mitigation best practices for high-density areas such as apartments, farm worker housing, and mobile home parks. This includes creating a dissemination plan for the materials and including and encouraging participation from Tribal partners. These materials will also include information on property owner responsibilities. There is a target date of completing this effort by 2025 or 2026, but it is currently unfunded and has yet to begin.
- Maintain and expand community chipper days so that each resident may participate at least twice per year. This requires increasing the number of service partners and scheduling regular days for chipper service during the season as MCFSC has done in Brooktrails. The effort is currently in process due to the ongoing community need and is temporarily and partially funded but needs a permanent funding source.
- Maintain a fire science and wildfire readiness education program for Mendocino County middle school students. This effort includes a UC Hopland-based program with a trial for middle school students throughout the county. The initiative focuses on providing a basic education about fire, the role of fire in the local landscaping, and planning for fire-related emergencies, plus some basics about retrofitting, home hardening, and defensible space.
- Develop a local workforce able to help residents implement Zone 0 and home hardening retrofits. This potentially includes coordinating with Mendocino County, Mendocino College, Mendocino County Office of Education, and North Coast Builders Exchange to train high school and junior college students in trades that can be used in home hardening and defensible space work and to

develop a base of contractors qualified to implement small, low-cost improvements. Develop training and workforce development assistance for contractors and adjacent professions (e.g., realtors, hardware and building supply, contractors, architects, landscapers) interested in providing home hardening and defensible space services.

- Facilitate regular communication and cooperation among neighborhood fire safe councils, Firewise communities, and other community-based organizations. This involves continuing to facilitate neighborhood fire safe council and Firewise community leadership meetings, publishing meeting minutes, and establishing an annual in-person neighborhood fire safe council/Firewise community meeting.
- Continue community/neighborhood work party program, currently temporarily and partially funded.
- Coordinate with and support Hubs and Routes and United Disaster Relief of Northern California.
- Coordinate with and support CERT, VOAD, and related groups.
- Coordinate with and support ham radio and Global System for Mobile Communications – Railway (GSM-R) radio operators countywide.
- Coordinate with and support beneficial fire groups including Tribes, PBAs, community-based organizations, CAL FIRE, and local agencies. Work together to accelerate the scale and pace of beneficial burning countywide.
- Maintain and expand the Defensible Space Assistance Program for Income-Eligible program.
- Develop and implement a plan to establish a home hardening subsidy assistance program and find funding to implement the plan.
- Increase home assessment and inspector trainings for fire resilience for community members and local fire agencies. Conduct comprehensive and free wildfire safety home assessments and/or inspections, including a complete analysis of home hardening improvements, for county residents who request them.
- Develop and implement a cost-share program to assist landowners with reducing heavy fuels and hazard trees within their defensible spaces, driveways, infrastructure like water tanks, and along ingress/egress corridors.
- Continue and expand campaign to promote reflective signage (address markers) throughout Mendocino County, and provide free signage and assistance with installing reflective signage.
- Determine whether community-scale CWPPs are needed for communities in Mendocino County, and where needed, assist communities with their development.
- Focus on cross-collaboration with CAL FIRE and local fire agencies.
    - Establish and improve regular coordination and collaboration of efforts among all agencies and groups involved in wildfire mitigation and response work.
    - Establish funding to maintain a County Coordinator to integrate wildfire risk mitigation at all levels of the county—from CAL FIRE and Mendocino County to road associations and community groups.
- Coordinate with and support any interested local fire agencies with developing fuels crews and prevention programs.
- Continue to develop data and tools to track wildfire mitigation projects and programs countywide. Develop methods for tracking and reporting the outcomes of these projects.

4.5.15 MENDOCINO VOLUNTEER FIRE DEPARTMENT

Concerns and Priorities

The Mendocino Volunteer Fire Department identified the following concerns and priorities for their community:

- Subdivisions in the District (e.g., Surfwood, Palette Drive, River View) with limited and narrow roadways that would complicate evacuation.
- Highway 1 is also lined in many spots throughout the District with potential fuels (i.e., eucalyptus, fir, and pine trees).
- Older firefighting vehicles that require replacement in the near future.

Town of Mendocino

Concerns and Priorities

- Eucalyptus grove on Cahto Street.
- Presences of historic wooden buildings with narrow streets and limited access to Highway 1, which is the main evacuation route.

4.5.16 PIERCY FIRE PROTECTION DISTRICT

Concerns and Priorities

Seismic issues that impact Piercy FPD's response needs are described below.

The northwest corner of Mendocino County is a seismically active terrain composed of uplifted, fractured, scrambled blocks of variously consolidated former ocean floor. They are squeezed together with a web of long and short fault lines within and between them.

Toward the coast, forests with small patches of prairie dominate the vegetation. There are large stretches of legacy and active timber extraction. Toward the east, the forest thins, hardwoods tend to dominate, and prairies are larger and occasionally dominant.

Precipitation varies from year to year and site to site. Yearly totals average from 40 to 100 inches. Most falls between October and mid-spring. Some storms drop 4 to 8 inches in 24 hours. Overall, the region is eroding rapidly, but the different blocks of uplifted ocean floor erode at different rates.

This results in a region of rumpled ridges and twisty streams cutting steep-walled canyons with numerous dormant slides nestled between hard rock subridges forming subwatersheds along the streams' courses. State, county, and logging roads (often repurposed as residential roads) are threaded through the region.

Heavy precipitation, flooded streams, and earthquakes cause many dormant slides to move, trees to topple, and sometimes whole hillsides to collapse, blocking roads and disrupting electrical transmission. Even major roads can become impassable for months. Efficient emergency response requires easily updated mapping, wireless communication, and specialized vehicles and gear.

The Piercy Fire Department has identified the following priorities for their community:

- Conversion of Piercy Community Hall (est. 1964) to dual purpose, including emergency evacuation shelter (2018–2024), kitchen with appliances, two bathrooms, covered entries with ADA ramps, water purifying system, 28,000-gallon water tanks, security lights, backup liquid propane generator, Wi-Fi connection, and paved road from Highway 271. Beginning in 2025, the community hall needs a 20-foot container for equipment and emergency supplies, south emergency exit door with ramp, and showers.
- Strategically place water storage throughout the district. Current and ongoing sources: Piercy Fire Department 35,000 gallons; Piercy Community Hall 12,800 gallons. A designated water source map is needed for residential communities and the district, including tanks and South Fork of the Eel River established water drafting sites.
- Expand the fire station to include bathrooms, showers, backup LP generator, and more equipment storage.
- Expand search and rescue equipment (trailer purchased in 2022). Add a UTV with multiple capabilities for various situations including mud and snow rescue (the district is susceptible to slides at all elevations and snow at higher ranges).
- Promote volunteer recruitment to increase staffing. Continue volunteer training and recertification. Develop alternative staffing capability.
- Develop Firewise community designation for the entire district through MCFSC. Expand and maintain roadside fuel reduction on all access roads and emergency escape routes in the district's sphere of influence.
- Maintain community outreach programs (website, newsletter mailer, town hall meetings with fire-related educational speakers and social events) to promote community connectivity. Continue producing and distributing (est. 2018) the district's "Emergency Evacuation Information Handbook." Continue to develop resources and aid for our aging population. Develop a CERT program with representatives from each of our roads. Develop a citizen volunteer program for special non-emergency projects.
- Develop alternative emergency communication systems (ham radios, repeaters, etc.) for fire department staff, district staff, CERT staff, and our northern Mendocino County neighbors: Leggett, Laytonville, Bell Springs, and Whale Gulch.
- Participated in planning and completing Phase 1 of the Northern Mendocino County Healthy Forest Collaborative's shaded fuel breaks project. Phase 2 funding applications submitted. Continue collaborating with Mendocino County RCD, BLM, Usal Redwood Forest Company (URFC), Lost Coast Forest Lands LLC, and other entities for water, roads, and vegetation management.

4.5.17 PINE MOUNTAIN FIRE SAFE COUNCIL

Concerns and Priorities

The Pine Mountain subdivision contains about 300 homes and identified the following concerns and priorities for their community:

- Lack of adequate water sources for firefighting.
- Aging water system with few hydrants.

- One road in and out of community via a steep and winding dirt road (Ridgewood Road).
- Heavy fuel accumulation throughout the community with high tree mortality.

4.5.18 REDWOOD COAST FIRE PROTECTION DISTRICT

Concerns and Priorities

The Redwood Coast Fire Protection District identified the following concerns and priorities for their community:

- Upgrade the Point Arena fire station to accommodate additional apparatus and full-time personnel.
- Acquire funding for full-time personnel to handle increasing call volume.
- Conduct roadside fuel reduction and shaded fuel breaks on Mountain View Road, which is a main evacuation route.
- Outreach is needed to increase address signage for fire response.
- Substation with high-capacity water storage is needed on Eureka Hill Road/Ten Mile Road.
- Community training and outreach is needed regarding defensible space and home hardening as well as funding for property owners to accomplish wildfire safety projects, including ingress and egress clearing on private roads and driveways, chipping, and mowing.

4.5.19 REDWOOD FOREST FOUNDATION INC.

Concerns and Priorities

The Redwood Forest Foundation Inc. (RFFI) identified the following concerns and priorities for their organization:

Project No.	Project	Project Description	Community/Watershed	Status	Project Lead
1	Highway 1 Shaded Fuel Break	Highway 1 ridgeline fuel reduction	Usal Creek and South Fork Eel Watersheds	Complete	URFC
2	Yokohama Shaded Fuel Break	Yokohama Road east to Piercy fuel reduction	South Fork Eel Watershed	Complete	URFC
3	Kenny Road Shaded Fuel Break	Kenny Road to Usal County Rd, fuel reduction	Usal Creek and South Fork Eel Watersheds	Proposed	URFC
4	Usal County Road Shaded Fuel Break	Usal County Road fuel reduction	Usal Creek and South Fork Eel Watersheds	Planned	URFC
5	5100 Rd Shaded Fuel Break	5100 Rd to Standish Hickey State Park fuel reduction	South Fork Eel Watershed	Planned	URFC
6	Indian Creek Watershed	Forest health and fire resiliency project in a priority salmonid watershed	South Fork Eel Watershed	Proposed	URFC
7	Standley Creek Watershed	Forest Health and fire resiliency project in a priority salmonid watershed	South Fork Eel Watershed	Planned	URFC

Figure 4.5 shows priority fuel reduction projects on RFFI lands in the Usal Redwood Forest (northwestern Mendocino County). Note: the map shows one continuous boundary for the projects, but it represents several project areas in different stages of planning, implementation, and monitoring.

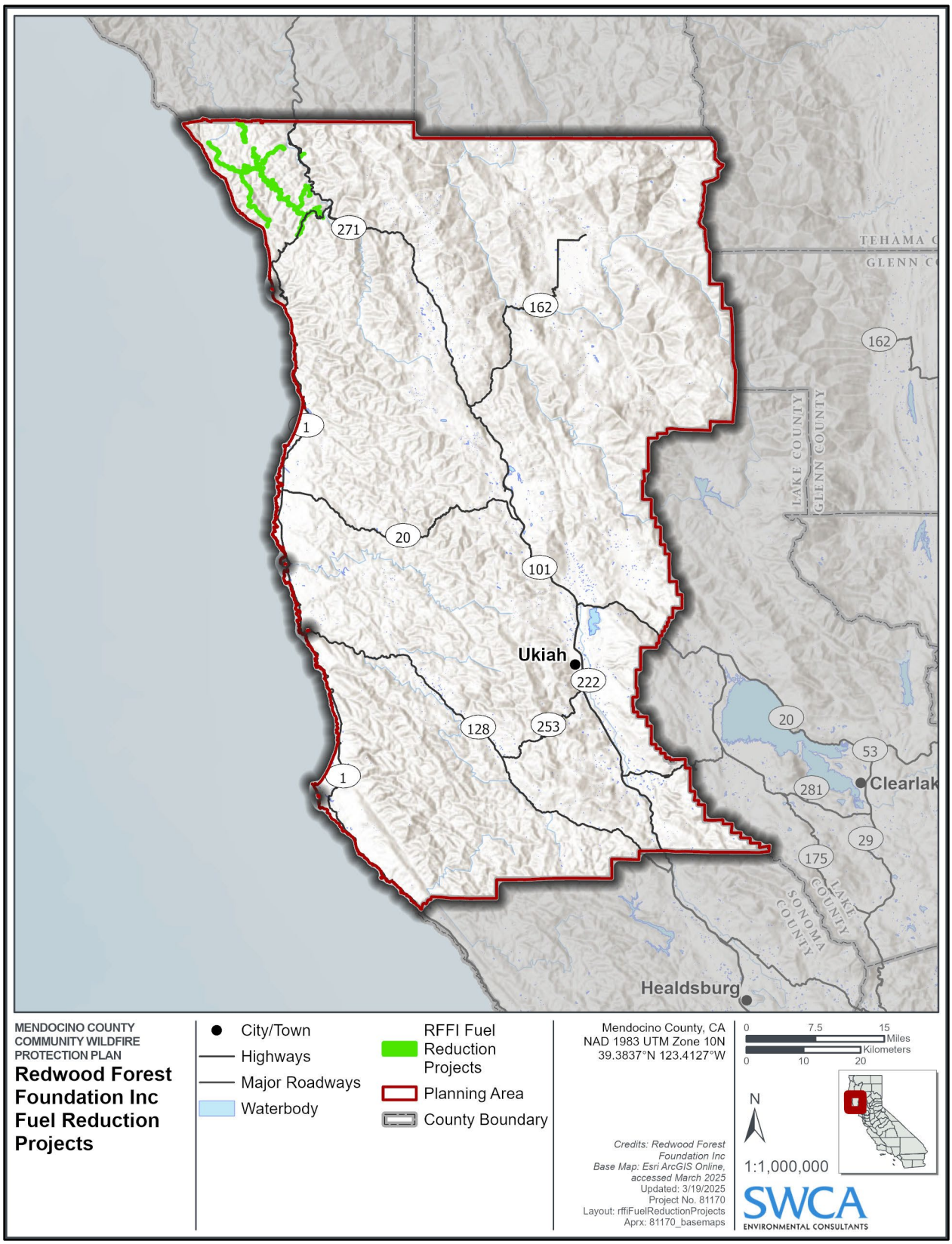

Figure 4.5. Priority fuel reduction projects on RFFI lands.

4.5.20 RIDGEWOOD PARK FIRE SAFE COUNCIL

Concerns and Priorities

Ingress/Egress

- All four neighborhoods in the Ridgewood Park FSC area are one way in/out. There are several old roads that potentially could be redeveloped and maintained as emergency fire trails to interconnect the neighborhoods and provide secondary ingress/egress.

Water

- Since it was built in 1926, Walker Lake, at over 535,000 square feet, has been the largest water resource for helicopter and fire truck drafting in the Ridgewood Park area. Due to changes in state laws, the local community that has supported its maintenance has been forced to divest and stop maintenance of the lake, and the lake's future is uncertain. Should it become inaccessible to fire crews or damaged in some way, the area would lose a critical part of its fire infrastructure.
- Fire water storage tanks are needed at key strategic locations in the FSC area where the drive to Walker Lake or other accessible water sources can be 20 minutes or more.
- There are some locations where a hydrant on a public road connected uphill to a private water source could be installed, reducing time to access water by 10 to 15 minutes.

Fire Camera Coverage

- About half of the FSC area lies in a gap in the coverage for wildfire ALERTCalifornia cameras. A camera at Two Rock, an old mountaintop CAL FIRE lookout tower, would provide coverage from Comptche in the South to Brooktrails in the northern portion of the Ridgewood Park area, from the coast to the 101, closing this gap. The Two Rock landowners are supportive, and ALERTCalifornia has had engineers draw up plans and estimates, but funding is needed to complete the installation.

Emergency Communications

- Most of the area has spotty cell reception, some areas have no cell reception, and one cell antenna outage would put the entire area in blackout. Funding is needed to provide infrastructure for a handheld radio network, or for a newer communications technology such as LoRa Mesh.

Fuels Management

- Funding is needed for maintenance and expansion of the recently completed fuels reduction along county roads and main private roads.
- Support is needed for training on proper ways to safely burn piles, as well as on-site support for those wishing to carry out prescribed burning to reduce fuel loads.
- There is interest in forming a grazing cooperative for the neighborhood.

Home Hardening and Defensible Space

- Funding is needed to encourage residents to complete voluntary home assessments and provide support for the assessments.
- The area has a large population of seniors and individuals who are financially unable to complete the needed work. Financial support would promote a higher percentage of homes meeting state requirements, making the area safer as a whole.

Outreach

- The FSC has had limited success connecting with residents in the area. While the FSC has communicated fairly successfully (about 80%) with those on private roads through their road associations, connecting with those on county roads have proved difficult as the FSC does not have email addresses or phone numbers, but only postal addresses from county records, and response rates to past mailings have been low. This leaves the FSC penetration rate for the area around 40%. Funding is needed for outreach mailings and programs to ensure everyone is aware of the FSC and its programs such as chipper days, emergency alerts, home assessments, etc.

4.5.21 SOUTH COAST FIRE PROTECTION DISTRICT

Concerns and Priorities

The South Coast Fire Protection District identified the following concerns and priorities for their community:

- Sunset Drive poses an entrapment hazard with one access point.
- Gualala Ridge has a high fuel load with poor access and defensible space.
- Funding for 24/7 staffing to handle increasing call volume.
- Replacements of two Type 3 engines and one water tender needed.
- One Type 6 engine needed to address access issues.
- Station improvements to allow for 24/7 staffing and accommodate the size of new vehicles.
- Additional PPE is needed for safe fire response.
- Increase volunteer staffing.
- Tourist education on wildfire threat, preparedness, and response.
- Develop resources and aid for aging populations.
- Roadside fuels treatments and funding for strategic fuel breaks needed.
- Improve street signs for fire response.
- Support continued operation of KGUA radio as a critical component of Mendocino County's emergency communication network and as a community information lifeline for the limited cell/internet service areas of the South Coast. Specific needs for KGUA include:
    - Funding for continued operation and administrative costs, as well as to offer community programs and assist in transitioning from a volunteer model to paid staff.

4.5.22 SPY ROCK AREA FIRE SAFE COUNCILS

Concerns and Priorities

This section outlines concerns and priorities for the Spy Rock Ready, Blue Rock Creek, and Wildwood FSCs for the community of Spy Rock.

- Engage in community outreach efforts to recruit more landowners to participate in fuel reduction, forest health/fire resilience, prescribed burn, and home hardening projects.

- Encourage grant-funded safe chainsaw skills and basic fuels reduction information for community members so they can be better equipped to remove ladder fuels on their properties.
- Assist in creating defensible space for elderly and low-income residents.
- Using grant funds, provide reflective house number signs to Spy Rock community residents who need them.
- Create and distribute reflective EVACUATED signs to every home to hang when the parcel has been evacuated.
- Create and maintain a map with homes needing evacuation assistance within the community.
- Create a GIS map of potential emergency water sources that can be used by CAL FIRE and local firefighters.
- Support planning, implementation, and maintenance to create fire-safe roads and reduce road-related ignitions within the overstocked Spy Rock community, using local businesses and crews when possible.
- Conduct roadside fuel reduction on significantly overstocked access routes to allow community egress in the case of a wildfire: Wildwood Road, Registered Guest Road, Blue Rock Creek Road, Simmerly Ranch Road, Simmerly Road, Stivers Road, Iron Creek Road, Fitzhugh Road, and adjacent roadways.
- Conduct roadside fuel reduction maintenance on previously treated community access roads as needed over 3- to 7-year intervals with grant writing to help cover costs if local community funds are not sufficient. Use grazing animals for control, including on grasslands and brush.
- Develop and perform fuel reductions, repairs, and grading of emergency escape routes on both the north and south sides of the community; currently the community is one-access-in and one-access-out.
- Develop more staging/safe refuge areas (preferably with water supply) throughout the community.
- Develop a Forest Management Plan for the Spy Rock community developed by a qualified forester/fire management professional to identify best areas for fire/fuel breaks and areas needing treatment for better fire safety or forest health, including accessing and preparing the two very high FHSZs for mitigation.
- Work with the BLM, CAL FIRE, and local prescribed burn organizations to remove the threat of runaway wildfire in two very difficult-to-reach very high FHSZs, through shaded fuel breaks and targeted prescribed burns.
- Partner with the Mendocino County PBA and cultural burn partners to empower private landowners to conduct prescribed burns on their lands.
- Install emergency access fire water tanks in each area of the community reliant on self-provided water, such that every home is within 5 minutes of an emergency access fire water source. Include CAL FIRE– and Laytonville Fire District–approved pipe threads for pumping emergency access water into a water tender.
- Acquire funding for firefighting equipment and PPE, mitigation and education programs, and vegetation mapping within the community, to prepare for wildfire recovery efforts.
- Approach Firewise community designation within FSC locations through community meetings and information.

- Encourage volunteer firefighter training and NFPA certification for residents living within the Spy Rock community.

4.5.23 TAN OAK PARK

Concerns and Priorities

Tan Oak Park identified the following priority for their community:

- Establish a training center for regenerative forest work in northern Mendocino, potentially at Tan Oak Park. This site will serve multiple objectives, including acting as a community hub and providing forestry-related job training and workshops.
    - Continue developing a forest management and site plan with working group members and Tan Oak Park.
    - Assemble a team to generate educational material and curriculum for forestry related job training.
    - Coordinate and manage logistics of the training program.
    - Conduct extensive forest restoration and fuels reduction work on-site with the help of volunteers and during workshops.
    - Design and build permanent indoor facilities that will extend educational activities throughout the year.
    - Build community resilience, promote networking, and house resources, such as a firewood bank (already funded) on the property.
    - Upgrade and maintain Tan Oak Park infrastructure and grounds.
    - Fund at least two full-time employees.

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4.5.24 UKIAH VALLEY FIRE AUTHORITY

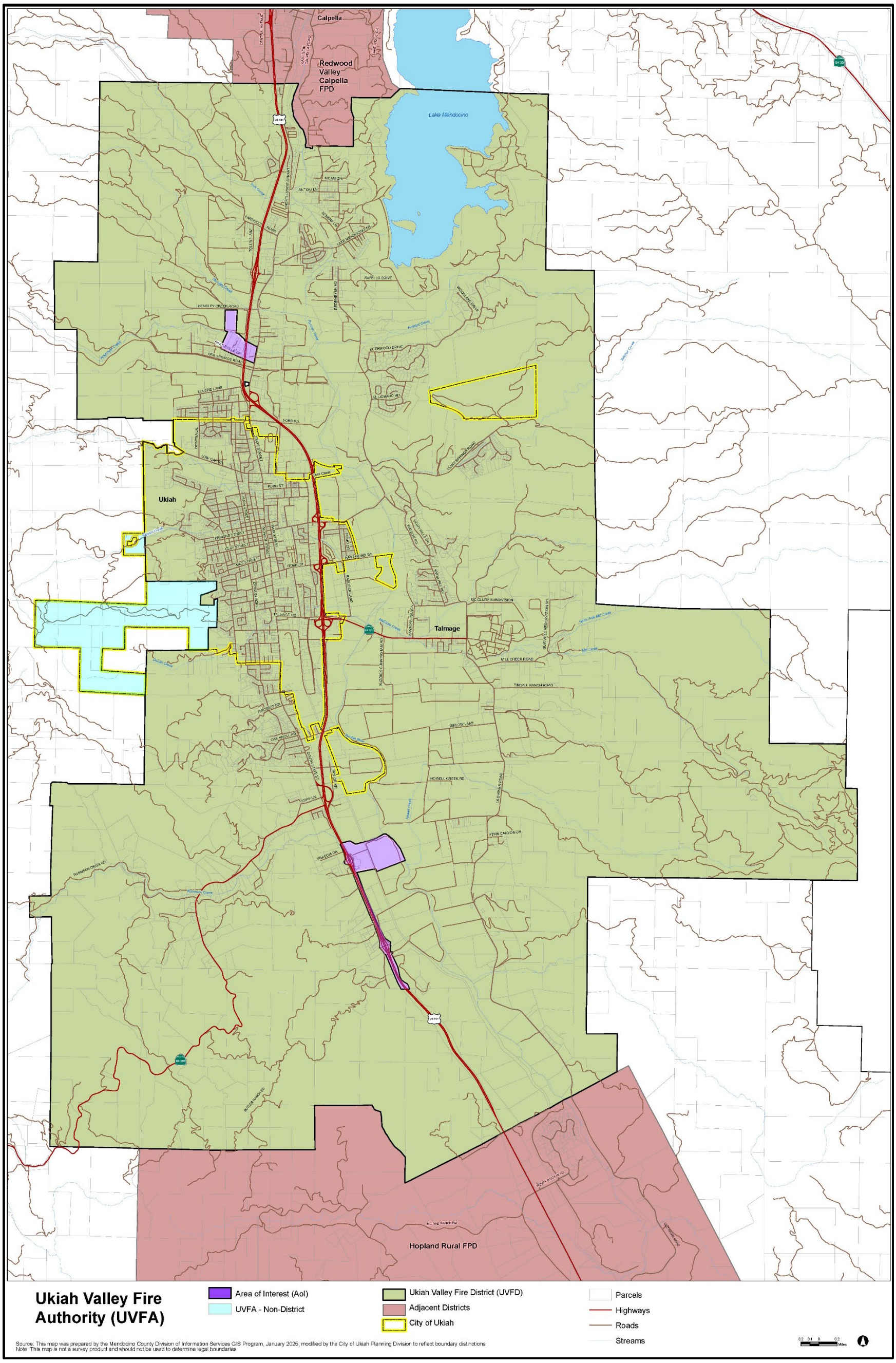

Figure 4.6. Ukiah Valley Fire Authority district boundaries.

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Concerns and Priorities

The Ukiah Valley Fire Authority identified the following concerns and priorities for their community:

- Improved prevention education and outreach.
- The Western Hills are of major fire concern and need additional education and support.
- Improve ingress/egress of Vichy Springs.

4.5.25 VISTA DEL LAGO FIRE SAFE COUNCIL

Concerns and Priorities

The Vista del Lago subdivision contains 22 lots and identified the following concerns and priorities for their community:

- Only one road in and out of the community and requires vegetation management.
- Home hardening and vegetation management on private residences.
- Water tank installation and roadside vegetation clearing currently in progress.

4.5.26 WESTPORT FIRE SAFE COUNCIL AND WESTPORT VOLUNTEER FIRE DEPARTMENT

Concerns and Priorities

The Westport Fire Safe Council and Westport Volunteer Fire Department identified the following concerns and priorities for their community:

- New centrally located modern fire station with the capability to serve as a community hub; emergency operations center; shelter/ evacuation center with showers.
- Purchase a fire department utility vehicle (4x4 pickup truck); a Quick Attack UTV with firefighting capabilities; and two Type 1 tactical water tenders.
- Handheld emergency radios, repeaters, ham radios, and base station for Westport.
- Emergency lights, shelter-in-place equipment, and supplies for Westport Volunteer Fire Department.
- Replacement of one-lane rural bridges on private residential driveways and roadway (rail-car-bed bridges and similar) and log stack creek fords; most are on private roads up to 6 miles east of Highway 1 Mile Post 71 to Mile Post 95 and land 6 miles east (covering 190 square miles).
- General funding for Westport Volunteer Fire Department area of response and Westport Fire Safe Council.
- At least one fire alert camera for the ALERT network for Cahto Peak, Red Mountain, and Usal Forest to cover the Westport Volunteer Fire Department area of influence.
- More satellite 5-, 10- and 20-thousand-gallon water tanks for Westport Volunteer Fire Department's area of influence.

- Funds for establishing electronic Run Books with LIDAR and other critical map layers for local and mutual aid responders.
- Funds for a second set of PPE for each responder.
- A computer, software, website, and cell phone for Westport Fire Safe Council.
- Large 40-foot storage containers for storage of response and shelter equipment and supplies at Westport.
- Funds to purchase supplies and equipment for evacuation/shelter-in-place center including portable composting toilets and showers with privacy, FEMA tents, cots, propane towers, nonperishable food, water, outdoor kitchen and utensils, dishes, lights, etc.
- A Westport community chipper and dump trailer.
- Funds to remove abandoned cars and trailers/campers/mobile homes in Westport Volunteer Fire Department's area of influence.
- Funds to remove hazard trees.
- A mobile shower trailer with on-demand hot water.
- A decontamination trailer for turnout PPEs.
- Rural driveway fuel reduction, hazard tree removal, and invasive species clearing for driveways to residences of Westport Beach subdivision, Branscomb Road, Wages Creek Road, and other side road driveways as well as Highway 1 driveways between Rockport and Ten Mile Creek.
- Evacuation (second exit) road clearing /fuel reduction of unmaintained rural abandoned roadways for one-way in/out rural residential roads in Westport Subdivision, Wages Creek Road, Clay Road, and other routes to provide an alternative evacuation passage to or from Highway 1 Mile Post 71 to Mile Post 95 and land 6 miles east (covering 190 square miles).
- Continued roadside fuel reduction in the underserved rural areas of Westport Beach Subdivision, Wages Creek Road, Clay Road and other roadways that intersect with Highway 1 Mile Post 71 to Mile Post 95 and land 6 miles east (covering 190 square miles).
- Defensible Space and Home Hardening Assessor Training, work crew training, and implementation for the North Coast of Mendocino County, including Westport.
- Defensible space and home hardening funding for those who cannot afford the work on their own.
- Prescribed and cultural burn training and implementation for the North Coast of Mendocino County, including Westport.
- Invasive species removal, native plant expansion/planting/replacement of invasive species in the underserved rural areas of Westport Beach Subdivision, Wages Creek Road, Clay Road and other roadways that intersect with Highway 1 Mile Post 71 to Mile Post 95 and land 6 miles east (covering 190 square miles).
- A dedicated coastal Fire Safe Council employee for MCFSC for coordinating training, operations and facilitation of collaboration of coastal Fire Safe Councils.
- Roadside fuel reduction for all of Branscomb Road starting at the west end (this is a designated county east-west evacuation route).
- More Community Emergency Response Team, Listos, Red Cross Team, Firewise, and similar community training, execution, and supplies/equipment support on the coast, including the Westport area.

- Establish an Emergency Preparedness/Operations Center with emergency power, radio and satellite communications for use by HAM radio/CERT/VOAD/Red Cross/Mendocino County OES.
- Establish memoranda of understanding and mutual aid agreements with businesses to support wildfire planning, preparedness, response, and recovery.
- Create a Westport Wildfire Emergency Action Plan and Westport Emergency Preparedness Plan for the 190-square-mile area of influence of the Westport Volunteer Fire Department.
- Funds to conduct exercises to practice community preparedness, response, and recovery for the Westport Volunteer Fire Department and neighboring fire departments.

4.5.27 WHALE GULCH VOLUNTEER FIRE COMPANY

Concerns and Priorities

The Whale Gulch Volunteer Fire Company has jurisdiction over Whale Gulch, a small rural community in the South Lost Coast. The fire company identified the following concerns and priorities for their community:

- Highest-priority needs:
  - Funds for fuel reduction on residential driveways to expand access for emergency response.
  - Installation of repeater at the top of Chemise Mountain or along Usal Road.
- Slow and limited evacuation routes with heavy fuel accumulation.
- Funds for fuel reduction around Whale Gulch School and Thompson Creek Meadow to create a safety zone.
- Funds for fuel reduction along Chemise Mountain's eastern ridge for shaded fuel break.
- Funds for fuel reduction along county roads, Usal Road, and Chemise Mountain Road to create safer evacuation routes and fuel breaks.
- Mobile shower unit with water heater for after-action decontamination.
- Funds to remove hazard trees in Whale Gulch response area.
- Funds and materials for installing 1/8-inch metal mesh or corrugated metal skirting around residential decks.
- Funds for disposing of abandoned cars, trailers, and motor homes in Whale Gulch response area.
- Washing machine for fire station for decontamination of volunteers' PPE.
- Funds for cleanup and restoration of Mattole Headwaters from 2023 storm damage.
- Funds for the removal and disposal of invasive species from headwaters of Thompson Creek, Four Corners (Mattole), and Whale Creek.
- Funds for continued fuel reduction around residential properties.
- Development of additional fire bay to house new vehicles.

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CHAPTER 5 – MONITORING AND EVALUATION

Developing an action plan and an assessment strategy that identifies roles and responsibilities, funding needs, and timetables for completing highest-priority projects is an important step in organizing the implementation of the Mendocino County CWPP. The previous chapter identifies tentative timelines and monitoring protocols for project recommendations, the details of which are outlined below.

All stakeholders and signatories to this CWPP desire worthwhile outcomes. It is also known that risk reduction work on the ground, for the most part, is often not attainable in a few months—or even years—and typically requires scheduled maintenance (e.g., annual, semiannual, etc.). The amount of money and effort invested in implementing a plan such as this requires that there be a means to describe, quantitatively and/or qualitatively, if the goals and objectives expressed in this plan are being accomplished according to expectations.

Monitoring and reporting contribute to the long-term evaluation of changes in ecosystems, as well as the knowledge base about how natural resource management decisions affect both the environment and the people who live in it. Furthermore, as the CWPP evolves over time, there may be a need to track changes in policy, requirements, stakeholder changes, and levels of preparedness. These can be significant for any future revisions and/or addendums to the CWPP.

It is recommended that project monitoring be a collaborative effort. There are many resources for designing and implementing community-based, multi-party monitoring that could support and further inform a basic monitoring program for the CWPP (Egan 2013). Multi-party monitoring involves a diverse group consisting of community members, community-based groups, regional and national interest groups, Tribal governments and public agencies. Using this multi-party approach increases community understanding of the effects of restoration efforts and trust among restoration partners. Multi-party monitoring may be more time consuming due to the collaborative nature of the work; therefore, a clear and concise monitoring plan must be developed.

Table 5.1 Identifies monitoring strategies for various aspects of all categories of CWPP recommendations and the effects of their implementation, both quantifiable and non-quantifiable, for assessing the progress of the CWPP and increase sustainability of projects. It must be emphasized that these strategies are 1) not exhaustive and 2) dependent on available funds and personnel to implement them.

Table 5.1. Recommended Monitoring Strategies

Monitoring Approach	Method	Lead	Remarks
Project tracking system	Online web app to track hazardous fuels projects spatially, integrating wildfire risk layer to show progress toward wildfire hazard and risk reduction. The web app would include attribute tables that outline project details	County	Interactive tool will be easily updated and identify areas that require additional efforts
Photographic record (documents pre- and post-fuels reduction work, evacuation routes, workshops, classes, field trips, changes in open space, treatment type, etc.)	Establish field GPS location; photo points of cardinal directions; keep photos protected in archival location	Core Team member	Relatively low cost; repeatable over time; used for programs and tracking objectives
Keep a record the number of acres treated (by fuel type, treatment method)	GPS/GIS/fire behavior prediction system; online database	Core Team member	Evaluating costs, potential fire behavior
Keep a record of the number of home ignition zones/defensible space treated to reduce structural ignitability	GPS/Web map	Homeowner	Structure protection
Keep a record of the number of residents/citizens participating in any plan projects and events	Track attendance at relevant events/public hearings	Core Team member	Evaluate culture change objective
Keep a record of the number of homeowners who have been contacted during public outreach campaigns	Keep and updated online database with the number of homeowners that have been contacted through phone, home visits, or public events	Agency representative	Evaluate effectiveness of public outreach efforts
Keep a record of the number of jobs created through contracts and grants	Online database	Core Team member	Evaluate local job growth
Education outreach: track the number of events and kinds of involvement	Keep an updated online database	Core Team member	Evaluate objectives
Emergency management: assess changes in agency response capacity	Track staffing and equipment changes	Agency representative	Evaluate mutual aid
Track codes and policy changes affecting the plan	Track relevant policy and evaluate impact	Core Team	Plan changes
Keep a record of the number of stakeholders	Assess the number of stakeholders added or dropped	Core Team	Plan changes
Keep a record of wildfire acres burned, human injuries/ fatalities, infrastructure loss, environmental damage, suppression, and rehabilitation costs	Keep an updated comprehensive online database	Core Team	Compare with 5- or 10-year average

5.1 FUELS TREATMENT MONITORING

It is important to evaluate whether fuel treatments have accomplished their defined objectives and whether any unexpected outcomes have occurred.

The strategies outlined in this section consider several variables:

- Do the priorities identified for treatment reflect the goals stated in the plan? Monitoring protocols can help address this question.
- Can there be ecological consequences associated with fuels work? Items to consider include soil movement and/or invasive species encroachment post-treatment. Relatively cost-effective monitoring may help reduce long-term costs and consequences.
- Vegetation will grow back. Thus, fuel break maintenance and fuels modification in both the home ignition zone and at the landscape scale require periodic assessment. Monitoring these changes can help decision-makers identify appropriate treatment intervals.
- Monitoring for all types of fuels treatment is recommended. For example, in addition to monitoring mechanical treatments, it is important to carry out comprehensive monitoring of burned areas to establish the success of pre-fire fuels reduction treatments on fire behavior, as well as monitoring for ecological impacts, repercussions of burning on wildlife, and effects on soil chemistry and physics. Adaptive management is a term that refers to adjusting future management based on the effects of past management. Monitoring is required to gather the information necessary to inform future management decisions. Economic and legal questions may also be addressed through monitoring. In addition, monitoring activities can provide valuable educational opportunities for students.

The monitoring of each fuels reduction project would be site-specific, and decisions regarding the timeline for monitoring and the type of monitoring to be used would be determined by project. The most important part of choosing a fuels project monitoring program is selecting a method appropriate to the people, place, and type of project. Several levels of monitoring activities meet different objectives, have different levels of time intensity, and are appropriate for different groups of people. They include the following:

Minimum—Level 1: Pre- and Post-project Photographs

Appropriate for many individual homeowners who conduct fuels reduction projects on their properties.

Moderate—Level 2: Multiple Permanent Photo Points

Permanent photo locations are established using rebar or wood posts, GPS-recorded locations, and photographs are taken on a regular basis. Ideally, this process would continue over several years. This approach might be appropriate for more enthusiastic homeowners or for agencies conducting small-scale, general treatments.

High—Level 3: Basic Vegetation Plots

A series of plots can allow monitors to evaluate vegetation characteristics such as species composition, percentage of cover, and frequency. Monitors then can record site characteristics such as slope, aspect, and elevation. Parameters would be assessed pre- and post-treatment.
The monitoring agency should establish plot protocols based on the types of vegetation present and the level of detail needed to analyze the management objectives. This method is appropriate for foresters or other personnel monitoring fuel treatments on forested lands.

Intense—Level 4: Basic Vegetation Plus Dead and Downed Fuels Inventory

The protocol for this level would include the vegetation plots described above but would add more details regarding fuel loading. Crown height or canopy closure might be included for live fuels. Dead and downed fuels could be assessed using other methods, such as Brown's transects (Brown 1974), an appropriate photo series (Ottmar et al. 2000), or fire monitoring (Fire Effects Monitoring and Inventory System [FIREMON]) plots. This method is ideal for foresters or university researchers tracking vegetation changes in forested land.

5.2 IMPLEMENTATION

The Mendocino County CWPP makes recommendations for prioritized fuels reduction projects, measures to reduce structural ignitability, and methods for public education and outreach. Implementation projects need to be tailored to the specific project and will be unique to the location depending on available resources and regulations. As aforementioned, on-the-ground implementation of the recommendations in the Mendocino County CWPP will require the use of the action plan (recommendation matrices in Chapter 4) as well as an assessment strategy for completing each project. This step will identify the roles and responsibilities of the people and agencies involved, as well as funding needs and timetables for completing the highest-priority projects (SAF 2004). Information pertaining to funding is provided in Appendix E.

5.3 CWPP EVALUATION

CWPPs are intended to reduce the risk of wildfire for a community and the surrounding environment. However, over time, communities change and expand, vegetation grows back, and forests and wildlands evolve. As such, the risk of wildfire to communities is constantly changing. The plans and methods to reduce risk must be dynamic to keep pace with the changing environment. An evaluation of the CWPP will gather information and identify whether the plans and strategies are on course to meet the desired outcomes or if modifications are needed to meet expectations. Figure 5.1 identifies four general steps that can be used to evaluate the CWPP.

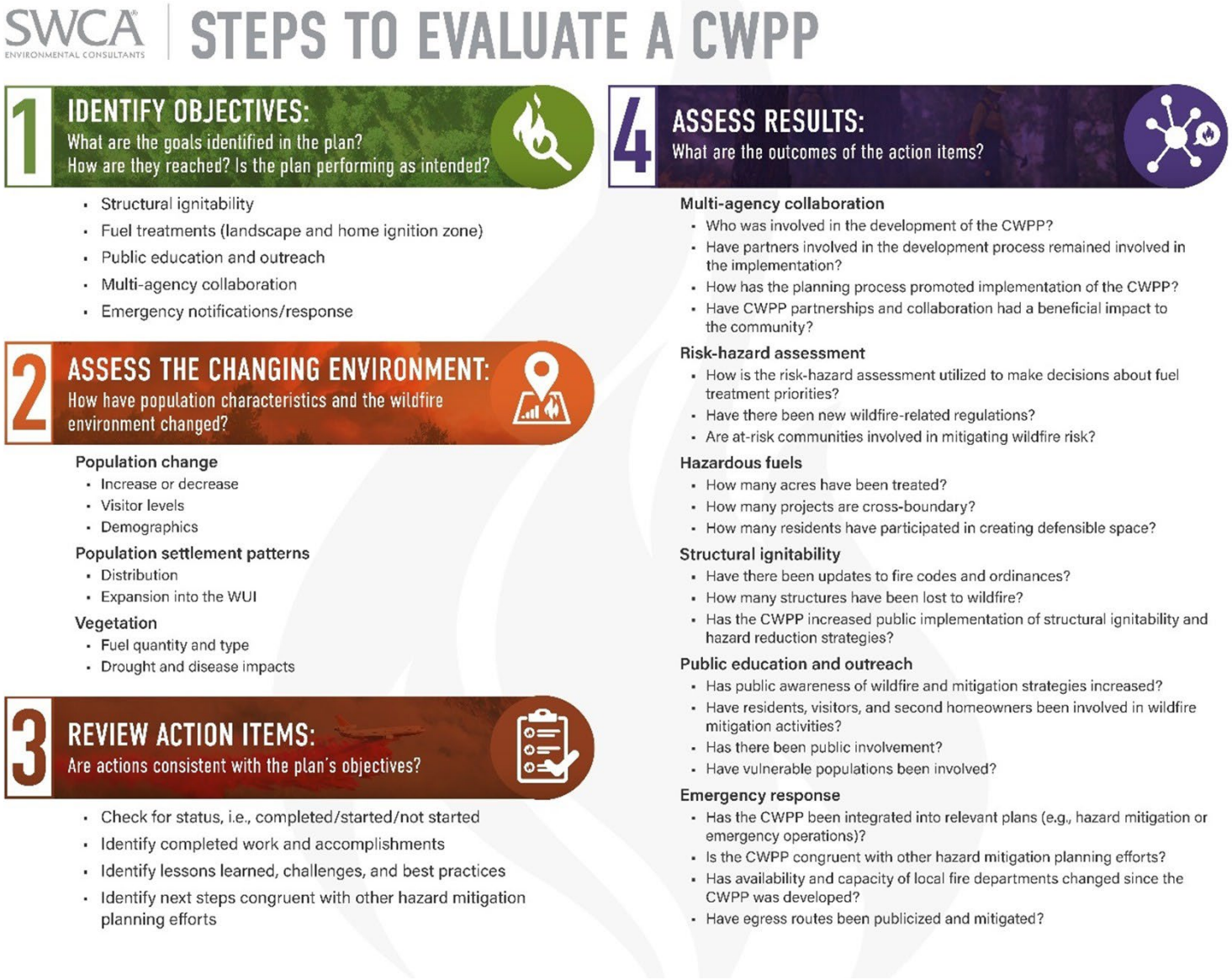

Figure 5.1. Four-step CWPP Evaluation Process

Table of Contents

5.4 TIMELINE FOR UPDATING THE CWPP

The HFRA allows for maximum flexibility in the CWPP planning process, permitting the Core Team to determine the time frame for updating the CWPP. The Core Team members are encouraged to meet on an annual basis to review the project list, discuss project successes, and strategize regarding project implementation funding. It is suggested that the evaluation framework above be used annually to make plan updates, and a more formal revision be made on the fifth anniversary of signing and every 5 years following. The Mendocino Core Team agreed that the CWPP will be updated every 10 years, or 5 if funding is available.

ABBREVIATIONS AND ACRONYMS

°F	degrees Fahrenheit
ALRFSC	Albion Little River Fire Protection District
ATV	all-terrain vehicle
AVFD	Anderson Valley Fire Department
BAER	Burned Area Emergency Rehabilitation
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CA FMTF	California Forest Management Task Force
CA GOPR	California Governor's Office of Planning and Research
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
CAL FIRE MEU	California Department of Forestry and Fire Protection Mendocino Unit
Cal-IPC	California Invasive Plant Council
Cal OES	California Governor's Office of Emergency Services
Caltrans	California Department of Transportation
CalVTP	California Vegetation Treatment Program
CCHIP	Community Chipper Program
CCIP	California Climate Investments Program
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife
CDI	California Department of Insurance
CEQA	California Environmental Quality Act
CERT	Community Emergency Response Team
CIG	Conservation Innovation Grants
Cohesive Strategy	National Cohesive Wildland Fire Management Strategy
CPUC	California Public Utilities Commission
CRS	Congressional Research Service
CWDG	Community Wildfire Defense Grant
CWMP	California Wildfire Mitigation Program
CWPP	community wildfire protection plan
DAC	Disadvantaged Community
DHS	Department of Homeland Security
DOI	U.S. Department of the Interior
DOT	Department of Transportation

DPA	Direct Protection Area
DSAFIE	Defensible Space Assistance for Income-Eligible
ECP	Emergency Conservation Program
EFRP	Emergency Forest Restoration Program
EOC	Emergency Operations Center
EPA	U.S. Environmental Protection Agency
EQIP	Environmental Quality Incentives Program
ESRI	Environmental Systems Research Institute
EWP	Emergency Watershed Protection
FEMA	Federal Emergency Management Agency
FHSZ	fire hazard severity zone
FIREMON	Fire Effects Monitoring and Inventory System
FP&S	Fire Prevention and Safety
FPD	fire protection district
FSA	Farm Service Agency
FRA	Federal Responsibility Area
FRAP	Fire and Resource Assessment Program
FSC	Fire Safe Council
GACC	Geographic Area Coordinating Center
GIS	geographic information system
HFRA	Healthy Forests Restoration Act of 2003
HIZ	home ignition zone
HVAC	heating, ventilation, and air conditioning
HVRA	highly valued resource or asset
ICARP	Integrated Climate Adaptation and Resiliency Program
ICS	Incident Command System
IFTDSS	Interagency Fuel Treatment Decision Support System
iNWS	Interactive National Weather Service
LRA	Local Responsibility Area
MCFSC	Mendocino County Fire Safe Council
MFRI	mean fire return interval
MHMP	Multi-Hazard Mitigation Plan
NEPA	National Environmental Policy Act
NFSC	Neighborhood Fire Safe Council
NFP	National Fire Plan

NFPA	National Fire Protection Association
NIFC	National Interagency Fire Center
NMAC	National Multi-Agency Coordinating Group
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NWCG	National Wildfire Coordinating Group
NWS	National Weather Service
OEHHA	California Office of Environmental Health Hazard Assessment
OES	Office of Emergency Services
PBA	Prescribed Burn Association
PFCG	Post-Fire Coordination Group
PODs	Potential Operational Delineations
PPE	personal protective equipment
PRC	Public Resources Code
PTS	Post Traumatic Stress
RAWS	remote automated weather station
RFFI	Redwood Forest Foundation Inc.
SAF	Society of American Foresters
SBA	Small Business Association
SAFER	Staffing for Adequate Fire and Emergency Response
SCC	State Coastal Conservancy
SJT	Silver Jackets Team
SRA	State Responsibility Area
SPR	Stakeholder Preparedness Review
SWCA	SWCA Environmental Consultants
TEK	Traditional Ecological Knowledge
THIRA	Threat and Hazard Identification and Risk Assessment
UCANR	University of California, Agriculture and Natural Resources
USFA	U.S. Fire Administration
ULI	Urban Land Institute
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

UTV	utility terrain vehicle
VAR	value at risk
VOAD	voluntary organizations active in disaster
WiRē	Wildfire Research Center
WFDSS	Wildland Fire Decision Support System
WRSC	Western Regional Strategy Committee
WUI	wildland-urban interface

GLOSSARY

Aspect: Cardinal direction toward which a slope faces in relation to the sun (NWCG 2021b).

Active Crown Fire: A crown fire in which the entire fuel complex is involved in flame, but the crowning phase remains dependent on heat released from surface fuel for continued spread. An active crown fire presents a solid wall of flame from the surface through the canopy fuel layers. Flames appear to emanate from the canopy as a whole rather than from individual trees within the canopy. Active crown fire is one of several types of crown fire and is contrasted with **passive crown fires**, which are less vigorous types of crown fire that do not emit continuous, solid flames from the canopy (SWCA).

Available Canopy Fuel: The mass of canopy fuel per unit area consumed in a crown fire. There is no post-frontal combustion in canopy fuels, so only fine canopy fuels are consumed. It is assumed that only the foliage and a small fraction of the branchwood is available (Wooten 2021).

Available Fuel: The total mass of ground, surface and canopy fuel per unit area available to be consumed by a fire, including fuels consumed in postfrontal combustion of duff, organic soils, and large woody fuels (Wooten 2021).

Backfiring: Intentionally setting fire to fuels inside a control line to contain a fire (Wooten 2021).

Biomass: Organic material. Also refers to the weight of organic material (e. g. biomass roots, branches, needles, and leaves) within a given ecosystem (Wooten 2021).

Burn Severity: A qualitative assessment of the heat pulse directed toward the ground during a fire. Burn severity relates to soil heating, large fuel and duff consumption, consumption of the litter and organic layer beneath trees and isolated shrubs, and mortality of buried plant parts (SWCA).

Canopy: The more or less continuous cover of branches and foliage formed collectively by adjacent trees and other woody species in a forest stand. Where significant height differences occur between trees within a stand, formation of a multiple canopy (multi-layered) condition can result (SWCA).

Chain: Unit of measure in land survey, equal to 66 feet (20 m) (80 chains equal 1 mile). Commonly used to report fire perimeters and other fireline distances. Popular in fire management because of its convenience in calculating acreage (example: 10 square chains equal 1 acre).

Climate adaptation: Adaptation is an adjustment in natural or human systems to a new or changing environment. Adaptation to climate change refers to adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities (CA GOPR 2022).

Climate Change: A change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods (CA GOPR 2022).

Community Assessment: An analysis designed to identify factors that increase the potential and/or severity of undesirable fire outcomes in WUI communities (SWCA).

Communities at Risk (CAR): Defined by the HFRA as “Wildland-Urban Interface Communities within the vicinity of federal lands that are at high risk from wildfire.”

- CAL FIRE expanded on this definition for California including all communities (regardless of distance from federal lands) for which a significant threat to human life or property exists as a result of a wildland fire event. California uses the following three factors to determine at risk

communities: 1) high fuel hazard, 2) probability of a fire, and 3) proximity of intermingled wildland fuels and urban environments that are near fire threats (CA GOPR 2022).

Community Emergency Response Team (CERT): The CERT program educates volunteers about disaster preparedness for the hazards that may impact their area and trains them in basic disaster response skills, such as fire safety, light search and rescue, team organization, and disaster medical operations. CERT offers a consistent, nationwide approach to volunteer training and organization that professional responders can rely on during disaster situations, allowing them to focus on more complex tasks (Ready 2021).

Community Wildfire Protection Plan (CWPP): A planning document that seeks to reduce the threat to life and property from wildfire by identifying and mitigating wildfire hazards to communities and infrastructure located in the WUI. Developed from the HFRA. Addresses issues such as wildfire response, hazard mitigation, community preparedness, or structure protection (SWCA).

Conditional Surface Fire: A potential type of fire in which conditions for sustained active crown fire spread are met but conditions for crown fire initiation are not. If the fire begins as a surface fire, then it is expected to remain so. If it begins as an active crown fire in an adjacent stand, then it may continue to spread as an active crown fire (Wooten 2021).

Contain: A tactical point at which a fire's spread is stopped by and within specific contain features, constructed or natural; also, the result of stopping a fire's spread so that no further spread is expected under foreseeable conditions. For reporting purposes, the time and date of containment. This term no longer has a strategic meaning in Federal wildland fire policy (Wooten 2021).

Control: To construct fireline or use natural features to surround a fire and any control spot fires therefrom and reduce its burning potential to a point that it no longer threatens further spread or resource damage under foreseeable conditions. For reporting purposes, the time and date of control. This term no longer has a strategic meaning in Federal wildland fire policy (Wooten 2021).

Cover type: The type of vegetation (or lack of it) growing on an area, based on cover type minimum and maximum percent cover of the dominant species, species group or non-living land cover (such as water, rock, etc.). The cover type defines both a qualitative aspect (the dominant cover type) as well as a quantitative aspect (the abundance of the predominant features of that cover type) (Wooten 2021).

Creeping Fire: A low intensity fire with a negligible rate of spread (Wooten 2021).

Crown Fire: A fire that advances at great speed from crown to crown in tree canopies, often well in advance of the fire on the ground (National Geographic 2021).

Defensible Space: An area around a structure where fuels and vegetation are modified, cleared, or reduced to slow the spread of wildfire toward or from a structure. The design and distance of the defensible space is based on fuels, topography, and the design/materials used in the construction of the structure (SWCA).

- In California, PRC Section 4291, “defensible space” refers to a 100-foot perimeter around a structure in which vegetation (fuels) must be maintained in order to reduce the likelihood of ignition. This space may extend beyond property lines, or 100 feet as required by State law as well as local ordinances, rules, and regulations (CA GOPR 2022).

Duff: The layer of decomposing organic materials lying below the litter layer of freshly fallen twigs, needles, and leaves and immediately above the mineral soil (SWCA).

Ecosystem: An interacting natural system including all the component organisms together with the abiotic environment and processes affecting them (SWCA).

Environmental Conditions: That part of the fire environment that undergoes short-term changes: weather, which is most commonly manifest as windspeed, and dead fuel moisture content (Wooten 2021).

Escape Route: A preplanned and understood route firefighters take to move to a safety zone or other low-risk area. When escape routes deviate from a defined physical path, they should be clearly marked (flagged) (SWCA).

Evacuation: The temporary movement of people and their possessions from locations threatened by wildfire (SWCA).

Federal Responsibility Area (FRA): A term specific to California, designating areas where the federal government is responsible for fire response efforts. These areas include lands under federal ownership (CA GOPR 2022).

Fire Adapted Communities: A fire-adapted community collaborates to identify its wildfire risk and works collectively on actionable steps to reduce its risk of loss. This work protects property and increases the safety of firefighters and residents (USFA 2021b).

Fire Behavior: The manner in which fuel ignites, flame develops, and the fire spreads and exhibits other related phenomena as determined by the interaction of fuels, weather, and topography (Fire Research and Management Exchange System 2021).

Fire Break: A natural or constructed barrier used to stop or check fires that may occur, or to provide a control line from which to work.

Fire Environment: The characteristics of a site that influence fire behavior. In fire modeling the fire environment is described by surface and canopy fuel characteristics, windspeed and direction, relative humidity, and slope steepness (Wooten 2021).

Fire Frequency: A broad measure of the rate of fire occurrence in a particular area. For historical analyses, fire frequency is often expressed using the FRI calculation. For modern-era analyses, where data on timing and size of fires are recorded, fire frequency is often best expressed using fire rotation (SWCA).

Fire Hazard: Fire hazard is the potential fire behavior or fire intensity in an area, given the type(s) of fuel present – including both the natural and built environment – and their combustibility (CA GOPR 2022).

Fire Hazard Severity Zone (FHSZ): FHSZs are defined based on vegetation, topography, and weather (temperature, humidity and wind), and represents the likelihood of an area burning over a 30- to 50-year time period without considering modifications such as fuel reduction efforts. In California, CAL FIRE maintains FHSZ data for the entire state. There are three classes of fire hazard severity ratings within FHSZs: moderate, high, and very high (CA GOPR 2022).

Fire History: The chronological record of the occurrence of fire in an ecosystem or at a specific site. The fire history of an area may inform planners and residents about the level of wildfire hazard in that area (SWCA).

Fire Intensity: A general term relating to the heat energy released in a fire (SWCA).

Fireline Intensity: Amount of heat release per unit time per unit length of fire front. Numerically, the product of the heat of combustion, quantity of fuel consumed per unit area in the fire front, and the rate of spread of a fire, expressed in kilowatts per minute (SWCA). This expression is commonly used to describe the power of wildland fires, but it does not necessarily follow that the severity, defined as the vegetation mortality, will be correspondingly high (Wooten 2021).

Fire Prevention: Activities such as public education, community outreach, planning, building code enforcement, engineering (construction standards), and reduction of fuel hazards that is intended to reduce the incidence of unwanted human-caused wildfires and the risks they pose to life, property or resources (CA GOPR 2022).

Fire Regime: A measure of the general pattern of fire frequency and severity typical to a particular area or type of landscape: The regime can include other metrics of the fire, including seasonality and typical fire size, as well as a measure of the pattern of variability in characteristics (SWCA).

Fire Regime Condition Class: Condition classes are a function of the degree of fire regime condition class departure from historical fire regimes resulting in alterations of key ecosystem components such as composition structural stage, stand age, and canopy closure (Wooten 2021).

Fire Return Interval (FRI): Number of years (interval) between two successive fires in a designated area (SWCA).

Fire Severity: A qualitative measure of the immediate effects of fire on the fire severity ecosystem. It relates to the extent of mortality and survival of plant and animal life both aboveground and belowground and to loss of organic matter. It is determined by heat released aboveground and belowground. Fire Severity is dependent on intensity and residence dependent of the burn. For trees, severity is often measured as percentage of basal area removed. An intense fire may not necessarily be severe (Wooten 2021).

Fire Risk: "Risk" takes into account the intensity and likelihood of a fire event to occur as well as the chance, whether high or low, that a hazard such as a wildfire will cause harm. Fire risk can be determined by identifying the susceptibility of a value or asset to the potential direct or indirect impacts of wildfire hazard events (CA GOPR 2022).

Flammability: The relative ease with which fuels ignite and burn regardless of the quantity of the fuels (SWCA).

Flame Length: The length of flames in the propagating fire front measured along the slant of the flame from the midpoint of its base to its tip. It is mathematically related to fireline intensity and tree crown scorch height (Wooten 2021).

Foliar Moisture content: Moisture content (dry weight basis) of live foliage, foliar moisture content expressed as a percent. Effective foliar moisture content incorporates the moisture content of other canopy fuels such as lichen, dead foliage, and live and dead branchwood (Wooten 2021).

Forest Fire: uncontrolled burning of a woodland area (National Geographic 2021).

Fuel Break: A natural or manmade change in fuel characteristics which affects fire behavior so that fires burning into them can be more readily controlled (NWCG 2021c).

Fuel Complex: The combination of ground, surface, and canopy fuel strata (Wooten 2021).

Fuel Condition: Relative flammability of fuel as determined by fuel type and environmental conditions (SWCA).

Fuel Continuity: A qualitative description of the distribution of fuel both horizontally and vertically. Continuous fuels readily support fire spread. The larger the fuel discontinuity, the greater the fire intensity required for fire spread (Wooten 2021).

Fuel Loading: The volume of fuel in a given area generally expressed in tons per acre (SWCA). Dead woody fuel loadings are commonly described for small material in diameter classes of 0 to 0.25, 0.25 to 1, and 1 to 3 inches and for large material greater than 3 inches (Wooten 2021).

Fuel Management/Fuel Reduction: Manipulation or removal of fuels to reduce the potential fire behavior and the likelihood of ignition. Fuel reduction measures can reduce potential damage to natural ecosystems and values at risk in case of a wildfire. Fuel reduction methods include prescribed fire, mechanical treatments (mowing, chopping), herbicides, biomass removal (thinning or harvesting or trees, harvesting of pine straw), and grazing. Fuel management techniques may sometimes be combined for greater effect (SWCA).

Fuel Model: A set of surface fuel bed characteristics (load and surface-area-to-fuel model volume-ratio by size class, heat content, and depth) organized for input to a fire model (Wooten 2021).

Fuel Modification: The manipulation or removal of fuels (i.e., combustible biomass such as wood, leaves, grass, or other vegetation) to reduce the likelihood of igniting and to reduce fire intensity. Fuel modification activities may include lopping, chipping, crushing, piling and burning, including prescribed burning. These activities may be performed using mechanical treatments or by hand crews. Herbicides and prescribed herbivory (grazing) may also be used in some cases. Fuel modification may also sometimes be referred to as “vegetation treatment” (CA GOPR 2022).

Fuel Moisture Content: This is expressed as a percent or fraction of fuel moisture content weight (dry) of fuel. It is the most important fuel property controlling flammability. In living plants, it is physiologically bound. Its daily fluctuations vary considerably by species but are usually above 80 to 100 percent. As plants mature, moisture content decreases. When herbaceous plants cure, their moisture content responds as dead fuel moisture content, which fluctuates according to changes in temperature, humidity, and precipitation (Wooten 2021).

Fuel Treatment: The manipulation or removal of fuels to minimize the probability of ignition and/or to reduce potential damage and resistance to fire suppression activities (NWCG 2021d). Synonymous with fuel modification.

Grazing: There are two types of grazing: traditional grazing and targeted grazing. Traditional grazing refers to cattle that are managed in extensive pastures to produce meat. Targeted grazing involves having livestock graze at a specific density for a given period of time for the purpose of managing vegetation. Even though both kinds of grazing manage fuel loading in range- and forested lands, targeted grazing is different in that its sole purpose is to manage fuels. Targeted grazing is done by a variety of livestock species such as sheep, goats, or cows (UCANR 2019).

Ground Fire: Fire that burns organic matter in the soil, or duff/humus, usually does not appear at the surface (National Geographic 2021).

Ground Fuels: Fuels that lie beneath surface fuels, such as organic soils, duff, decomposing litter, buried logs, roots, and the below-surface portion of stumps (Wooten 2021).

Hazard: A “hazard” can be defined generally as an event that could cause harm or damage to human health, safety, or property (CA GOPR 2022).

Hazardous Areas: Those wildland areas where the combination of vegetation, topography, weather, and the threat of fire to life and property create difficult and dangerous problems (SWCA).

Hazardous Fuels: A fuel complex defined by type, arrangement, volume, condition, and location that poses a threat of ignition and resistance to fire suppression (NWCG 2021e).

Hazardous Fuels Reduction: Any strategy that reduces the amount of flammable material in a fire-prone ecosystem. Two common strategies are mechanical thinning and prescribed burning (Wooten 2021).

Hazard Reduction: Any treatment that reduces the threat of ignition and spread of fire (SWCA).

Highly Valued Resources and Assets: Landscape features that are influenced positively and/or negatively by fire. Resources are naturally occurring, while assets are human-made (IFTDSS 2023).

Ignition: The action of setting something on fire or starting to burn (SWCA).

Incident: An occurrence or event, either natural or person-caused, which requires an emergency response to prevent loss of life or damage to property or natural resources (Wooten 2021).

Influence Zone: An area that, with respect to wildland and urban fire, has a set of conditions that facilitate the opportunity for fire to burn from wildland fuels to the home and or structure ignition zone (NWCG 2021f).

Initial Attack: The actions taken by the first resources to arrive at a wildfire to protect lives and property and to prevent further extension of the fire (SWCA).

Invasive Species: An introduced, nonnative organism (disease, parasite, plant, or animal) that begins to spread or expand its range from the site of its original introduction and that has the potential to cause harm to the environment, the economy, or to human health (USGS 2021).

Ladder Fuels: Fuels that provide vertical continuity allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease (SWCA).

Litter: Recently fallen plant material that is only partially decomposed and is still discernible (SWCA).

Local Responsibility Area (LRA): A term specific to California, designating areas where the local government is responsible for wildfire protection. The Local Responsibility Area (LRA) includes incorporated cities, cultivated agricultural lands, and portions of the desert. Local responsibility area fire protection is typically provided by city fire departments, FPDs, counties, and by CAL FIRE under contract to local government (CA GOPR 2022).

Manual Treatments: Felling and piling of fuels done by hand. The volume of material generated from a manual fuel treatment is typically too small to warrant a biomass sale therefore collected material is disposed of by burning or chipping. The work can be performed by either a single individual or a large, organized crew with powered equipment (UCANR 2021a).

Mechanized Treatments: Mechanical treatments pulverize large continuous patches of fuel to reduce the volume and continuity of material. Mechanical treatments can be applied as either mastication or chipping treatments. Both treatments shred woody material, but mastication leaves residue on-site while chipping collects the particles for transportation off site. Similar to hand treatments, mechanical treatments can target specific areas and vegetation while excluding areas of concern. In addition, mechanical treatment is easily scalable to large areas (>30 acres) with little added cost (UCANR 2021b).

Mitigation: Action that moderates the severity of a fire hazard or risk (SWCA).

Mutual Aid: Assistance in firefighting or investigation by fire agencies, irrespective of jurisdictional boundaries (NWCG 2021g).

Native Revegetation: The process of replanting and rebuilding the soil of disturbed land (e.g., burned) with native plant species (USDA 2005).

Native Species: A species that evolved naturally in the habitat, ecosystem, or region as determined by climate, soil, and biotic factors (USDA 2005).

National Cohesive Strategy: The National Cohesive Wildland Fire Management Strategy is a strategic push to work collaboratively among all stakeholders and across all landscapes, using best science, to make meaningful progress toward the three goals:

- Resilient Landscapes
- Fire Adapted Communities
- Safe and Effective Wildfire Response

Vision: To safely and effectively extinguish fire when needed; use fire where allowable; manage our natural resources; and as a nation, to live with wildland fire (Forests and Rangelands 2021).

Overstory: That portion of the trees in a forest which forms the upper or uppermost layer (SWCA).

Passive Crown Fire: A type of crown fire in which the crowns of individual trees or small groups of trees burn, but solid flaming in the canopy cannot be maintained except for short periods. Passive crown fire encompasses a wide range of crown fire behavior, from occasional torching of isolated trees to nearly active crown fire. Passive crown fire is also called torching or candling. A fire in the crowns of the trees in which trees or groups of trees torch, ignited by the passing front of the fire. The torching trees reinforce the spread rate, but these fires may not significantly differ from surface fires (SWCA).

Prescribed Burning: Any fire ignited by management actions under specific, predetermined conditions to meet specific objectives related to hazardous fuels or habitat improvement. Usually, a written, approved prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition (USFS 2021a).

Rate of Spread: The relative activity of a fire in extending its horizontal dimensions. It is expressed as rate of increase of the total perimeter of the fire, as rate of forward spread of the fire front, or as rate of increase in area, depending on the intended use of the information. Usually, it is expressed in chains or acres per hour for a specific period in the fire's history (NWCG 2021h).

Resilience: Resilience is the capacity of any entity – an individual, a community, an organization, or a natural system – to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience (CA GOPR 2022).

Response: Movement of an individual firefighting resource from its assigned standby location to another location or to an incident in reaction to dispatch orders or to a reported alarm (SWCA).

Safety Element: One of the seven mandatory elements of a local general plan (a jurisdictional plan that forms the foundation for future development), the safety element must identify hazards and hazard abatement provisions to guide local decisions related to zoning, subdivisions, and entitlement permits. The element should contain general hazard and risk reduction strategies and policies supporting hazard mitigation measures (CA GOPR 2022).

Slash: Debris left after logging, pruning, thinning, or brush cutting. Slash includes logs, chips, bark, branches, stumps, leaves/needles, and broken trees or brush that may be fuel for a wildfire (SWCA).

Slope Percent: The ratio between the amount of vertical rise of a slope and horizontal distance as expressed in a percent. One hundred feet of rise to 100 feet of horizontal distance equals 100 percent (NWCG 2021i).

State Responsibility Area (SRA): A term specific to California, designating areas where the state has financial responsibility for wildland fire protection. Incorporated cities and lands under federal ownership are not included in the SRA. Lands under federal ownership are in the federal responsibility area (CA GOPR 2022).

Suppression: The most aggressive fire protection strategy, it leads to the total extinguishment of a fire (SWCA).

Surface Fire: A fire that burns in surface fuels such as litter, downed woody debris, grass, and other low-level living plants.

Surface Fuel: Fuels lying on or near the surface of the ground, consisting of leaf and needle litter, dead branch material, downed logs, bark, tree cones, grass, and low-stature living plants (SWCA).

Structural Ignitability: The ability of structures (such as homes or fences) to catch fire (SWCA).

Topography: The arrangement of the natural and artificial physical features of an area (SWCA).

Total Fuel Load: The mass of fuel per unit area that could possibly be consumed in a hypothetical fire of the highest intensity in the driest fuels (Wooten 2021).

Tree Crown: The primary and secondary branches growing out from the main stem, together with twigs and foliage (SWCA).

Understory: Low-growing vegetation (herbaceous, brush or reproduction) growing under a stand of trees. Also, that portion of trees in a forest stand below the overstory (SWCA).

Understory Fire: A fire burning in the understory, more intense than a surface fire with flame lengths of 1 to 3 m (Wooten 2021).

Values and Assets at Risk: The elements of a community or natural area considered valuable by an individual or community that could be negatively impacted by a wildfire or wildfire operations. These values can vary by community and can include public and private assets (natural and manmade) -- such as homes, specific structures, water supply, power grids, natural and cultural resources, community infrastructure-- as well as other economic, environmental, and social values (CA GOPR 2022).

Vulnerable Community: Vulnerable communities experience heightened risk and increased sensitivity to natural hazard and climate change impacts and have less capacity and fewer resources to cope with, adapt to, or recover from the impacts of natural hazards and increasingly severe hazard events because of climate change. These disproportionate effects are caused by physical (built and environmental), social, political, and/ or economic factor(s), which are exacerbated by climate impacts. These factors include, but are not limited to, race, class, sexual orientation and identification, national origin, and income inequality (CA GOPR 2022).

Wildfire: A “wildfire” can be generally defined as any unplanned fire in a “wildland” area or in the WUI (CA GOPR 2022).

Wildfire Exposure: During fire suppression activities, an exposure is any area/property that is threatened by the initial fire, but in National Fire Incident Reporting System (NFIRS) a reportable exposure is any fire that is caused by another fire, i.e., a fire resulting from another fire outside that building, structure, or vehicle, or a fire that extends to an outside property from a building, structure, or vehicle (USFA 2020).

Wildfire Influence Zone: A wildland area with susceptible vegetation up to 1.5 miles from the interface or intermix WUI (CA GOPR 2022).

Wildland: Those unincorporated areas covered wholly or in part by trees, brush, grass, or other flammable vegetation (CA GOPR 2022).

Wildland Fire: Fire that occurs in the wildland as the result of an unplanned ignition (CA GOPR 2022).

Wildland Fuels (aka fuels): Fuel is the material that is burning. It can be any kind of combustible material, especially petroleum-based products, and wildland fuels. For wildland fire, it is usually live, or

dead plant material, but can also include artificial materials such as houses, sheds, fences, pipelines, and trash piles. In terms of vegetation, there are six wildland fuel types (Fuel Type: An identifiable association of fuel elements of distinctive species, form, size, arrangement, or other characteristics that will cause a predictable rate of spread or resistance to control under specified weather conditions.) The six wildland fuel types are (NWCG 2021j):

1. Grass
2. Shrub
3. Grass-Shrub
4. Timber Litter
5. Timber-Understory
6. Slash-Blowdown

Wildland-Urban Interface (WUI): The WUI is the zone of transition between unoccupied land and human development. It is the line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels (USFA 2021a). In the absence of a CWPP, Section 101 (16) of the HFRA defines the WUI as " (I) an area extending ½ mile from the boundary of an at-risk community; (II) an area within 1 ½ miles of the boundary of an at-risk community, including any land that (1) has a sustained steep slope that creates the potential for wildfire behavior endangering the at-risk community; (2) has a geographic feature that aids in creating an effective fire break, such as a road or ridge top; or (3) is in condition class 3, as documented by the Secretary in the project-specific environmental analysis; (III) an area that is adjacent to an evacuation route for an at-risk community that the Secretary determines, in cooperation with the at-risk community, requires hazardous fuels reduction to provide safer evacuation from the at-risk community." A CWPP offers the opportunity to establish a localized definition and boundary for the WUI (USFS 2021a).

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Disclaimer

The purpose of the hazard assessment contained in this plan is solely to provide a community and landscape-level overview of general wildfire hazards and potential risks within the assessment area as of the date hereof, and to provide a potential resource for community pre-fire planning. This hazard assessment is premised on various assumptions and models, which include and are based on data, software tools, and other information provided by third parties (collectively, "Third-Party Information and Tools"). SWCA, Incorporated, doing business as SWCA Environmental Consultants ("SWCA"), relied upon various Third-Party Information and Tools in the preparation of this hazard assessment and SWCA shall have no liability to any party in connection with this hazard assessment including, without limitation, as a result of incomplete or inaccurate Third-Party Information and Tools used in the preparation hereof. I do SWCA hereby expressly disclaims any responsibility for the accuracy or reliability of the Third-Party Information and Tools relied upon by SWCA in preparing this hazard assessment. SWCA shall have no liability for any damage, loss (including loss of life), injury, property damage, or other damages whatsoever arising from or in connection with this hazard assessment, including any person's use or reliance on the information contained in this hazard assessment.

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