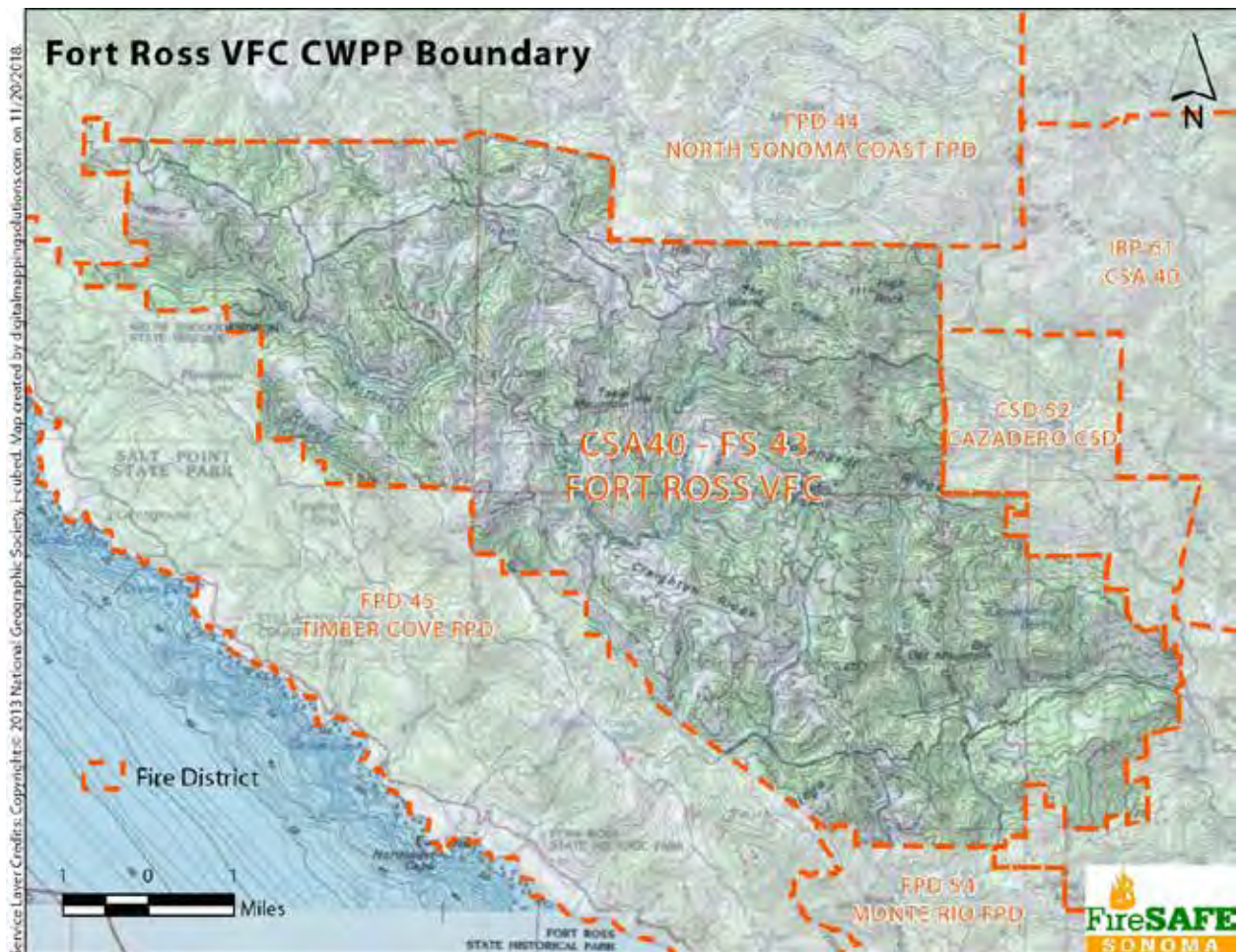


Fort Ross Fire Service Area Community Wildfire Protection Plan (CWPP)



March, 2019

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Disclaimer

Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the authors and do not necessarily reflect the view(s) of any governmental agency, organization, corporation, or individual with which the authors may be affiliated.

This publication is designed to provide accurate and authoritative information in regard to the subject matter covered. This Community Wildfire Protection Plan (the Plan) is a work in progress. Various changes are anticipated throughout the Plan over the next several years.

Readers are urged to consult with their own agencies having jurisdiction regarding the use or implementation of this Plan, as well as their own legal counsel on matters of concern.

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This Plan is not to be construed as indicative of project "activity" as defined under the "Community Guide to the California Environmental Quality Act, Chapter Three; Projects Subject to CEQA." Because the Fort Ross Fire Service Area CWPP does not legally commit any public agency to a specific course of action or conduct, it is thus not a project subject to CEQA or NEPA.

However, if and once grant funding is received from state or federal agencies and prior to work performed pursuant to the CWPP, or prior to issuance of discretionary permits or other entitlements by any public agencies to which CEQA or NEPA may apply, the lead agency must consider whether the proposed activity is a project under CEQA or NEPA. If the lead agency makes a determination that the proposed activity is a project subject to CEQA or NEPA, the lead agency must perform environmental review pursuant to CEQA or NEPA.

Executive Summary

A Community Wildfire Protection Plan (CWPP), created by the federal Healthy Forests Restoration Act of 2003, has three requirements: 1) it is to be developed collaboratively with input from fire agencies and the community; 2) it is to identify and prioritize treatment areas and mitigation strategies and treatments; and 3) it is to recommend measures to reduce the ignitability of structures.

This CWPP provides a general overview and assessment of wildfire risks to the Fort Ross Fire Service Area community, using the federal CWPP requirements and the Sonoma County CWPP. Working with this information with fire agencies, landowners, and other interested community stakeholders, a set of priority project actions were developed to increase fire resiliency. These actions are intended to reduce the potential loss of human life, property, and natural and cultural resources due to wildfire. This CWPP will also help groups or agencies collaborate and seek funding for these wildfire risk reduction projects.

The boundary for this CWPP is the Fort Ross Fire Service Area, served by the Fort Ross Volunteer Fire Company (FRVFC). Risk for large, uncontrolled wildfire is significant here, and comes with risk of loss of life, homes, property, and environmental and community values. The community meetings and dialog that were integral to developing this CWPP were an excellent opportunity to raise awareness about wildfire issues and preparedness in the community and foster focused discussion about what we can do to reduce risks.

Community Profile

Land and Parcels: This is a 55-square mile Wildland Urban Intermix (WUI) community. There are 195 improved parcels and 278 unimproved parcels. Average parcel size of improved parcels is 74.29 acres and unimproved parcels is 74.51 acres. Virtually all of the land is privately held. The area is characterized by steep slopes and narrow valleys. Highest elevation is 2,322 feet, the lowest is 1,011 feet, and average elevation is 1,013 feet.

Fire Services: The area is served by the Fort Ross Volunteer Fire Company, with CAL FIRE having primary responsibility for firefighting operations for wildland fires. In addition to CAL FIRE, mutual aid for the area comes from three all-volunteer fire departments: Cazadero Community Service District, Timber Cove Fire Protect District, and North Coast Fire Protection District. All local volunteer fire agencies are experiencing difficulties in recruiting volunteers, especially younger members.

Homes in the area were largely built before WUI building codes, and many need to retrofit vulnerable elements to better resist wildfire ignition. Likewise, many property owners need to reduce vegetation near homes to comply with defensible space standards.

Residents: Approximate population is 417, with the majority of residents living on one of three 40-acre minimum subdivisions. Slightly over half of residents are full time. Like most of rural Sonoma County, the local population is aging; older people are at higher risk during any emergency, and many find it challenging to do the physical labor necessary to maintain vegetation near homes. While residents are generally aware of wildfire risks, there is concern about how much many individuals are truly prepared for a wildfire, making continuing outreach and education a priority.

Wildland fuels are characterized by a mixture of oak-grasslands, fir-dominant forest, with some redwood. Tanoak is a very common tree in the area, with some very dense stands, especially in areas impacted by the 1978 Creighton Ridge Fire. Tanoak has been greatly impacted by mortality from Sudden Oak Death, and surface and aerial fuel build up is a significant concern. Thousands of pines and other conifers were planted subsequent to the 1978 Creighton Ridge Fire and forty years later add considerable fuel density in some areas. There has been little large-scale fuels reduction in the area since the 1978 fire, and fuels buildup is a significant concern for all local residents and first responders.

Weather: The area is characterized by significant winter rainfall, with totals of 60-80 inches common. Summers, however, are hot and dry. With an average elevation of more than 1,000 feet, the area is generally above the fog (which in lower elevations can beneficially raise fuel moisture and cool temperatures). Typically, there is little or no rainfall from late spring until late fall.

Fire History: Since the 1950s, there have been 22 fires (average acreage 2,184 acres) in the direct project area and in neighboring jurisdictions. The last major fire within the project area was the 10,761-acre Creighton Ridge Fire in 1978.

Fire Hazard Severity Zone (FHSZ): “A measure of the likelihood of an area burning and how it burns,” CAL FIRE’s Fire Resource Assessment Program (FRAP) identifies the following FHSZs:

FHSZ	Acres	Percent
Moderate	1345.25	3.85%
High	32,847.83	94.10%
Very High	715.35	2.05%
Total Acres	34,908.43	

Access/Egress: The area is served by five paved roads, with the vast majority of homes accessed from private, long, narrow, dirt access roads. Both the primary roads and the secondary roads will present life safety risks in the event of evacuation, and will make firefighter access challenging. There is significant overgrown vegetation on roadsides, especially on the private roads.

Emergency Notifications and Communications: Increasingly, local residents are abandoning landline phones for cellular service, despite the fact that cellular service in the area is by and large unavailable except through the internet. This may make emergency notification problematic. The **Fort Ross Emergency Preparedness Committee** is actively engaged in forming neighborhood communications groups, but emergency notification remains a concern.

Assets at Risk: In priority order, Lives, Property, and the Environment. Any large wildfire will pose significant risk to all three priority assets. Economic losses will be devastating to the local community. Agricultural enterprises including vineyards, wineries, and cattle and sheep ranches are also at risk.

Risk Reduction Priorities

Our project priorities were organized into three primary hazard categories: Life Safety, Vegetation Management, and the Built Environment. Projects were suggested by community members and address risks in all three categories. Strategies include education and community outreach, fuels management, structural hardening, improving signage and road infrastructure issues, and robust risk analysis and planning. Projects can be seen in the Project Priority List (Appendix B), which will be periodically updated in the future to reflect progress and changing priorities.

Conclusion

The intensity and devastation of the October 2017 fires was a wake-up call for this community. The CWPP sets the foundation for actionable projects which will help the community plan and prepare for wildfires and other emergencies, and make the homes and landscapes more resilient. The goal of these projects is to protect life, property, and the cultural and natural resources of the watersheds.

CWPP Planning Group Members

The following Fire Agency Personnel have been integral to the CWPP:

- **Fort Ross Volunteer Fire Company:** Chief Steve Ginesi
- **CAL FIRE:** Division Prevention Chief Ben Nicholls, Battalion Chief Marshall Turbeville
- **Sonoma County Fire:** Fire Marshal James Williams
- **Fire Safe Sonoma:** Roberta MacIntyre, President; Caerleon Safford, Executive Coordinator

The following Community Groups have been integral to the CWPP:

- **Coast Ridge Community Forest:** Judy Rosales, Executive Director
- **Fort Ross Community Disaster Preparedness Group:** Gayle Alexander
- **Homeowners Associations and Community Groups:** Gualala Ranch HOA, Navarro Ranch HOA, Seaview Ranch Road Association
- The **Coastal Hills Community Project (CHCP)** distributed meeting notices and community outreach information to the vast majority of residents

In addition, **many community members** have participated in planning meetings and contributed local knowledge and resources

This project was one of three CWPPs made possible by a CAL FIRE SRA Prevention Grant. We sincerely thank CAL FIRE for the project and their invaluable contributions to this project.



Photo 1: Northeast from Creighton Ridge



Photo 2: CWPP Community Meeting, December 2, 2018, at Padmasambhava Peace Institute (aka Black Mountain Preserve)

Mutual Agreement Page
Fort Ross Community Wildfire Protection Plan

The Fort Ross Fire Service Area Community Wildfire Protection Plan was developed in accordance with the guidelines set forth by the Healthy Forests Restoration Act.

This Community Wildfire Protection Plan:

1. Was collaboratively developed. Interested parties in the region of this CWPP have been consulted.
2. Identifies and prioritizes areas for hazardous fuels reduction treatments and recommends the types and methods of treatment to reduce the wildfire threat to values at risk in the area.
3. Recommends measures to reduce the ignitability of structures throughout the area addressed by the plan.

The following representatives of the entities required for CWPP approval mutually agree with and approve the contents of this Community Wildfire Protection Plan:



Lynda Hopkins
Supervisor, Sonoma County District 5

3/15/19
Date

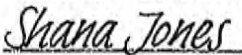


Steve Ginesi (Mar 12, 2019)

Steve Ginesi
Chief, Fort Ross Volunteer Fire Department

03/12/19

Date



Shana Jones (Mar 13, 2019)

Shana Jones
Unit Chief, CAL FIRE Sonoma-Lake-Napa

03/13/19

Date



James Williams (Mar 13, 2019)

James Williams
Assistant Chief, Sonoma County Fire Prevention

03/13/19

Date

Roberta MacIntyre

Roberta MacIntyre
President, Fire Safe Sonoma

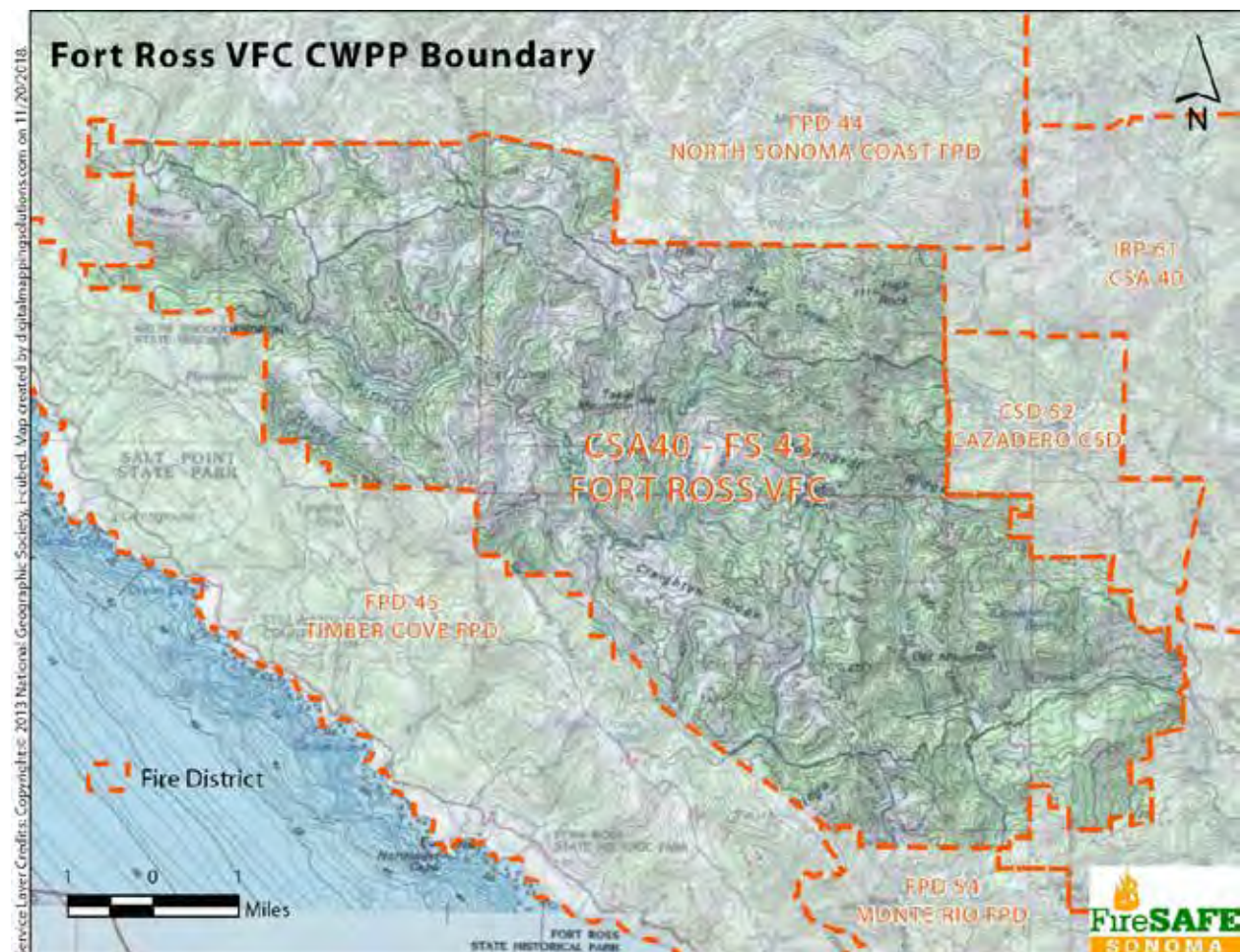
3/12/19

Date

Fort Ross Fire Service Area Community Wildfire Protection Plan

Location and Community Boundaries

The boundaries of this Community Wildfire Protection Plan (CWPP) are formed by the Fort Ross Fire Service Area, served by the Fort Ross Volunteer Fire Company (FRVFC). Located in northwest Sonoma County, the area comprises the areas accessed by Fort Ross Road and King Ridge Road, with a small percentage of the area accessed by Hauser Bridge Road. The area can be accessed from the east on Cazadero Highway, and on the west from State Highway One. The project area does not extend to the shores of the Pacific Ocean, but is entirely in the Coast Ridges that parallel the ocean. The highest elevation is 2,322 feet; the lowest is 1,011 feet, average elevation 1,013.

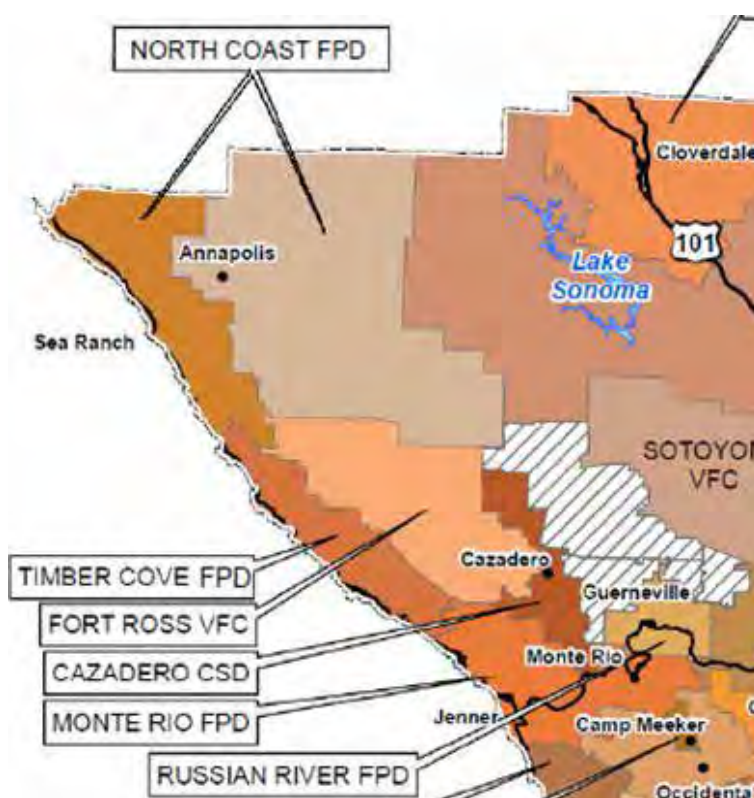


Map 1: Fort Ross VFC Fire Service Area and CWPP Project Area. See larger map in Appendix C.

Fire Department Service Areas

At the time of writing (fall–winter 2018-19), the Fort Ross Volunteer Fire Company serves the project area for all emergency response including medical aid, fires, hazardous materials, and community emergencies large and small. While the VFC is often first at scene at fires in the area, since this is a State Responsibility Area (SRA), CAL FIRE has primary responsibility for command and firefighting operations for wildland fires and fires that pose a threat of spreading into the wildland. CAL FIRE assumes command and responsibility for wildland fires as soon as they arrive at scene. Additionally, CAL FIRE has automatic aid agreements and designated Mutual Threat Zones within Sonoma County. These agreements provide for services, including responses to structure and wildland fires, traffic accidents, rescues and medical aids.

Several neighboring volunteer fire departments provide mutual or automatic aid to incidents within the Fort Ross Fire Service area. Timber Cove Fire Protection District is located on the western border, and Cazadero Community Service District is on the east, North Sonoma Coast Fire Protection District to the north, and Monte Rio Fire Protection District to the south. All of these fire districts are staffed by volunteers. Neighboring departments send responders into the area for any calls—medical, fire or emergency—that require additional resources. Likewise, Fort Ross VFC will respond to calls in neighboring districts, automatically in the event of fire, or upon request of the incident commander.



Map 2: Fort Ross VFC Fire Service Area and surrounding Fire Districts and Community Service Areas

At the time of writing, there are considerable changes taking place in fire department organization across the county. The Fort Ross VFC, long a part of Sonoma County Fire and Emergency Services, will soon be absorbed into Cazadero and Timber Cove Fire Departments. This is part of a county-wide attempt to consolidate services and reduce the number of small fire departments so that services can be administered more efficiently, while maintaining a high level of service to the public.

Volunteer fire departments are facing significant challenges to attract enough volunteers. The communities are aging, a demographic reflected in local VFC volunteers. Many residents work outside of the area and are unavailable to respond to calls during the day. Funding adequate to purchase and maintain fire apparatus, communications equipment, firefighter supplies, etc. is a constant challenge.

While our local volunteers continue to do an outstanding job, there are significant concerns about how well volunteers will continue to be able to serve our communities into the future. Being a volunteer requires a significant time commitment. Training standards keep increasing the number of hours required for volunteers to stay active. Call volume is increasing every year, adding to the stress and time commitment. More and more, people buying property in the area do not plan to live here full time, and are not likely to be able to volunteer. These issues will continue to be problematic into the future.

Parcel Data

Fort Ross Fire Service Area CWPP PARCEL DATA*	
TOTAL ACRES:	35,200
TOTAL NUMBER of PARCELS	473
Parcels with structures ("Improved")	
Total number improved	195
Average size of improved parcels	74.79 acres
Number of improved parcels more than 30 acres	174 (88%)
Average size of improved parcels more than 30 acres	82.50
Average size improved parcels less than 30 acres	12.12 acres
Number of structures	729
Vacant parcels (without structures, "Unimproved")	
Total number	278
Average size of vacant parcels	74.51
Approximate Population**	417
<i>*Based on Sonoma County Assessor's data</i>	
<i>** Based on 2.4 people per parcel with structures</i>	

Table 1: Fort Ross Fire Service Area parcel information

Land Ownership

Virtually all of the land within the project area is privately held, with the exception of 17 parcels owned by the County of Sonoma and one parcel owned by the State of California. Primary land uses are residential, vineyards, cannabis cultivation, and ranching.

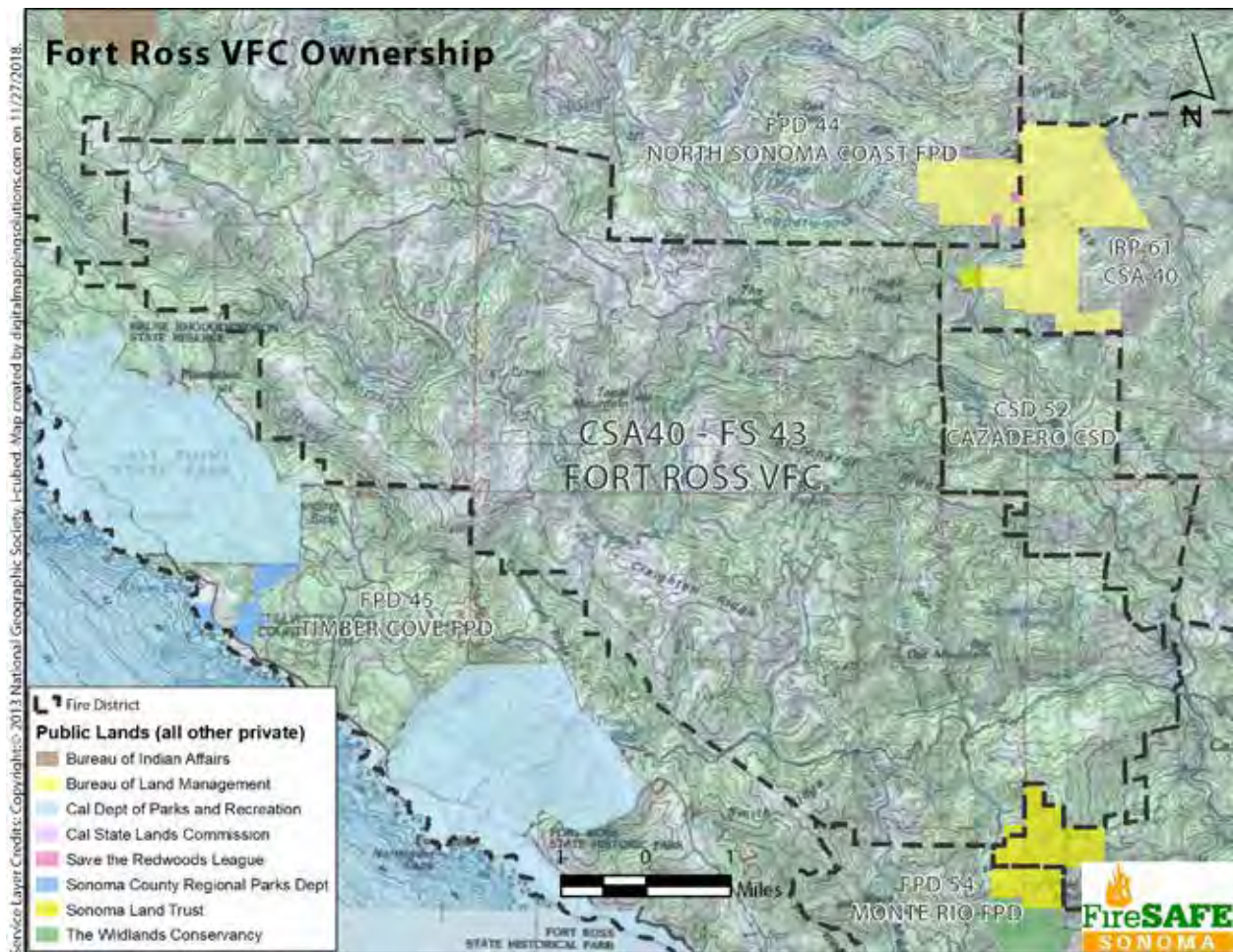
There are three residential subdivisions (40-acre minimum parcel size), which are where the majority of the population resides. Two subdivisions, Navarro Ranch and Gualala Ranch, have active Homeowners Associations (HOA) with Community Covenants and Restrictions (CC&Rs). Seaview Ranch does not have a HOA or CC&Rs, but does have a road association to coordinate road maintenance. These three subdivisions were developed in the late 1960s and early 1970s, as baby boomers looked for means to get “back to the land.” Though there are some commercial vineyards and olive orchards within in the subdivisions, the majority of parcels are residential.

CC&Rs provide for vegetation management within a 30-foot easement, and Gualala Ranch does annual mowing and trimming along common roadways. Most residents do not have the resources to maintain their 40-acre forested parcels, so fuels have built up in these areas. The Coast Ridge Community Forest group has been actively connecting landowners with resources for forest management, but there is significant need for home hardening, defensible space, and wildland fuels management throughout the subdivisions.

Marijuana cultivation, both permitted and non-permitted, seems to be increasing across the area, and causing some concern due to increased traffic on narrow roads, water use, possible environmental concerns, and fire danger due to equipment and newcomers who may not have sufficient awareness of fire risks.

Outside of the subdivisions, there are scattered parcels in individual ownership, primarily residential or vineyards, and several large ranches of several hundred acres. Ranchers in the area have a combination of cattle, sheep, and grapes.

Homes in the area are spread out across the landscape, with the vast majority located on the dirt roads that cross the area. Evacuation will be first complicated by the distance that people must travel to reach one of three paved access roads that lead out of the area. However, even the paved roads are very narrow, with no or minimal shoulders, and limited pullouts. In a fast moving fire this will present significant risks for incoming fire apparatus and evacuating residents. Maintaining roadside clearance on both privately and publicly maintained roads is of critical importance.



Map 3: Land Ownership: See larger map in Appendix C

Demographics

- The population in the project area is aging, which is also true in rural areas throughout the county. The aging population is a significant concern from a life safety perspective because of the high percentage of older people who died in recent fire events.
- Primarily English speaking, with some Spanish-speaking residents.
- Population in the area is estimated at 417, with some seasonal fluctuation due to agricultural labor and part time residents, who may spend more time here during the summer months.
- Income varies greatly across the project area. Those with higher income are typically more capable of taking care of vegetation and structural retrofit than those on limited or fixed incomes.

Number of Homes

- Approximately 174
- Full Time/Part Time Residents: Just over half of the parcels with homes on them have full-time residents.
- Visitors:

- King Ridge and Fort Ross roads have become very popular roads for bicycles. On most summer weekends local residents share the narrow roads with bicyclists, with the largest impact from large-scale bicycle events that route through the area. These events, which can bring thousands of bicyclists within a span of five hours, can cause roadway congestion and response delays.
- Padmasambhava Peace Institute (PPI), also known as Black Mountain Preserve, hosts a variety of workshops and events throughout the year, each of which can bring 50 or more participants. PPI generously hosts Fort Ross VFC Station 4 on the property.

Community Organizations

- **Fort Ross Volunteer Fire Company**
- **Navarro Ranch Association HOA, Gualala Ranch Association HOA**
 - Both HOAs hold regular meetings and have CC&Rs
- **Seaview Ranch:** No formal association, no CC&Rs
- **Coast Ridge Community Forest:** The Coast Ridge Community Forest is made up of residents of the Coastal Hills of western Sonoma County. The community first came together in 1978 to restore lands after the Creighton Ridge fire. In 2009, the Coast Ridge Community Forest was formed to work collaboratively across community boundaries to address forest health in an era of climate change.
- **Fort Ross Emergency Preparedness Committee “Neighborhood Pods”:** Loosely based on CERT/COPE, the Fort Ross VFC and local residents created an emergency preparedness system several years ago. “Pods” of three to six households form one foundation for the community’s disaster preparedness, although different neighborhoods vary greatly in their participation rates. Whether it’s fire, earthquake, or an intense storm, being in an active Pod means shared mutual assistance. Each Pod is committed to being highly alert during Red Flag Days as well as winter’s heavy rains with the risks of flooding and landslides. The Pods also form the basic unit for an emergency phone tree. The phone tree is used to notify residents about fires, evacuation, or other emergency information. Many in the community have scanners and some residents are ham radio operators who help to receive and pass on vital information.
- **Internet/E-mail alerts:** Black Mountain Communications, a local internet service provider, blasts timely email updates, called AlertUs, on all local emergencies. Coastal Hills Community Project (CHCP) is a community-wide email listserv which is widely subscribed to for information about all local events, as well as emergency info. CHCP carries the AlertUs emergency notifications from Black Mountain Communications.
- **Ageing in Place:** Formed to help local elders stay in their homes safely, the group meets monthly to address issues such as emergency preparedness, help for those who need it, and to provide information about how to stay safe in a rural environment.

Wildland Urban Intermix (WUI) Condition

The Fort Ross Fire Service Area is designated as a Wildland Urban Intermix, or WUI. This plan uses the term Wildland Urban Intermix as defined in the Federal Register (66:751, 2001) report on WUI communities at risk from fire (USDA & USDI, 2001) as follows:

*The **Intermix** Community exists where structures are scattered throughout a wildland area. There is no clear line of demarcation, wildland fuels are continuous outside of and within the developed area. The development density in the intermix ranges from structures very close together to one structure per 40 acres. Fire protection districts funded by various taxing authorities normally provide life and property fire protection and may also have wildland fire protection responsibilities. An alternative definition of intermix community emphasizes a population density of between 28-250 people per square mile.*

Climate

Sonoma County is characterized by a Mediterranean climate, with a rainy, cool season typically lasting from November through April and dry, warm conditions the rest of the year. Strong northeasterly winds are common in the late summer and fall months and pose the greatest wildfire risks. The October 2017 Sonoma Complex Fires took place during severe northeast wind conditions.

Climate conditions are changing around the globe. Based on USGS data, between 1911 and 2000, average maximum temperatures in the North Bay Region (Sonoma, Marin, and Napa Counties) had already increased approximately 1.0°F while average minimum temperatures have increased approximately 1.7°F ([Climate Change in the North Bay](#), North Bay Climate Adaptation Initiative [NBCAI], 2013).

Localized climate projections suggest that climate is likely to become increasingly arid with shorter winters and longer, hotter, drier summers. Rainfall is predicted to come in more intense rain events, rather than spread out over the wet season. Winter rainfall in the Fort Ross Fire Service Area averages 60 to 80 inches, among the highest in California.

Sonoma County and California in general experienced severe drought between 2011 and 2015. The 2013-14 water-year was the third driest for the state in 119 years (NOAA 2016). Regional climate predictions differ in terms of trends in overall precipitation. However, most models predict that weather will be more variable, with drought and floods becoming more common and more intense. If, as predicted, rain comes in shorter and more intense events, drought stress on soils and plants is expected to increase even in years of heavier rainfall. NBCAI's estimates that measures of drought stress on soils in late summer will increase 11-22% in the North Bay by the end of the century. Climate change will pose increasing challenges to natural

systems as water becomes scarcer and flooding, fire, and plant diseases become more common. This could have a dramatic effect on fire fuels in our forested areas.

The following monthly temperature data are taken from the Oak Ridge Remote Automatic Weather Station, located just north of the CWPP area, at similar elevation. While the area is characterized by multiple microclimates, this data is very similar to our area.

Date	Mean Wind Speed	Mean Wind Direction	Maximum Wind Gust	Average Air Temperature					Average Relative Humidity			Precipitation
	mph	Deg	mph	Deg F					%			in
	mm/yyyy	Ave.	Vector Ave.	Max.	Ave.	Ave. Daily Max.	Max.	Ave. Daily Min.	Min.	Ave.	Max.	Min.
Sep-16	7.207	333.3	36	68.49	79	93	60.17	44	45.38	100	9	0
Oct-16	8.333	199.9	49	56.81	63.55	85	51.39	44	76.17	100	8	8.86
Nov-16	6.368	210.2	45	52.76	58.7	74	47.9	39	77.66	100	28	6.88
Dec-16	8.132	346.1	52	46.44	52.16	68	41.23	31	67.83	100	8	7.5
Jan-17	8.079	181.8	76	45.2	51.03	67	40.77	31	77.98	100	7	18.75
Feb-17	10.48	191.3	69	47.67	53.5	69	43.54	31	72.79	100	0	17.5
Mar-17	7.302	299.6	47	51.92	59.32	75	46.03	33	47.6	100	0	5.56
Apr-17	8.063	294.1	56	51.38	60.17	79	44.23	35	68.5	100	3	5.21
May-17	7.091	322.7	39	60.01	70	85	51	39	59.61	100	18	0.21
Jun-17	7.774	329.5	35	66.43	78.7	98	55.9	42	55.99	100	17	0.5
Jul-17	6.215	325.9	35	73.55	84.84	99	63.48	48	40.34	99	6	0
Aug-17	5.074	323.4	26	73.82	82.84	98	65.26	52	44.32	100	5	0
Sep-17	6.638	326.6	33	69.41	78.8	107	61.4	45	47.42	100	7	0.19
Oct-17	6.3	341.4	35	65.05	74.55	91	57.45	43	38	100	8	0.7
Nov-17	6.831	194	51	51.55	57.3	71	46.8	37	78.94	100	7	7.54
Dec-17	5.148	27.34	36	54.59	60.81	75	49.32	35	42.34	100	4	0.34
Jan-18	6.621	152.8	39	51.01	56.16	71	46.29	36	75.1	100	4	9.47
Feb-18	7.144	340.3	36	51.1	59.14	77	44.25	28	49.91	100	9	1.07
Mar-18	7.098	182.5	46	48.94	55.58	76	43.39	32	72.06	100	3	7.19
Apr-18	6.538	305.8	37	52.21	60.47	77	44.9	35	68.08	100	6	6.44
May-18	6.68	317.8	32	56.49	67.16	89	47.58	41	70.29	100	17	0.27
Jun-18	8.143	329.4	35	66.23	79.9	94	53.97	44	50.05	100	12	0.01
Jul-18	6.11	325.1	28	73.43	83.97	100	64.55	46	42.04	99	12	0
Aug-18	6.03	318.2	30	69.03	79.29	95	60.35	47	51.94	100	8	0.03
Sep-18	6.885	332.4	30	67.07	78.43	88	58.43	48	46.55	100	9	0.33
Oct-18	5.75	351.2	29	62.21	70.45	80	55.58	45	54.55	99	8	1.66
Nov-18	6.138	110.9	43	59.75	65.96	81	54.5	45	39.31	100	3	4.66

Table 2: Weather Data for September 2016 to November 2018

The Built Environment

Homes should be thought of as one of the most critical fuel components. Although we naturally worry about the dense vegetation that surrounds us, houses and outbuildings are themselves fuel, and are highly susceptible to ignition from embers, direct flame contact from nearby fuels, or radiant heat from burning vegetation or nearby structures. Most homes in the area were built before Wildland Urban Interface building codes took effect, and most have vulnerable elements (such as old or non-Class A rated roofs, attic or foundation vents that allow for ember intrusion, wooden decks and attachments, and siding) that will increase potential for ignition.

Intensive education and outreach will help residents understand the importance of retrofitting vulnerable elements for increased ignition resistance, as well as the necessity of clearing any dry vegetation on and near their buildings.

Additionally, many homes do not have defensible space adequate for this high-risk area. The good news is that the typical large parcel size means that most residents *do* have sufficient space to create the required 100 feet of defensible space, and are not vulnerable to house-to-house ignitions that have characterized recent Northern California wildfires. The bad news is that many residents, for a variety of reasons including physical ability, age, cost, and lack of awareness, don't maintain adequate defensible space.

It is critically important that homeowners take the initiative both to create and maintain adequate defensible space and to harden their homes against wildfire ignition. Please see Appendix D, *Creating Wildfire Adapted Homes and Landscapes*, for specific guidelines about home hardening and defensible space.

Homeowners Insurance: While many local property owners do have insurance, there are a significant number of properties which are not insured. Insurance costs in this area are typically very high, increasingly so following recent wildfires. For many local residents, obtaining coverage is cost prohibitive. Consequently, the next big fire is likely to have catastrophic economic effects. This should serve as additional motivation for residents to undertake the effort and cost to mitigate those factors within their control (home hardening and defensible space).

Access / Egress and Evacuation

Any serious fire in the area will be greatly complicated by narrow roads, limited access, and confusing or missing signage. These components pose significant risks to life safety for both evacuating residents and incoming firefighters in the event of a large uncontrolled wildfire. In addition, slow response times from incoming emergency services can be expected. Some of these factors (such as road layout) don't have easy solutions, but it is extremely important to work on the elements that *can* be mitigated (roadside vegetation, clear signage, safer bridges, locked gates) to make the entire community better prepared to survive wildfire. Ongoing efforts to increase community-wide planning for wildfire and other emergencies have helped, although past participation and buy-in has been limited. But the 2017 and 2018 fires have greatly increased awareness and a sense of urgency. Continued and sustained emergency planning activities and increased community involvement will increase life safety for all.

Road Infrastructure: The area is served primarily by five county-maintained paved roads: Fort Ross Road, Bohan-Dillon Road, King Ridge Road, Hauser Bridge Road, and Tin Barn Road. Each of these roads is narrow (in some places single lane), has steep slopes, few turn-arounds and

pull-outs, limited visibility due to plentiful blind curves, and significant roadside vegetation. Most houses are accessed by a series of privately maintained secondary dirt roads, which are one-way-in–one-way-out. Here too, these secondary roads are extremely narrow with limited turn-arounds and pull-outs, steep grades, and blind curves.

Bridges: Dozens of wooden bridges were destroyed by the 2017 Sonoma Complex Fire, leaving residents cut off for evacuation, rescue, or suppression efforts. Additionally, because of safety concerns, many first responders will not cross unrated bridges with heavy fire apparatus. In this area there are numerous non-conforming bridges on secondary roads and driveways. Residents need to consider the risks and mitigation strategies for unrated bridges.

Vegetation: Residents need to maintain vegetation clearance on their access roads and driveways so that they can be safely used during any emergency incident.

Signage: While many local roads have been signed, many more remained un-signed. Even more homes do not have house numbers clearly identified. It is urgently necessary to clearly mark street names and address numbers with reflective metal signs.

This issue is complicated by problems with addressing in the area as a whole. A great many addresses here are based off the nearest paved access roads, yet most homes are located on a network of named dirt roads far from the pavement. This issue makes it difficult for first responders to know exactly where any particular incident is taking place. For example, an emergency call for an incident on Bohan-Dillon Road may be as much as 30 minutes and four roads away from the assessor's address. While local firefighters have diligently worked to associate and map parcel addresses, there are still gaps in the data. Firefighters from outside of the area can be expected to experience considerable difficulties in navigating the area as a whole or finding specific addresses.

It is crucial that local residents, both individually and in neighborhood groups, work together for comprehensive and complete signage for all houses and roads. 80% of Fire Company calls are for medical emergencies, wherein seconds can count. It is in residents' best interest that first responders can easily find them in an emergency—not only in fires, but for medical crises.

Gates: The Fort Ross VFC has made locks available to many landowners, but there are still many gates that do not provide easy access for emergency services. Owners of properties with gated roads need outreach and incentives to replace existing locks with fire department locks or KnoxBox access locks. Residents with locked gates can contact the FRVFC to get a lock free or by donation.

Emergency Notification and Alerts

Landline and Cellular Phone Communications: The local landline phone system has been owned and operated by a variety of vendors over the years (currently Frontier). As is true in many rural areas, the total number of phones is low, so providing landline services to the area is not economically viable for the provider. Consequently, maintenance of the lines has been a continuing issue over the years, with frequent phone outages and problems, some of which have lasted for multiple days or weeks. Phone outages are a significant concern for emergency services providers; residents cannot use the phone to access 911, and likewise mass emergency alerts cannot be delivered to residents.

Power outages in an emergency are a problem for the many people who use a cordless phone. One important safety tip is to keep a corded (non-wireless) landline phone on hand. They will work regardless of power outages.

Cell phone service is very limited in the area, with most phones viable only from high elevations. Despite the lack of service, many local residents have opted to not have a landline, and use cell boosters or internet for cell phone coverage. This leaves residents vulnerable when the internet goes down, or cell towers lose power. Additionally, while landline phone numbers are automatically uploaded into Sonoma County's emergency alert service, [SoCoAlert](#), cell phones numbers must be added into the system by the resident. We encourage readers to follow the link above to register their phones!

Emergency notifications in the event of a fast-moving wildfire are a significant concern. This concern is magnified by issues caused by limited road infrastructure for evacuation. Recent incidents in Northern California have exposed vulnerabilities in how emergency alerts are delivered to residents. Additionally, wildfires are now moving so fast that there can be very limited time to launch notifications or allow for residents to safely evacuate.

Alternative alerting systems, such as developing a local mass phone and email alerts, are being considered. However, ultimately, all such systems will rely on functional phone and internet systems. Since any event is likely to quickly damage infrastructure, the likelihood of being able to contact local residents is not great. Local residents are encouraged to become licensed ham radio operators, and many have.

There are sirens located in two locations, but complex topography in the Fort Ross Fire Service Area limits how many people can hear these sirens, and residents have to know what sirens mean. Additionally, their use may cause additional risks because sirens cannot be directed so that evacuations proceed in a manner that considers areas at highest risk nor takes into account traffic flow on narrow roads. In a fast-moving wildfire, notification is anticipated to be a significant and life threatening problem.

One thing that can help is for residents to buy scanners that will allow them to listen to fire service traffic. It takes practice to be able to understand scanner traffic, so it is helpful to listen frequently.

Fire Environment

Wildland fire risk factors in Sonoma County include dense fuels buildup within and near residential areas, steep topography, fire history, and dry windy fall weather, as well as limited egress and access roads. This potential for disaster turned into reality October 8 through October 31, 2017, when the Tubbs, Nuns, and Pocket fires, and several smaller fires, together known as the Sonoma Complex Fire, burned 110,000 acres in Sonoma County, destroyed nearly 7,000 structures and claimed 24 lives. During the Sonoma Complex more than 100,000 residents were evacuated and 950 fire departments aided in response. The tragic loss of life and homes, and subsequent harm to the Sonoma County economy, will continue to impact the area for decades. This event clearly indicates the potential for large, uncontrollable fires.

Notably, the Sonoma Complex Fire's ranking as the most destructive fire in California history stood for only one year, when the Camp Fire in Butte County in November 2018 far eclipsed those catastrophic losses. Recent wildfire incidents in California and across the west indicate that fires are becoming larger and more intense, destroying more homes, and causing more life loss. Looking at fire behavior in previous decades likely underestimates how fires will burn here in the future.

Wildfire behavior is based on three primary factors: topography, weather, and fuel. The three elements are called the "fire triangle." Ultimately, fire behavior is directly related to the severity of conditions of each of these three factors on any given day. If there is only one leg of the fire triangle present—say the fire starts on a steep slope where it can make a rapid uphill run, but the weather is not hot, dry, or windy and fuels are moderate—firefighters should have a good chance to stop the fire. Worst case scenario is when all three elements of the fire triangle are present, e.g., a fire starts on a steep slope on a hot, dry, windy day, in heavy dry fuel. These are the conditions in which there is the potential for fire behavior that will be very difficult or impossible for firefighters to contain.

The Fort Ross Fire Service Area is vulnerable to all three elements. The topography is steep. High annual rainfall not only encourages dense vegetation growth area-wide, it also means that the landscape is characterized by drainages that flow during winter rains. During the dry season, fire can use these drainages, known by firefighters as "chimneys," to make rapid runs upslope. We should think of fire behavior as opposite to how water flows: fire goes fast uphill, using the same topographic features that water uses to flow downhill.

Despite being near the Pacific Ocean, daily temperatures during fire season are high, often with low relative humidity. With an average elevation of 1,011, much of the area is above coastal fog, and does not experience the nighttime cooling common at lower elevations. Likewise, while temperatures along the coast are typically well below 80° during most of the fire season, our temperatures often run 10 to 30 degrees higher: average daytime high is 76°. Onshore winds are common as the cooler air along the coast is drawn inland by hotter temperatures there. Seasonal northeast wind events (also known as Diablo or Santa Ana Winds), are common during summer and fall, and represent the greatest increased risk of uncontrollable wildfire.

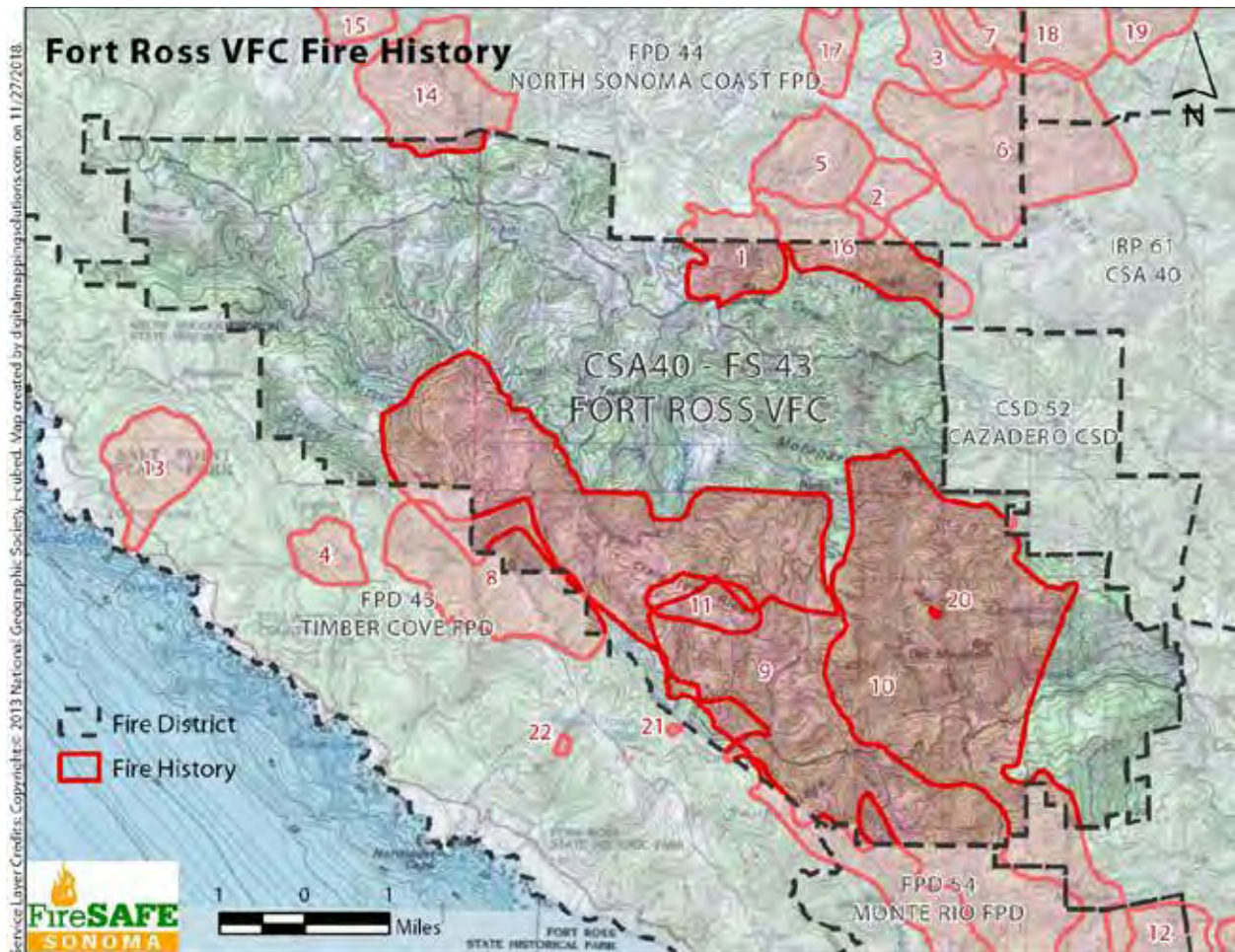
In general, the Fort Ross Fire Service Area is a vastly different fire environment than even 10 years ago. Since fire suppression has largely been successful over the past decades vegetation is thick. Tree mortality, especially Sudden Oak Death, has left a legacy of dead and dying trees. No large-scale fuels treatment has been accomplished since the Creighton Ridge Fire in 1978, and regrowth tends to be dense. Additionally, subsequent to the Creighton Ridge Fire, thousands of conifers were planted across the area. There is been little or no maintenance of those pine plantations, so today they represent a significant additional hazard in many areas. Finally, there are more homes spread across the landscape, many with inadequate defensible space and vulnerable construction. As we move toward a future characterized by more and higher intensity fires, it is increasingly important for homeowners to take responsibility for their homes and property.

Fire History

Northwestern Sonoma County and the Fort Ross Fire Service Area has experienced numerous large fires. Most notably, the 1978 Creighton Ridge Fire burned 10,761 acres and 64 homes and buildings. Started by a spark from a lawn mower, the fire burned for four days in hot windy conditions before weather conditions changed and firefighters were able to control the fire.

Within this area, the three most common causes of wildland fires are equipment use (such as mowers), vehicle fires spreading into wildland fuels near roadways, and electrical transmission.

Prior to the 1978 Creighton Ridge fire, several fires burned in the steep terrain and heavy fuels (see Map 4 and its key). It can be expected that fire will return to the landscape in the future. Fire intensity, size, rate of spread, and loss of homes and life have been increasing exponentially in California in recent years. We should assume that, if a fire starts on a day with high winds, low relative humidity, and high temperatures, fire behavior will be much more intense than in the past with much higher potential for significant loss of lives, homes, and natural resources.



Map 4: Fort Ross Fire Service Area Fire History: Larger Map in Appendix C.

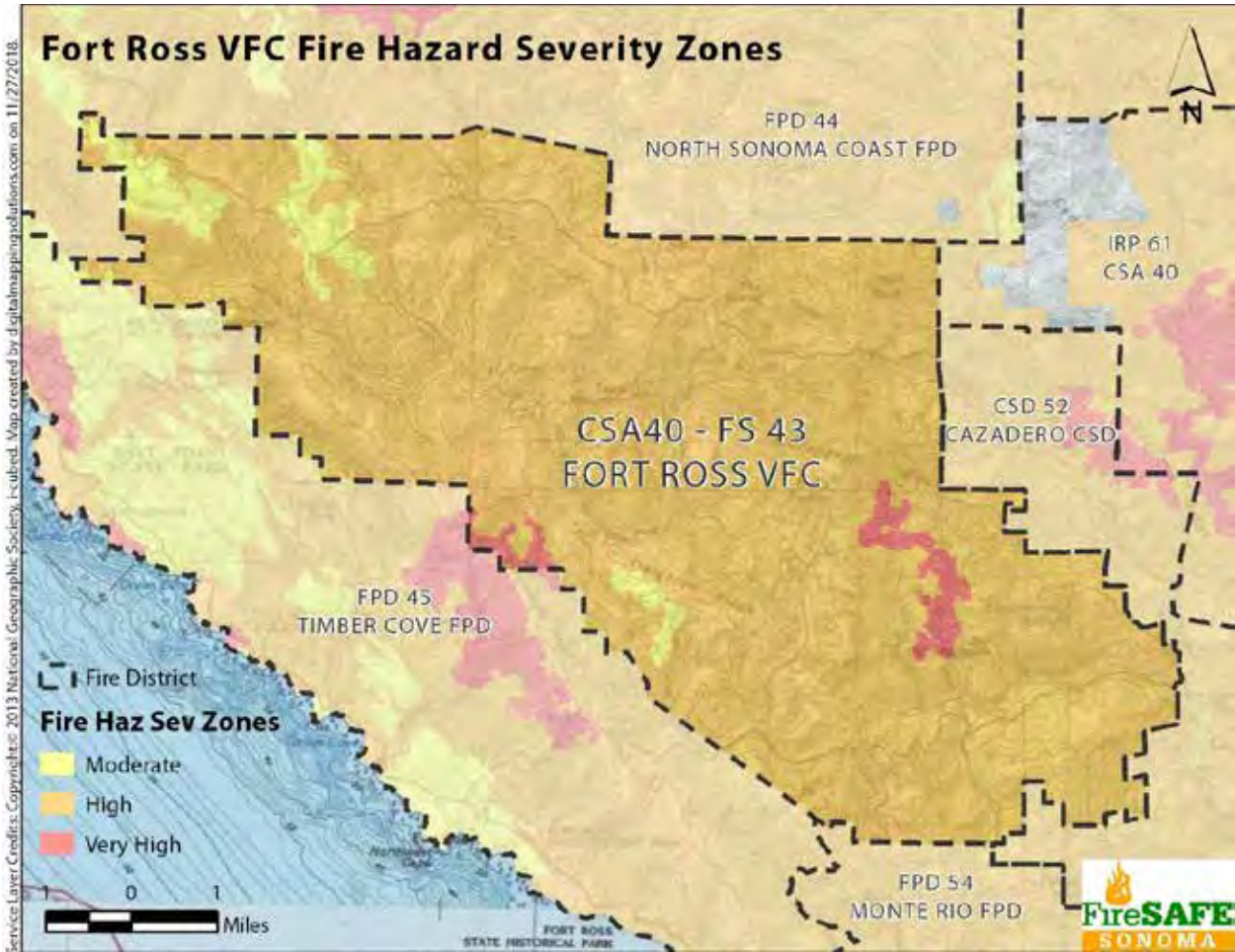
ID	YEAR	ALARM DATE	FIRE NAME	GIS ACRES
1	1952	9/1/1952	HEDGPETH	675.84
2	1959	11/25/1959	V. RICHARDSON	332.32
3	1959	6/23/1959	HOLLOW TREE	2,051.29
4	1957			324.49
5	1973			718.87
6	1960			2,374.87
7	1960		LAS LOMAS	1,827.95
8	1953		CHARLES	1,785.54
9	1954	7/28/1954	CHARLES	10,590.50
10	1978	8/9/1978	CREIGHTON RIDGE	10,761.30
11	1954			399.05
12	1965	9/17/1965	P.G.&E. #6	7,225.61
13	1993		GERSTLE	766.05
14	1960			1,199.45
15	1959			2,898.36
16	1945			1,042.82
17	1943			321.28
18	1948			1,045.85
19	1945			1,670.89
20	2008	6/17/2008	NIESTRATH BlueJay	3.16

21	2013	9/25/2013	BOHAN	7.91
22	2017	10/7/2017	FORT	18.28

Fire Hazard Severity Zone: The Fort Ross CWPP project area is in CAL FIRE’s Fire Resource Assessment Program (FRAP). FRAP defines Fire Hazard “as a measure of the likelihood of an area burning and how it burns (intensity, speed and embers produced).” The following table lists the percentages of Fire Hazard Severity Zones (FHSZ) within the Fort Ross Fire Service Area.

FHSZ	Acres	Percent
Moderate	1345.25	3.85%
High	32,847.83	94.10%
Very High	715.35	2.05%
Total Acres	34,908.43	

Table 3: Fire Hazard Severity Zones for Fort Ross Fire Service Area



Map 5: Fire Hazard Severity Zones. See Appendix C for larger map.

Vegetation

Wildfire is a natural part of California's ecology. For more than 10,000 years, Native American tribes used low intensity fire for a variety of reasons, including increasing food production and making harvest easier. Native people used fire very frequently; fire history studies conducted at Jackson Demonstration State Forest and in Annapolis State Park concluded that fire return intervals in redwood and redwood/Douglas-fir forest types ranged from 6 to 20 years. Fire use in oak-grasslands is estimated to have been even more frequent, with most areas burning every 5 years. Fire was used so often and for so long that it has become a necessary component of many of California's ecosystems and essential to their health and regeneration.

For millennia, innumerable low-intensity fires served beneficial purposes, including reducing fuel loads by removing small diameter trees and brush. Fire created a mosaic of different vegetation types and fuel structure, and created large gaps between vegetation that reduced the movement of fire across the landscape. Frequent fire had an evolutionary impact on forested stands by naturally retaining the trees that were more resilient to fire. Fire reduced competition among vegetation for water, sunlight, and nutrients, which reduced stress on individual trees and created forests that were more resilient to forest pathogens.

Early European explorers were often rhapsodic in their praise of the open and abundant landscapes they saw, but did not realize the role of conscious use of fire in creating and maintaining these landscapes. With the arrival of European settlers, disruption in Native lifeways and prohibition of Native burning greatly decreased beneficial fires in the landscape.

Logging of the redwoods began as early as the 1850s. Extensive logging of the remaining old growth redwood and Douglas-fir, as well as much of the second growth timber, took place in the mid-20th Century. This modified the size and spacing of trees within western Sonoma County to be much smaller, and less fire resilient.

Since that time, little has been done to manage the forests in much of the area, and fires have been largely excluded from the landscape, with the exception of large, damaging fires such as the 1978 Creighton Ridge Fire. Today, forests are far denser with many more trees per acre and greater buildup of dead wood on the forest floors than would have been true when frequent, low-intensity fires were common. This means that when fires do burn, they burn with greater intensity, get much larger, and can cause irreversible damage to wildland ecosystems. At the same time, the population in the area has steadily grown; the probability that a fire will occur increases with population, along with life safety risk.

Approximately 15 individual landowners, and the Gualala Ranch Association have used California Forest Improvement Program (CFIP) funds to create forest management plans and some implementation. A few landowners in other parts of the Fort Ross Fire Service Area have done similar treatments, but the vast majority of acreage remains untreated.

Tree Mortality

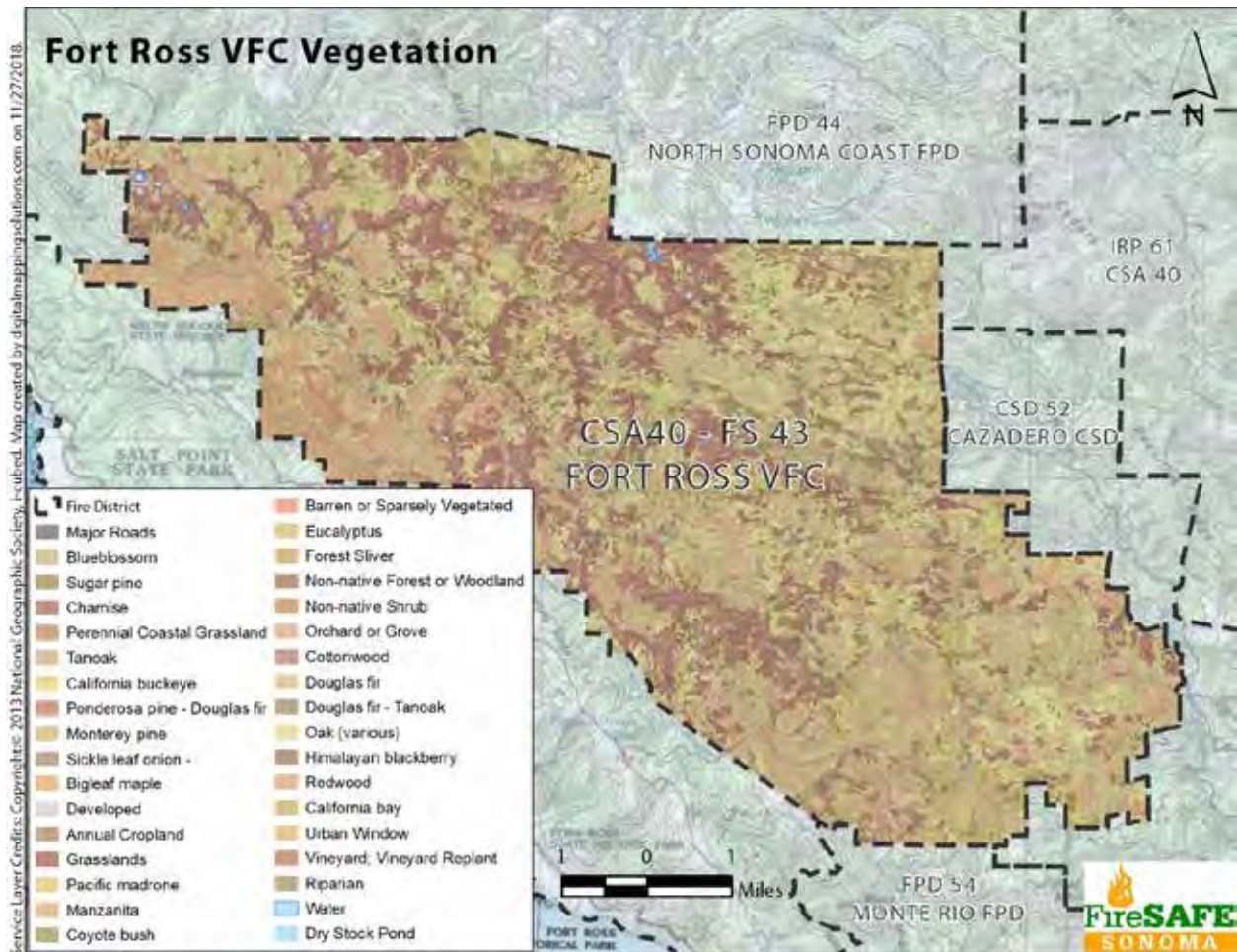
Northwest Sonoma County has been devastated by the tree disease Sudden Oak Death (SOD), caused by the plant pathogen *Phytophthora ramorum*. First discovered in Marin County in 1995, *P. ramorum* was introduced to California by infected nursery stock. Since its discovery, it has steadily moved north along the coastal regions of California, into Oregon and Washington. It has since been identified in the Southeast US, and around the world. In 2007, Sonoma County had the highest rate of new infection in the state. County-wide there are hundreds of thousands of SOD killed trees, especially tanoak, live oak, and black oak, on more than 75,000 acres; these dead trees greatly increase fire fuels and pose falling risks year round.

Northwest Sonoma County has been particularly hard hit for three primary reasons. *P. ramorum* thrives in the cool, wet climates which typify our winters. California Bay Laurel, which grows throughout our forested areas, acts as breeding grounds for inoculum, which may then be spread through wind-driven rain, flowing water, plant material, or human activity. In our area tanoak, which is especially vulnerable to SOD, is a dominant species. Tanoak mortality varies from patchy to nearly total in heavily impacted areas. SOD has continued to kill trees in the area since first identified over two decades ago. Large numbers of dead trees will cause operational complications for firefighters, severely impact egress and evacuation, increase fire behavior, and cause life safety risks. Therefore, removal of dead trees is a high priority. Unfortunately, little can be done to reduce the spread of SOD. For more information about SOD, visit www.suddenoakdeath.org.

SOD kills the above-ground growth of trees, leaving the roots alive. Unfortunately, this means that even if a dead tree is removed, it will sprout a significant amount of brushy growth from the stump, creating a low brushy fuel. Herbicides have been used to kill the tree, but there is significant opposition to herbicide use in the area. Stump grinding or removal of the root ball can help, but adds cost.

The area is also experiencing an increase in conifer mortality from various beetles, and pathogens like pine pitch canker. Lack of fire in the area has resulted in stands that are uniformly old, and are currently dying in large numbers. The proportion of dead fuels in the landscape is increasing annually at an alarming rate.

We can expect tree mortality to continue to get worse in the foreseeable future. Removal of dead and dying trees is a critical need, especially near roads and homes. Removal can be an enormous economic hardship. Grant funds can help, but challenges remain, such as difficulty of obtaining contractors to do the work, and maintenance of treated areas post-treatment. Outreach to affected property owners and collaboratively seeking solutions is a continuing need.



Map 5: Vegetation Communities. See larger map in Appendix

Wildland Fuels: Decades of fire suppression, in combination with conversion of managed forest and grazing lands to residential use and climate change, have had dramatic effects on virtually all of Sonoma County's ecosystems, leaving a legacy of dense vegetation with a high proportion of dead materials and brushy fuels that will increase fire behavior and fire spread. This is certainly true in this project area, where vegetative fuels have been increasing for decades. Projects that will help increase forest health and habitat while reducing available fuel are critically important. Wildland fuels need to be thinned and maintained to create healthier forests and landscapes that are better adapted to our fire prone environment.

While projects that increase forest health on a landscape scale are important, highest priority fuels treatments should be those which will help save lives and property. Reducing flammable vegetation within 100 feet of homes and on roadsides is critically important. It is also essential to educate residents about how to create "wildfire adapted" homes and defensible space, and provide assistance that will help them reduce risks of economic and life loss.

Vegetation Treatment Options

As noted, the Fort Ross Fire Service Area has a huge variety of native vegetation communities: redwood, Douglas fir, bay, madrone, tanoak, oaks, grasslands, and chaparral intermingle in a shifting mosaic with composition influenced by slope, aspect, and moisture availability. Here are some available options for thinning and management:

Mechanical: Using large machines like masticators, grinders, and chippers, trees are taken down and chipped on site. Chips can be disposed of by broadcasting, or removed off site for disposal or reuse (firewood, chips for cogeneration, finished wood products, etc.). Mechanical treatment can only be used when roads allow access to the site. Costs for mechanical means of treatment per acre vary considerably, and the cost of treatment will increase along with fuel loading, steepness, and difficulty of access to terrain. Disruption to sensitive natural resources must be considered when using mechanical means.

Manual Labor/Hand Tools: Chainsaws and other tools are used to cut trees and brush, either lopping and scattering, chipping debris in place, or burning in piles. Per acre cost for hand work varies considerably, and the cost of treatment will increase along with fuel density, difficulty of access, and steepness of terrain.

California Department of Corrections and Rehabilitation inmate crews, who do a lot of fuels mitigation work in communities across California, cannot work in much of the western half of Sonoma County because of the amount of time it takes for them to commute from their home camps. Additionally, inmate crews do not work on private property unless part of a Fire Safe coordinated project.

Grazing: Properly managed, grazing of domestic livestock such as sheep, goats, and cattle can be an efficient and cost effective means to control grasses and brush, and can greatly benefit soil health and the ecosystem. Grazing animals can browse noxious plants such as poison oak that are difficult to manage, and greatly reduce fuels on slopes too steep for easy maintenance. The local Community Forest group is exploring the potential for developing sustainable models for reintroduction of grazing across the area.

Prescribed Fire: The local ecology is fire-adapted, meaning that native plant species evolved with fire as an integral and regularly occurring component of ecosystem health. Prescribed fire is one of the best and most cost-efficient means of fuel reduction. Prescribed fire is the intentional use of fire to help control dry fuel build up, and control vegetation density by removing small diameter trees and brush. By reintroducing fire into this fire-adapted environment, we improve the health of local ecosystems. However, needless to say, it does come with inherent risks and complications. Anyone planning a prescribed burn must have all necessary permits and permissions, and ensure that there are sufficient qualified individuals on hand to support burn activities. In areas where there is significant fuels build up, prescribed burns cannot be attempted until mechanical treatment has reduced available fuel. "Prescribed Burn Associations" are forming across the county to help property owners use prescribed fire. Community and fire agency acceptance and buy-in for any burn operation is critical. Increasing capacity for prescribed burning across the project area is a high priority.

Water Supply

Water supply poses significant challenges for firefighters in the area. There are no hydrants or shared water systems. Household water is supplied by wells or springs on individual properties, and stored in tanks. County regulations stipulate that 2,500 gallons is maintained at all times for firefighting purposes. However, especially towards the end of the summer, many parcels may not have this supply available. Tanks are not always fitted for firehose; residents may consult with the FRVFC to determine the best fittings and locations for tanks.

There are some ponds and reservoirs scattered throughout the area. Usually these ponds are the primary source for water during fire incidents. However, because water has to be shuttled between the source and the fire, the distance between those two points can greatly impact the efficiency and safety of firefighting efforts. By the peak of fire season in the late fall, local creeks have very low flow, and typically do not have sufficient volume for firefighting use.

Development of strategically placed large water storage tanks for firefighter use should be a high priority project for the near future.

Watersheds and Hydrology

The Fort Ross Fire Service Area includes the watersheds of Ward Creek, the South Fork of the Gualala River, and Russian Gulch.

Historical logging practices, legacy logging roads, sheep and cattle grazing, vineyard conversions, the recent five-year drought, and a dry and wet season climate pattern all have impacts to streamflow.

As one example, the Gualala River Watershed is listed as sediment and temperature impaired. A Total Maximum Daily Load (TMDL) Technical Support Document (TSD) was completed in 2003. Over the past decade, high water temperatures within the watershed have been trending lower, due to restoration efforts, such as decreasing anthropogenic sediments loads and restoring in-stream habitat.

Landowners rely on stream diversions, springs, and near-stream wells as water sources and pump water for use during the dry months, which can reduce stream flows that endangered coho salmon and threatened steelhead populations rely on to survive. Increased pumping in the summer months, when water supply in the creek is already low, can lead to the creek losing all of its water to the aquifer and becoming ephemeral (USGS, 2012).

Damage to the watersheds subsequent to an uncontrolled wildfire is a critical concern for any large wildfire.

Assets at risk

Lives

- There is considerable risk of life loss due to a large, fast-moving wildland fires. Vegetation near homes and on roadsides, limited evacuation routes, and narrow dangerous roads place residents of our area at grave risk. Generally, older people are at higher risk during emergencies, and this is an aging community.

Homes, structures, and surrounding plantings:

- Most homes in the area are not hardened to resist wildland fire ignition, and many have not created or maintained adequate defensible space. Some local residents are uninsured or inadequately insured, so impact of losses will be significant.
- Equipment and tools: Many local residents make their living locally, thus have equipment and tools that are essential to their livelihoods.
- Established landscaping and orchards
- Vehicles

Utilities:

- Electrical lines are all above ground
- Solar systems that are the primary power source for many local homes
- Individual water systems and water lines
- Phone lines
- Most homes have propane tanks
- Cell/communications towers

Businesses:

- Wineries & Vineyards, olive orchards, and cannabis cultivation
- Ranches: cattle & sheep
- Many local residents have home-based businesses: carpenters, woodworkers and other trades, solar technicians, high tech, “telecommuters,” artists, vegetable farmers, etc. All would be tremendously impacted by loss of equipment, tools, and working spaces.

Ecological Values—Plants and Animals:

- While low-intensity fire is a necessity to maintain healthy ecosystems in this area, a large uncontrolled wildfire can have significant negative environmental consequences to natural vegetation and wildlife.
- Sedimentation after a major fire will cause damage to waterways and riparian habitat and species.
- Invasive plant species of particular concern include French, Spanish and Scotch broom, Harding grass, fennel, Himalayan Blackberry.

Bird and Animal List:

Forest and woodland habitats dominate the area and support birds, mammals, amphibians, reptiles, and a variety of invertebrates.

- Birds represent the most numerous and prominent wildlife species within these habitats. Year-round resident birds include chestnut-backed chickadee, western-scrub jay, American robin, common bushtit, oak titmouse, Bewick’s wren, California quail, dark-eyed junco, and spotted towhee. Migratory species observed and potentially breeding within the area include a number of species of vireos, flycatchers, and warblers. This area is part of the Pacific Flyway for migratory birds, including raptors.
- Tree-climbing birds such as woodpeckers, nuthatches, and brown creeper. Year-round residents include acorn, Nuttall’s, hairy, and downy woodpeckers. Casual winter residents include ruby-crowned kinglet, varied thrush, and Townsend’s and yellow-rumped warblers. The dense fir and redwood patches are also key habitat for Sonoma County’s largest woodpecker, the pileated woodpecker.
- Suitable foraging and breeding habitat also exists for raptors. Two of Sonoma County’s most common raptors, red-tailed and red-shouldered hawks, Cooper’s and sharp-shinned hawks, osprey and golden eagles inhabit the area.
- Locally common amphibians including Ensatina, California slender salamander and arboreal salamander. Common reptiles of this community include Skilton’s skink, fence

lizard, alligator lizard, common kingsnake, gopher snake, and ring-necked snake and rattle snakes.

- Other wildlife including mountain lion, coyote, wild pigs, deer, fox, bats, insects, reptiles, amphibians, fish, otters.
- Domestic animals including horses, sheep, cattle, chickens, pets.
- Several Special Status Animals:
 - Osprey (*Pandion haliaetus*)
 - White-tailed Kite (*Elanus leucurus*)
 - Great Egret (*Ardea alba*)
 - Great Blue Heron (*Ardea Herodias*)
 - Northern Spotted Owl (*Strix occidentalis caurina*)
 - Coho Salmon (endangered) and steelhead (threatened)
 - Monarch butterflies (special status)
 - There are approximately 15 bat species with known occurrences within northern California, and a number of these species have a high probability of occurring.

Existing Plans

As noted under “Natural Vegetation” (above), the Gualala Ranch HOA has an existing Forest Management Plan (FMPs), and thanks to California Forest Improvement Program (CFIP) funding, approximately 15 individual landowners have FMPs.

CAL FIRE's *Strategic Fire Plan Sonoma-Lake-Napa Unit* addresses wildfire issues across the region's five counties.