Del Norte Fire Safe Plan

Community Wildfire Protection Plan

September, 2005

This plan is a project of the:

Del Norte Fire Safe Council
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Produced by:
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Community Wildfire Protection Plan
Certification and Agreement

The Community Wildfire Protection Plan developed for Del Norte County:

- Was collaboratively developed. Interested parties and federal land management agencies managing land in the vicinity of Del Norte County have been consulted.
- This plan identifies and prioritizes areas for hazardous fuel reduction treatments and recommends the types and methods of treatment that will protect Del Norte County.
- This plan recommends measures to reduce the ignitability of structures throughout the area addressed by the plan.

The following entities attest that the standards listed above have been met and mutually agree with the contents of this Community Wildfire Protection Plan:

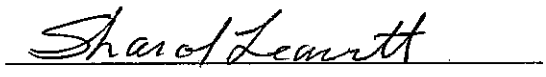
Martha McClure, Chair
Del Norte County Board of Supervisors

Dennis Burns, Mayor
City of Crescent City

John McFarland, President
Del Norte County Fire Chiefs Association
Crescent Fire Protection District, Chief

Tom Osipowich
Unit Chief, Humboldt-Del Norte Unit
California Department of Forestry and Fire Protection

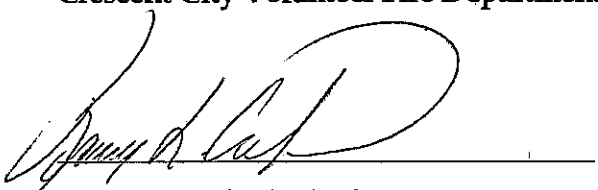
The following stakeholders participated in the development of this CWPP and accept this as the Del Norte County Community Wildfire Protection Plan.



Sharol Leavitt, Director
Del Norte Fire Safe Council

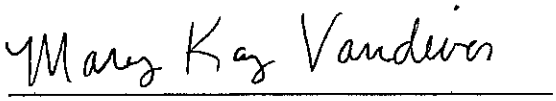
John Pricer, Chief Forester
Green Diamond Resource Company

Steve Wakefield, Chief
Crescent City Volunteer Fire Department

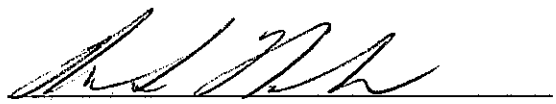


Randy Crawford, Chief
Fort Dick Fire Protection District

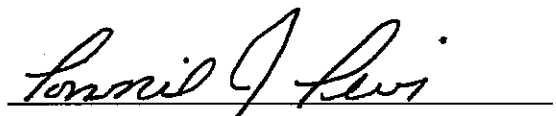
Buzz Parlasca, Chief
Gasquet Fire Protection District



Mary Kay Vandiver, District Ranger
Six Rivers National Forest



Rick Nolan, Acting Superintendent
Redwood National and State Parks



Lonnie Levi, Chief
Klamath Fire Protection District

Glenn Hill, Acting Chief
Smith River Fire Protection District

DEL NORTE FIRE SAFE PLAN EXECUTIVE SUMMARY

The creation of the Del Norte Fire Safe Plan was stimulated by a national effort to enhance fire safety for all communities threatened by wildfire. The Del Norte Fire Safe Council volunteered for the task of coordinating the local effort to develop a fire safe plan. The Council received a grant from the US Forest Service Economic Action Program in 2003. The specific purpose of the grant was to fund the creation of a plan to identify and prioritize projects to reduce wildfire risk through the implementation of fuel hazard reduction, community education, and pre-fire suppression in Del Norte County. ForEverGreen Forestry was contracted to develop the plan through the collection of appropriate and necessary information regarding fire safety in Del Norte County (e.g. research, stakeholder input, etc.) using a collaborative process, and to document these efforts in a comprehensive fire safe plan.

The Plan, in short, identifies risks and mitigations to reduce risks from wildfire in Del Norte County. It also provides residents with a step-by-step guide on how to fire-safe their homes, structures, and community, and how to best deal with an impending wildfire. It contains several pages that can be copied or removed for ongoing local reference.

OVERALL PLAN GOALS

The goals of this plan are several-fold:

- To identify priority projects to reduce risks and hazards from wildfire in Del Norte County, California. This is anticipated to be achieved principally through prioritization and implementation of fuel hazard reduction, community education, and fire pre-suppression projects and activities.
- To use the document to provide fire safety educational information to residents of Del Norte County.
- To provide a guidance document for future actions of the Del Norte Fire Safe Council.
- To create biomass projects within Del Norte County.

It is being written as a Community Wildfire Protection Plan to meet the requirements for future National Fire Plan and other government funding sources.

DEL NORTE COUNTY PROFILE

Based on the 2000 Census, there are 27,507 people, 9,170 households, and 6,293 families residing in Del Norte County. Del Norte County is the northernmost county on the California coast. It is bounded on the north by Oregon, on the east by Siskiyou County, on the south by Humboldt County, and on the west by the Pacific Ocean. The total area of Del Norte County is 683,500 acres, of which 192,357 acres are privately owned and 489,697 acres are publicly owned. It is a mountainous region characterized by steep, inaccessible topography with vast forest resources (primarily redwood and Douglas fir) with two dominant rivers, the Klamath and Smith River. The climate of Del Norte County varies, depending on elevation and proximity to the ocean, but is described as being a Mediterranean climate with mild temperatures, wet winters, and dry summers. Fog is often present in the coastal parts of the county, while inland areas experience warmer temperatures and less fog.

Most communities in Del Norte County have been designated either at the federal or state level as "Communities At Risk." They are "Communities Within the Vicinity of Federal Lands That Are at High Risk from Wildfire."[1] In Del Norte, the Communities At Risk are: Big Flat, Douglas Park, Fort Dick,

[1] *Federal Register*, Vol. 55, No. 3, January 4, 2001; *Federal Register*, Vol. 66, No. 160, August 17, 2001; and the California Department of Forestry and Fire Protection, Fire and Resource Assessment Program, Communities at Risk from Wildfire, http://frap.cdf.ca.gov/data/frapgismaps/select.asp.

French Hill, Gasquet, Hiouchi, Klamath, Klamath Glenn, Lado Del Rio, Major Moore's, Patrick Creek, Pioneer Tract, Requa, Rock Creek, Smith River, and the Yurok Indian Reservation.

For more information on Del Norte County, see Section 1 and Appendix A.

DEL NORTE FIRE SAFE COUNCIL

The Del Norte Fire Safe Council is a non-governmental organization based in Crescent City, California. Its members include local residents, agencies, and organizations involved in fire prevention and protection and land management. Staffing is provided by volunteers and through grant funding. It was founded in 2001, and since then has formed active community partnerships with local, state, federal, and tribal agencies. The Council is organized exclusively to provide education, a collaborative exchange of information, and foster fire prevention and fire safety within Del Norte County. To that end, the Council has implemented a number of projects including fuel reduction, fire protection, and community fire safety education.

For more information on the Del Norte County Fire Safe Council, see Section 1.5.

WHAT IS FIRE SAFETY?

When residents in the wildland-urban interface understand why fire safety is important, and what steps they can take to implement it at their homes and properties, they are generally interested in doing it. Chapter 2 begins with a broad description of what is necessary for a fire to begin and how communities can defend themselves when faced with a wildfire. Fire requires fuel, oxygen, and heat. Minus one of these elements, fire cannot start. In a wildland situation these factors translate into fuel, weather, and topography. Clearly, fuel is the one factor that communities have some capacity to control. The Plan focuses on how fuel can be mitigated to enhance community safety. It outlines the steps necessary for ensuring that local fire suppression efforts are successful (e.g. residence addressing, adequate roads, proper turnarounds, secondary access, water supply, etc.).

One of the most important concepts introduced in the Plan is that of defensible space. In short, this means creating a space around your residence/structure enhancing the chances of structural and human survivability. Thus, one of the priority goals of the Plan is to document the various elements that make up defensible space and to do so in clear action-oriented terms. The Plan also lists various additional ways that a community can enhance its chances of surviving a fire, including the use of fire ignition-resistant building materials and construction, water availability, escape plans, landscaping, and fuel hazard reduction. Recent evidence indicates that a structure has over an eighty percent chance of surviving a wildfire if it has adequate brush clearance and is made of ignition-resistant materials.[2] The Plan also includes references to existing Public Resources Code sections and new legislation related to fire safety.

This Plan outlines various actions that community members should take when a wildfire threatens. These include evacuation; keeping friends and family members informed of their plans and whereabouts; gas/propane shut-off; water preparation and use; closing of all interior and exterior doors; and emergency communication.

For more information on fire safety, see Chapter 2 and Appendix B.

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[2] Ethan Foote, *Wildland-Urban Interface Ignition-Resistant Building Construction Recommendations from the 2004 Community Wildfire Protection Plan Workshops, the California Fire Alliance and the California Fire Safe Council*, August 2004.

Planning Area Boundaries

This Fire Safe Plan covers the entirety of Del Norte County, California. For the purposes of this document, the county was divided into eight general planning areas. These areas are listed below, starting from the southern end of the county, next northward along the coast, and then inland:

- Klamath
- Crescent City
- Fort Dick
- Smith River
- Big Flat/Rock Creek
- Hiouchi
- Gasquet
- Sun Star

For more information on planning areas, see Section 3.1.

Fire Planning Process Overview

The Plan process began in December 2003 with the hiring of Tracy Katelman, a Registered Professional Forester from ForEverGreen Forestry, to develop and produce the Plan. An initial meeting was held on February 26, 2004, to introduce interested community and agency members to the project. The planning process was designed to maximize public input. A series of nine community meetings was held throughout the County to determine what the local fire safety issues were and to prioritize projects for agency and community action. The community meetings also served as a vehicle for disseminating the most up-to-date information regarding fire safety.

A geographic information system (GIS) was developed by Peter Tittmann of Azucena GIS. This enabled production of the maps for this document. The data collected will be given to the DNFSC and Del Norte County.

The public was provided the opportunity to make comments on a draft document. The Public Draft was made available November 1, 2004 through January 15, 2005.

For more information on the planning process, see Chapter 3.

Wildfire Environment

Del Norte County is no exception to the increasingly common problem of loss from wildfire. Fuel loads have been accumulating to abnormal levels throughout the West, due to decades of fire suppression and timber harvesting. In the four years between 1998 and 2001, state and federal agencies responded to more than 250 fires in Del Norte County, not including fires responded to by the County's local fire departments. The largest recent fire was the Biscuit Fire of 2002, which burned a total of 499,965 acres in California and Oregon.

For more information on the current wildfire environment, see Chapter 4.

Fire Suppression Organizations

In Del Norte County there are five Fire Protection Districts:

- Klamath Fire Protection District
- Crescent Fire Protection District
- Fort Dick Fire Protection District
- Smith River Fire Protection District
- Gasquet Fire Protection District

There are also several governmental fire agencies in the County:

- Crescent City Volunteer Fire Department
- California Department of Forestry and Fire Protection

- US Forest Service
- Redwood National and State Parks
- Pelican Bay State Prison

Private lands that are not within one of these districts are: Big Flat, Rock Creek, and Sun Star. These communities have no official structural fire protection service. CDF provides wildland fire protection services to these communities and when available will respond to all other emergencies. However, due to the long response times, responses for emergency medical services and structure fires are ineffective for public safety.

For more information on fire suppression organizations, see Chapter 5.

WILDLAND-URBAN INTERFACE (WUI) PLANNING AREAS

Most of Del Norte County has people living within a forest or other wildland area. This chapter discusses eight general planning areas within what we call the "wildland-urban interface" (WUI).

"The wildland-urban interface is the area where houses meet or intermingle with undeveloped wildland vegetation. This makes the WUI a focal area for human-environment conflicts such as wildland fires, habitat fragmentation, invasive species, and biodiversity decline."[3]

Chapter 6 focuses on the communities of Klamath, Crescent City, Fort Dick, Smith River, Big Flat/Rock Creek, Hiouchi, Gasquet, and Sun Star, called Planning Areas. For each Planning Area, a description of the area and the current fire environment is provided. Each provides information regarding the community fire planning meeting held in that area (where hazards, risks[4] and potential projects were identified), and a list of assets at risk. Lastly, for each Planning Area a mitigation strategy is proposed with a list of priority projects.

For more information on community planning areas, please see Chapter 6.

PUBLIC, TRIBAL, AND INDUSTRIAL LANDS AND FIRE MANAGEMENT

The majority of lands in Del Norte County are publicly owned. The public agency land managers include:

- USDA Forest Service for the Six Rivers National Forest (SRNF);
- National Park Service for Redwood National and State Parks;[5]
- California Department of Parks and Recreation for: Redwood National and State Parks, Mill Creek, Tolowa Dunes State Park, and Pelican State Beach; and
- California Department of Fish and Game for Lake Earl Wildlife Area, Crescent City Marsh Wildlife Area, Elk Creek Wetlands Wildlife Area, and Waukell Creek Wildlife Area.

Other large land managers in Del Norte County include tribal and industrial landowners:

- Yurok Reservation;
- Elk River Rancheria;
- Smith River Rancheria; and

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[3] http://www.urbanforestrysouth.org/Resources/Library/TTResource.2004-12-16.2141/view?parentObj=Collection.2004-12-16.3418

[4] Hazards are the potential fuel that can start a fire, while risks are the potential for the fuel to ignite.

[5] In 1994 the National Park Service and the California Department of Parks and Recreation signed a memorandum of understanding and agreed to cooperatively manage Redwood National Park, Del Norte Coast Redwoods State Park, and Jedediah Smith Redwoods State Park. Collectively, these parks are called Redwood National and State Parks.

- Green Diamond Resource Company.

These land managers are described along with their fire management practices, including past, present, and future projects.

For more information on the public, tribal, and industrial land managers, see Chapter 7.

MITIGATION STRATEGY: DEL NORTE FIRE SAFE ACTION PLAN

As per the Community Wildfire Protection Plan (CWPP) Guidelines and the Healthy Forest Restoration Act (HFRA), a mitigation strategy was developed to reduce risks of wildfire in Del Norte County. This mitigation strategy is called the "Del Norte Fire Safe Action Plan." The following table summarizes the Del Norte Fire Safe Plan mitigation strategy.

TOPIC	SUB-TOPIC	PROPOSED MITIGATION STRATEGY
POLICY	Insurability of Del Norte Homes with Defensible Space	➢ Fire Safe Council, CDF, Fire Chiefs[6], County, and insurance industry continue to explore viability of insurance-based incentives for defensible space implementation.
	Target Areas in Del Norte County for Defensible Space, Fire Safe Construction, and Alternate Access Programs	• Big Flat • Crescent City areas east of Highway 101 • Douglas Park (Hiouchi) • Gasquet • Hiouchi Mountain • Klamath Glen outlying areas • North Bank Road (Highway 197, Hiouchi) • Pacific Shores and coastal areas near Fort Dick • Point Saint George and northwest Crescent City • Requa (Klamath) • Rock Creek
	Defensible Space in New Developments	➢ Focus fire safety efforts in the Target Areas listed above, including defensible space, fire resistant building, and providing for alternate access routes. ➢ Del Norte County familiarize itself with the provisions of SB 1369 and implement it for all new construction in interface areas of the County. ➢ County, CDF, and DNFSC explore options for DNFSC role in fire assessments for building permits as

[6] The reference to Fire Chiefs throughout this chapter means the Del Norte Fire Chiefs Association, representing and providing leadership to all firefighters in Del Norte.

TOPIC	SUB-TOPIC	PROPOSED MITIGATION STRATEGY
		per SB 1369, including payment for each assessment from permit fees.
	Uniform Fire Code Update	➢ County review its existing Uniform Fire Code regulations with CDF and Fire Chiefs and update them to meet State standards (Title 14, Division 1.5, Chapter 7, Subchapter 2, Articles 1-5) and SB 1369. The areas of fire safe inspection, comprehensive and updated definitions, maintenance of defensible space, driveways, one-way roads, emergency water, and fuel modification standards especially need updating.
	Urban-Wildland Interface Building Standards	➢ County Board of Supervisors adopt new Urban-Wildland Building Standards for new development and construction in Communities at Risk in Del Norte, especially in listed Target Areas.
	Signage of Roads and Structures (Addressing)	➢ Law Enforcement, Fire Departments, CDF, SRNF, and County collaborate to enforce existing signage requirements for streets and residences. ➢ Fire Departments, Law Enforcement, CDF, SRNF, DNFSC, and County explore incentives for private signage conformance, including public education. ➢ County and City explore modifying codes so that adequate signage is required upon sale of a property. ➢ County explore ongoing funding for Code Enforcement Officer to support this effort, perhaps through Homeland Security. ➢ County work with Fire Departments, Law Enforcement, CDF, SRNF, and DNFSC to raise funds to purchase and place road signs and addresses on all occupied residences in Del Norte County.
	Designation of Communities At Risk	➢ CDF add Sun Star to Communities At Risk list when the list is reopened.
	Designation of Wildland-Urban Interface Areas	➢ Federal agencies accept WUI designations defined in this plan, including those previously identified by CDF. ➢ Federal agencies work with DNFSC and other interested community members to reach agreement on projects proposed within WUI

TOPIC	SUB-TOPIC	PROPOSED MITIGATION STRATEGY
		areas in Del Norte County.
DEFENSIBLE SPACE		➢ Del Norte residents in or on the edge of forested or other wildland areas be diligent in creating and maintaining their defensible space. *See Chapter 2 for examples and descriptions of appropriate defensible space treatments.* ➢ DNFSC work with community agencies to identify volunteers to assist with community chipper days. ➢ DNFSC work with Green Diamond Resource Company, Hambro Forest Products, other local businesses, or government agencies to secure use of a dump truck and provide chipper maintenance for community chipper days. ➢ DNFSC work with public and private sector to identify funding sources for chipper fuel and liability insurance.
FUEL REDUCTION		➢ DNFSC develop an "Adopt a Fuelbreak" program for maintenance of fuelbreaks. Work with CDF, tribes, and other fire professionals to employ prescribed fire techniques where appropriate. ➢ DNFSC work with appropriate agency and community partners to fund and implement the following identified strategic fuelbreaks and fuel reduction efforts throughout Del Norte County. *Fuel reduction priority projects are summarized following this table.* ➢ Fire Chiefs, CDF, Air Quality, and County work together to develop practical, sensible burning regulations for Del Norte County. ➢ Fire Chiefs, CDF, SRNF, DNFSC, and Air Quality work together to educate residents on proper methods of burning for best air quality and community safety.
REDUCING STRUCTURAL IGNITABILITY	Roofing	➢ DNFSC, CDF, SRNF, Fire Chiefs, and County educate residents on the importance of replacing wood shake roofs. ➢ County and City explore modifying code measures which may include, but not be limited to: • Investigating a "reduced or no fee" permit for residents that change from a wood shake to a non-combustible roof. • Expediting the elimination of wood shake roofs by requiring replacement upon sale of

TOPIC	SUB-TOPIC	PROPOSED MITIGATION STRATEGY
		the home. ➢ Explore a County and City financial assistance program for wood shake roof replacement through the County Housing Authority, Community Development, and/or others for qualifying individuals.
	Vent Openings	➢ DNFSC, CDF, SRNF, Fire Chiefs, and County educate residents on importance of steel vent screening. ➢ DNFSC, CDF, SRNF, Fire Chiefs, and County explore incentives for homeowners to encourage steel screening of vent openings. ➢ County and City consider modifying code measures which may include, but not be limited to, requiring steel screening of vent openings upon sale.
	Decks	➢ DNFSC, CDF, SRNF, Fire Chiefs, and County educate residents on importance of fire-safe decking. ➢ County and City consider modifying code measures in Target Areas *(see above)* which may include, but not be limited to, prohibiting unsafe synthetic decking which has a significantly higher flammability and significantly lower structural rating than wood of comparable dimension.
	Outbuildings	➢ DNFSC, CDF, SRNF, Fire Chiefs, and County educate residents on need for separation of heat loads from their residence. ➢ County and CDF enforce clearing 30-100 feet around structures, as per State law.
	Wood Piles	➢ DNFSC, CDF, SRNF, Fire Chiefs, and County educate residents on need to have a minimum of 30 feet separation of firewood piles and woodsheds from their residence.
	Propane Tanks	➢ DNFSC, CDF, SRNF, Fire Chiefs, and County educate residents on need to have vegetative and flammable material clearance around propane tanks near their residence. ➢ DNFSC, CDF, SRNF, Fire Chiefs, and County educate residents on need to keep propane tanks and other flammable materials at least 30 feet from homes and outbuildings.
UTILIZATION	Small-Diameter Wood Products	➢ DNFSC, CDF, SRNF, timber industry, and economic development community work with local wood processing and manufacturing

TOPIC	SUB-TOPIC	PROPOSED MITIGATION STRATEGY
		businesses to develop markets for small-diameter wood products.
	Biomass	➢ DNFSC work with SRNF and other interested parties to develop a regional biomass feasibility study related to North Coast fuel hazard reduction efforts.
FIRE PROTECTION	Fire Atlas	➢ County Information Technology work with DNFSC, CDF, SRNF, Fire Chiefs, and law enforcement to maintain and update Del Norte Fire Atlas.
	Dispatch/ Communication	➢ The Sheriff's Department through an inter-agency cooperative, work to improve the call handling procedures that will fully meet the approved 911 system configuration. ➢ County, SRNF, and Big Flat and Rock Creek residents facilitate installation of a cellular telephone tower at the Ship Mountain lookout.
	Evacuation	➢ County work with Law Enforcement, DNFSC, CDF, SRNF, and Fire Chiefs to update (where necessary) and educate residents on evacuation options for their community. ➢ County, Law Enforcement, Fire Chiefs, CDF, SRNF, and DNFSC explore development of alternate evacuation routes. ➢ Residents in remote areas must be prepared for evacuation. To this end, they should create a Family Disaster and Evacuation Plan (see the American Red Cross at: http://www.redcross.org/services/disaster/0,1082,0_601_,00.html for how to do family disaster planning, or visit http://www.redcross.org/services/disaster/0,1082,0_6_,00.html for how to create an evacuation plan). Additionally, residents in remote, rural Target Areas *(see above)* should consider storing their most valuable items in Crescent City during extreme fire weather conditions. ➢ County explore changing codes to require back-up power for automatic gates. ➢ Law Enforcement, Fire Chiefs, CDF, SRNF, and DNFSC initiate informational programs to educate residents about the importance of easily passable gates during emergencies. ➢ County, Law Enforcement, Fire Chiefs, CDF, SRNF, and DNFSC explore incentives for fire-

TOPIC	SUB-TOPIC	PROPOSED MITIGATION STRATEGY
		safe gates.
	Water	➢ Continue RAC-funded DNFSC program to place water storage tanks on lands adjacent to federal lands. ➢ DNFSC, County, Fire Chiefs, and CDF explore funding for a water storage tank program on private lands not adjacent to federal lands. ➢ County Assessor do not increase property values and taxes when water storage is added to private properties when this is a legal option for the County.[7] ➢ DNFSC, County, Fire Chiefs, and CDF explore incentives for increasing water storage on private properties. ➢ County work with Fire Chiefs, CDF, and SRNF to develop acceptable standards for water storage in new developments.
	Public Information	➢ County work with CDF, SRNF, DNFSC, Law Enforcement, and Fire Chiefs to find funding to implement an emergency communications program similar to that in Jackson County, Oregon. ➢ DNFSC, CDF, and SRNF develop a Web-based local fire information service.
	Equipment	➢ The County, Fire Protection Districts, CDF, and SRNF facilitate local fire protection in any way possible in areas without quick-response fire protection such as Big Flat and Rock Creek.
EDUCATION		➢ DNFSC work with CDF, SRNF, County, federal and local insurance industry, and others to implement a countywide community fire safety education program, including PSAs in all local media. ➢ DNFSC work with CDF, SRNF, County, and City to educate elected officials including the Board of Supervisors, City Council, and Planning Commissions on need for fire safety regulations and their enforcement. ➢ DNFSC work with agencies and School District to implement fire safety curricula in all grade levels throughout the County, in conjunction with community educational projects. ➢ DNFSC work with insurance industry to develop a service learning program in local high

[7] This is being explored at the state level to provide counties this option.

TOPIC	SUB-TOPIC	PROPOSED MITIGATION STRATEGY
		schools focused on fire safety and defensible space. ➢ DNFSC work with Fire Chiefs to institute a "Big Red Truck Program" for defensible space education and assessments. Explore state and federal funding options for the program. ➢ DNFSC work with Fire Chiefs to conduct red/yellow/green rock education program in various areas of the County. ➢ DNFSC, CDF, SRNF, Fire Chiefs, County, and City target fire safety educational efforts to real estate and development industries. ➢ DNFSC, CDF, SRNF, Fire Chiefs, County, and City target fire safety educational efforts to new Del Norte County residents, especially those coming from urban areas and others with little experience with fire in the wildland-urban interface.
FACILITATING DEL NORTE FIRE SAFETY IN THE LONG TERM		➢ Public and private sector organizations, agencies, and individuals work with DNFSC to develop ongoing financial and in-kind support for FSC activities and development. ➢ Del Norte County Board of Supervisors appoint representatives to actively and regularly participate in the Fire Safe Council. These appointees could represent Community Development, Emergency Services, the Planning Commission, and/or the Board. ➢ All local, state, and federal public and private land management agencies appoint a representative to actively and regularly participate in the Fire Safe Council. ➢ Public and private sector organizations, agencies, and individuals (including County, RAC, SRNF, and CDF) facilitate long-term funding to provide a half-time to full-time staff coordinator position at DNFSC. ➢ DNFSC, County, and RAC review the Del Norte Fire Safe Plan every five years and update it as needed, using a collaborative public process. ➢ DNFSC, County, and Agencies cooperate to seek funding to update GIS data at county scale.

Fuel reduction projects were generally identified at a community meeting, or otherwise as a result of this planning process. Projects were prioritized based on CDF Fire Threat level and assets at risk, with an emphasis on human population centers.

Top Priority Fuel Reduction Projects, for Immediate Implementation:

- Steps need to be taken to ensure safe and efficient emergency vehicle access in many of the outlying Crescent City neighborhoods. The City and County should provide regular brush clearing of public roadways. Residents clearing brush on private property as prescribed in SB 1369 will complement public efforts. Additionally, local governments should work with DNFSC, RNSP, and CDF to provide community chipper days, where cleared material may be easily discarded. Donation of a dump truck by industry or government for use on these chipper days would increase their effectiveness.
- DNFSC and others work with SRNF to reduce fuel on the hillsides immediately to the northeast of Gasquet, above Gasquet Middle Fork Road and Gasquet Toll Road. This needs to be combined with intensive defensible space treatments around private properties in this area.
- According to CDF, one of the higher fire threat areas in the County sits northeast of Big Flat, in the headwaters areas of Jones and Hurdy Gurdy Creeks. Given that major fire conflagrations often are pushed by winds from the northeast, this is a direct threat to this community. Therefore, a first priority for defensibility of this community is to create a shaded fuelbreak around the valley. The community meeting identified a break following the bottom of Jones Ridge/Ship Mountain Road to USFS Road 16N02T, following natural breaks such as ridges and creeks, encircling the valley to the northeast, and connecting to Fox Ridge Road. This project should be done in collaboration with SRNF.
- Rock Creek is a community surrounded by Very High Fire Threat areas. Create priority shaded fuelbreaks here along the river across from the Rock Creek Subdivision, the lower Rock Creek Road, and along South Fork Road at Haines Flat. This is also the primary access route for Big Flat.
- Create a shaded fuelbreak from Hiouchi Mountain Road to Ashford Road to connect to SRNF Hiouchi Ridge Fuelbreak. This will help protect the community of Hiouchi from wildfires coming from SRNF or further north or northeast. SRNF is creating the 200-foot-wide Hiouchi Ridge Fuelbreak from Serpentine Point off Hiouchi Mountain Road along the ridge to the northwest to tie into road 17N23, where it is creating a fuelbreak along the top of this road for one-and-a-half miles.
- DNFSC and others work with SRNF and private property owners to reduce fuel on the hillside directly north of the Gasquet community.
- A set of strategic fuelbreaks should be created in outlying Crescent City. Areas identified in the community meetings and in conjunction with local firefighters were: between Church Tree and Bertsch Tract and the Parks, and between Elk Valley Road and Parkway Drive through the Elk Creek drainage. All of these fuelbreaks would have to be done in conjunction with State and National Park personnel and Fish and Game to ensure that environmental protection and habitat needs are met.
- DNFSC received National Fire Plan funding in 2004 for fuel reduction in Pioneer Village and North Fork Loop areas around Gasquet. Residents in these areas should be encouraged to fully cooperate with this project, to increase the effectiveness of fuel treatments.

Second Priority Fuel Reduction Projects:

- Create a shaded fuelbreak in sections along French Hill, Jawbone, and Ship Mountain roads. This will provide improved evacuation ability for Rock Creek and Big Flat. Connect these with a fuelbreak along USFS Road 17N04. Together, these will provide defensible fuelbreaks for Big Flat, Rock Creek, and Gasquet. Prioritize initial treatments in dense, horseshoe, and hairpin turn areas of these roads.
- Create a shaded fuelbreak along Low Divide Road. This will serve as a fuelbreak between the new development on Highway 197 and the community of Hiouchi. It will also provide improved evacuation access for residents along the road and will function as an alternate evacuation route to Gasquet and possibly Hiouchi.

- City, County, Airport, and others explore possibility of regular mowing, burning, and/or grazing of the area surrounding Point Saint George and the Airport to reduce fuel loads in this area of Very High Fire Threat.
- Prescribed burn or mechanical fuel reduction in strategic areas in Tolowa Dunes State Park, Pacific Shores, and Lake Earl. This is one of the high Fire Threat areas in the County, according to CDF's Fire and Resource Assessment Program (FRAP).
- Work with SRNF to create a shaded fuelbreak along Gasquet Mountain Road, both for fire suppression efforts and to improve this road as an evacuation route from Gasquet to the coast (via Rowdy Creek or Low Divide Roads).
- Support ongoing efforts by SRNF to reduce fuel in the Big Flat/Rock Creek area, in cooperation with community members.
- SRNF fuel reduction projects in the Hogue's Meadow and Longwood Fire areas are a priority in the Sun Star area. Creating a shaded fuelbreak to protect the community from down-canyon fires also makes sense here. The ridge between Long and Cedar Gulches has been identified by this community, as well as for the community of Takilma, Oregon, in the Illinois Valley Fire Plan process in 2004. An assessment of other areas for potential shaded fuelbreaks to protect this remote community is a necessary next step for these residents in cooperation with Siskiyou National Forest, to protect both the public and private resources.
- Support ongoing efforts of DNFSC, Green Diamond, and CDF in creating a shaded fuelbreak along Johnson Ridge, beginning in Del Norte County and continuing into Humboldt County.
- National Park Service maintain the shaded fuelbreak between Jedediah Smith Redwoods State Park and the town of Hiouchi.

Third Priority Fuel Reduction Projects:

- DNFSC work with Yurok Tribe, Redwood National Park, and Green Diamond to identify the best area for a strategic fuelbreak on the east side of Highway 101 to protect the Klamath community from fires originating on National Forest or Green Diamond lands to the northeast.
- Reduce fuel in Requa and Klamath Overlook area. This includes working with Yurok Tribe and RNP to burn the slopes on the north side of the river mouth below the overlook, in conjunction with manually reducing fuels in Requa neighborhoods.
- Create a shaded fuelbreak—the Hiouchi Fuelbreak—behind Hiouchi from Serpentine Point west to the existing fuelbreak on the border of Jedediah Smith Redwoods State Park.
- Identify locations and create a shaded fuelbreak along the first ridge east of Highway 101 and north of Dr. Fine Bridge.
- Identify locations for shaded fuelbreaks along the northeastern side of Highway 101 in Smith River, to protect the new developments there.
- Create shaded fuelbreak along Wonder Stump Road.
- Create shaded fuelbreak along Hytree Ridge, between South Bank Road and Kings Valley Road.
- Create shaded fuelbreaks along Rattlesnake Slide and Rattlesnake Lake Road near Rock Creek.
- Facilitate controlled burn, possibly through state Vegetation Management Program, of private property from Lopez Creek to Ritmer Creek, in conjunction with Smith River Rancheria.
  For more information on the mitigation strategy, please see Chapter 8.

NEXT STEPS

Following publication of the final plan, as per Community Wildfire Protection Plan (CWPP) and Healthy Forest Restoration Act (HFRA) guidelines, this Fire Safe Plan must be accepted by:

- Del Norte Board of Supervisors,
- CDF, and

- Local Fire Protection Districts (through the Fire Chiefs).

Acceptance of this plan means that these entities agree with the proposed mitigation strategy and will work to support it in whatever way they are able.

The Del Norte Fire Safe Council will be tasked with implementing the Del Norte Fire Safe Plan, through its collaboration with all relevant partners in Del Norte County.

ACKNOWLEDGMENTS

An extensive collaborative project such as this requires contribution, dedication, and commitment from a number of people. I would like to make a special thank you to the following wonderful people, without whom this project would have never succeeded. Praline McCormack wrote much of this text and worked many long days and nights to see that it was complete. She has proven to be very competent in all aspects of fire planning, a quick study, and a real trooper. Peter Tittmann created a GIS for an entire county almost from scratch, despite several frustrating setbacks. Lance Morton went far beyond the call of duty, with editing, cheerleading, and numerous caffeine runs. Sharol and Dan Leavitt inspired this project from the start. Their commitment and passion for fire safety in Del Norte County is outstanding. Karen Phillips is a wealth of local knowledge and was always able to put a smile on all our faces. Special kudos to Linda and Dan McGath for the exceptional cookies and hospitality. Thanks to John Pricer and Sheila Schulze for always being available to answer my questions and Karen Haban for filling in whenever asked. Thank you to Chuck and Missy Blackburn for defying all skepticism and opening their home for a historical meeting in their rustic neighborhood. And a final thank you to Don Brooks for refusing to let retirement stop him from doing what he can to make Del Norte fire safe, and for opening his and his wife Debbie's home to us.

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- Myron Williamson, Chief, Smith River Fire Protection District
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LIST OF APPENDICES

1. INTRODUCTION

1.1. The Del Norte Fire Safe Plan

The Del Norte Fire Safe Plan is a countywide project of the Del Norte Fire Safe Council (DNFSC). This Plan was initiated as a priority project of the Fire Safe Council in 2002. Plan funding was secured in 2003 via a grant from the US Forest Service Economic Action Program. Initial matching funding was provided by in-kind donations of DNFSC members and participating organizations.

In 2004, Del Norte County awarded DNFSC additional funding from the Secure Rural Schools and Community Self Determination Title III program to augment the Plan. This funding was granted for additional staff support to the DNFSC and the Plan, the development of a "Fire Atlas" map book for Del Norte County fire-fighting agencies, a digitization[8] of the county's parcel data for incorporation into the Fire Safe Plan mapping effort, and printing and reproduction of the document and other miscellaneous items.

The purpose of this plan is several-fold:

- To identify priority projects to reduce risks and hazards from wildfire in Del Norte County, California. This is anticipated to be achieved principally through prioritization and implementation of fuel hazard reduction, community education, and fire suppression projects and activities.
- To provide fire safety educational information to residents of Del Norte County.
- To provide a guidance document for future actions of the Del Norte Fire Safe Council and local emergency services.
- To create biomass projects within Del Norte County.
- Finally, it is being written as a Community Wildfire Protection Plan to meet the requirements for future National Fire Plan and other government funding sources.

1.2. Organization of This Document

Chapter 1 is an introduction to the document, Del Norte County, and the Del Norte Fire Safe Council.

Chapter 2 is an introduction to fire safety issues such as defensible space, fire-safe construction, fuel reduction, and what to do in case of a wildfire, including evacuation.

Chapter 3 summarizes the public process used to develop this Fire Safe Plan.

Chapter 4 is an introduction to wildfire in Del Norte.

Chapter 5 summarizes current fire protection resources in Del Norte.

Chapter 6 provides an overview of wildland-urban interface issues and proposed mitigation strategies for seven communities in Del Norte County.

Chapter 7 summarizes wildfire issues and management on public, industrial, and tribal lands in Del Norte.

Chapter 8 outlines a mitigation strategy for reducing risks from wildfire in Del Norte County.

There is a series of Appendices in a separate document providing background information.

Appendix A includes background information on Del Norte County.

Appendix B includes fire safety information, with the following subsections:

B.1. Fire Safe Council Homeowner's Checklist

[8] Digitization means to take the data and put it into a digital (or electronic) format, in this case for use in a Geographic Information System (GIS).

B.2. References: Fire Safe Curricula and Educational Resources, Fire Safe Literature, Fire Ecology and Management
B.3. North Coastal California Fire-Smart Landscaping
B.4. Public Resource Code 4291
B.5. Fire Safe Your Neighborhood
B.6. CDF Evacuation
B.7. CBC Draft Urban-Wildland Interface Building Standards
B.8. Drawing of SRA Compliant Fire Tank
B.9. Table of Pipe Sizing for Hydrants Located Away from Tank
B.10. Del Norte County Residential Open Burning Guidelines
B.11. Biomass
B.12. Cameron Park Fire Safe Council Chipper Program

Appendix C has background information on the planning process, including a sample public notice, outreach materials and a list of who received the Del Norte Fire Safe Plan Public Draft.

Appendix D has the community meeting input, including the risks , hazards, and potential projects identified by each community.

Appendix E has a list of the GIS data sources used to create the maps located throughout the document.

Appendix F is a table of Del Norte fire history.

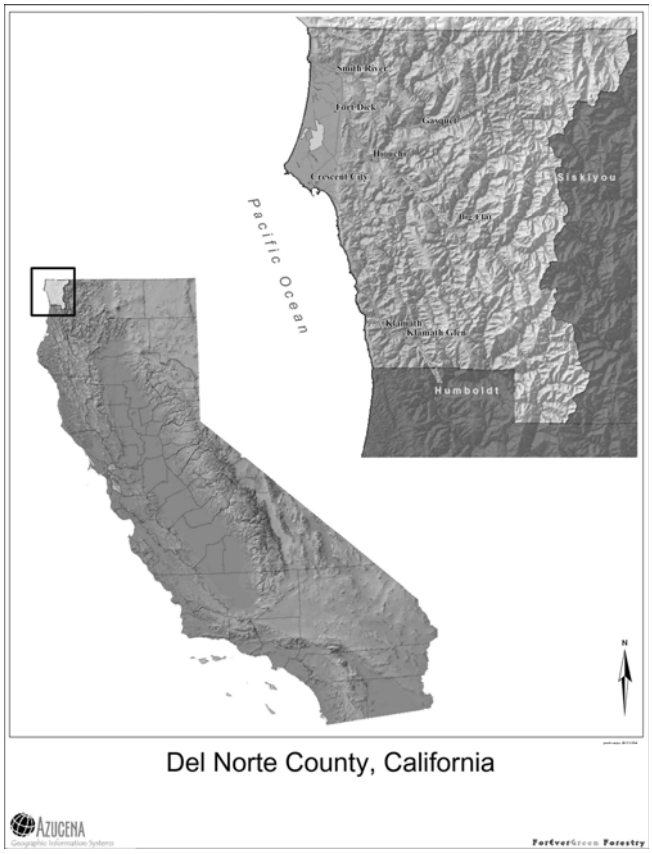
Appendix G is background information on public lands and fire management.

Appendix H is a list of acronyms used.

Appendix I lists useful internet links.

Appendix J has a list of literature cited in this plan.

1.3. Del Norte County, California



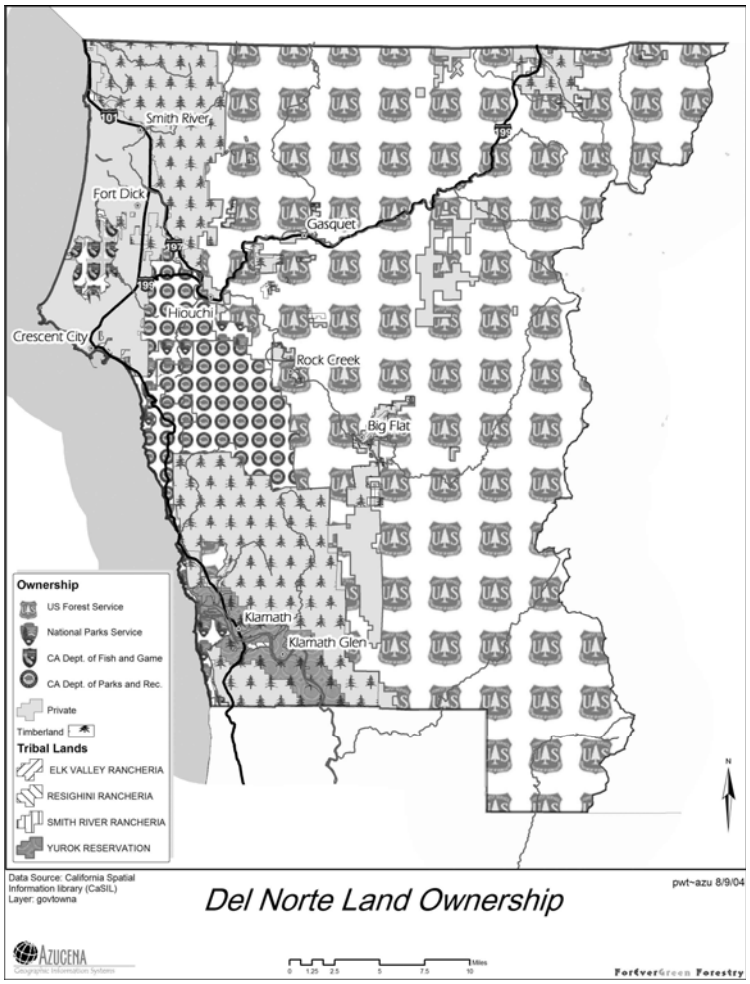
Del Norte County is the northernmost county on the California coast. Created in 1857, Del Norte County was formed out of territory that belonged to the now-dissolved Klamath County. It is bounded on the north by Oregon (Curry and Josephine Counties), on the east by Siskiyou County, on the south by Humboldt County and on the west by 37 miles of Pacific Ocean coastline. The abundant natural resources of Del Norte County reflect a broad diversity, from the mixed-conifer forests of the Klamath Mountains to the beaches and dunes of the coastal plain to the old-growth redwood forests. The majority of the county is mountainous and forested, with dominant rivers. The total area of the county is approximately 683,500 acres, of which 192,357 acres are privately owned. Public lands comprise nearly 72% (489,000 acres) of Del Norte County and are mostly heavily forested.

Map 1. Del Norte County, California

Table 1. Public Land Managers in Del Norte County

Agency	Name	Number of Acres
USDA Forest Service	Six Rivers National Forest including Smith River National Recreation Area	411,764
National Park Service in cooperation with the California Dept. of Parks and Recreation	Redwood National and State Parks	6,500
	Jedediah Smith Redwoods State Park	10,000
	Del Norte Coast Redwoods State Park	6,400
California Dept. of Parks and Recreation	Mill Creek Property	25,000
	Tolowa Dunes State Park including Lake Earl State Park Project and Wildlife Areas	5,000
	Pelican State Beach	5
California Dept. of Fish and Game	Lake Earl Wildlife Area	5,624
	Crescent City Marsh Wildlife Area	339
	Elk Creek Wetlands Wildlife Area	160
	Waukell Creek Wildlife Area	28
Tribes	Yurok Reservation	15,000
Tribes cont'd	Elk Valley Rancheria	100, plus a 203.5-acre casino
	Resighini Rancheria	228
	Smith River Rancheria	160
Del Norte County	Florence Keller Regional Park	
	Ruby Van Deventer Park	
	Kamph Memorial Park	
	Bertsch Park	
	Hunter Creek Park	
	Kellogg Beach	
	Darlingtonia Reserve	
	Part of Pebble Beach	
Crescent City Harbor District	Crescent City Harbor	

According to the 2000 US Census, Del Norte County has 27,507 people, 9,170 households, and 6,293 families residing here. Population is expected to continue at the historical rate of 2%. There are 25.1% of individuals living in Del Norte County under the age of 18, 8% are between 18-24, 32.1% between the ages of 25-44, 22.3% are ages 45-64, and 12.5% are over the age of 65. Del Norte County's per-capita income for 1999 was $14,573, compared to California per-capita income of $22,711. According to the 1990 US Census, there are 9,091 total housing units in Del Norte County, of these, 88% (7,987) are owner- or renter-occupied, and 12% (1,104) are vacant. Of the vacant units, 28% (309) are for seasonal, recreational, or occasional use. The only incorporated city in Del Norte County is Crescent City. The other Community Planning Areas are unincorporated.



Map 2. Del Norte County Land Ownership

1.4. Del Norte County Communities At Risk and Fire Protection Responsibility Areas

1.4.1. Communities at Risk

On January 4, 2001, for the purposes of the National Fire Plan, the Department of Interior (DOI) published in the *Federal Register* a "Notice of Urban-Wildland Interface (WUI) Communities Within the Vicinity of Federal Lands That Are at High Risk from Wildfire." In Del Norte County, Klamath was the first designated as a Community At Risk. On August 17, 2001, the DOI added Big Flat, Douglas Park, French Hill, Gasquet, Hiouchi, Major Moore's, Patrick Creek, Pioneer Tract, and Rock Creek to the list.

After the 2000 fire season, the California Department of Forestry and Fire Protection (CDF), working with the California Fire Alliance, developed a list and associated map of communities at risk from wildfire using 1990 Census and USGS Geographic Names Information System data to identify populated places, and CDF's Fire and Resource Assessment Program (FRAP) fuel hazard data. In addition to the already mentioned communities, they designated the following as WUI Communities at Risk: Fort Dick, Klamath Glen, Lado Del Rio, Requa, Smith River, and the Yurok Reservation.[9]

Table 2. Communities at Risk in Del Norte County

COMMUNITY AT RISK	THREAT LEVEL[10]	FEDERAL?[11]	SOURCE OF DESIGNATION
Big Flat	2	F	DOI, *Federal Register*, 8/17/01 and CDF/CA Fire Alliance, 2001
Douglas Park	2	F	DOI, *Federal Register*, 8/17/01 and CDF/CA Fire Alliance, 2001
Fort Dick	2		CDF/CA Fire Alliance, 2001

[9] *Federal Register*, Vol. 55, No. 3, January 4, 2001; *Federal Register*, Vol. 66, No. 160, August 17, 2001; and the California Department of Forestry and Fire Protection, Fire and Resource Assessment Program, Communities at Risk from Wildfire, http://frap.cdf.ca.gov/data/frapgismaps/select.asp.

[10] The Threat Level Code designates a community's fire threat level, with 1 indicating the least threat, and 3 indicating the highest threat.

[11] Lands adjacent to federal lands are indicated as such with an "F" in this column.

COMMUNITY AT RISK	THREAT LEVEL[10]	FEDERAL?[11]	SOURCE OF DESIGNATION
French Hill	2	F	DOI, *Federal Register*, 8/17/01 and CDF/CA Fire Alliance, 2001
Gasquet	2	F	DOI, *Federal Register*, 8/17/01 and CDF/CA Fire Alliance, 2001
Hiouchi	2	F	DOI, *Federal Register*, 8/17/01 and CDF/CA Fire Alliance, 2001
Klamath	3	F	DOI, *Federal Register*, 1/4/01 and CDF/CA Fire Alliance, 2001
Klamath Glen	3	F	CDF/CA Fire Alliance, 2001
Lado Del Rio	2	F	CDF/CA Fire Alliance, 2001
Major Moore's	2	F	DOI, *Federal Register*, 8/17/01 and CDF/CA Fire Alliance, 2001
Patrick Creek	2	F	DOI, *Federal Register*, 8/17/01 and CDF/CA Fire Alliance, 2001
Pioneer Tract	2	F	DOI, *Federal Register*, 8/17/01 and CDF/CA Fire Alliance, 2001
Requa	3	F	CDF/CA Fire Alliance, 2001
Rock Creek	2	F	DOI, *Federal Register*, 8/17/01 and CDF/CA Fire Alliance, 2001
Smith River	2		CDF/CA Fire Alliance, 2001
Yurok Reservation	3	F	CDF/CA Fire Alliance, 2001

As will be discussed in more detail in Section 2.2.2, designation as a Community At Risk has significance in terms of certain fire safe regulations. The new Urban-Wildland Interface Building Standards (a result of AB 1216) apply to new construction in designated Communities At Risk. The Board of Forestry Fuel Hazard Reduction Emergency Rule applies to these designated communities as well, providing a simplified regulatory process for removing fuels. Finally, this designation allows these communities to be more competitive in receiving National Fire Plan funding for fire safety and fuel reduction projects. WUI designation, as will be discussed in Section 8.1.7, applies primarily to management on federal lands.

1.4.2. Fire Protection Responsibility Areas

Federal Responsibility Area (FRA) lands are lands where federal agencies have primary responsibility for fire protection. They are defined based on land ownership. Federal agencies (US Forest Service – Six Rivers National Forest (SRNF), and the National Park Service – Redwood National Park (RNP) have responsibility to provide wildland resource fire protection on all FRA lands in Del Norte County. This also includes the financial responsibility of preventing and suppressing fires. To more efficiently provide protection over a more contiguous land base, the Federal agencies trade protection areas with CDF (these lands are balanced within the state). The resulting lands are called USFS Direct Protection Areas or RNP Direct Protection Areas. The lands that are traded or swapped for the purpose of efficient wildland fire protection in the State of California are reviewed every five years among the signatory parties (USFS, NPS, BLM, and CDF) to what is known as the Cooperative Fire Protection Agreement or the "4-Party Agreement."

State Responsibility Area (SRA) lands are defined based on land ownership, population density, and land use. CDF determines SRA lands per the guidelines established by the State Board of Forestry and Fire Protection. CDF has a legal responsibility to provide wildland resource fire protection on all SRA lands. This also includes the financial responsibility of preventing and suppressing fires. Lands in incorporated cities or surrounded by federal land are excluded from being SRA lands. For example, CDF

does not have responsibility for densely populated areas or agricultural lands. To more efficiently provide protection over a more contiguous land base, CDF swaps protection areas with other agencies, with the resulting lands being called CDF Direct Protection Areas.

Local fire districts and urban fire departments are responsible for providing structure protection on SRA lands. They are also responsible for providing all fire protection on Local Responsibility Area (LRA) lands. LRA lands are areas that are not federal or state responsibility. For a map of current FRA, SRA, and LRA areas, see Map 10. Del Norte County Fire Suppression Resources in Chapter 5.

Land Use/Development Trends

Currently, Del Norte County is primarily experiencing growth in residential development with limited commercial growth.[12] The current trends in Del Norte County indicate that more homes are being built in the wildland-urban interface. Many of these new developments rely upon on-site wells for water supply, which is not adequate for fire-fighting in late summer and/or fall.

For more information on Del Norte County, including its physical environment, hydrology, ecosystem types, threatened and endangered habitat types, demographics, community legal structure, relevant land policies, infrastructure, and insurance ratings, please see Appendix A, Del Norte County Description.

1.5. Introduction to the Del Norte Fire Safe Council (DNFSC)

The Del Norte Fire Safe Council is a non-governmental organization based in Crescent City, California. Its members include local residents and agencies and organizations involved in fire prevention and protection and land management.

The Council generally meets on the first Monday of every month at 6 pm at the CDF office on Highway 101 North across from Shop Smart (1025 N. Highway 101). Staffing for the community council is provided by volunteers and through grant funding.

Since 2002, the DNFSC has formed active community partnerships with:

- California Department of Forestry and Fire Protection (CDF)
- Crescent City Volunteer Fire Department
- Del Norte County Board of Supervisors
- Del Norte County Community Development Department
- Del Norte County Office of Emergency Services
- Del Norte Resource Advisory Committee
- Elk Valley Rancheria
- Fire Chiefs Association
- Green Diamond Resource (formerly Simpson Timber) Company
- Hambro Forest Products
- Pelican Bay State Prison
- Redwood National and State Parks
- Smith River Rancheria
- Smith River, Gasquet, Fort Dick, Crescent City, and Klamath Fire Protection Districts
- United States Forest Service, Six Rivers National Forest, Smith River National Recreation Area
- Other local citizen volunteers

1.5.1. Del Norte Fire Safe Council Background

The Del Norte Fire Safe Council was founded in 2001. It began with a local meeting sponsored by the California Department of Forestry and Fire Protection (CDF) and the US Forest Service (USFS), held to educate Del Norte County residents about the National Fire Plan and fire safety in general. At that meeting, the concept of Fire Safe Councils was introduced. Don Brooks, CDF's Del Norte Battalion Chief

[12] Heidi Kunstal, Planner, Del Norte County Planning Division, personal communication 10/5/04.

at the time, encouraged Sharol and Dan Leavitt to form a countywide Fire Safe Council. The Leavitt's were given some background materials and the rest is history!

1.5.2. Del Norte Fire Safe Council Mission Statement

The Del Norte Fire Safe Council is organized exclusively to provide education, exchange information, and foster fire prevention and fire safety within the County of Del Norte, California.

Since its inception, the Fire Safe Council has implemented a number of projects. These projects include fuel reduction, fire protection, and community fire safety education.

1.5.3. Fuel Reduction Projects

Chipper Project

The Fire Safe Council chipper project began in October 2002 and has been ongoing throughout the community. This project was made possible by a grant from the Del Norte County Resource Advisory Committee (Secure Rural Schools and Community Self Determination Act Title II) to purchase a Woodchuck twelve-inch chipper. Additional safety equipment, ground tools, and saws were purchased from a grant generously donated by the Elk Valley Rancheria.

This countywide project aims to assist private and public landowners in reducing fuel and creating defensible space. Two safety officers from the Council assist and coordinate with property owners to provide safety equipment, the chipper, and saws for the work. The cost to Del Norte residents is a donation for the cost of the diesel fuel and 48 cents per mile to transport the chipper to and from your home. Chainsaws, hedge trimmers, weed eaters, and safety equipment are also available for fuel reduction projects by calling the Fire Safe Council. All users are required to attend a safety briefing and sign a liability form stating that they understand and accept the risk of using the equipment thereby releasing DNFSC from any liability.

In addition to extensive work on private property throughout the county, additional crew support has been provided by local agencies on the following specific projects:

- CDF provided Alder Camp Fire Crews labor for brush clearing along South Beach, where roadside brush was cleared along Highway 101 at the southern entrance to Crescent City. *(See South Beach Fuel Reduction Project, below, for details.)*
- Pelican Bay State Prison crews were used to clear brush along eight to ten acres of National Forest roadways in the Six Rivers National Forest, Smith River National Recreation Area.
- US Forest Service provided fire crews to clear a landing zone for helicopters at road 17N21.
- US Forest Service crews implemented fuel reduction projects on French Hill Road and Pioneer Flat near Gasquet.
- Private landowners at Rock Creek Ranch banded together to clear brush and reduce fuel in the remote South Fork Smith River area, an in-holding in the Smith River National Recreation Area (SRNRA).
- Private residents cleared a ¾ -mile section of brush on Lado Del Rio Drive in Gasquet.
- The Bar-O Boys Ranch (a juvenile detention center) performed approximately 20 acres of fuel reduction at the Gasquet Airport.
- CDF Alder Camp Fire Crews reduced fuel loads on public and private lands adjacent to the Gasquet Mountain School while also reducing the risk of mountain lion proximity to this remote school.
- Pelican Bay State Prison crews removed six to eight acres of brush to clear the runway approaches at the Klamath Glen Airport.

In addition to the above-listed labor donations, between October 2002 and August 2004, DNFSC safety officers Dan Leavitt and Dan McGath volunteered a total of approximately 160 hours, with the chipper traveling at least 1,378 miles during that time.

The Council obtained a wildland-urban interface grant in 2002 from BLM which was used to purchase a second chipper that is currently housed at CDF's Alder Camp. The first time it was used was on the South Beach Fuel Reduction Project (see below).

Hiouchi, Gasquet North Fork Loop, and Highway 197 Fuel Reduction Projects

Approximately 30 acres of fuel reduction was completed by local residents and the Fire Safe Council volunteers between the winter of 2002 and August 2004.

South Beach Fuel Reduction Project

Between July 2003 and May 2004 a shaded fuelbreak was created over approximately seven to ten acres on the beach and opposite side of Highway 101 south of Crescent City. This was a CDF Vegetation Management Program project, which used the Alder Camp Fire Crews.

Approximately 668 volunteer hours (FSC, Alder Camp Fire Crews, and Pelican Bay crews) were expended performing this project. Hambro Forest Products, a private business in Del Norte County, provided fuel and maintenance for the chipper on this project.

Gasquet Fuel Reduction Project

This project was designed and funded in 2004 through a grant from the US Forest Service Rural Community Assistance program. Work began in late 2004 and is continuing into 2005.

The project is being carried out on private property adjacent to the fuel reduction projects already occurring on Forest Service properties in the greater Gasquet area (Pioneer Road and North Fork Loop). Private contractors will perform the work of creating shaded fuelbreaks: removal of brush and deadwood, limbing trees, and chipping on private properties in identified high-risk and hazard areas (Pioneer Village and North Fork Loop). The shaded fuelbreaks will help prevent wildfires and small residential fires from jumping to public lands or vice-versa. DNFSC has done a corresponding extensive landowner education program. The contract was awarded in October 2004. Work is being performed in conjunction with the homeowners and the Fire Safe Council, with use of the Council's chipper(s).

1.5.4. Fire Protection Projects

Tank Project (North Fork Loop)

The DNFSC Tank Project was created to install additional water sources for fire protection in the remote North Fork Loop neighborhood of Gasquet. Like the chipper program, it was also funded through a grant from the Del Norte County Resource Advisory Committee (RAC). It began in February and was completed by May 2003.

This project involved placing six 2,500-gallon water tanks adjacent to the Smith River National Recreation Area. The Fire Safe Council, SRNF, and Gasquet Fire Protection District placed the tanks on three private properties, filled them with non-potable water, and will continue to maintain and monitor them. All work was done in cooperation with the participating landowners.

Tank Project (Countywide)

This RAC-funded project allowed for the purchase and placement of forty 2,500-gallon fire water storage tanks on private lands in critical neighborhoods adjacent to and on federal lands throughout the County. Hambro Forest Products donated water pipe to the project, which began in January 2004 and was completed in the fall of 2004.

The following locations received tanks:

- Big Flat, eight tanks
- Boulder Creek (Rock Creek), two tanks
- Hiouchi, two tanks on Douglas Park, four tanks on Low Divide and six tanks on Ashford Road
- Gasquet, 16 tanks (in addition to the six North Fork Loop tanks)

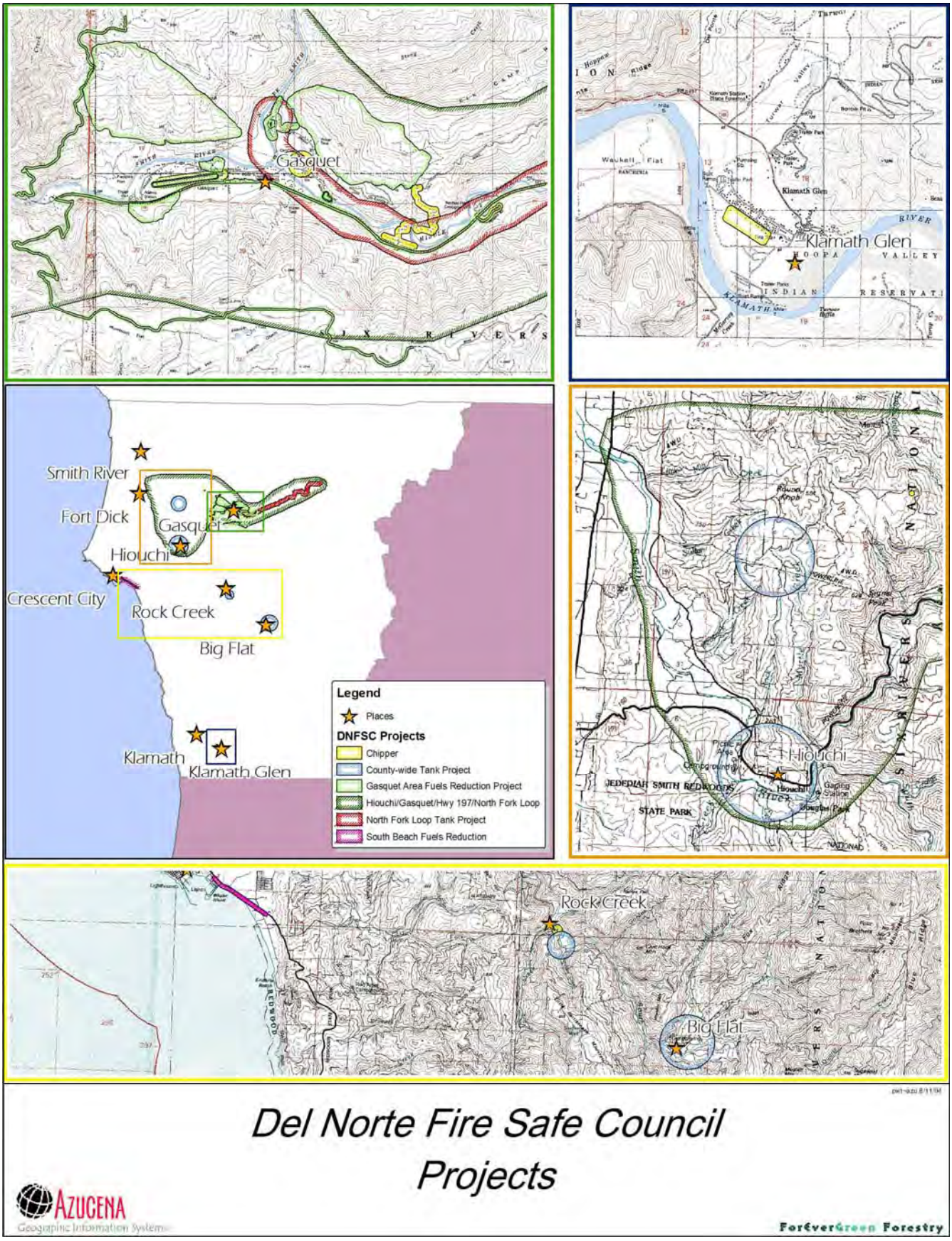
- Sun Star, two tanks being installed in conjunction with Illinois Valley Fire District.

Tank placement and landowner coordination are being performed by the Fire Safe Council, the Gasquet Fire Protection District, Smith River Fire Protection District, SRNF, CDF, private landowners, and the Bar-O Boys Ranch. Tanks are filled by local fire departments, CDF, or SRNF with non-potable water for fire protection purposes. A few of these tanks are filled directly from springs or streams.

1.5.5. Community Fire Safety Education Projects

DNFSC had its first community education effort during the Biscuit Fire of 2002, when it held public meetings to inform local residents on issues such as defensible space and evacuation. Additional meetings were held in 2003 to discuss defensible space and other fire safety issues, in neighborhoods such as the North Fork Loop in Gasquet. In addition, DNFSC has monthly public meetings. These meetings are generally held on the first Monday of every month at the CDF office in Crescent City, where the Fire Safe Council opened an office in 2003.

The Fire Safe Council regularly has information tables at local events such as the County Fair and the Home Show. The US Forest Service also distributes DNFSC literature through its public education efforts. The map on the following page illustrates Del Norte Fire Safe Council projects.



Map 3. DNFSC Projects

2. WHAT IS FIRE SAFETY? (HOW TO BE READY WHEN FIRE COMES)

2.1. What is Fire Safe?

The general principle behind fire-safing an area (making it as safe as possible for when a fire might pass through) is to reduce the amount of fuel and modify the arrangement of fuel that a fire consumes. Three factors dictate the extent and severity of fire: fuel, oxygen, and heat. If any one of these elements is missing, a fire won't start or, should it start, it won't spread. In a wildland situation, these three factors translate to fuel, weather, and topography. Fuel is the one element of the three that we can significantly modify. When there is a lot of fuel, a fire can burn very hot, and move very quickly. When there is little fuel present, fires tend to slow down and burn cooler. Cooler fires are much easier to control. Fires that stay on the forest floor—surface fires—tend to be cooler, and hence easier to put out. Ladder fuel (understory trees and brush) connect the surface fuel to the canopy, and once ignited, can support a crown fire. Crown fires can move very quickly, burn very hot, and are much harder to put out. One of the main objectives of being fire safe and creating defensible space is to minimize the chance of a fire becoming a crown fire. Clearly, it is in your best interest to reduce the amount, type, and arrangement of fuel near your home to reduce the risk of a wildfire consuming it. That's what it means to fire safe your home—to reduce the amount of fuel a fire can consume, as well as to reduce other hazards that increase the risk of fire, such as ignition sources.

Figure 1. Fire Triangle

2.2. Before the Fire

2.2.1. Defensible Space and Home Survivability

Defensible space means creating a space around your structure so it can be defended from a wildfire. The US Forest Service defines defensible space as "an area either natural or manmade where material capable of causing a fire to spread has been treated, cleared, reduced, or changed to act as a barrier between an advancing wildland fire and the loss of life, property, or resources. In practice, defensible space is defined as an area a minimum of 30 feet[13] around a structure that is cleared of flammable brush or vegetation."[14] Firefighters sometimes use the terms "winners" and "losers," or more preferably "defendable" and "not defendable" to distinguish between those houses with defensible space versus those that do not have it. In a larger emergency situation (where several homes are threatened), homes without defensible space may get passed over in favor of protecting one with defensible space, which has a greater chance of survival. If it is too dangerous for firefighters to get in and out of an area, they are instructed not to risk their lives and equipment to save a home that is not defensible.

The Plumas Fire Safe Council has formulated the concept of home "survivability[15]." It's not just about "defending" your space or home, but being fire safe in such a way as to ensure its survivability from fire.

There has been a lot written on fire safety and defensible space issues. Several documents and/or references such as the Homeowners Checklist are contained in Appendix B.1, Fire Safety Information.

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[13] This figure can be up to 200 feet, depending on local conditions, and is now extended to 100 feet in many cases in California, and most of rural Del Norte County.

[14] www.fs.fed.us/r2/fio/dict.htm

[15] www.plumasfiresafe.org

Home Ignition Zone

The "Home Ignition Zone"[16] is a concept introduced by Jack Cohen of the US Forest Service Rocky Mountain Research Station. Jack's research of fires from the 1960s to now has revealed that over 80% of homes with at least 30 feet of defensible space and a fire-resistant roof have survived wildfires.[17] His research indicates that:

> The potential for home ignitions during wildfires including those of high intensity principally depends on a home's fuel characteristics and the heat sources within 100 to 200 feet adjacent to a home…. This relatively limited area that determines home ignition potential can be called the home ignition zone.
>
> During a wildland-urban fire a home ignites from two possible sources: directly from flames (radiation and convection heating) and/or from firebrands[18] accumulating directly on the home. Even the large flames of high intensity crown fires do not directly ignite homes at distances beyond 200 feet. Given that fires adjacent to a home do not ignite it, firebrands can only ignite a home through contact. Thus, the home ignition zone becomes the focus for activities to reduce potential wildland-urban fire destruction. This has implications for reducing home ignition potential before a wildfire as well as implications for emergency wildland-urban fire response strategy and tactics.…
>
> Because of time constraints, most preparation has to come before a wildfire occurs. Major changes to the home ignition zone (the home and its immediate surroundings) such as replacing a flammable roof and removal of vegetation such as forest thinning cannot occur during the approach of a wildfire. Removal of firewood piles, dead leaves, conifer needles, dead grass, etc. from on and next to the home should also occur seasonally before severe fire conditions. The ignition potential of the home ignition zone largely influences the effectiveness of protection during a wildfire. Given low ignition potential and enough time, homeowners and/or wildland-urban suppression resources can make significant reductions in the little things that influence ignition potential before wildfire encroachment. Then, if possible, homeowners and/or wildland-urban firefighting resources can suppress small fires that threaten the structure during and after the wildfire approach. [19]

<u>Landscaping and Defensible Space Basics</u>

There are many simple steps you can take to create your defensible space. The basics include:

- Providing a minimum of 30 to 100[20] feet of clearance of flammable materials around your home. If you live on a hill, you should extend this up to 200 feet, depending upon the steepness of the slope and the surrounding fuel.
- Landscape your defensible space zone with fire-safe plants. While no plant is immune to fire, certain plants do exhibit traits that can slow or reduce the spread of fire. Most deciduous trees and shrubs are fire resistant, for example. They generally look green (not brown), healthy, and vibrant. In addition, fire-resistant plants have:

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[16] Jack Cohen, "Wildland-Urban Fire, A Different Approach," http://www.nps.gov/fire/download/pub_pub_wildlandurbanfire.pdf, 2000.

[17] Firewise, "Wildfire: Preventing Home Ignitions" video, 2001, 19 minutes, http://www.firewise.org .

[18] Firebrands are "flaming or glowing fuel particles that can be carried naturally by wind, convection currents, or by gravity into unburned fuels. Examples include: leaves, pine cones, glowing charcoal, and sparks." From: "Blueprint for Safety: Glossary," http://www.blueprintforsafety.org/bluepages/glossary.html.

[19] Cohen, 2000.

[20] In many cases now SB 1369 mandates 100 feet.

- leaves that are moist and supple,
- little dead wood and tend not to accumulate dry, dead material within the plant
- sap that is water-like and does not have a strong odor.

  For more information on fire safe landscaping, please see Appendix B.3, Fire Safe Landscaping, and North Coastal California Fire-Smart Landscaping.

- Keep your gutters and roofs clean of any vegetation.
- Move all flammable materials—especially firewood, propane tanks, etc.—at least 30 feet away from your home and any structures.
- Think about your home in terms of flammability. When you start a fire in a woodstove, small pieces of wood and paper are required to ignite the logs. The same is true for your home. Anything around your home that will ignite easily will threaten your home. It can serve as kindling for your house in the event of a fire. Look at your home and surrounding land with a new perspective. Shortly after removing dead vegetation and other flammable materials from your Home Ignition Zone, you will begin to view the area with a different perspective. Objects that you didn't notice before as being a threat to your home will jump out at you.
- Remember the other critters who share your home. Leave a vegetation buffer around streams and other wildlife corridors.
- Spend a few hours reviewing your home and property with the Homeowner's Checklist (Appendix B.1*).* Identify where you are safe and what other steps you need to take to protect your home and family. You can get free help with identifying fire safety and defensible space issues around your home. Contact your local **Fire Protection District** *(for a list of their contact information, see Chapter 5, Fire Suppression Organizations),* **California Dept. of Forestry and Fire Protection (464-5526), US Forest Service (447-3131, ext. 120), or the Del Norte Fire Safe Council (951-5437).** Any of these groups will gladly help you in obtaining a free fire safety inspection for your home.

Appendix B contains more detailed information on defensible space and fire safety, including resources for further reading, including PRC 4291, which is explained below.

2.2.2. Legal Requirements and New Legislation Relating to Fire Safety

Public Resources Code 4291

The State recognizes the basic principles behind fire safety and hence enacted a law—Public Resources Code (PRC) 4291—regarding the amount of fuel you can have around your property. PRC 4291 is a good summary of the basics of firesafing. You can see the entire text of PRC 4291 in Appendix B.4. PRC 4291 was updated in September 2004, by Senate Bill 1369, expanding some of the 30 foot defensible language to 100 feet:

> …to require persons…to remove all brush, flammable vegetation, or combustible growth that is located within 100 feet from the occupied dwelling or occupied structure, or building or structure, as applicable, or to the property line, or at a greater distance if required by state law, or local ordinance, rule, or regulation.[21]

Assembly Bill 2420

AB 2420 is designed to significantly reduce timber harvest costs by reducing regulations associated with logging if that logging is designed specifically to reduce fuel levels while maintaining certain environmental standards.

This bill amends Section 4584 of the Public Resource Code. The Z'Berg-Nejedly Forest Practices Act of 1973 prohibits a person from conducting timber operations without an approved Timber Harvest Plan (THP) from CDF. THPs have been very cumbersome to prepare as well as cost-prohibitive to landowners

[21] SB 1369(3), http://www.leginfo.ca.gov/pub/03-04/bill/sen/sb_1351-1400/sb_1369_bill_20040923_chaptered.html.

wanting to reduce fuel loads on their properties. Under AB 2420, until January 1, 2008, a person is exempt from preparing a THP if "the harvesting of trees eliminates the vertical continuity of vegetative fuel and the horizontal continuity of tree crowns for the purpose of reducing the rate of fire spread, fire duration and intensity, fuel ignitability or ignition of tree crowns…"[22] This applies also for the purpose of reducing flammable materials and maintaining a fuelbreak for a distance of not more than 150 feet on each side.

The landowner must still hire a Registered Professional Forester to prepare the notice of exemption and the plan for the timber harvest operation. Tree harvesting cannot exceed 300 acres. Only trees less than 18 inches in stump diameter (measured at eight inches above ground level) may be removed, unless the trees are within 500 feet of a structure, or in an area prioritized as a shaded fuelbreak in a Community Wildfire Protection Plan, such as this Del Norte Fire Safe Plan, if the goal of fuel reduction cannot be achieved by removing trees less than 18 inches stump diameter, then trees less than 24 inches in stump diameter may be removed. Logging slash, debris, low brush, and deadwood that could promote the spread of wildfire must be chipped, removed, piled, burned or other method necessary to achieve the goal within 120 days from the beginning of timber operations (except burning) or else the debris will be subject to abatement and the parcel of land will be charged for the costs of this abatement. Burning operations must be completed by April 1 of the year following surface fuel creation. CDF must conduct an on-site inspection once timber operations are done in order to ensure there were no violations.

The Board of Forestry is expected to approve language pursuant to AB 2420 that additionally sets forth:

> Where the preharvest dominant and codominant crown canopy is occupied by trees less than 14 inches in diameter at breast height (dbh), a minimum of 100 trees per acre over 4 inches in dbh shall be retained for site I, II, and III. For site IV and V – 75 trees per acre over 4 inches in dbh shall be retained.
>
> Minimum post treatment canopy closure of dominant and codominant trees shall be…50% for coastal redwood and Douglas fir forest types in or adjacent to communities and legal structures; 60% for coastal redwood and Douglas fir forest types outside of communities and legal structures….
>
> Ladder and surface fuel shall be removed to achieve a minimum clearance distance of eight feet, measured from the base of the live crown of the postharvest dominant and codominant trees to the top of the surface fuel.
>
> Surface fuel in the harvest area, including logging slash and debris, low brush, and deadwood, that could promote the spread of wildfire, shall be treated to achieve the goal of an average of 4 foot maximum flame height under average severe fire weather conditions.[23]

For the full text of AB 2420, see http://www.leginfo.ca.gov/pub/03-04/bill/asm/ab_2401-2450/ab_2420_bill_20040923_chaptered.html.

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[22] AB 2420, http://www.leginfo.ca.gov/pub/03-04/bill/asm/ab_2401-2450/ab_2420_bill_20040923_chaptered.html.

[23] Board of Forestry and Fire Protection, Proposed Rule Packages, Rule Language, AB 2420, Forest Fire Prevention Exemption Emergency Rule, 2004 (approved 1/8/05), http://www.bof.fire.ca.gov/board/board_proposed_rule_packages.aspx.

Board of Forestry Fuel Hazard Reduction Emergency Rule

This regulation is intended to give "Communities at Risk" and landowners in or adjacent to the wildland-urban interface an economically feasible way to reduce the risk of damage and loss associated with catastrophic fire and direct threats to their homes. Given that most Del Norte communities are so designated, this regulation may help ease permitting for fuel hazard reduction on private property in Del Norte. It is one of many important tools designed to help landowners in the creation of defensible areas around their homes and communities in the face of a wildland fire. It allows for the removal of vegetation, including smaller understory trees (those less than 24 or 30[24] inches stump diameter), surface fuel, and ladder fuel if certain conditions are met:

1. Provides that smaller trees must be removed to achieve the desired results and will be the primary focus of removal efforts.
2. The post-treatment stand must meet stocking requirements for thinning as defined in the California Forest Practice Rules. This ensures that post-treatment, a "well-stocked" stand will exist.
3. Minimum post-treatment canopy closure must be 50% for coastal redwood and Douglas-fir forest types. This means that at least 50% canopy coverage over the forest floor will exist after operations.
4. Understory and surface fuels will be removed to create a minimum clearance distance of eight feet measured from the base of the live crown of the post harvest dominant and codominant trees to the top of the surface fuels.
5. While keeping in mind mandated wildlife habitat requirements, surface fuels will be treated to achieve the goal of an average of four foot maximum flame length height under average severe fire weather conditions. Treatments can include: chipping, removal, or other methods necessary to achieve the goal and must be completed within 120 days from the start of operations (except for burning which shall be done by April 1 of the year following surface fuel creation).
6. No operations are permissible on steep slopes, defined as greater than 50%, near watercourses, or during winter months.
7. This regulation is designated for use within ¼ mile of legal structures within or adjacent to a community listed as a "Community At Risk" as defined by the California Fire Alliance, or within 500 feet of legal structures outside the area, or within 500 feet of either side of a public or federal road, 500 feet on either side of a private road providing access to legal structures, 500 feet on either side of a mainline haul road identified by a public fire agency in a fire prevention plan, 500 feet on either side of ridges identified by a public fire agency as suitable for fire suppression and is approved by a public fire agency in a fire prevention plan, or within 500 feet of infrastructure facilities.[25] Emergency conditions for these types of operations must be verified by a Registered Professional Forester (RPF). The RPF will be responsible for marking and designation of the timber and vegetation to be removed.

For the full text of this and related regulations, see http://www.bof.fire.ca.gov/board/board_proposed_rule_packages.aspx .

Senate Bill 1369

This bill has two principal components. First, it extends defensible space requirements in most instances in the interface to 100 feet. Second, it requires homeowners, especially for construction of new homes, to get a certificate of compliance with fire safety codes to obtain insurance. More specifically, it:

> Requires any person who owns, leases, controls, operates or maintains any occupied dwelling or occupied structure in, upon, or adjoining any mountainous area, forest-covered land, brush covered land, grass-covered land, or any land that is covered with

[24] This is still being worked out by the Board of Forestry at the time of publication. For clarification, see http://www.bof.fire.ca.gov/board/board_proposed_rule_packages.aspx.

[25] http://www.bof.fire.ca.gov/board/board_proposed_rule_packages.aspx

> flammable material, which area or land is within a Very High Fire Hazard Severity Zone designated by the local agency, as provided, to, among other things, maintain around and adjacent to the occupied dwelling or occupied structure additional fire protection or firebreaks made by removing all brush, flammable vegetation, or combustible growth that is located from 30 to 100 feet from the occupied dwelling or occupied structure or to the property line, whichever is nearer, as may be required by the local agency if the agency finds that, because of extra hazardous conditions, a firebreak of only 30 feet around the occupied dwelling or occupied structure is not sufficient to provide reasonable fire safety.[26]

Also requires the owner, prior to constructing a new dwelling or structure that will be occupied, or reconstructing an occupied dwelling or occupied structure damaged by fire in these areas to obtain certification from the local building official that the structure complies with all applicable state and local building standards and to provide such proof, upon request, to their insurance carriers.

This bill allows property insurance carriers to require firebreaks greater than 100 feet if a hazardous condition warrants such a firebreak.

Allows CDF to: authorize the removal of vegetation in order to comply with the firebreak requirements of this bill; prescribe a procedure for the removal of that vegetation; and make the expense a lien upon the offending property.

Scientific research supports this increase in firebreak size. According to Jack D. Cohen, Ph.D., USFS Research Physical Scientist, "My research results indicate that the big flames of high-intensity wildland fires do not directly ignite homes at separation distances beyond 100 feet."[27]

It is important to acknowledge the role of the insurance industry in coping with the risk of wildfires and property. This bill decreases exposure of the industry to fire-related losses, allowing insurance carriers to make case-by-case determinations as to whether minimum firebreak clearances are inadequate. This bill further decreases the industry's exposure by allowing insurance carriers to enforce the building standards of the recently enacted Assembly Bill 1216, Vargas *(see below)*.

For the full text of SB 1369, see http://www.leginfo.ca.gov/pub/03-04/bill/sen/sb_1351-1400/sb_1369_bill_20040923_chaptered.html.

Assembly Bill 1216, Vargas

This bill requires the State Fire Marshal, no later than January 1, 2005, in consultation with the Director of Forestry and Fire Protection and the Director of Housing and Community Development, to:

- Recommend building standards that provide for comprehensive space and structure defensibility from fires spreading from adjacent structures or vegetation;
- Propose fire protection for roofs, exterior walls, structure projections (including, but not limited to, porches, decks, balconies and eaves, and structure openings), and structure openings (including, but not limited to, attic and eave vents and windows).

For the complete text, see Appendix B.7, CBC Draft, UWI Building Standards.

These standards and protections apply to buildings located in urban-wildland interface communities as well as Very High Fire Hazard Severity Zones. A local agency may, at its discretion, include in or exclude from the requirements of these building standards any area in its jurisdiction following a finding supported by substantial evidence in the record at a public hearing that such requirements are necessary or not necessary, for effective fire protection within the area.

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[26] SB 1369, (1).

[27] USDA Forest Service, Jack Cohen, "Thoughts on the Wildland-Urban Interface Problem," June 2003, http://www.wildfirelessons.net/Library/I_Zone/Cohen_WUI_Thoughts_062003.pdf.

This bill defines an "Urban-Wildland Interface Community" as a community listed in "Communities at Risk from Wildfires," produced by the California Department of Forestry and Fire Protection (CDF), Fire and Resource Assessment Program.

For the full text of AB 1216, see http://www.leginfo.ca.gov/pub/03-04/bill/asm/ab_1201-1250/ab_1216_bill_20031009_chaptered.html.

2.2.3. Fire-Safe Building Materials and Reducing Structural Ignitability

How your house is constructed is often just as important as creating defensible space. This is why AB 1216 was made into law *(see above).* It now requires fire-safe construction for communities in the wildland-urban interface. If you have a shake roof, your house is more likely to burn down from sparks, embers, or firebrands even if it has "fire-resistant shakes." If you have a shake roof, one of your first actions is to replace it. The roof is the most vulnerable part of your home to wildfires. During a wildfire, firebrands can fall on there, landing in your roof's nooks and crannies where a fire can easily start. Once your roof covering ignites, chances are very good that the rest of your home will follow.[28] The following are key issues of fire-safe structures:

- The best roofing material is metal or tile (with the tile ends capped).
- Second best is a composite roof.
- Shake siding on your house is much more prone to ignite than stucco siding or ferrous cement.
- Decks sticking out from your house act as kindling to your house for fires. If you have a deck, make sure that you enclose the underside of it and your house if it's a post-and-pier foundation. Do this either with solid building materials or with lattice and tight screen with green, fleshy plants. This will give you much more storage space as well, since it is unsafe to store anything (especially firewood or cardboard boxes) under your house if it's open to the outside.
- If you have vents in your attic, make sure they are screened. Enclose eaves, fascia, and soffits with screens. Embers can get into these places if they are not screened and burn your house down from the inside out.
- Make sure you have a ¼ inch mesh screen on all chimneys.
- Use double-pane or safety glass on all large windows.

For more information on making your home safe from wildfire, check out "Is Your Home Protected From Wildfire Disaster? A Homeowner's Guide to Wildfire Retrofit," at http://www.firewise.org/pubs/is_your_home/WILDFR2.PDF.

The following information is taken directly from: "Wildland-Urban Interface Ignition-Resistant Building Construction Recommendations" from the 2004 Community Wildfire Protection Plan Workshops, the California Fire Alliance and the California Fire Safe Council" by Ethan Foote, CDF/CNR Santa Rosa, August 19, 2004, ethan.foote@fire.ca.gov.

> "One of the major objectives of wildfire control in general, and pre-fire management hazard reduction in particular, is to reduce the loss of life and property. The historical pattern of building loss during Interface fires indicates that vegetation fuel management must go hand-in-glove with ignition-resistant building construction to maximize the effectiveness of fire loss mitigation measures.
>
> "Building loss and survival in the 1961 Bel Air fire, which destroyed 505 houses, was well documented. The report 'Decision Analysis of Fire Protection Strategy for the Santa Monica Mountains'[29] found that 71% of the buildings with 26-50 feet of brush clearance

[28] Firewise, "Is Your Home Protected From Wildfire Disaster? A Homeowner's Guide to Wildfire Retrofit," 2001, page 9, http://www.firewise.org/pubs/is_your_home/WILDFR2.PDF.

[29] Available at http://www.ucfpl.ucop.edu/UWI%20Documents/167.pdf

survived the fire. However, the survival rate of buildings exposed to the fire increased to 95% for houses that had both brush clearance and ignition resistant building construction (in this case non-wood roof covering). A similar pattern was seen on the 1990 Santa Barbara Paint fire…. (Source: California's I-Zone: Urban-Wildland Fire Prevention & Mitigation, p. 120)."

"On the Paint fire, which destroyed 479 houses and major buildings, the survival rate was 86% for houses with both non-flammable roofing and 30 feet of brush clearance. Only 4% of the 438 houses surveyed in the Paint fire survived where non-flammable roofing and 30 feet of brush clearance were absent. The modeling of structure loss and survival on the Paint fire revealed that brush clearance alone only 'explained' or accounted for 11% of the variation seen in the structure survival patterns. When brush clearance was combined with roof type in the model, and the effect of defensive actions was accounted for, the model explained 59% of the variability in structure loss."

"This is strong evidence that vegetation management *alone* will not be able to fully explain, nor mitigate, building loss on wildfires. Hence the need for the comprehensive approach in this plan, using a combination of vegetation management and addressing recommendations for ignition resistant building construction. There is also strong evidence that this comprehensive approach will work to significantly reduce Interface losses. The *Los Angeles Times* (1 April 2004) reporting on the Southern California conflagrations of October 2003 clearly revealed the need for, and effectiveness of, combining vegetation management and ignition-resistant building construction for reducing building loss in wildfires:

> 'Amid the ashes of the most costly wildfires in California's history lies evidence of a crucial lesson: Fire-resistant construction and vigilant removal of flammable vegetation significantly improved the odds of a home's survival, according to a *Times* analysis of fire records from more than 2,300 destroyed structures.
>
> The impression left by an out-of-control fire racing through communities can be one of random destruction, with one house, or a whole block, burned to the ground and the next one spared for no apparent reason.
>
> In fact, according to the *Times* analysis — which covered homes destroyed by the deadliest of the blazes, San Diego County's Cedar fire — houses built since 1990 were far less likely to burn than those constructed in any previous decade. Houses built during the 1990s were damaged or destroyed at less than half the rate of houses built earlier.'

"The communities and homeowners covered by this plan have, for the past 40 years, had recommendations that can be (and have been) taken to reduce the ignitability of structures. An outcome of the 1961 Bel Air fire was publication of the 'Fire Safety Guides for California Watersheds' by the County Supervisors Association of California in 1965. These recommendations have been updated through the years. The current version of these 'Fire Safe Guides' is 'Structural Fire Prevention Field Guide for Mitigation of Wildfires' and can be found at http://osfm.fire.ca.gov/structural.html.

These recommendations for ignition-resistant building construction include:

- Roofing
- Eaves & Balconies
- Exterior Walls
- Rafters
- Windows
- Doors

- Attic ventilation openings
- Underfloor Areas

"In response to the persistent loss of life and property in wildfires, the most important of the recommendations is now a requirement. All new buildings, and significant re-roofing of existing buildings, in the communities covered by this plan are required to have ignition resistant roofing (California Building Code §1503). The State of California is also in the process of promulgating changes to the state building code expanding the interface roof requirements and including new requirements addressing exterior wall construction, vents, and ancillary structures."[30]

These recommendations became law in 2004 through AB 1216. For more information, *see Section 2.2.2., Legal Requirements and New Legislation Relating to Fire Safety.*

Signage/Addressing

Chances are firefighters are not going to know where you live, especially in the case of a large fire where out-of-town firefighters are present. If your house has a visible address sign at the street, emergency service personnel (fire, ambulance, police) will find it. If not, they may not. Make sure you have a visible road/address sign. Work with your local fire department if you have specific questions regarding how to do this most effectively. Your sign should be of reflective material so that it is visible at night, and non-flammable (metal on metal post) so that it doesn't burn.

In addition, Del Norte County requires the following:

"All residential and commercial buildings shall have approved address numbers conspicuously posted at all times. Address numbers shall be posted on the side of the building facing the frontage street.

"In the event address numbers are not visible from the frontage street, the approved address numbers shall be placed at the beginning of the driveway. If more than one driveway services a single structure the approved numbers shall be placed at the beginning of each driveway. Where there are more than one residential or commercial buildings with separate addresses located on the same driveway, or driveways, the approved address numbers shall be placed upon both the structure and at the beginning of the driveway.

"County-approved address numbers shall be reflective white Arabic numerals at least three inches in height on a green metallic background of overall dimensions of four inches by ten inches."[31]

If you are in need of a County-approved address sign, you can purchase one from Del Norte County Community Development Department.

For unidentified roads, the County requires the following:

"Name identification signs shall be placed at all intersections of improved roads, whether public or private, or 300 feet or more in length, or which serve three or more residences.

"Said signs shall consist of white reflective letters and numerals on a green background and be posted so as to adequately indicate which intersecting road is being identified and of adequate height to be visible to motorists."[32]

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[30]Ethan Foote, *Wildland-Urban Interface Ignition-Resistant Building Construction Recommendations from the 2004 Community Wildfire Protection Plan Workshops, the California Fire Alliance and the California Fire Safe Council*, August 2004.

[31] Del Norte County Uniform Fire Code, Chapter 14.16, sections 027-028.

[32] Del Norte County Uniform Fire Code, Chapter 14.16, section 029.

Apparently, many Del Norte residents have replaced their original reflective signs with decorative ones. Although these may look pretty, they no longer serve the function of identifying a home for emergency service personnel. If you have done this, please reinstall your reflective signs, so firefighters can find you if and when you need them. If you want emergency personnel to be able to find you, do your part. In a medical emergency a few minutes may be the difference between life and death.

2.2.4. Water

The amount of water you have stored will have a significant impact on the ability to fight a fire at your home. 2,500 gallons of water storage for fire fighting is the minimum required for new construction. Storing water in the winter for use in the summer and fall and conserving water are both critical in this Mediterranean climate. There are many options available in terms of water tanks. Ideally, you should have a dedicated firefighting water tank, with a fire-ready standpipe, and a separate tank for domestic use. If you cannot do this, put your domestic water line out of your water tank in the middle of the tank, so you don't accidentally drain your tank into the garden or elsewhere, keeping the bottom half for emergency use. Combined water storage is allowed as long as the minimum 2,500 gallons for fire department use is always maintained. Typically, this requires plumbing the domestic water flow line above the 2,500 gallon mark of your tank.

Your fire water line should be a two- or four-inch line, buried 12-18 inches below ground *See Appendix B.9. for a table of appropriate pipe sizing*. An aboveground plastic water line will likely burn in a fire, but a full plastic water tank will not likely. Put a metal standpipe at the end of the water line with a 2 ½-inch fire hose threaded adapter so firefighters can quickly attach to your water source. Fire hose thread is known as national thread, national standard, NST, NSFH, NH, or FHT. All Fire Protection Districts in Del Norte County use a 2 ½-inch national thread, so use this. *See the water storage tank graphic in Appendix B.8. for details on how to do this.* Your water tank can be located anywhere on your property. However, the fire department connection must be located no closer than 4 feet and no further than 12 feet from the roadway. Make sure that your standpipe is somewhere a fire truck can access it and turn around to leave. If it's not accessible, it's not going to be very useful. The roadway must be wide enough to accommodate the fire apparatus without blocking it. Fire engines generally need 12 feet wide by 15 feet high clearance, and a 70-foot T or 40-foot circle to turn around for safe retreat. Finally, make sure your local firefighters know where your tank is exactly located, before any fires.

In an emergency, swimming pools and ponds provide a great source of water. Firefighters can draft directly from these sources if they can get close to them. If you are going to depend on this water as your first response to a fire, you will need a pump and a generator for back-up. Often when there is a large fire the power will go out. Therefore, the generator will be needed to pump water from your pool or pond.

While ponds are ideal for storing large amounts of water for fire fighting, they must be properly sited to avoid erosion. Ponds built on unstable ground can give way, leading to large washouts and gullying, choking streams with sedimentation, in turn harming fish habitat. Ponds should be built on stable ground, have adequate overflow protection, and should not be built across seasonal or perennial creeks. Also, please remember that ponds can breed nuisance species such as bullfrogs, mosquitoes, and non-native fish that can harm native salmon and steelhead.

There are more and more options for inexpensively storing water. Cisterns—a catchment to collect rainwater—are becoming increasingly popular. There are several websites describing how to make one yourself, start with a search for "cistern." Low cost water tanks are also available. Pioneer tanks from Australia are now seen throughout the North Coast (www.pioneertanks.com.au).

The use of gray-water systems is an alternative method for watering yards and vegetation to conserve your water. A gray water system is where water is collected after non-contaminating use such as the kitchen sink or washing machine, and stored and used for irrigation. For more information on safe

and sanitary gray water systems, see http://www.oasisdesign.net/greywater/ or http://www.greywater.com/.

2.2.5. Roads

Roads are critical components in the fire equation. They are a great place for a fuelbreak.[33] They are also critical for evacuation and for firefighters to reach your home when fire strikes. Minimum clearance requirements along your roads for a fire engine to safely pass are 12 feet wide by 15 feet high, in addition to roadside fuel reduction treatments of at least 15 feet on both sides of the road. You also need plenty of places on the road where vehicles can pass each other; adequate turnouts properly designed and spaced along your access road or driveway. If a wildfire is threatening and a fire engine is trying to get to your residence or business while you're trying to evacuate, there need to be areas in the road wide enough to accommodate traffic from both directions. Remember, when a wildfire is threatening, chances are it will be very dark and smoky, thus very disorienting. Take the time now to make it easier on yourself should that time come.

A fire engine needs to be able to turn around to leave. If they cannot safely get the engine in and out, that makes your home less defensible, as most firefighters will not unnecessarily risk their equipment or lives to protect your property. Fire engines require at least an 80 foot diameter turning circle or a hammer-head turnout of at least 35 feet in each direction. Firefighters will almost always turn around when they arrive to a fire for safer and quicker escape.

This is good advice for you too. Get in the habit of parking your car(s) facing out at home so you can leave quickly if necessary. If you have locked gates, they will very likely be cut by firefighters. If you don't want that to happen, make sure you leave your gates unlocked. If you have electric gates, make sure they have a back-up power source or other way to open when the power is out, which is likely during a large wildfire. Additionally, bridges need to be evaluated for safe fire truck passage. Generally, if a propane or other fuel or water truck can make it across the bridge, then a fire truck can. If you have a bridge that will not safely carry a fire engine, you must contact your local fire department and let them know. Don't make their job any more dangerous than it already is. Rather, help them to help you.

Finally, many private, dirt roads can become nearly impassable after a rough winter. Maintaining your dirt and gravel roads is important for many reasons, including not only keeping dirt out of our water, but assuring you a safe evacuation in an emergency. If you live on a road where several households share the same road, rotate taking the responsibility for coordinating road maintenance every few years. The identified coordinator can collect an agreed-upon annual assessment from all those who regularly use the road, and organize the maintenance.

2.3. Fuel Hazard Reduction

Much of what you need to do comes down to common sense and an awareness of your physical surroundings. An important thing to know about fire in forested rural areas is the concept of *fuel ladders*. A fuel ladder is basically a ladder of vegetation from the forest floor into the canopy (or upper branches) of the trees. There is also the concept of *fuel continuity,* both vertical and horizontal. Vertical continuity is similar to the fuel ladder concept; it means a continuous vertical layer of fuel. Horizontal fuel continuity then means the same thing horizontally. That's when the fuel extends from something—like your house—continuously out into the forest. A good example of this is seen with decks on steep slopes, where the edge of the deck is next to the crowns or tops of the trees (forest canopy). If a fire started either

[33] "A strategically located wide block, or strip, on which a cover of dense, heavy, or flammable vegetation has been permanently changed to one of lower fuel volume or reduced flammability." (Green, L.R., 1977. "Fuelbreaks and other fuel modification for wildland fire control," USDA Agricultural Handbook 499.) *See Section 2.3.1., Shaded Fuel Breaks.*

at the house or in the forest, it would have a continuous line of fuel to spread from one to the other via the deck.

In Del Norte County, an example of a fuel ladder (and vertical continuity) is grass and/or brush on the ground climbing up or leading into smaller Douglas fir, redwood, or tan oak trees, especially via the dead limbs, which reach up into the canopy of the taller or dominant trees. With this continuous ladder of fuel into the forest canopy, it is easier for a fire to climb into the trees and spread quickly. What is recommended to avoid this—especially near buildings and along roads—is to reduce or remove the fuel ladder.

Go into the forest surrounding your home and along your roads and remove brush on the forest floor (but don't scrape it clean or you could have erosion problems when it rains). Removing the ground fuel does not mean removing everything growing on the forest floor. Rather, you can leave clumps of vegetation. The objective is to leave vertical and horizontal space between fuels (plants). *Limb up* or prune young trees (remove the lower limbs to create open space between the tree canopy and the forest floor) to a minimum of 15 to 30 feet above ground, or at least six to ten feet above the nearest vegetation. Young, short trees should be pruned higher incrementally to reduce the chance of shock. A rule of thumb when *limbing* trees is to leave at least one-half of the tree's height in live canopy so you don't harm the tree's ability to grow. If you leave clumps of shrubs, create at least three times the shrub height in space before the bottom branches of the trees. For example, if you have a three-foot high bush, leave nine feet of open, clear space (no vegetation) below the bottom branches of nearby trees. As well, the table below shows how much space you need to have between your trees in your defensible space area.

Table 3. Tree Crown and Brush and Shrub Clump Spacing[34]

% Slope	Spacing between Tree Crowns (feet)	Spacing between Brush and Shrub Clumps
0 – 10%	10′	2 ½ x shrub height
11 – 20%	15′	3 x shrub height
21 – 40%	20′	4 x shrub height
>40%	30′	6 x shrub height

In some places it is adequate to only *brush* or clear or clean up an area. Basically, *brushing* entails removing brush alongside a road or structure to keep the forest floor relatively open. Removal of all dead materials—shrubbery, branches, etc.—is especially important. The idea is to remove anything that is particularly flammable from being anywhere near an ignition source, such as you, your kids, your car, or your house. When brushing or removing fuel ladders, focus on the fine or flashy fuel[35] —such as small sticks that will burn quickly. Think in terms of building a campfire or a fire in your woodstove. For large pieces of wood to burn, kindling (small pieces of wood or fuel) is needed. If you remove the kindling around your larger fuel sources, chances are much greater they will not ignite. When you are in your forest, make sure there are no concentrations of small sticks or brush right up against the trunks of trees. In all your fuel reduction work, make sure your efforts are ecologically sound, as this will help increase forest health and decreases the chance of catastrophic loss from wildfire.

Remember, defensible space and clearing does not mean you clearcut your property. Rather, your goal is to remove the most flammable materials. You always need to balance your fire safety actions with

[34] Harris, F.C., Colorado State Forest Service, Creating Wildfire-Defensible Zones no. 6.302, www.ext.colostate.edu/pubs/natres/06302.pdf.

[35] Flashy/fine fuels are defined as "fuels such as grass, leaves, pine needles, ferns, moss and some kinds of slash which ignite readily and are consumed rapidly when dry." (Source: Western Great Basin Coordination Center, Glossary, http://www.nv.blm.gov/wgbcc/glossary.htm#sectF.)

general ecosystem health. Don't disturb the ground around streams or you will cause erosion that will harm our fish. If you have the good fortune to live along a stream or river with fish in it, make sure you stay at least 25 feet away from the stream in your clearing activities. It's OK to remove dead vegetation there (like pruning in your garden). But don't take out live vegetation, especially trees, near streams and rivers. You should always maintain a dense shade canopy for the fish. Finally, a lot of wildlife—such as bear, fox, bobcat, songbirds, and others—on the North Coast use streams as corridors in which to move from one area to another. Leave them some cover to be able to do this without disturbing you, or vice a versa.[36]

2.3.1. Shaded Fuelbreaks

When you remove the fuel ladders around your property and leave the tree canopy in place, you are basically creating a *shaded fuelbreak.* A shaded fuelbreak is a break in fuel continuity—treating both surface and ladder fuel—to give firefighters a chance to slow down and perhaps even stop the fire. This occurs because of a lack of fuel and the modification of the types of fuel and their arrangement. It is called *shaded* because you leave most of the forest canopy intact. Some of the canopy may need to be removed, however, if conditions are ripe for a crown fire. A shaded fuelbreak is different than a firebreak where something like a bulldozer is used to create a bare-ground break with no vegetation. Firebreaks tend to regenerate quickly with flashy fuel and require a lot of maintenance. Instead, the shade created by the forest canopy helps to reduce the regeneration of plants on the forest floor, thus keeping the amount of fuel low in these fuelbreaks and requiring less maintenance. Shaded fuelbreaks also improve your evacuation routes, as they provide a place where a fire might slow down or decrease in intensity, making it safer for you to get out. Fuelbreaks are important places for firefighters to fight a wildfire.

The exact prescription for a shaded fuelbreak depends on your objectives and existing local conditions. Some landowners want to create as much cleared space—and hence fire safety—as possible. Others want to maintain as much privacy as possible, sometimes compromising, but almost always still improving fire safety.

The following is a general prescription used by Humboldt contractor and wildland firefighter Dave Kahan of Full Circle Forestry. Dave has been implementing fuel hazard reduction work on the North Coast for decades. His overall goal is to drastically reduce fine surface and ladder fuel to keep ground fires on the ground, which keeps them easily manageable. This plan is aimed at areas with a significant component of sprouting trees such as tan oak or redwood. If you have a forest with less sprouting trees, the canopy can be left less dense, as regeneration is not as intense of an issue.

Dave recommends working in teams with a sawyer and a brush hauler because this can result in a more thorough job with less effort once safety and logistical issues have been worked out. The sawyer can make a small to moderate mess in one spot and then move to the next spot while the brush hauler cleans up the mess in the first spot. They then flip-flop and the sawyer returns to the first spot to expand upon what's been done while the brush hauler cleans up the mess in the second spot. While this method requires teamwork and awareness, it will enable the sawyer to cut better with less to trip over and wrestle. Meanwhile the brush hauler is cleaning things up but is not in any danger from falling trees and limbs because they are working in separate areas.

[36] Bob Williams, Environmental Scientist, Conservation Planning/Environmental Review, California Department of Fish and Game, personal communication, 2/14/05.

Basic Prescription for First Entry

For the first entry, cut as much of the one-hour (0–0.24 inches in diameter) and ten-hour fuel[37] (0.25–1.0 inch in diameter) as possible, i.e., the finer fuel. Remove trees that look brushy (versus a more tree-like form), unhealthy, lacking in vigor, or overtopped by larger and/or more vigorous trees which block access to open spaces in the canopy. Eliminate dead vegetation of all sizes. Leave the overstory canopy as closed as possible. The more shade, the less regeneration and therefore less need for maintenance. Shade will inhibit the regrowth of the sprouting species, which will not resprout vigorously enough to be a major maintenance problem (provided that the forest is old enough and tall enough, and that a large enough vertical gap is created). Prune up all trees you leave behind as high as you can reach safely, with a chainsaw or pole saw.

Start low in the area and work gradually uphill. Also start with the lowest-growing plants and work up the fuel ladder. This will help keep you from burying your work, and the result will be cleaner and more thorough.

Second Entry, or Advanced First Entry

Go to those trees and shrubs that you weren't sure about on the first pass. Look at the leader (the new growth at the top of the tree) and the overall health and vigor of the tree in relation to other trees of the same species. The leader reveals the annual growth. How is the tree growing in relation to other trees? Is the leader longer or shorter? Does it look healthy? Leave the healthiest trees. Is there space for them to grow in the upper canopy? If not, can you create that space by removing the less healthy or suppressed trees? If not, it is a good candidate for removal regardless of health and vigor. Imagine the same place in ten or twenty years. Will there be room for all the trees you have left? If not, remove some of the unhealthiest and smallest ones, or those in the way of your healthy trees. Keep in mind that the denser the canopy, the less regeneration (maintenance) you will have to address next year. Think about species composition. You will generally want to favor rarer species (a yew tree perhaps!). You will almost always want to favor conifers (Douglas fir and redwood) over hardwoods (tan oak and madrone) to return the forest to a more pre-European balance. Most of our forests had the larger conifers removed over the last fifty years, hence the imbalance.

Think about what you are leaving behind more than what you are removing. You can deviate from these general guidelines if you are doing so consciously, keeping in mind the overall principles mentioned above, foremost being the creation of breaks in fuel continuity.

Pruning Individual Trees

Prune as high as you can safely, given your available time and financial resources. The more you prune the more slash you have to remove. Costs for this will vary widely depending on the size of pruned limbs. Reach as high as you safely can with a chainsaw or a pole saw. Leave one-half of the tree height in live crown. Only remove one-third of the total foliage at one time. Don't bother pruning anything that is shorter than you (unless it's right next to your house, then it should probably just be removed). Make sure to follow proper pruning techniques or you will create health problems in your

[37] One-hour timelag fuels are fuels which are less than 1/4 inch in diameter and respond very quickly to changes in their environment. These fuels will only take about an hour to lose or gain two-thirds of their equilibrium moisture content of their environment…Moving up in size, a fuel will lose or gain moisture less rapidly through time. Ten-hour fuels range in diameter from 1/4 inch to 1 inch, 100-hour fuels from 1 inch to 3 inches, and 1,000-hour fuels from 3 inches to 8 inches in diameter. 10,000-hour fuels are greater than 8 inches in diameter. Obviously, the 1,000- and 10,000-hour fuels do not burn easily. However, if they do burn, these fuels will generate extreme heat, often causing extreme fire behavior conditions. From: National Weather Service, Fire Weather Definitions, Dead and Live Fuel Moisture, http://www.crh.noaa.gov/fsd/firedef.htm.

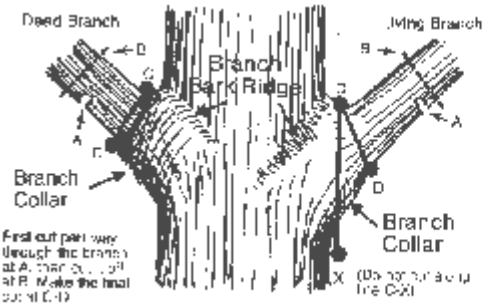
landscape. Pruning is one of the most difficult skills to master but it is also one of the most important. For tips on proper pruning techniques, see "Prune trees for better health and higher value," by the California Forest Stewardship Program (http://ceres.ca.gov/foreststeward/html/prune2.html). The figure below shows proper pruning techniques.

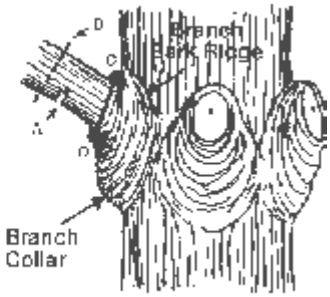
Figure 2. Proper Pruning Techniques[38]

Prune correctly (*see illustrations below*). The object of the operation is to remove the branches as close to the tree stem as possible without leaving any stubs.

A. Cut partway through the branch from beneath at a point one or two inches from the trunk.

B. Make a second cut on the top of the branch, at a distance of 1/3 to 1/2 the diameter of the limb from the first cut. This should allow the length of the limb to fall from its own weight and be safely removed.
C. Complete the job by making a final cut next to the trunk, just outside the branch collar, with the lower edge farther away from the trunk than at the top.





Using the illustrations above, final cuts should be made from points C to D. Do not cut along C–X, which is an imaginary vertical line to help you locate C–D. First cut partway through the branch at A, then cut it off at B. Make the final cut at C-D.

How to decide which trees to leave or take?

First look for the vigorous, healthy trees. Prioritize the healthy ones and create space around them to grow by removing less vigorous trees. Look for existing space in the canopy. Is there space for the tree to grow into the upper canopy? If so, leave it. If not, consider removing it. There may be trees that you will eventually want to remove—often intermediate trees—that are not cost-effective on the initial entry, but could be on subsequent entry. Some of the intermediate trees may have enough size or volume for lumber production. Therefore, if your removal costs are not high you may be able to offset some of the cost with lumber for personal use. You can only use wood products from your forestry operations on your own property. To sell anything from a forest operation requires a Timber Harvest Plan from CDF, which is generally far too cost-prohibitive for fuel hazard reduction in many cutover areas, especially for redwood forests. However, the new fuel hazard reduction exemption provides exception to this regulation; see section 2.2.2 for more information. Firewood is also a great by-product of fuel hazard reduction. To sell firewood, you need a firewood exemption from CDF.

[38] California Forest Stewardship Program, *Forestland Steward Newsletter*, "Prune trees for better health and higher value," Winter 2002, http://ceres.ca.gov/foreststeward/html/prune2.html.

After you've created your shaded fuelbreak, take a final pass through the area. How does it look? Do you need to remove any branches or small fuel that were left behind? Did you miss some trees or shrubs that seem obvious to come out now?

Remember, you don't need to remove everything. You can leave clumps of vegetation for wildlife habitat. *See Table 3. Tree Crown and Brush and Shrub Clump Spacing,* for information on how to space clumps of shrubs. In addition to providing fire safety, shaded fuelbreaks and general fuel reduction provide many other benefits. Some of these are:

- Improved forest health and productivity. There will be less stress and mortality from reduced competition, and this translates into lower fire intensity. Also, by removing the lower branches of your trees, you will have higher-quality lumber (less knots) should you ever choose to harvest those trees for wood products.
- Improved wildlife habitat. Opening up the lower canopy and forest floor provides habitat for some of the species who prefer to dwell in larger or older forests.
- Improved aesthetics. Many landowners comment on how much nicer their view is after doing fire hazard reduction, as they can see out into the forest again.
- Creation of firewood.
- According to some Del Norte residents, it's an extra exercise bonus for the person doing the work!

For more detailed information on fuel hazard reduction, please see Appendix B, Fire Safety Information.

What to Do with Thinned Materials

As a result of your fire safety work around your property, you will soon accumulate a lot of branches and other materials that you have removed. There are a few principal options for dealing with thinned materials: burning, chipping, lop and scatter, some combination of these, small-diameter wood products, and biomass.

Burning

Burning is the cheapest and usually the easiest method, as long as it is done safely. The following is a list of suggestions for safe burning:

● Arrange the material to be burned so that it will burn with a minimum of smoke. Place material of various sizes in the pile for adequate airflow.

● Except for large trees (diameter of six or more inches), ignite only the amount that can reasonably be expected to completely burn within the following 24 hours.

● Ignite outdoor fires only with ignition devices approved by the local air quality district and CDF.

● Ignite material to be burned as rapidly as practical within applicable fire control restrictions.

● Curtail, mitigate, or extinguish burning when smoke is drifting into a nearby populated area or creating a public nuisance.

● Don't burn material unless it is free of tires, rubbish, tar paper, and construction debris; is reasonably free of dirt, soil, and moisture; and is loosely stacked in such a manner as to promote drying and ensure combustion with a minimum of smoke.

● Some air districts and/or counties may limit the amount of needles and leaves within a pile, as well as enforce burning hours throughout the day.[39]

[39] California Forest Stewardship Program, How to Burn Piles Properly, http://ceres.ca.gov/foreststeward/html/burnpiles.html.

As of January 2004, the Air Quality Management District requires burn permits. The permits cost $12 per year and are currently available from CDF or the North Coast Unified Air Quality Management District (NCUAQMD).[40] Burning is generally only allowed on "burn days." To find out if it is a "burn day" you can call 1-866-BURNDAY (866-287-6329) or 443-3091. For more burning information, you can contact NCUAQMD at 707-287-6329 or www.ncuaqmd.org. Burn barrels have been banned in many parts of the state, including all Del Norte County-areas west of Six Rivers National Forest and in the Klamath zip code (95548). *For more information, see "Del Norte County Residential Open Burning Guidelines"* in Appendix B.10. Getting a group of people together in the winter to thin and burn can be an enjoyable way to spend a day outside.

Chipping

Chipping is another method for treating thinned materials. The Del Norte Fire Safe Council has a chipper and will lend it to residents for the cost of the diesel fuel and 48¢/mile to transport the chipper to and from your home. Donations are gratefully accepted for this service, and help to maintain the chipper, which is costly. You will be required to sign a liability release form and usually provide your own labor crew. DNFSC will provide a safety officer to oversee the operation. If you will be using a chipper, remember to stack all your branches in the same direction, so you can easily feed the chipper. Chippers can also be rented locally, and some local fuel hazard reduction contractors have them. CDF also has two chippers available for use throughout the County. One of these is available through DNFSC. The other is available for organized community chipper days. To arrange a community chipper day, you can contact DNFSC or Kim Price at CDF, 726-1224. Chainsaws, hedge trimmers, weed eaters, and safety equipment are also available from the Fire Safe Council for fuel reduction projects.

Lop and Scatter

Lop and scatter is a method whereby the thinned materials are scattered about the forest—taking care not to form large piles (jackpots) of slash—in order to rot there. Lop and scatter can be very cost-effective but is a very site-specific treatment.[41] This is the best method for improving the soil fertility of your forest and hence the forest's long-term productivity. By removing the ladder fuel and scattering them low to the ground, you are improving the chances of your forest surviving a wildfire. However, because of short-term increased hazard this is not a method to do near structures. Rather, it is more appropriate in the forested landscape, beyond your shaded fuelbreaks and Home Ignition Zone.

The material should be cut down to an ideal height of one foot above the ground. However, lopping to less than or equal to 12-inches above ground is likely beyond the skills of most, so 18-inches is better to strive towards. Remove all large pieces of wood, which, by the way, makes for great firewood. But dedicate some larger, heavier pieces to sit on top of the slash and weigh it down. Conifer slash "lies down" much easier with much less lopping than most hardwood slash due to its growth habit. Green slash of all species lies down easier than dry slash (if you're thinking of coming back later to lop). Make sure none of your material on the ground is touching the base of any trees or shrubs you have left standing.

The risk with this method is that fire may occur within your treated area before the fine fuel fall to the ground and decompose. Even so, lop and scatter does reduce your fuel hazard because the fuel is no longer part of the fuel ladder, and there is vertical clearance between the surface fuel and the bottom branches of the trees (ideally a minimum of eight feet of space). However, your surface fuel hazard will increase from three to ten years, depending upon the length of time it takes for the fuel to decompose.

[40] NCUAQMD, http://www.ncuaqmd.org/summaryBurnRegBrochure.pdf.

[41] Tim Jones, Fire Management Officer, Arcata BLM, personal communication, 7/12/04.

Small-Diameter Wood Products

Much effort has been made in Northern California and Southern Oregon to develop markets for small-diameter wood products, especially hardwoods. It is possible to use these materials commercially, and they often produce beautiful lumber. Small, suppressed Douglas fir—a softwood—often has a tight grain that makes for attractive trim. Local hardwoods such as tan oak and madrone are used by woodworkers to create stunning furniture, cabinets, and floors. To be merchantable, the logs need to be straight and between at least six to ten inches in diameter. Two great sources for more information on this subject are the Institute for Sustainable Forestry (www.sustainablehardwoods.net) and the Watershed Center (www.thewatershedcenter.org).

For Del Norte County, the nearest mill that processes small-diameter wood products is South Coast Lumber Company in Brookings, Oregon. They can process conifer logs (Douglas fir, hemlock, spruce, grand fir, and white fir) as small as five inches in diameter on the small end of the log. Logs need to be at least 12 feet long, preferably 16 feet. If you can arrange to deliver this to the mill, there is no minimum amount needed.

In terms of hardwoods, alder eight inches in diameter at the small end or larger is acceptable. It is then peeled and used in veneers and plywood. Twelve-inch or larger tan oak, madrone, and myrtle/pepperwood are also purchased for this use. Smaller-diameter hardwood is purchased for chips for $18/ton.[42] However, this may be less economical than selling the logs for firewood. Higher prices for chips are paid in Coos Bay, Oregon, so much so that it is often more economical to ship the material to Coos Bay.

For more information, you can contact Darrel Bonde at South Coast Lumber Company, at 541-469-3898.

Simpson Timber has mills in Orick and Korbel (both in Humboldt County) that will purchase small-diameter redwood. The logs need to be at least six inches on the small end and 12 feet in length. For more information, contact Bob McRae at 707-268-3060 for current prices.

Biomass

"Biomass refers to organic material from living things such as trees, shrubs, grasses and other plants. The temperate forests of the Pacific Northwest contain the highest amounts of biomass per-acre of any forests in the world, far exceeding tropical forests. Biomass is commonly used as lumber, firewood, and paper. Biomass can also be used for energy production."[43] In its simplest form, biomass is used to create heat, through a process called gasification. This technology is increasingly being used in schools in rural areas (see http://www.fuelsforschools.org for more information). Gasification uses woody materials as a source of energy to produce methane and hydrogen gases. These gases are then used as fuel to power an engine that creates electricity. Biomass can even be used to replace our dependence on fossil fuel, and can be significantly better for the environment.

One of the noteworthy challenges associated with biomass as a source of energy is transportation costs. In order for biomass utilization to be economically feasible, the distance for the biomass to travel should not be more than twenty-five to fifty miles. In remote forestlands, such as those in Del Norte County, this is a significant hindrance. This could be overcome if some of the costs associated with biomass removal were subsidized by the government as fossil fuel is today. The alternative is to bring the biomass plant to the woods. Portable biomass facilities are being developed, but are not yet commercially viable.

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[42] This price was quoted on 10/1/04 by Darrel Bonde, South Coast Lumber Company.

[43] Institute for Sustainable Forestry, Safeguarding Rural Communities: Fire Hazard Reduction and Fuels Utilization, Final Report, September 2001 to December 2002, pg. 23.

On the North Coast, biomass has received much attention but little progress in its development. In the interior region of Northern California, this technology is being utilized. A thinning project in Seely Creek (Humboldt County) has revealed that for every acre thinned, 60 cubic yards of material are generated. *(For more information about the Seely Creek work, please see Appendix B.11, Biomass.)*

There is a host of creative possibilities for using biomass, including combining community fire hazard reduction and electricity generation using a mobile generator on-site. The University of Washington has invented a process that converts small trees to methanol. They have found that even the smallest trees and branches can be utilized as a power source for fuel cells.

Funding is available for biomass projects from the USFS and BLM under Title II of the Healthy Forests Initiative and Healthy Forests Restoration Act. Title II authorizes these agencies to overcome barriers to the production and use of biomass and to help communities and businesses create economic opportunities. Funding is available for research. There is also a biomass commercial utilization grant program, and assistance is available to community-based enterprises that use biomass and small-diameter material. The USFS has "Woody Biomass Utilization Grants" available for FY2005 through the Forest Products Laboratory's Technology Marketing Unit. These grants are aimed at creating incentives for the increased use of biomass from national forest lands. Pre-applications are due March 15, 2005, with Full Applications due May 16, 2005. For more information, please go to http://www.fpl.fs.fed.us/tmu/grant/biomass-grant.html.

To read more about biomass, please see Appendix B.11, Biomass.

2.4. During the Fire

Fire can be extremely frightening. However, taking steps now to prepare you and your family and your home will make it easier to survive a fire, and it will likely reduce panic and help you to effectively deal with the situation. Even the most organized of us will forget something when a crisis moment arrives. Create easy-to-follow checklists for your family to use to safely survive a wildfire.

Figure 3 on the following page, from "Living with Wildfire," Pacific Northwest Wildfire Consulting Group (http://www.or.blm.gov/nwfire/docs/Livingwithfire.pdf), can be copied and posted somewhere prominent in your home or with your emergency preparedness kit. It is a great summary of what to do when fire strikes.

Figure 3. When Wildfire Approaches Checklist (next page)

WHEN WILDFIRE APPROACHES

Should homes be threatened by wildfire, occupants may be advised to evacuate to protect them from life-threatening situations. Homeowners, however, do have the right to stay on their properties if they so desire and so long as their activities do not hinder fire-fighting efforts. If occupants are not contacted in time to evacuate or if owners decide to stay with their homes, these suggestions will help them protect their properties and families.

- ☐ Evacuate, if possible, all family members not essential to protecting the house. Evacuate pets as well.
- ☐ Contact a friend or relative and relay your plans.
- ☐ Make sure family members are aware of a prearranged meeting place.
- ☐ Tune into a local radio station and listen for instructions.
- ☐ Place vehicles in the garage, have them pointing out, and roll up windows.
- ☐ Place valuable papers and mementos in the car.
- ☐ Close the garage door, but leave it unlocked. If applicable, disconnect the electric garage door opener so that the door can be opened manually.
- ☐ Place combustible patio furniture in the house or garage.
- ☐ Shut off propane at the tank or natural gas at the meter.
- ☐ Wear only cotton or wool clothes. Proper attire includes long pants, long-sleeved shirt or jacket, and boots. Carry gloves, a handkerchief to cover face, water to drink, and goggles.
- ☐ Close all exterior vents.
- ☐ Place a ladder near[44] the house so firefighters have easy access to the roof.
- ☐ Make sure that all garden hoses are connected to faucets and attach a nozzle set on "spray."
- ☐ Soak rags, towels, or small rugs with water to use in beating out embers or small fires.
- ☐ Inside, fill bathtubs, sinks, and other containers with water. Outside, do the same with garbage cans and buckets. Remember that the water heater and toilet tank are available sources of water.
- ☐ Close all exterior doors and windows.
- ☐ Close all interior doors.
- ☐ Open the fireplace damper, but place the screen over the hearth to prevent sparks and embers from entering the house.
- ☐ Leave a light on in each room.
- ☐ Remove lightweight and/or non-fire-resistant curtains and other combustible materials from around windows.
- ☐ If available, close fire-resistant drapes, shutters, or Venetian blinds. Attach pre-cut plywood panels to the exterior of windows and glass doors.
- ☐ Turn off all pilot lights.
- ☐ Move overstuffed furniture (e.g. couches, easy chairs, etc.) to the center of the room.
- ☐ Keep wood shake or shingle roofs moist by spraying water. Do not waste water. Consider placing a lawn sprinkler on the roof if water pressure is adequate. Do not turn on until burning embers begin to fall on the roof.
- ☐ Continually check the roof and attic for embers, smoke, or fire.

If a fire should occur within the house, contact the fire department immediately. Continue to inspect your house and property for embers and smoke.

Most importantly, STAY CALM![45]

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[44] Not a wooden ladder! Put it on the ground near the house so it does not act as a fuel ladder for the fire to climb up your house.

[45] Living with Wildfire, Pacific Northwest Wildfire Consulting Group, http://www.or.blm.gov/nwfire/docs/Livingwithfire.pdf.

Conserve your water. Save it for when the fire is at your house, or the fire has passed. This is when you may need it to put out any embers or sparks.

If you have any experience or training fighting fire, create a fire-fighting tool area that is easily accessible. Keep this in a non-flammable structure, such as a metal shed or your garage. Your collection should include tools such as shovels, hoes, Pulaskis, McLeods, etc. Keep a set of fire-fighting clothes there as well, such as heavy cotton, and boots and gloves. Put fire hose at your water source and mark it well so you, your neighbors, and/or firefighters can easily find and use it.

Another very important thing you can do to protect your property in the case of a fire is to be fully prepared for the eventuality of fighting a fire at your home. Create a map of your property that shows where the most valuable structures and other resources are. Mark on your map the location of your water sources, where your gas/propane/diesel tanks and shut-offs are located, and any other highly flammable or explosive materials. Include where any locked gates are and the combinations to those gates. Also include locations of any pets or livestock. Put your name, phone number and/or CB handle, street address, and parcel number or GPS[46] coordinates on this map. Put a copy on the wall by a phone (or CB radio), with the number of your local fire department so you can use it in case of an emergency. If you desire, put it up somewhere near the entrance to your property where firefighters can see it, perhaps with your visible fire-fighting tools. Check with your local fire department to see if they want a copy. Or better yet, invite them out to your property (not during fire season) to show them where everything is. This will help them effectively protect your property in case of fire. If you are concerned about security issues, you can talk to your local fire department to work out a compromise that will meet your confidentiality needs while making their job easier to defend your property if and when the day comes.

Remember to call 911. At a recent North Coast fire, residents were so anxious to attack a fire that they forgot to call 911, so firefighters were late arriving.

Should the time come that you do have to call 911, give your address (which must be visibly marked on the road so firefighters can find your home) or GPS coordinates if you have them. If you live in a remote area, tell the dispatcher at 911 the name of the closest fire protection district, if you are absolutely certain of it.

After you call 911, go to the bottom of your road, and either have someone stand there, or put up a flag or some sign to let firefighters know where the emergency is and the way to your house. The easier you can make it for the firefighters, the greater your chance is of surviving a fire.

2.4.1. Evacuation

Be ready if you need to evacuate. Have everything you need packed beforehand. Some residents in high fire-risk areas move their valuables to a safer location (such as Crescent City) during fire season. Drive your alternate evacuation routes now so you know them well. Do this in the dark too so you will be comfortable during a large fire, where visibility can be very low. Know at least two ways out. Make sure you are comfortable with both routes. Have keys or combinations to locked gates in your vehicle. Turn on your headlights, and drive SLOWLY and carefully. There could be many people trying to leave and/or firefighters and other emergency service personnel trying to enter to protect you and your house.

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[46] A Global Positioning System is defined as "A constellation of 24 radio-emitting satellites deployed by the US Department of Defense and used to determine location on the earth's surface. The orbiting satellites transmit signals that allow a GPS receiver anywhere on earth to calculate its own location through triangulation. The system is used in navigation, mapping, surveying, and other applications in which precise positioning is necessary." (Source: ESRI Support Center, GIS Dictionary, http://support.esri.com/index.cfm?fa=knowledgebase.gisDictionary.search&search=true&searchTerm=global+position+system.)

Sometimes your safest or quickest evacuation may be on foot. *For more information on evacuation, see CDF's evacuation information in Appendix B.6.*

Safety Zones and Shelter in Place

The safest place to be in a fire may be in your house. In Australia and New Zealand, people are recommended to stay at home. Their motto is "Prepare, Stay, Defend." Many people die trying to evacuate, far more than die from the fire itself. As well, if you are at your home, you can put out any small fires that start around your property from embers and sparks, which can travel over a mile from a large fire. This is the concept of "Shelter in Place." You should only shelter in place at your home if you have good defensible space there and are prepared to stay for whatever length of time necessary.

If you are unable to evacuate by road, know where your nearest "safe or safety zones" are (safe zones are identified on each community map in Chapter 6). A safe zone is where you can go (other than your house) to shelter in place. These are locations where you and your family can survive a fire without any special equipment or clothing if your home is not safe, although it is often the safest place for you. Safe zones are also used as staging areas but usually do not provide any services. Steep creek channels are not a good place to seek refuge, as fire travels faster in steep canyons. The fire will consume the oxygen there ahead of the flames and you could suffocate before the fire arrives. Instead, look for big open fields, large river bars, wide-open graveled or paved roads, or an open area that has already burned. This area should be four times wider than the fire's flame lengths. Talk to your local fire department about potential safe zones, and see the section for each community in Chapter 5 so that you are familiar with the area now.

Safe zones for residents are different than those for firefighters. Do not attempt to shelter in a firefighter safety zone if you are not actively fighting the fire.

If an evacuation is ordered or you are sent to a safe zone, you will be notified of where to go by local law enforcement. Some safe zones may be used as the Emergency Operations Center, and hence should be avoided so as not to interfere with the success of fire suppression efforts.

Often an area is designated for evacuation days before the fire actually gets there due to the potential for a rapid fire advance. If you decide to shelter in place and then for example leave for provisions two days into the evacuation order (because the fire is still not there), you may not be able to return. Law enforcement often closes an area for entry once an evacuation has been ordered. Therefore, to shelter in place you must also consider logistical issues such as water, sewer, electricity, etc., for the duration of your stay.

2.5. After the Fire

2.5.1. Assess Your Success and Plan for How to be Better Prepared Next Time

In the 2004 summer fires in Shasta County, some homes were threatened that had burned only a few years ago. Just because you live through a fire does not mean it couldn't happen again. Learn from the experience to be better prepared next time. The following article from *Forestland Steward* was published after the 2003 Southern California firestorms.

Post-fire response: assess your situation

> Although we all know that the California landscape is adapted to burn, we are seldom prepared for the reality of a large wildfire. The effects of a fire will have consequences for years. Approach the post-fire period thoughtfully. After a fire, there are important decisions to be made. What should you be concerned about and what needs to be done? The wrong choices could lead to problems down the road, so take some time to assess your situation before taking any action.

Areas of concern:

The home site

- Damage to the home or other structures
- Loss of landscaping
- Hazardous trees or vegetation
- Danger of flooding, on-site sedimentation
- Drinking water quality and other environmental impacts

The landscape

- Safety hazards—trees, power lines, etc.
- Regeneration and recovery
- Wildlife habitat
- Watershed functions
- Erosion concerns
- Condition of remaining vegetation

Streams

- Proximity to home, roads, other facilities
- Hydrologic connectivity of existing drainage facilities
- Potential of increased woody debris load, streamflow, flooding, debris flow
- Need for treatments to upper watershed to minimize downstream impacts, impacts to property

Roads

- Existing problems that may be exacerbated by wildfire effects
- Damage to stream crossings, culverts
- Gullies, potholes, fillslope failure, cutslope failure, sediment deposits, wet spots
- Potential for culvert obstruction & diversion

Discussion

Identify the type of habitat burned. Was it forest, oak woodland, chaparral, coastal scrub, or grassland? Most of the area that burned in southern California was chaparral and coastal sage scrub, which recovers very quickly from fire through seed germination or resprouting (you can look up the fire response characteristics of various plant species at http://www.fs.fed.us/database/feis/). In some California habitats it is best to let revegetation occur naturally.

One of the most immediate concerns after fire is erosion. Vegetation provides protection for the soil; it anchors the soil and slows water runoff, which aids absorption. [Intense] fire can change the soil chemistry, creating hydrophobic or water-repellent soil. This can exacerbate the already accelerated runoff from vegetation loss.

However, reseeding is generally not a good answer to erosion and, in fact, can be detrimental to recovery. Although reseeding with ryegrass has long been recommended after fire, studies are now finding that ryegrass provides little erosion control and actually inhibits regrowth of native vegetation that can provide long-term protection to the soil. In addition, ryegrass can increase future fire risk and facilitate a change from a native plant community to a non-native grassland. There are many erosion control techniques available to stabilize soil until revegetation occurs. Mulching, fiber rolls, silt fences, straw matting, wood chips, logs, and other materials can help hold the soil in place and slow runoff. Be sure that the material you use is free from weeds.

Evaluate the condition of streams and roads on or near your property. The increased runoff due to fire can cause sedimentation which can be detrimental to aquatic life. Large wood and other debris from the fire can affect streamflow. Culverts and waterbars are commonly used to channel drainage. Make sure culverts are maintained and properly sized to accommodate the runoff.

Flooding and debris flows can be serious problems after a fire. Control flows with sandbags, gravel bags, check dams, fiber rolls, and other temporary or permanent materials. In some cases, you may need to consult an engineer or other expert for advice.[47]

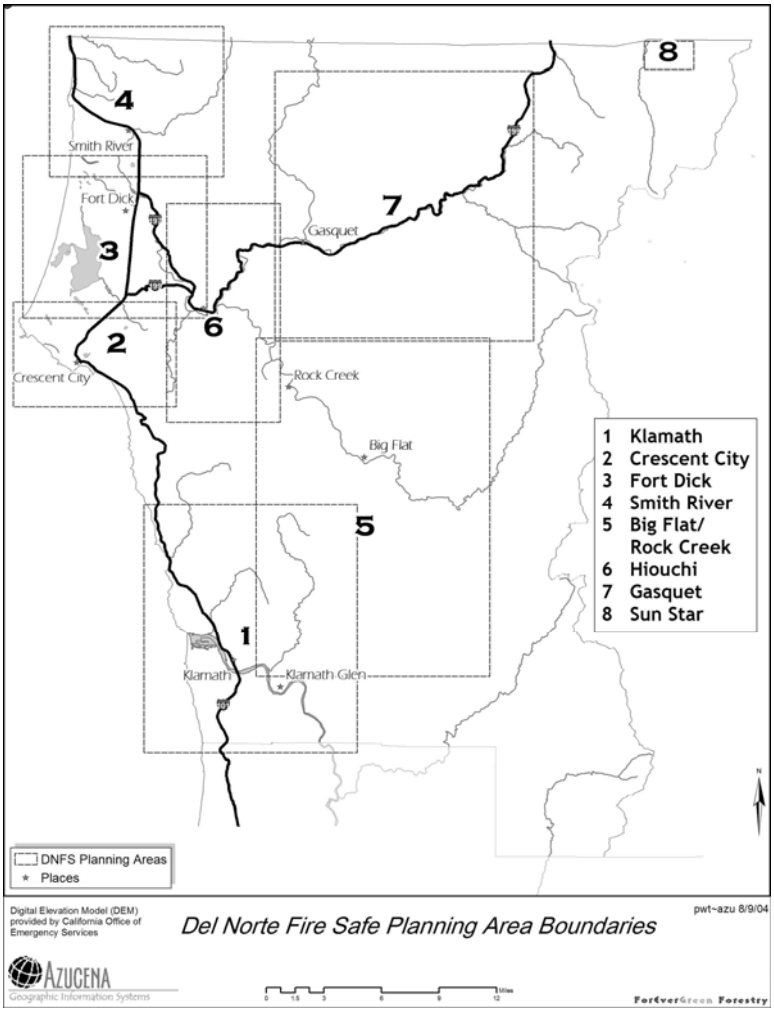
Furthermore, if you are in the unfortunate situation of losing your home to fire, learn from the fire in terms of what areas burned around your property versus those that didn't. Design your new fire-safe landscaping with this in mind. Perhaps most importantly, build or rebuild your home with fire-resistant materials, as described in Section 2.2.3., Fire Safe Building Materials, and as now required by AB 1216.

[47] California Forest Stewardship Program, *Forestland Steward*, Spring 2004, p. 1.

3. DEL NORTE FIRE SAFE PLANNING PROCESS

3.1. Planning Area Boundaries

This Fire Safe Plan covers the entirety of Del Norte County, California. Del Norte County is the most northwesterly county in the state, bordering Oregon along the Pacific coast, Siskiyou and Trinity Counties to the east and southeast respectively, and Humboldt County to the south. For purposes of this document, the county was divided into eight planning areas. These areas are described below, starting from the southern extent of the county and moving northward along the coast, and then inland.



Map 4. Del Norte Fire Safe Planning Area Boundaries

3.1.1. Klamath

The Klamath planning area begins at the southern border of Del Norte County with Humboldt County, near the north end of the Prairie Creek Redwoods State Park. It continues along the coast to three miles north of the mouth of Wilson Creek.

3.1.2. Crescent City

The Crescent City planning area includes the city and outlying areas. To the north, this includes the neighborhoods along Washington Avenue and areas south of Fort Dick. On the east side this is much of the area east of highway 101, especially the Church Tree subdivision bordering Jedediah Smith

Redwoods State Park and Redwood National Park on the east. The southern boundary is the Del Norte Coast Redwoods State Park and Redwood National Park.

3.1.3. Fort Dick

The Fort Dick planning area centers on the community of Fort Dick, between Crescent City to the south and the Smith River to the north and the east.

3.1.4. Smith River

The Smith River planning area is centered on the community of Smith River, between the Smith River to the south and the Oregon border to the north. It includes Green Diamond Resource Company land on the east, up to the eastern border at Six Rivers National Forest.

3.1.5. Big Flat/Rock Creek

The Big Flat/Rock Creek planning area is an inholding[48] within the Six Rivers National Forest Smith River National Recreation Area. This isolated rural community is situated along the South Fork Road (FS Road 427) and the South Fork of the Smith River.

3.1.6. Hiouchi

The Hiouchi planning area is centered on the community of Hiouchi, located on Highway 199, just west of Jedediah Smith Redwoods State and National Park. It includes the residential areas along North Bank Road (Highway 197), South Bank Road, and Low Divide Road. The planning area boundary is the park and main stem Smith River on the west, including the private residences along Highway 197. To the north, east, and south the planning area is bounded by the USFS Smith River National Recreation Area (SRNRA), as well as Redwood National Park to the south.

3.1.7. Gasquet

The Gasquet planning area is centered on the community of Gasquet, a private inholding on Highway 199, within the USFS Smith River National Recreation Area. As such, the planning area is surrounded on all sides by SRNRA. It also includes scattered private parcels along 199 near Gasquet and towards the Oregon border.

3.1.8. Sun Star

The Sun Star planning area is the area around a 160-acre ranch inholding in the Rogue River-Siskiyou National Forest at the northern edge of Del Norte County, east of Highway 199. It is located on Dunn Creek, on the East Fork Illinois River, with primary access through Takilma, Oregon.

3.2. Process and Plan Development

As discussed in Section 1.5, the Del Norte Fire Safe Council began the process of the Del Norte Fire Safe Plan with development of a grant proposal to the US Forest Service in 2002. They received funding in 2003 and hired Tracy Katelman of ForEverGreen Forestry in Eureka, CA, to develop and produce the plan. That process began in December 2003.

Initial Meeting

An initial community meeting was held in Crescent City on February 26, 2004, at Crescent Fire Protection District Office to introduce interested community and agency members to the Del Norte Fire Safe Plan project. Speakers at that meeting included:

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[48] An inholding is a privately owned parcel of land within the boundaries of a federal preserve, especially within a national park or national seashore. (http://education.yahoo.com/reference/dictionary/entries/34/i0143400.html.

- *Martha McClure*, Del Norte Board of Supervisors
- *Dan Leavitt*, Del Norte Fire Safe Council
- *John McFarland*, Crescent Fire Protection District
- *Steve Wakefield,* Crescent City Volunteer Fire Department
- *Don Brooks*, California Department of Forestry and Fire Protection (CDF)
- *Tracy Katelman*, California Fire Safe Council and Del Norte Fire Safe Plan Coordinator

The notes from that meeting are available in Appendix C, Del Norte Fire Safe Planning Process.

Community Meetings

One of the goals in developing the Del Norte Fire Safe Plan is to educate residents regarding fire safety and defensible space. Therefore, the planning process was designed to maximize public input. A series of eight community meetings was held in various locations throughout the county. An additional meeting was held at Sun Star Ranch, a Del Norte County inholding in the Rogue River-Siskiyou National Forest, with primary access through Takilma, Oregon. The nine community meetings were held in the following locations in 2004. All meetings, except for Sun Star, were held from 6:30 to 9:00 pm.

- **March 10 – Gasquet**, Mountain School, Azalea Lane
- **March 17 – Smith River,** Smith River Community Hall, 241 First Street
- **March 18 – Hiouchi**, Smith River Fire Station #2, Hwy 199
- **March 23 – Klamath**, Margaret Keating School, 300 Minot Creek Road
- **March 25 – Big Flat,** Blackburn home, 4125 Big Flat Road
- **April 7 – Fort Dick**, Fort Dick Fire Hall, 6543 Kings Valley Road
- **July 8 – Eastside Crescent City**, Brooks Home, Sleepy Hollow Road
- **July 27 – Westside Crescent City**, Crescent Fire Protection District, 255 W. Washington Boulevard
- **August 17 – Sun Star Ranch**, meadow

The following agenda was used at the initial eight meetings. The Sun Star meeting was more tailored for that community.

Del Norte Fire Safe Plan
Community Fire Safe Planning Meeting Agenda, 6:30 – 9 pm

1. Introductions (20 minutes)

Please state: Name, where you live, any experience or history you have with fire, fire suppression, or fire prevention

Del Norte Fire Safe Plan and Process, National Fire Plan, Fire Atlas

Del Norte Fire Safe Council - What does it do? How can it benefit local residents?

2. Fire safety and defensible space (50 minutes)

Why bother? What are the benefits? What do you think it means?

- "winners and losers" (defendable/non-defendable)
- clearance around homes, landscaping
- Jack Cohen stats
- building materials, UC Forest Products Lab
- access, road conditions, and fire engines
- clearance along roads
- shaded fuelbreaks
- what to do with thinned materials
- water sources
- safe zones
- what to do in case of a wildfire

3. Neighborhood fire history (10 minutes)

- What are your memories and real experiences of fire here?
- How did the fire start? Where was it? What happened? How big was it? When was it? What did you do?

4. **Identify values and assets at risk[49] (10 minutes)** Where are the places of most concern to you to not be lost in a wildfire, such as businesses, historical areas, ecologically significant areas, etc?
5. **Identify high-risk and high-hazard areas (10 minutes)** Where do you think a fire would start here and why? Where are the areas that would be difficult to control if a fire started or reached there?
6. **Developing projects to reduce identified risks (30 minutes)**

- Can we reduce the probability of ignitions? If so, how and where?
- Can we remove fuel in high fire hazard areas? If so, how and where? ID roads to brush, shaded fuelbreaks.
- Do we need more water storage in specific places? If so, where?
- What are the projects that can be done without outside funds?
- Which of these projects is your highest priority?
- Are there other priority projects, e.g. related to the local economy, education, or ecosystem recovery?

Identify projects and mark them on the map, including:

• *fuel reduction work* • *shaded fuelbreaks* • *additional water storage* • *restoration*
• *economic development* • *road improvements* • *education* • *any other relevant projects*

7. **Del Norte Fire Safe Council (5 minutes)** What is required of a community representative? *Identify a representative(s).*
8. **Local fire-fighting atlas (15 minutes)** *Mark and identify on maps:*

• *roads (with local names)* • *road outages/slides/problem areas* • *power lines* • *homes*
• *domestic animals* • *gates, water tanks* • *important outbuildings* • *etc.*

Take copies of maps and handouts to your neighbors who could not attend to include their input.

An extensive outreach effort was made to encourage public participation in these meetings. Kristen Moss and Karen Phillips coordinated this outreach effort. It included:

- extensive phone calling to local residents
- door-to-door canvassing of higher-risk neighborhoods
- mailing and posting of meeting announcement flyers *(see Appendix C for copies of the poster)*
- radio, TV, and newspaper advertisements

Outreach Survey

A survey was mailed to 900 residents in areas identified as high fire hazard or risk within the County. The mailing included a cover letter, survey, and the Homeowners Checklist, *(see Appendix B),* as well as a map of the resident's neighborhood. Sixty-one were returned with information similar to that gained at the community meetings from the respondents.

See Appendix C for an example of the cover letter, survey, and map.

Planning Committee

A Planning Committee was established to oversee the development of the Del Norte Fire Safe Plan and ensure its compliance as a Community Wildfire Protection Plan. The purpose of the committee is:

- to provide oversight to the Del Norte Fire Safe Plan process,
- to meet the requirements of Community Wildfire Protection Plans of the National Fire Plan, and
- to ensure the Plan meets the needs of all sectors of Del Norte County in terms of fire safety and prevention.

[49] At the later meetings, assets were mapped. For all communities, they were identified and are listed in each planning area section.

The Planning Committee is responsible for:

- reviewing documents and providing feedback as necessary,
- attending public community fire plan and DNFSC meetings as available,
- identifying key community members to target for participation in public planning process.

DNFSC Fire Planning Committee Members:

- Don Brooks, CDF, retired
- Jim Karanopoulos, Gasquet FPD
- Sharol Leavitt, DNFSC
- Dan Leavitt, DNFSC
- Martha McClure, DN County Supervisors
- Linda McGath , DNFSC
- John Pricer, Green Diamond/Simpson
- Jay Sarina, Del Norte County
- Jim Smith, CDF
- Sheila Schulze/Paul Zerr, SRNF
- Steve Wakefield, Crescent City Fire/OES Fire Coordinator
- Rick Young, Redwood Natl. & State Parks

Public Comment Process

The public was provided an opportunity to contribute to this document. An internal draft was prepared on October 1st for the Planning Committee, DNFSC, and other interested agency members. On November 1st, the Public Draft of the Fire Safe Plan was published. The draft was distributed to over 75 community members, agencies, and other entities, several available for public viewing. To view the list of recipients, *see Appendix C*. The public was then given until January 15, 2005, to review the document and submit comments. The final plan was released on February 15, 2005. The following people made comments on the public draft.

Table 4. Comments to Public Draft of the Del Norte Fire Safe Plan

Comments from:	Date Rec'd:	Comments
Roselyn, Crescent Fire Protection District	10/29/2004	Faxed 2003 Yearly Incident Report Summary.
Ernest Perry, DN County	11/4/2004	Questions and comments about SB 1369, Communities At Risk, and Wildland-Urban Interface designations. Problem with use of Very High Hazard designation. Issue with mapping. Developments are reviewed and approved by local fire departments. What is issue with development? Defensible space recommendations could conflict with Fish and Game standards for sensitive habitat.
Jim Smith, CDF	1/10/2005	Revised section 2.2.4 and sent table & diagram to use. Revised section 2.2.5. Change reference to brush trucks to Fire engines, Type III. Recommend that you move Chapter 8 to after Chapter 1.4. Identified issues with dispatch and Del Norte County Uniform Fire Code.
Rick Young, Redwood National Park	1/13/2005	Corrected acreage numbers RNSP in Del Norte County. RNSP includes Jedediah & Del Norte Coast Redwoods SP. Fire suppression resources are in Orick. One fire engine, one captain, 1-2 firefighters, floating Duty Officer in Del Norte during fire season. We have mutual aid w/federal agencies & CDF. We completed our shaded fuelbreak; it just needs to be maintained.
Stephen Underwood, California Department of Fish and Game	1/14/2005	No comments. Rick Young will look at the plan in more detail.
Lucy Salazar, USFS Six Rivers National Forest	1/19/2005	Appendices are difficult to follow. Add climate and topography descriptions to Wildfire Environment in Executive Summary. Include USFS FMO's in proposed mitigation strategies where CDF

Comments from:	Date Rec'd:	Comments
		is also mentioned. Use acronym SRNF for consistency throughout document. In Executive Summary explain how priority projects were determined. Board of Forestry Emergency Rule, need to define steep slopes in #4. Gave new definition of fuelbreak. Change shading on charts so they are easier to read.
Sheriff Wilson	1/21/2005	No emergency call-back system. Looks good.
Brenda Devlin	1/24/2005	Doesn't want traffic islands on north end of Wonder Stump listed as a project. Very concerned about Plan's impact on insurance - policies cancelled and rates going up. Plan should focus on projects that homeowner's can accomplish themselves. Listing projects such as widening Hwy. 199 may be interpreted by insurance companies to mean that fire threat is high. If you are going to continue to list this project, link it to improved access not to reducing fire threat.

3.3. Stakeholders

In addition to local resident participation at the community meetings and in the process, several government, organizational, and private industry representatives participated. Representatives from the following entities either participated in the community meetings, Planning Committee, or plan preparation:

Government and Tribal Representatives

- California Department of Fish and Game
- California Department of Forestry and Fire Protection (CDF)
- California State Parks
- Del Norte County Board of Supervisors
- Del Norte County Community Development Department
- Elk River Rancheria
- National Park Service, Redwood National and State Parks
- Smith River Rancheria
- US Forest Service, Smith River National Recreation Area
- Yurok Tribal Forestry

Fire Protection Organizations

- Crescent City Volunteer Fire Department
- Crescent Fire Protection District
- Fort Dick Fire Protection District
- Gasquet Fire Protection District
- Klamath Fire Protection District
- Smith River Fire Protection District

Private Industry

- Green Diamond Resource Company
- Hambro Forest Products

3.4. Methodology

Project Prioritization

The public process above was a fundamental component of the methodology for determining priorities for fire hazard and risk reduction in Del Norte County. In addition to the community prioritization, projects were reviewed with fire hazard and fire threat data developed by CDF's Fire and Resource Assessment Program (FRAP). See Map 6 and Map 7 as well as the fire threat map developed for each community. Following this analysis, projects were reviewed in terms of their ability to minimize risks to population centers and assets at risk. They were also reviewed in terms of project readiness and resources available. Some projects that already had committed resources were reduced in their priority to facilitate development of new projects or actions.

GIS Methodology

With few exceptions, the data used in maps in the Del Norte Community Fire Plan were either generated by the GIS contractor (Azucena GIS) or taken from statewide datasets available to the public from government sources. Del Norte County has not developed an extensive GIS data library; thus the need to create datasets from scratch was apparent.

Initially a data library for the project was developed by retrieving all available datasets from online and agency sources. *(For a list of all data sources, see Appendix E.)* All data used was the best available data at the time. Most data was only available at the statewide scale, often causing "pixelization" when shown at a local scale, making map objects look especially squarish or jagged. Large-format (3 feet x 4 feet) community area maps were generated to provide reference for feedback at community meetings. Following the meetings a set of letter-sized low-resolution maps was developed showing transportation and topography. These maps were sent out to landowners in the county with the outreach survey. The mailer maps and surveys along with the feedback from community meetings were "HeadsUp"[50] digitized to generate layers representing the variety of feedback received (community assets, high-risk areas, potential fuel reduction projects, water sources). Fire Protection Districts were "HeadsUp" digitized from the Del Norte County General Plan. The fire stations layer was generated by combining the information available from state and federal agencies (US Forest Service, National Park Service, California State Parks, California Dept. of Forestry and Fire Protection, California Dept. of Corrections) with latitude and longitudinal points for local fire stations. The water sources layer was created by "HeadsUp "digitizing mailer and community meeting feedback and combining it with field GPS readings for tank locations, and information provided by private timber companies (which was also "HeadsUp "digitized). Law enforcement locations were also developed by GIS contractor.

General cartographic features as well as fire and ecosystem management layers were downloaded from either the CDF Fire and Resource Assessment Program website (www.frap.cdf.ca.gov) or the California Spatial Information Library's website (www.gis.ca.gov). Information on the Six Rivers National Forest was obtained from the SRNF's fire planning unit. Information on fuel management projects in the Redwood National and State Parks was obtained from them. Digital Elevation Models and Hill Shade grids were obtained from the California Office of Emergency Services.

The Wildland-Urban Interface (WUI) areas were developed from several sources. First, CDF's WUI (FRAP, Wildland Urban Interface (WUI) Fire Threat) was used. Then, projects, high risk areas, and community assets identified at community meetings were incorporated. Finally the WUI areas defined by the Six Rivers National Forest (SRNF) fire planners were added. The SNRF information was reviewed

[50] "HeadsUp" digitizing is when the original document is scanned or photographed, then rectified to be geographically accurate. Next, the desired features are recreated using software and tracing the original features into the GIS program.

with community-identified projects and the WUI areas were expanded in some areas to correlate with topographical features.

The ownership parcels were created using the Parcel Quest CD provided by Del Norte County. All parcels are of limited accuracy since the paper maps used to make them are themselves of limited accuracy. APN (assessors parcel number) values are also as accurate as possible considering the available text was legible on the digital copies of paper maps. Polygons were mapped using the Del Norte County Assessor's Parcel Maps in conjunction with existing GIS data such as the Public Land Survey System. Data was collected using available generalized parcel information.

Final plan maps were generated using ESRI ArcMap, and each map was exported as both a high-resolution .tiff and a medium-resolution .jpeg for incorporation into the plan.

The maps presented in this Plan are for planning purposes only.

4. CURRENT WILDFIRE ENVIRONMENT IN DEL NORTE COUNTY

Many Del Norte residents understand that it is not a question of *if* a wildfire will occur here, but rather a question of *when*. This landscape evolved with fire, and many local species—such as redwood—like fire to open their cones. Understanding fire and its role in the ecosystem will help us to better coexist with it.

4.1. Wildfire Problem Definition

Like many areas in the West, Del Norte County has an increasing problem of loss from wildfire. There have been several decades of successful fire suppression efforts. In addition, much of the original forest cover has been logged at least once. Fuel loads have increased to unnatural levels. Between 1998 and 2001, the California Department of Forestry and Fire Protection, Six Rivers National Forest, and State and National Parks responded to more than 250 fires within Del Norte County.[51] This does not include the fires responded to by the County's local fire departments. Those calls are described in Chapter 5, Fire Suppression Organizations.

4.2. Local Fire Ecology

Fire ecology is the study of fire and its relationship to the physical, chemical, and biological components of an ecosystem. In Del Norte County there are several ecosystem types that have evolved with fire, including chaparral and redwood. Disturbance[52] is a part of the natural process. To suppress or prevent this disturbance changes natural processes. As a result of decades of fire suppression, ecosystems become altered and degraded. For instance, fire suppression has led to increases in the amount and type of live vegetation, as well as the size, amount, and distribution of dead fuel. As a result the forest is more crowded, trees are unable to retain their vigor, and they are more vulnerable to insects, disease, and stand-destroying fires. For example, Douglas fir, which is a shade-tolerant tree, is quite abundant throughout Del Norte County but would not have proliferated had fire been used to manage the landscape. This is noticeable with the new Mill Creek addition to State Parks. Where once a redwood forest dominated, continued forest management converted much of it to dense Douglas fir stands. In contrast frequent, low-intensity surface fires (such as occurred historically) cleanse the forest floor and maintain open stands of trees, thus allowing sunlight and moisture to reach the understory. When fire maintains a mosaic of vegetation and fuel to "natural" conditions, shade-tolerant trees such as Douglas fir are not able to form the dense understories that are present in the forests of Del Norte County today. In addition, fire suppression has led to a buildup of dead fuel because they are accumulating faster than they are being recycled through harvesting, fire, and decomposition.

Therefore, fire is not always bad. Cool, frequent fires keep our forests healthy. Our challenge is how to remove the unnaturally high level of fuel, while maintaining ecosystem functions, processes, and health.

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[51] CDF/USFS Emergency Command Center, Fortuna.

[52] Disturbance is defined as "A natural or human-induced disruption or alteration of an ecosystem. Forest fires, tornadoes, or rock slides are examples of natural disturbances; logging, acid rain, and road-building are examples of human disturbances." (Source: Hubbard Brook Glossary, http://www.hubbardbrook.org/education/Glossary/Glossary.htm.)

4.3. Fire History

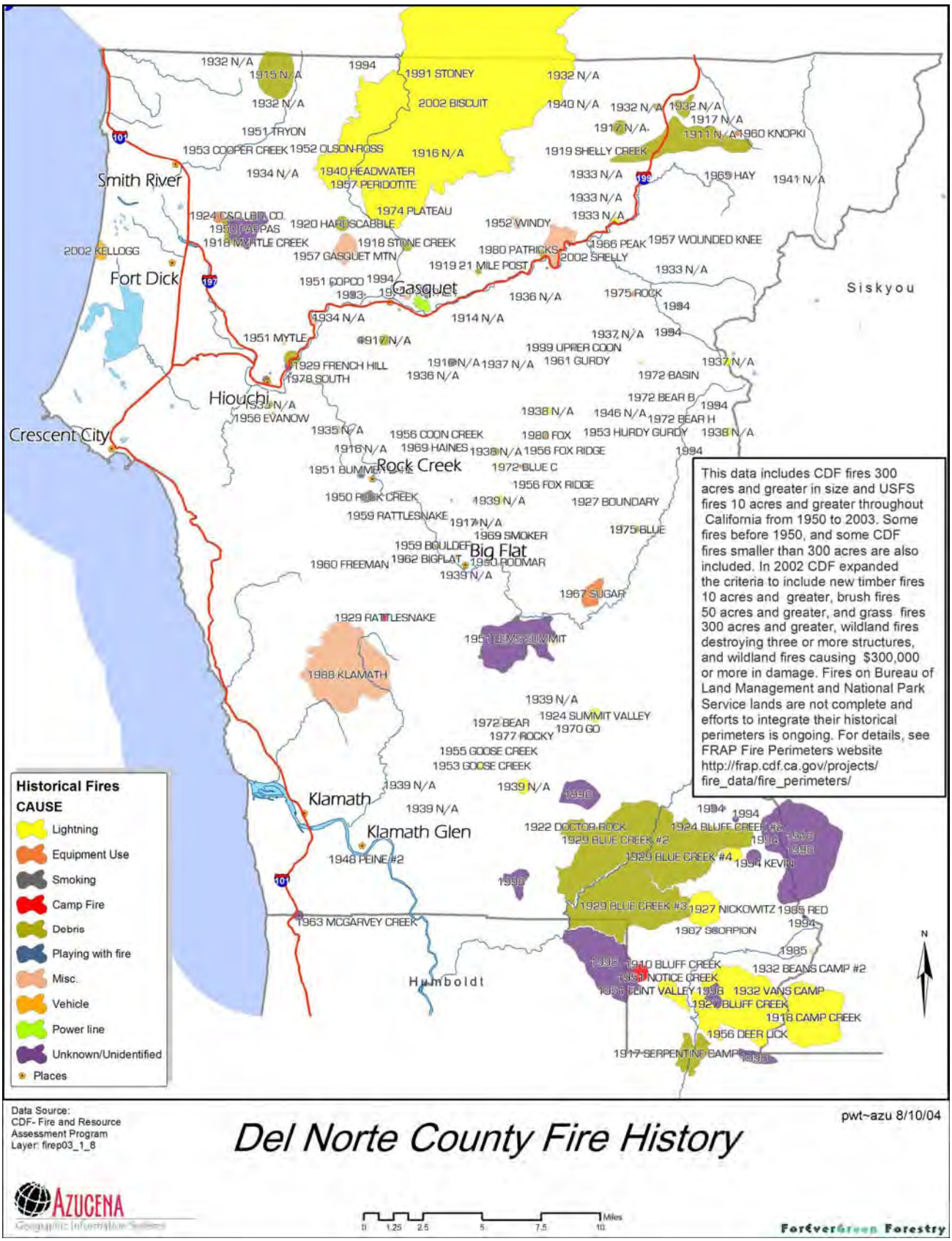
> During the pre-settlement period (before 1875) the Native American people commonly used fires. The Native Americans found this area to be well suited to their needs. The access to the coast for trading and food, relatively mild temperatures, and the many tributaries provided for fresh water and food. They used fire for several reasons. It helped drive out rodents and insects, kept the forest understory open, which made for easier travel and hunting. Additionally it enhanced the forbs and grasses used in basked weaving. During the settlement period (1875-1897) European settlers used fire for maintenance and enlarging the pasturelands and as a land clearing method. These fires frequently escaped due to the lack of firefighting equipment or knowledge. Major land activities during the post-settlement period (1898-1940) were livestock grazing, farming, debarking of the tanoak for tannin production and logging of Douglas Fir and Coast Redwood. Logging was clearly a dominant activity during this time period. Hundreds of small mills existed up and down the coastline; often the mills would have their own railroad for the transportation of the logs as well. In this time of unrefined mechanized equipment the logging operations were simplified as much as possible. Logged areas were burned to assist with the removal of the logs and reduce the logging debris left behind. These fires were left to burn with no real control efforts. The same can be said for the area ranchers who commonly set fire to their land in order to maintain the grazing. This resulted in many, large fires that are documented in area newspapers from 1880 to 1952.
>
> Many studies have been conducted on the fire frequency of the Coast Redwood. Accordingly there are varying thoughts on the fire frequency. There is also a notable difference between the northern portion of the Unit [Humboldt and Del Norte Counties] versus the southern area. Estimates for the Redwoods in the northern portion of the Unit [including Del Norte County] suggest a 50 to 100-year fire cycle.[53]

The largest recent fire was certainly the Biscuit Fire in 2002, which burned in both southern Oregon and northern California. It began on July 13, 2002, due to lightning strikes and ended up burning a total of 499,965 acres, one of Oregon's largest fires in recorded history. This fire caused the evacuation of Gasquet and surrounding communities. It also contributed to health problems for residents within a 100-mile radius due to heavy smoke. The Biscuit Fire was the region's largest and most devastating wildfire over the last 125 years. Its boundaries stretched from ten miles east of the coastal community of Brookings, Oregon; south towards the northern California communities of Hiouchi and Gasquet; east to the Illinois Valley in southern Oregon; and north to within a few miles of the Rogue River in Oregon. The fire became one of the most difficult fires to contain in recent history.

According to data from CDF's Fire and Resource Assessment Program (FRAP), the cause of many fires in Del Norte County—they began keeping track in 1950—is either lightning, debris burns (e.g. slash or trash), or equipment use.

Map 5 (next page) shows most big fires and their ignition source. Appendix F has data to support this map.

[53] CDF Humboldt-Del Norte Unit, Fire Management Plan 2004, p. 12.



Map 5. Del Norte County Fire History[54]

[54] On Del Norte County Fire History map, N/A means that no name was given for this fire.

4.4. Fire Weather

"Fire weather" refers to weather elements that influence fire ignition, behavior, and suppression,[55] such as temperature, relative humidity, wind speed and direction, precipitation, atmospheric stability, and aloft winds.[56] When the temperature is high, relative humidity low, wind speed is increasing and coming from the east (offshore flow), and there has been little to no precipitation so vegetation is dry, conditions are very favorable for extensive and severe wildfires. While these conditions occur less frequently near the coast in Del Norte County, they occur more frequently inland where temperatures are higher and the fog is less prevalent. In addition, the large amount of precipitation the County receives on an annual basis creates a lot of vegetation, which is potential fuel. During the dry summer months this abundant vegetation dries out and becomes hazardous fuel. That fuel combined with a Chinook wind—hot and dry from the Great Basin—can produce extreme fire danger in Del Norte.

The coastal area also has a local fire weather scenario when the prevailing winds from the Gulf of Alaska blow off the ocean. This is illustrated in Map 7, Fire Threat.

Check out the National Fire Weather website at http://fire.boi.noaa.gov for more information on fire weather.

4.5. Hazardous Fuel

Hazardous fuels are those fuels (e.g. vegetation slash) that are flammable and likely to burn in a wildfire. The following map from CDF's Fire and Resource Assessment Program (FRAP) helps to identify general areas of high fuel hazard. "CDF has developed a hazard assessment methodology for the California Fire Plan to identify and prioritize pre-fire projects that reduce the potential for large, catastrophic fires."[57] The fuel hazard ranking tells us the expected behavior of fire in severe weather (when wind speed, humidity, and temperature make conditions favorable for a catastrophic fire). The method for determining the fuel hazard ranking is based on: a) fuel behavior model, b) slope, c) brush density, and d) tree density.

There are thirteen fire behavior fuel models, each based on general classes of vegetation, fuels, and resultant fire behavior.[58] Evaluation of the fire behavior fuel model and slope will result in a surface rank, which tells us the "rate of fire spread and heat per unit area associated with each unique fuel model-slope combination."[59] Now that we can predict how fast and how hot a potential fire can burn in a given area, we need to know how abundant the fuel is in the area, and thus how probable it is for a fire to occur there – how hazardous it is. This is achieved by further analyzing surface rank with brush density and tree density to arrive at a hazard rank. Brush density is the ladder fuel[60] while tree density is the crown fuel. By analyzing the relative abundance of this ladder and crown fuel we can predict the fire behavior for a given area during a severe weather condition—in other words, how hazardous the area is. If an area has a very high surface rank (a very high rate of fire spread and heat per unit area), along with dense crown and ladder fuel, then it is highly probable that a fire could reach catastrophic proportions there during a severe weather condition. The area would receive a very high hazard rating. If an area has a moderate surface rank (a low rate of fire spread and heat per unit area) and has very little crown and ladder fuel, then there is a low probability of a catastrophic fire occurring there and it would receive a moderate hazard rating.

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[55] http://www.fourcornersforests.org/wildlandterms.shtm

[56] http://www.fdrs.or.id/glossary_e.html

[57] CDF FRAP: http://frap.cdf.ca.gov/data/fire_data/hazard/mainframes.html.

[58] Anderson, Hal E. 1982. USDA Forest Service GTR INT-122, 22 pp. Intermountain Forest and Range Experiment Station, Ogden, UT 84401.

[59] CDF FRAP.

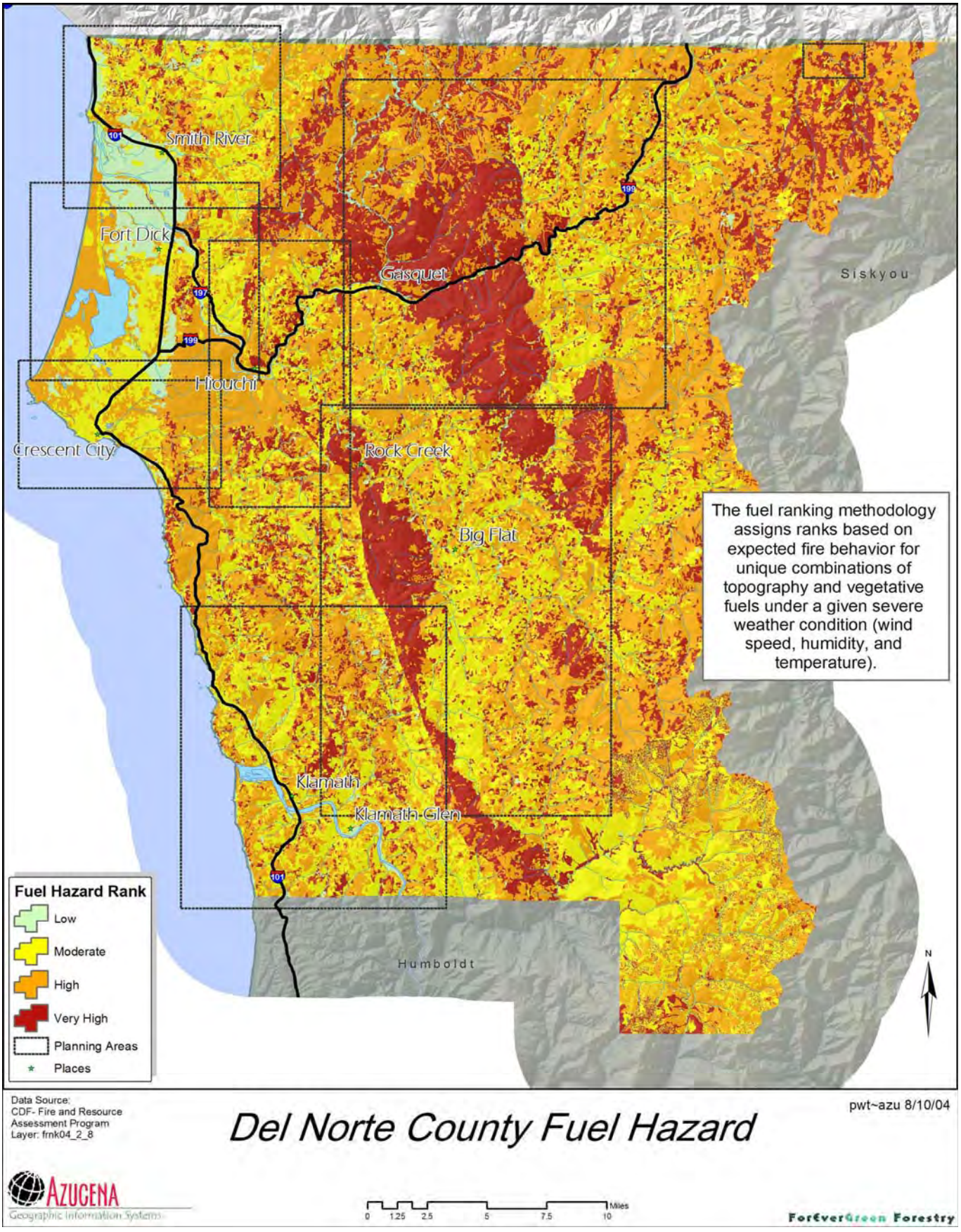
[60] See Section 2.3.

> The Unit [Humboldt-Del Norte] is predominately mixed conifer forest (NRDRS Fuel Model G or Fire Behavior Fuel Model 10). This model consists of Coast Redwood, Douglas Fir, [and] Spruce with intermingled hardwoods including Madrone and Tanoak. A key component within this fuel type is the large amount of down and dead woody fuel. This vegetation type occurs in three zones. The coastal strip consists of Coast Redwood, Douglas Fire and Spruce. This is a closed canopy forest with a thick, lush understory of brush. The biomass in this fuel type is equal to or greater than a rainforest. In fact it is not uncommon to have a true Redwood forest referred to as a rainforest. The second zone occurs inland where the Douglas Fir dominates and resides with the above-mentioned hardwoods. This results in a more open canopy with a sparser understory. [61]

This information helps CDF and other agencies determine what kind of fire might be expected in different areas. "CDF pre-fire engineers verify these [hazard] rankings and use this fuel hazard assessment in conjunction with three additional Fire Plan assessments (weather, assets at risk, and level of service)." Thus, Map 6 identifies areas that CDF expects to be at the highest hazard for fire, depicted in red. The data for these maps is not "fine" because it is done at a statewide scale and zoomed into Del Norte County. In Del Norte, the most noticeable areas are to the east/northeast of Gasquet and Big Flat/Rock Creek. This is especially critical given that wildfires tend to come towards these communities from that same direction.

See http://frap.cdf.ca.gov/data/fire_data/fuel_rank/index.html for more information.

[61] CDF Humboldt-Del Norte Unit, Fire Management Plan, p. 28.



Map 6. Del Norte County Fuel Hazards. Note: This map is for planning purposes only. See Section 3.4 for more information.

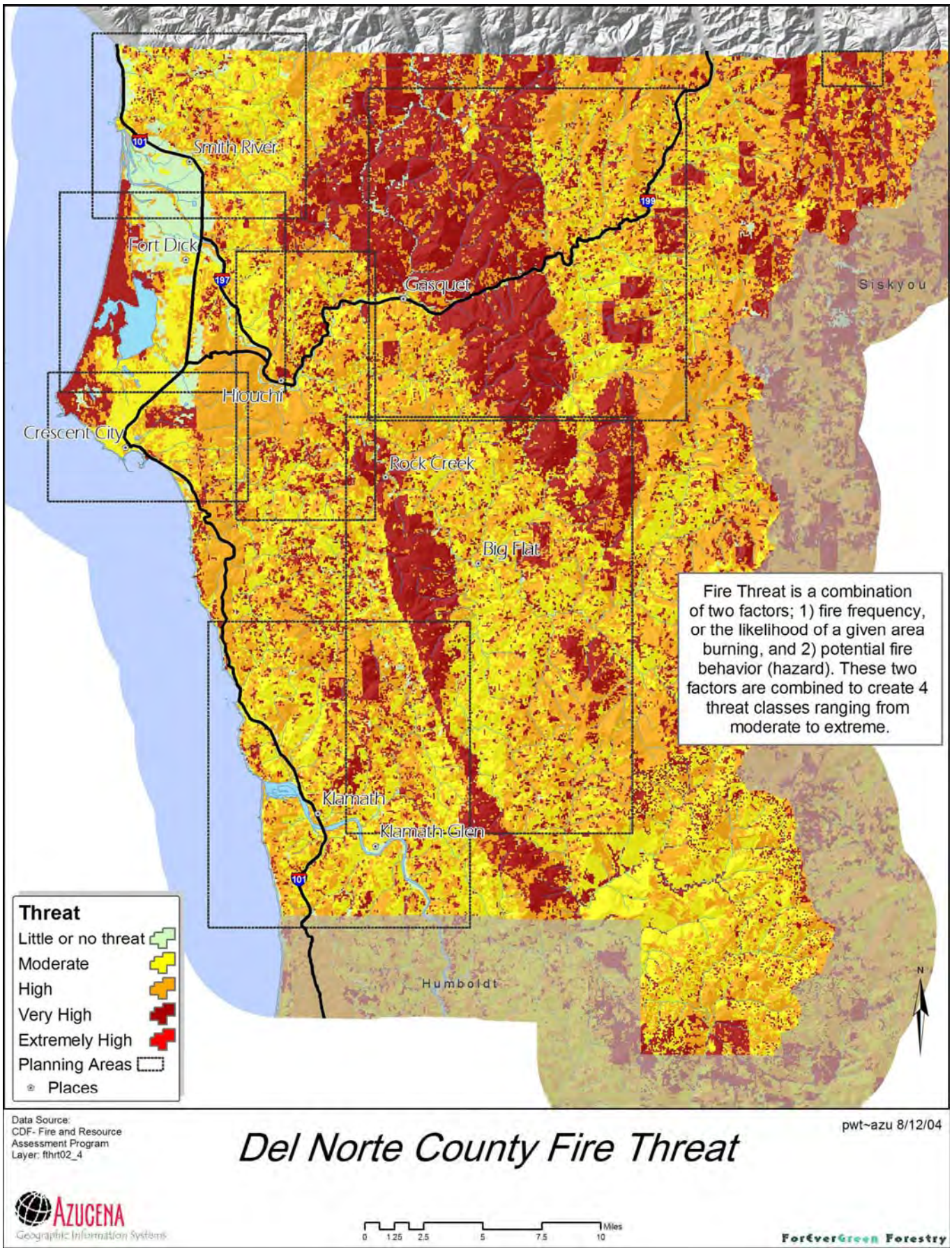
Fire Threat

> "Fire threat can be used to estimate the potential for impacts on various assets and values susceptible to fire. Impacts are more likely to occur and/or be of increased severity for the higher threat classes. Fire Threat is derived from a combination of fire frequency (how often an area burns) and expected fire behavior under severe weather conditions. Fire frequency is derived from 50 years of fire history data. Fire behavior is derived from fuel and terrain data. These data inputs are also catalogued within CERES[62] and available via the CDF-FRAP web site. Detailed documentation is under development and will be posted on the FRAP web site."[63]

An important aspect when looking at Del Norte Fire Threat versus Fuel Hazard is the fact that more areas are in the "Very High" fire threat category than in the "Very High" fuel hazard category. The most noticeable difference is found in the coastal area near Fort Dick and northwest Crescent City, especially from Point Saint George to the Smith River. The map on the following page shows CDF's Fire Threat designations for Del Norte County.

[62] California Environmental Resources Evaluation System

[63] Metadata, Fire Threat, http://frap.cdf.ca.gov/data/frapgismaps/output/fthreat_map.txt



Map 7. Del Norte County Fire Threat

Fire Regime

A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention, but including the influence of aboriginal burning (Agee 1993, Brown 1995).[64]

There are five natural (historical) fire regimes. These are based on the average number of years between fires (fire frequency) combined with the severity of the fire on the dominant overstory vegetation (the amount of replacement). According to the Fire Regime Condition Class website[65] the five regimes are:

I – 0-35 year frequency and low (surface fires most common) to mixed severity (less than 75% of the dominant overstory vegetation replaced);

II – 0-35 year frequency and high (stand replacement) severity (greater than 75% of the dominant overstory vegetation replaced);

III – 35-100+ year frequency and mixed severity (less than 75% of the dominant overstory vegetation replaced);

IV – 35-100+ year frequency and high (stand replacement) severity (greater than 75% of the dominant overstory vegetation replaced);

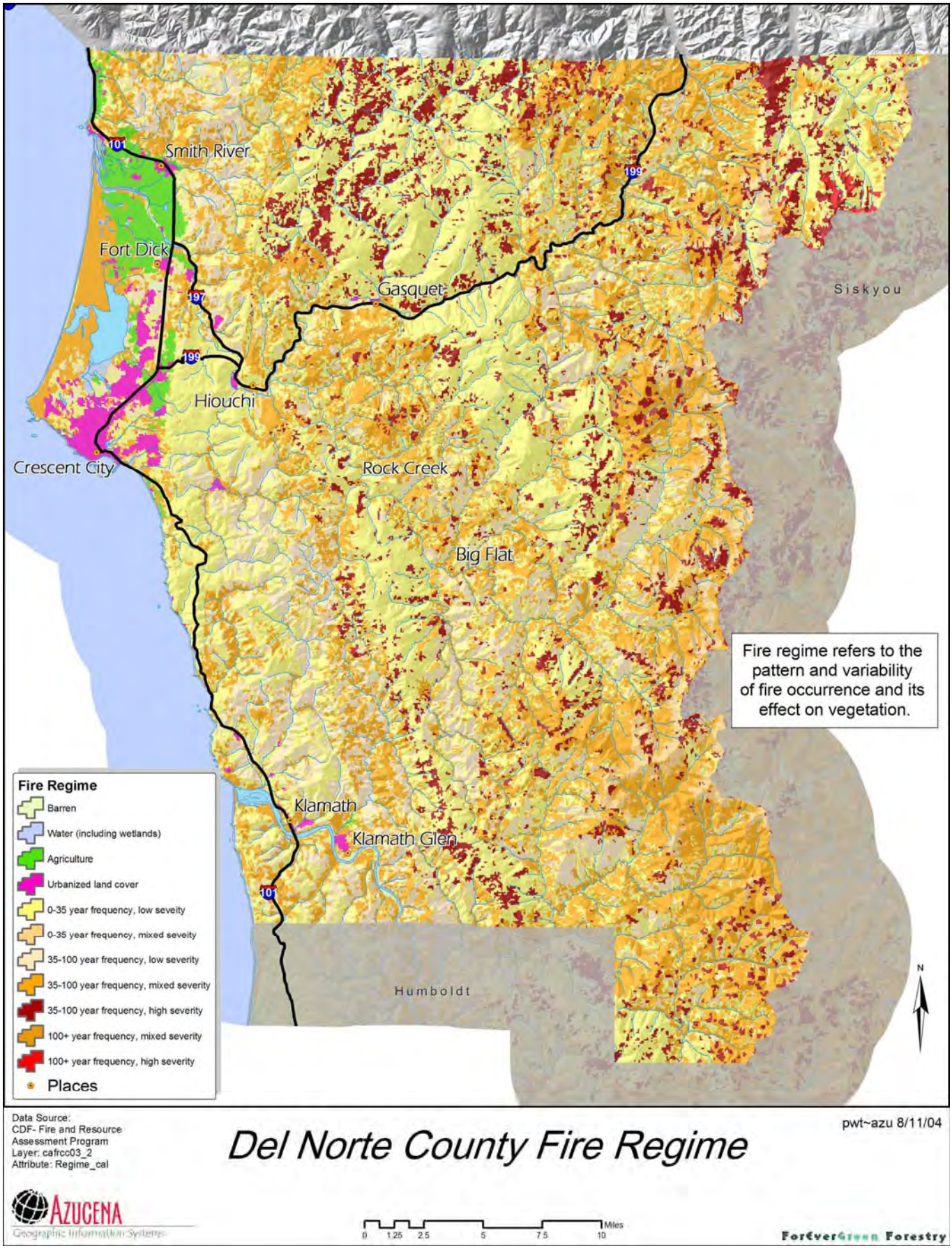
V – 200+ year frequency and high (stand replacement) severity.[66]

The map on the following page depicts fire regime for Del Norte County.

[64] Lucy Salazar, personal communication.

[65] Fire Regime Condition Class website, http://www.frcc.gov.

[66] Fire Regime Condition Class website, Definition, 20 June 2003, http://www.fire.org/frcc/FrccDefinitionsFinal.pdf.

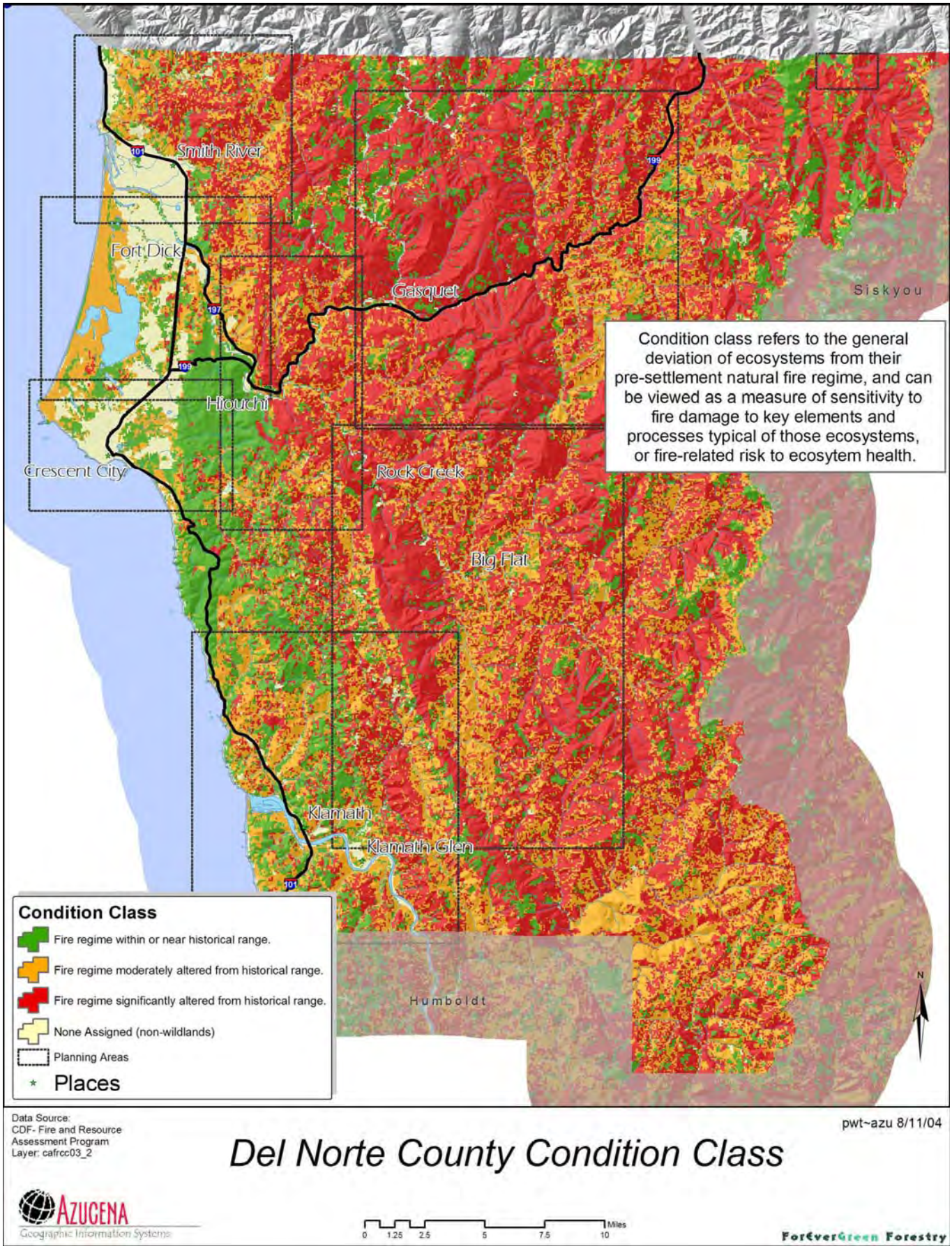


Map 8. Del Norte County Fire Regime

Condition Class

A fire regime condition class is a classification of the amount of departure from the natural (historical) fire regime. Hardy et al. (2001) developed three fire regime condition classes (FRCC) for each fire regime. These classifications are based on the degree of departure from the natural fire regime, with FRCC 1 being little departure and still within the natural range of variability, FRCC 2 being moderate departure, and FRCC 3 being high departure from the natural fire regime. A departure from the natural fire regime results in variations to one or more of the following ecological components: vegetation characteristics (species composition, structural stages, stand age, canopy closure, and landscape patterns), fuel composition, fire frequency, severity, and pattern, and other disturbances (insects, disease, grazing, and drought). The greater the departure from the natural fire regime, the greater the variations to ecological components and the higher the risk of losing key ecosystem components. For example, FRCC 3 classification means that fire regimes have been greatly altered from their natural range and likewise vegetation characteristics have been dramatically altered from their natural range. Therefore, the risk of losing key ecosystem components is high. Classification of FRCC 2 means that fire regimes have been moderately altered from their natural range, resulting in vegetation characteristics that have been moderately altered. The risk is also moderate.

The following map depicts Fire Regime Condition Class in Del Norte County.



Map 9. Del Norte County Condition Class

5. FIRE SUPPRESSION ORGANIZATIONS

In Del Norte County there are five Fire Protection Districts:

- Klamath Fire Protection District
- Crescent Fire Protection District
- Fort Dick Fire Protection District
- Smith River Fire Protection District
- Gasquet Fire Protection District

There are also a number of governmental fire agencies including:

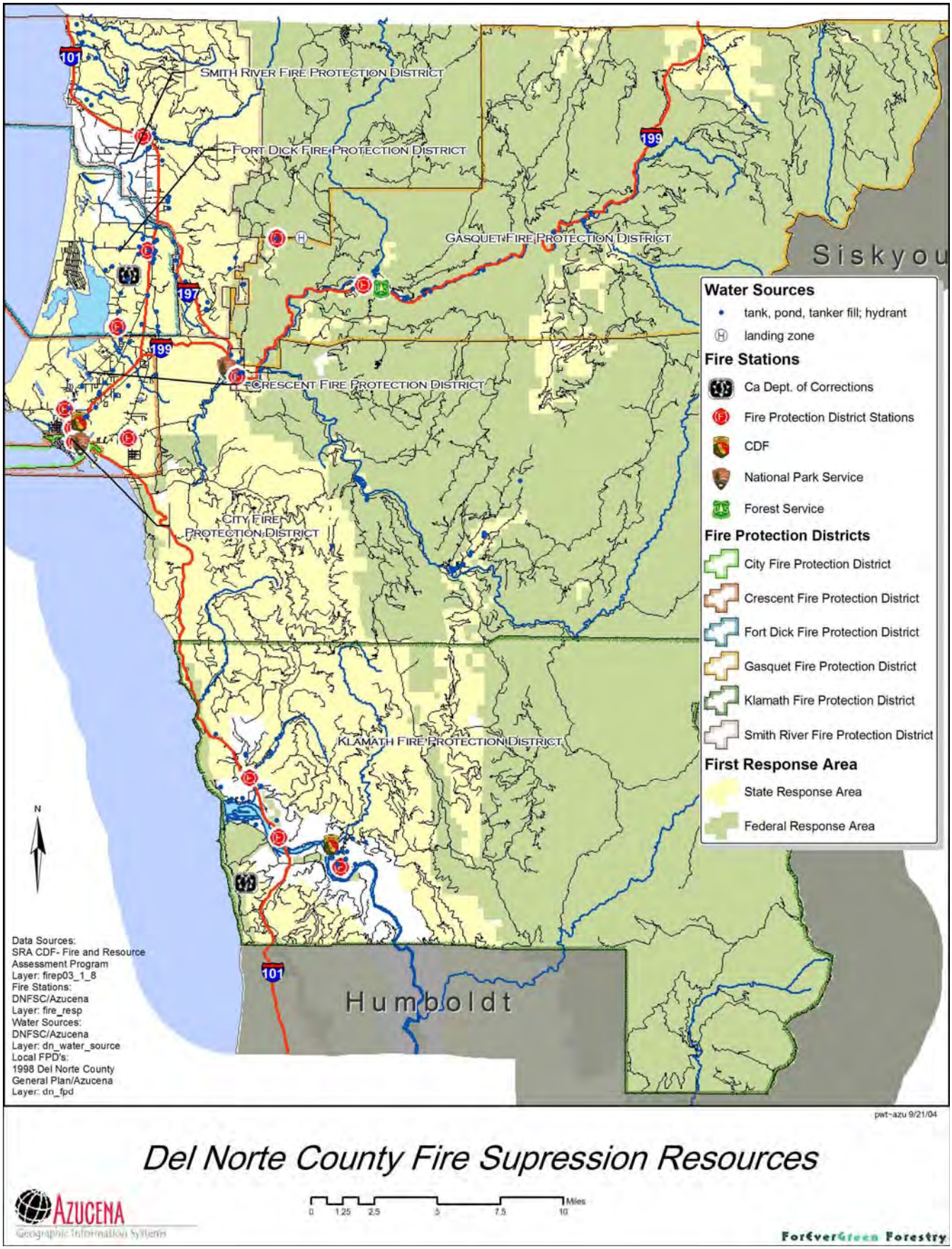
- Crescent City Volunteer Fire Department
- California Department of Forestry and Fire Protection
- US Forest Service, Six Rivers National Forest
- Redwood National and State Parks
- Pelican Bay State Prison

In order to ensure that these fire districts operate in an efficient and cost-effective manner, the districts have mutual aid and auto aid agreements in place. Mutual aid means that a fire department can request the services of another department based upon predetermined agreements to provide such services. Mutual aid agreements exist among the districts for back-up in large or multiple fire scenarios and for general emergencies. All of the county's Fire Protection Districts have mutual aid agreements with each other. Auto aid means that the parties of an auto aid agreement will be dispatched to respond to incidents outside their regular district or jurisdiction to assist with suppression or other emergencies. Crescent Fire Protection District and Crescent City Volunteer Fire Department are the only two entities that have an auto aid agreement (with each other). This means that they are both automatically dispatched at the same time.

Private lands not within one of these districts: Big Flat, Rock Creek, and Sun Star have no official structural fire service, although local and State fire crews will try to provide assistance when possible.[67]

The following map shows the locations of fire stations, Fire Protection District boundaries, water tanks, and State (SRA) versus Federal Response Area (FRA). Fire Protection District boundaries tend to vary depending on who is providing the information. The boundaries for this map were taken from "Public Protection Classification™ Draft Map for Smith River Fire Department," 2002. CDF is primarily responsible for wildlands in the SRA as well as structure fires that threaten wildlands. The SRNF is responsible for wildlands in the FRA.

[67] Del Norte County General Plan Update Final Environmental Impact Report, 28 January 2003, p. 5-30.



Map 10. Del Norte County Fire Suppression Resources

5.1. Fire Protection Districts

5.1.1. Klamath[68]

The Klamath Fire Protection District (KFPD) provides first response fire and medical service to approximately 1,250 residents in their 300-square-mile District in Del Norte County.

Fifteen local residents currently volunteer with KFPD, approximately 12 of which are "active" firefighters. None are paid. The District has identified a need for more volunteers. The District is funded primarily through a parcel tax assessment collected and distributed by Del Norte County, totaling approximately $28,200 annually. In 2004, this assessment was $24 per parcel. Additional funding is received through fundraisers conducted by the Klamath Fire Auxiliary and the Klamath Firefighters Association. KFPD's main offices are located at 16081 Highway 101 in Klamath. There are three fire stations located throughout the Klamath region, as shown in the following table and Map 10 above.

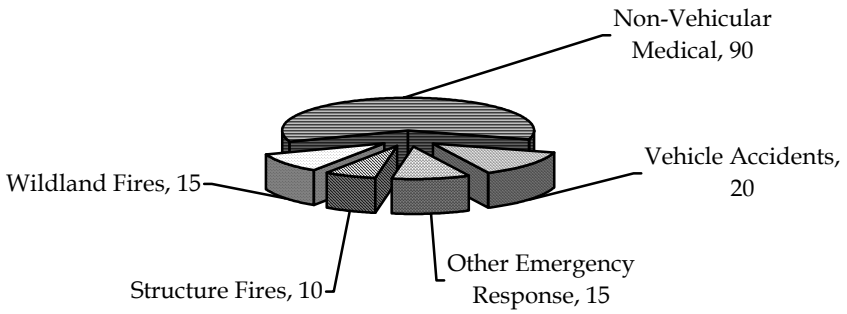
Table 5. Klamath Fire Protection District Stations

Station #	Address
1	104 Redwood Drive, Klamath
2	19 Webber Drive, Klamath
3	370 Terwer Riffle Road, Klamath

The amount of time it takes first responders to arrive at a scene usually has a big impact on their ability to save a structure from fire or a person with a medical emergency. Within Del Norte County, KFPD can mostly respond to incidents in the entire District within 15 minutes. Half of the District can be reached within ten minutes, 40% within five minutes, and 20% of the District is within a three-minute response from one of the KFPD stations or engines.

In 2003, KFPD responded to a total of 150 incidents within the District. The following table summarizes the type and frequency of incidents.

Figure 4. Klamath FPD Number of Incidents by Type of Incident



In addition to providing service within the Klamath area, KFPD on occasion will respond outside of the District boundaries to incidents to the south in Humboldt County or to the north in Crescent Fire Protection's District. KFPD has mutual aid agreements with all of the Fire Protection Districts in Del Norte County, as well as Crescent City Fire, the National Park Service, CDF, and the US Forest Service.

[68] Most of the information in this section was provided by KFPD Fire Chief Lonnie Levi, personal communication 9/24/04.

KFPD also provides first response fire and medical service to the Resighini and Yurok reservations based on agreements with those tribes.

The following table shows the extent of equipment resources currently available to KFPD. All three of the structural engines — those used for structure fires such as homes — are more than 20 years old and in need of replacement. The wildland brush truck, capable of fighting a wildland fire, is brand new. The two water tenders are twenty years old. They also have two rescue trucks which are seventeen years old.

Table 6. Klamath FPD Equipment Resources

Type of Equipment	Year	Gallons of Water Capacity
Structural Fire Engines:		
	1981	1000
	1980	750
	1979	500
Wildland Fire Engines (Assigned to officers):		
	2004	200
Water Tenders:		
	1984	2500
	1984	2500
Rescue Truck:		
	1987	
	1987	

Personal protective equipment, miscellaneous hardware (hose couplings, hand tools), and turnouts have been identified as other priority needs for KFPD. Space is another critical resource for the KFPD. They currently have room to house six vehicles, but they have nine. Each fire barn needs an additional stall.

The contact for Klamath FPD is Lonnie Levi, Fire Chief, PO Box 369, Klamath, CA 95548, 707-482-3311.

5.1.2. Crescent[69]

The Crescent Fire Protection District (CFPD) provides first response fire and medical service to approximately 17,600 residents in their 31-square-mile District in Del Norte County.

Thirty-five local residents currently volunteer with CFPD, all of which are "active" firefighters. There are two paid staff members: Fire Chief and Secretary. The District is funded primarily through a parcel tax assessment collected and distributed by Del Norte County, totaling approximately $165,000 annually. In 2004, this assessment was $24 per parcel. Additional funding is received through the County from property taxes. CFPD's main offices are located at 255 West Washington Boulevard in Crescent City. There are three fire stations located throughout the area, as shown in the following table and Map 10 above.

[69] Most of the information in this section was provided by CFPD Fire Chief John McFarland, personal communication 9/15/04.

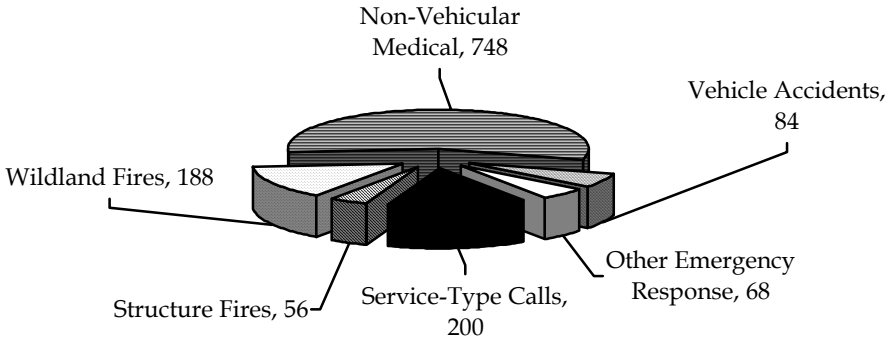
Table 7. Crescent Fire Protection District Stations

Station #	Address
1	550 East Cooper Avenue
2	175 Humboldt Road
3	255 Washington Blvd.

Within Del Norte County, CFPD can respond to most incidents in the entire District within 15 minutes. More than 90% of the District can be reached within ten minutes, 50% within five minutes, and 25% of the District is within a three-minute response from one of the CFPD stations or engines.

In 2003, CFPD responded to a total of 1344 incidents within the District. The following table summarizes the type and frequency of incidents.

Figure 5. Crescent FPD Number of Incidents by Type of Incident



In addition to providing service within the Crescent City area, CFPD on occasion will respond outside of the District boundaries to incidents in Del Norte or Humboldt Counties, Klamath, Fort Dick, and Hiouchi. CFPD has mutual aid agreements with all of the Fire Protection Districts in Del Norte County, CDF when they leave Crescent City's boundaries, and Humboldt County. In addition, there is an auto aid agreement with the City of Crescent City.

The following table shows the extent of equipment resources currently available to CFPD. One structural engine, those used for structure fires such as homes, is 30 years old and needs to be replaced. CFPD currently houses the only ladder truck in the county and it is over 30 years old and needs to be replaced. They also have a 62-year-old fire boat in need of replacement and one rescue vehicle which is more than ten years old and in need of replacement. Fire hose, self-contained breathing apparatus, and radio pagers have been identified as other priority needs for CFPD.

Table 8. Crescent FPD Equipment Resources

Type of Equipment	Year	Gallons of Water Capacity
Structural Fire Engines:		
	1991	750
	1988	750
	1981	750
	1977	800

Type of Equipment	Year	Gallons of Water Capacity
	1974	1000
Water Tenders:		
	1979	3200
Other Equipment:		
Command post vehicle	2004	
Rescue vehicle	1990	
Ladder truck	1968	
Fire boat	1942	

In addition to the equipment needs identified above, one of the greatest resources needed by CFPD is more revenue in order to keep up with today's economy and population. Call volume for CFPD has increased by a factor of three, while income has been reduced by one-third.

Access to staff to perform administrative functions such as fire administration, code enforcement, and training documentation is another critical resource for the CFPD.

The contact for Crescent FPD is John McFarland, Fire Chief, 255 West Washington Blvd., Crescent City, CA 95531, 707-464-2421.

5.1.3. Fort Dick[70]

The Fort Dick Fire Protection District (FDFPD) provides first response fire and medical service to approximately 3,500 residents in their 32-square-mile District in Del Norte County.

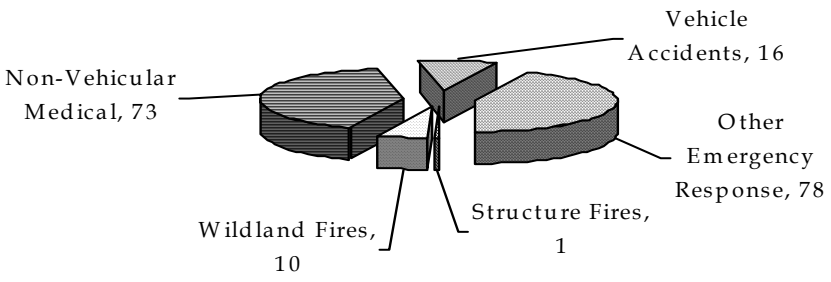
Fourteen local residents currently volunteer with FDFPD, all of which are "active" firefighters. Three other volunteers act as explorers. There is one paid staff member, the Fire Chief. The District is funded primarily through a parcel tax assessment collected and distributed by Del Norte County, totaling approximately $116,000 annually. In 2004, this assessment was $9 per parcel. FDFPD's main offices are located at 6534 Kings Valley Road in Fort Dick. There is one other fire station located in this area, at 4190 Lake Earl Drive, also in Fort Dick.

Within Del Norte County, FDFPD can respond to incidents in the entire District within ten minutes. More than 90% of the District can be reached within five minutes, and 25% of the District is within a three-minute response from one of the FDFPD stations or engines.

In 2003, FDFPD responded to a total of 178 incidents within the District. The following table summarizes the type and frequency of incidents.

[70] Most of the information in this section was provided by FDFPD Fire Chief Randy Crawford, personal communication 9/30/04.

Figure 6. Fort Dick FPD Number of Incidents by Type of Incident



In addition to providing service within the Fort Dick area, FDFPD on occasion will respond outside of the District boundaries to incidents anywhere they are needed. FDFPD has mutual aid agreements with all of the Fire Protection Districts in Del Norte County, as well as Crescent City Fire, and Brookings, Brookings Harbor, and Curry County in Oregon. The following table shows the extent of equipment resources currently available to FDFPD. Jaws of Life has been identified as a priority need for FDFPD.

Table 9. Fort Dick FPD Equipment Resources

Type of Equipment	Year	Gallons of Water Capacity
Structural Fire Engines:		
	1979	750
	1978	500
Water Tenders:		
	1988	2600
	1984	3200
Other Equipment:		
Light rescue rig	1999	

In addition to the equipment needs identified above, one of the greatest resources needed by FDFPD is more revenue in order to keep up with today's economy and population. In addition, more volunteers are needed.

The contact for Fort Dick FPD is Randy Crawford, Fire Chief, PO Box 369, Fort Dick, CA, 95538, 707-487-8185.

5.1.4. Smith River[71]

The Smith River Fire Protection District (SRFPD) provides first response fire and medical service to approximately 5,000 residents in their 25-square-mile District in Del Norte County.

Twenty-six local residents currently volunteer with SRFPD, 15 of which are "active" firefighters. There are three paid staff members: Fire Chief, Assistant Chief, and Secretary. The District is funded primarily through local fundraisers and feeds, as only 19% of the District's annual budget is met by the parcel tax assessment. The parcel tax assessment is collected and distributed by Del Norte County, and

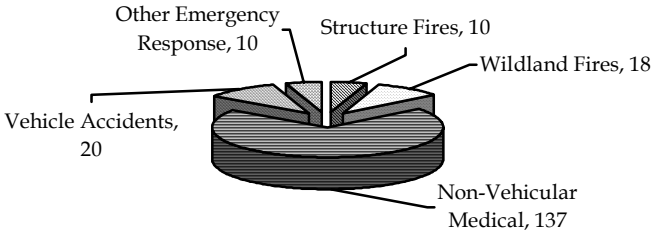
[71] Most of the information in this section was provided by SRFPD Fire Chief Myron Williamson, personal communication 9/16/04.

for SRFPD totals approximately $40,000 annually. In 2004, this assessment was $27 per parcel. SRFPD's main offices are located at 245 Haight Avenue in Smith River. There are two other fire stations located in this area: one on US Highway 199 in Hiouchi, and one on Low Divide Road.

Within Del Norte County, SRFPD can respond to incidents in the entire District within ten minutes. More than 80% of the District can be reached within five minutes, and 70% of the District is within a three-minute response from one of the SRFPD stations or engines.

In 2003, SRFPD responded to a total of 195 incidents within the District. The following table summarizes the type and frequency of incidents.

Figure 7. Smith River FPD Number of Incidents by Type of Incident



In addition to providing service within the Smith River area, SRFPD on occasion will respond outside of the District boundaries to incidents in Del Norte County where they are needed. SRFPD has mutual aid agreements with all of the Fire Protection Districts in Del Norte County, as well as Crescent City Fire. SRFPD Station #2 (Hiouchi) has an auto-aid agreement with Gasquet FPD. The following table shows the extent of equipment resources currently available to SRFPD. One structural engine is fifty years old and in need of replacement. In addition, Jaws of Life, radio repeaters, and handheld radios have been identified as priority needs for SRFPD.

Table 10. Smith River FPD Equipment Resources

Type of Equipment	Year	Gallons of Water Capacity
Structural Fire Engines:		
	2002	750
	1996	750
	1954	1200
Water Tenders:		
	1995	1750
	1978	3000
Other Equipment:		
F350 Rescue truck	1997	
F250 Medical rescue truck	1997	
Air supply trailer	1997	
Suburban command vehicle	1995	

In addition to the equipment needs identified above, one of the greatest resources needed by SRFPD is more revenue in order to keep up with today's economy and population. In addition, a train-the-trainer program is needed in order to empower staff to train others. Also, more volunteers are needed, especially during the daytime hours.

SRFPD provides free road address signs for all Smith River residences, including Hiouchi, Big Flat, and Rock Creek. Without visible road signs, firefighters, ambulances, and other emergency responders are unable to quickly find a place with which they are not familiar. Any residents in this area who are in need of a sign should contact the District ASAP to receive one.

The contact for Smith River FPD is Myron Williamson, Fire Chief, PO Box 187, Smith River, CA 95567, 707-487-5621.

5.1.5. Gasquet[72]

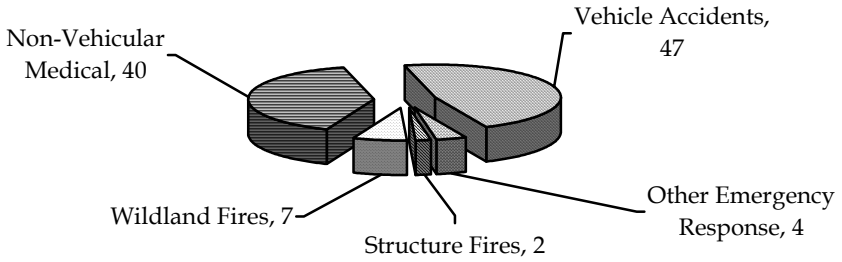
The Gasquet Fire Protection District (GFPD) provides first response fire and medical service to approximately 700 residents in their 400-square-mile District in Del Norte County.

Seventeen local residents currently volunteer with GFPD, all of which are "active" firefighters. There are also three dispatchers. There are two paid staff members: Fire Chief and Assistant Chief. The District is funded primarily through local dances, fundraisers, and a Christmas tree sale, as only 5% of the District's annual budget is met by the parcel tax assessment. The parcel tax assessment is collected and distributed by Del Norte County, and for GFPD totals approximately $8,000 annually. In 2004, this assessment was $30 per parcel. GFPD's only fire station is located at 100 Fire House Road in Gasquet.

Within Del Norte County, GFPD can respond to incidents in the entire District within five to ten minutes. More than 90% of the District can be reached within three minutes, and 5% of the District is located more than fifteen minutes away from GFPD's station or engines.

In 2003, GFPD responded to a total of 100 incidents within the District. The following table summarizes the type and frequency of incidents.

Figure 8. Gasquet FPD Number of Incidents by Type of Incident



In addition to providing service within the Gasquet area, GFPD on occasion will respond outside of the District boundaries to incidents in Brookings or Cave Junction in Oregon. GFPD has mutual aid agreements with all of the Fire Protection Districts in Del Norte County, as well as Crescent City Fire, CDF, the US Forest Service, the National Park Service, Illinois Valley Fire District in Cave Junction, Oregon, and Brookings Harbor in Brookings, Oregon. In addition, there is an auto aid agreement with the Smith River FPD Station #2 in Hiouchi. The following table shows the extent of equipment resources

[72] Most of the information in this section was provided by GFPD Fire Chief Buzz Parlasca, personal communication 9/28/04.

currently available at GFPD. Hose, turnouts, breathing apparatus, handheld radios, and a large generator have been identified as priority needs for GFPD.

Table 11. Gasquet FPD Equipment Resources

Type of Equipment	Year	Gallons of Water Capacity
Structural Fire Engines:		
	2002	2200
	1984	750
	1980	500
Water Tenders:		
	2002	2200
Other Equipment:		
Commander medical squad	1984	

In addition to the equipment needs identified above, one of the greatest resources needed by GFPD is more training. In addition, a quick response rig and a brush/wildland truck have been identified as needs of the District.

The contact for Gasquet FPD is Buzz Parlasca, Fire Chief, PO Box 85, Gasquet, CA 95543, 707-457-3332.

5.2. Governmental Fire Agencies

5.2.1. Crescent City Volunteer Fire Department[73]

> "The Crescent City Volunteer Fire Department (CCVFD) celebrated its 100th birthday in 2000 -- an amazing accomplishment. Until the mid-1950s, CCVFD was the only fire department in the county. Today, twenty-five CCVFD volunteer firefighters are on call 24 hours a day, seven days a week. Armed with pagers or radios, as many as are able and available respond to each call for assistance. Firefighters are dispatched for calls including fires, traffic accidents, medical assists, hazardous materials spills, and other emergencies. The calls may come in the middle of the day or in the middle of the night, pulling volunteers from work, home, family, and sleep. The firefighters also put in many hours a month practicing, training and keeping certifications up to date. The CCVFD does all of this with lots of volunteer hours. The local departments have mutual aid agreements that help them work together. The CCVFD responds to about 150 emergency calls a year, and also lends a hand in time of flood or other natural disasters."[74]

The Crescent City Volunteer Fire Department provides first response fire and medical service to approximately 4,000 residents in their one-and-one-quarter-square-mile District in Del Norte County.

Twenty-five local residents currently volunteer with CCVFD, all of which are "active" firefighters. There are no paid staff members. The District is funded primarily through the City of Crescent City general fund, and for CCVFD totals approximately $180,000 annually. CCVFD's only fire station is located at 520 I Street in Crescent City.

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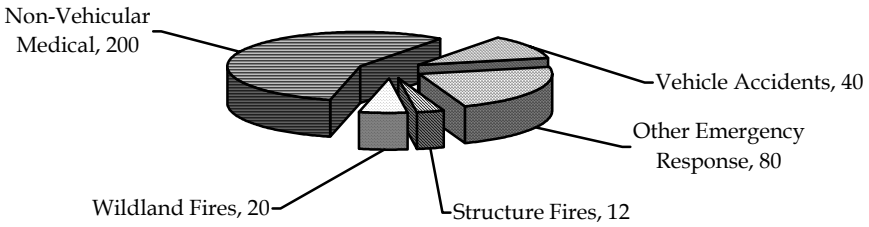
[73] Most of the information in this section was provided by CCVFD Fire Chief Steve Wakefield, personal communication 9/29/04.

[74] City of Crescent City, http://www.crescentcity.org/html/fire_dept_.html

Within Del Norte County, CCVFD can respond to incidents in the entire District within three minutes. In 2003, CCVFD responded to a total of 400 incidents within the District. The following table summarizes the type and frequency of incident.

Figure 9. Crescent City VFD Number of Incidents by Type of Incident



In addition to providing service within the Crescent City limits, CCVFD will respond outside of the District boundaries to incidents in Crescent Fire Protection's District. CCVFD has mutual aid agreements with all of the Fire Protection Districts in Del Norte County. In addition, there is an auto aid agreement with Crescent Fire Protection District. The following table shows the extent of equipment resources currently available to CCVFD. One of the structural fire engines is more than twenty years old and needs to be replaced. Also, the command vehicle is eight years old and needs to be replaced. An aerial ladder truck has been identified as a priority need for CCVFD.

Table 12. Crescent City VFD Equipment Resources

Type of Equipment	Year	Gallons of Water Capacity
Structural Fire Engines:		
	1999	750
	1986	750
	1983	750
Other Equipment:		
Airport response vehicle	2004	
Command vehicle	1996	
Air supply vehicle	1981	

In addition to the equipment needs identified above, one of the greatest resources needed by CCVFD is more volunteers in order to ease the load on current volunteers.

The contact for Crescent City VFD is Steve Wakefield, Fire Chief, 520 I Street, Crescent City, CA 95531, 707-464-9113.

5.2.2. California Department of Forestry and Fire Protection[75]

The California Department of Forestry and Fire Protection (CDF) provides wildland fire protection for private, industrial, county, state, BLM, and municipal forest lands. CDF provides wildland fire protection to approximately 22,000 residents in their 300-square-mile service area in Del Norte County.

All staff is paid within the CDF. CDF's Crescent City Battalion has 21 staff members including: seven Fire Captains, one Fire Prevention Captain, 12 firefighters, and one Battalion Chief. CDF is funded through the state. CDF's Humboldt-Del Norte Unit headquarters is at 118 Fortuna Boulevard in Fortuna. There are three fire stations located within or near the Del Norte region, as shown in the following table and Map 10 above.

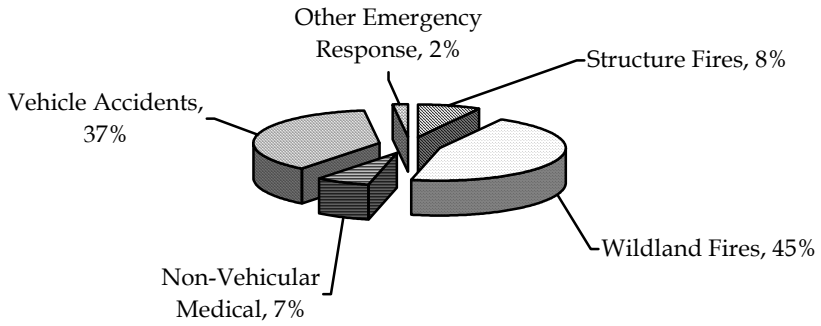
Table 13. CDF Stations

Station #	Address
1	1025 Highway 101 North, Crescent City
2	Klamath Station, P.O. Box 444, Klamath
3	Elk Camp Station, P.O. Box 278, Orick

In terms of response times, within Del Norte County, CDF can only respond to approximately 20% of its service area within 15 minutes. Ten percent of CDF's service area can be reached within ten minutes, 7% within five minutes, and 5% of their service area is within a three-minute response from one of the CDF stations or engines. This means that the majority of CDF's service area is located more than 15 minutes away.

At times, CDF does respond to more than just wildland fires. This is primarily when a structural fire threatens wildlands, and usually during fire season. The following table summarizes the type and frequency of incidents responded to by CDF in 2003.

Figure 10. CDF Number of Incidents by Type of Incident



In addition to providing service within Del Norte County, CDF often responds outside of the County to incidents all over the state. CDF has mutual aid agreements with all fire districts and automatic aid with Crescent City Volunteer Fire Department and Crescent Fire Protection District. The following table shows the extent of equipment resources currently available to CDF. One of their Type III fire engines is 15 years old and in need of replacement.

[75] Most of the information in this section was provided by CDF Battalion Chief Jim Smith, personal communication, October 2004.

Table 14. CDF Equipment Resources

Type of Equipment	Engine #	Year	Gallons of Water Capacity
Wildland Fire Engines (Type III):			
	1285	1999	500
	1263	1997	500
	1278	1989	650

In addition to the equipment needs identified above, one of the greatest resource needs identified by CDF is an improved communication and 911 system for the County. Also, CDF needs inter-operability with allied agencies, a coordinated command and control center, and improved pre-fire planning.

The contact for CDF is Jim Smith, Battalion Chief, 1025 Highway 101 North, Crescent City, CA 95531, 707-464-5526.

5.2.3. United States Forest Service, Six Rivers National Forest

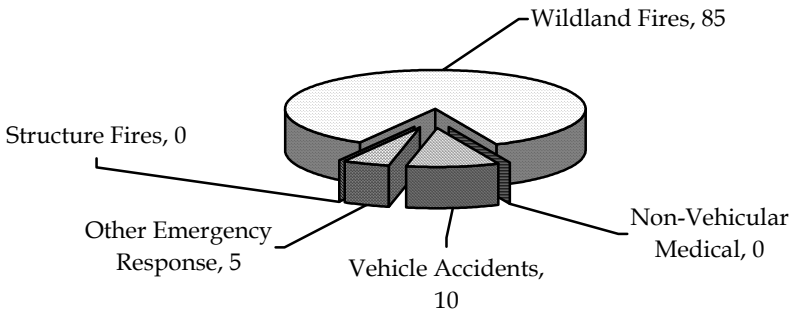
Within Del Norte County, the US Forest Service (USFS) provides wildland fire protection on National Forest lands and private in-holdings within the boundaries of the Six Rivers National Forest (SRNF). SRNF's service area includes the communities of Washington Flat, Gasquet, Low Divide, Hiouchi, Rock Creek, and Big Flat. The SRNF provides wildland fire protection to approximately 1,000 residents in their 585-square-mile service area in Del Norte County.

The Del Norte unit of the SRNF has 30 staff members, all paid through federal government funding. SRNF Smith River National Recreation Area offices are located at Hwy. 199 in Gasquet. This is the only SRNF station in Del Norte County. The support staff at SRNF in Humboldt County, including the federal side of the dispatch center in Fortuna, add an additional 20 staff members (not counting any initial attack resources).

In terms of response times within Del Norte County, 15% of SRNF' service area can be reached within ten minutes, 5% within five minutes, and 5% of their service area is within a three-minute response from the SRNF station or engines. The rest is greater than a fifteen-minute response.

In 2003, the SRNF Smith River National Recreation Area (SRNRA) responded to approximately 100 incidents within their service area. At times, the SRNF does respond to more than just wildland fires. For instance, they will respond to vehicle fires because they have the potential to become wildland fires, and these vehicle fires often lead to the need for medical response. The following table summarizes the type and frequency of incident responded to by SRNF in 2003.

Figure 11. SRNF Number of Incidents by Type of Incident



The SRNF has mutual aid agreements with other federal agencies, CDF, and Gasquet FPD (agreements, not true mutual aid). The SRNF also is signatory to the statewide OES "California Fire Assistance Agreement" which has access to all resources that are in the "California Fire Service and Rescue Emergency Mutual Aid System".

The following table shows the extent of equipment resources currently available at the Smith River National Recreation Area. Locally, they are in need of a water tender, as they do not have one at this time. In addition, SRNF has access to other federal firefighting resources. SRNF has the responsibility to place the orders to the appropriate USFS office to dispatch the needed resource to a Del Norte county wildland fire.

Table 15. SRNF Equipment Resources

Type of Equipment	Engine #	Year	Gallons of Water Capacity
Wildland Fire Engines:			
	E11	2002	500
	E12	2001	500
Other Equipment:			
10 passenger crew carrier		2004	
10 passenger crew carrier		2004	

In addition to the equipment needs identified above, one of the greatest resources needed by SRNF is qualified personnel, especially given that they have an aging workforce. They also need training and retention of qualified personnel.

The contact for the SRNF is David Webb, P.O. Box 228, Gasquet, CA 95543, 707-457-3131.

5.2.4. Redwood National and State Parks[76]

Within Del Norte County, the National Park Service provides wildland fire protection on National Park lands and private in-holdings within the boundaries of the Redwood National and State Parks (RNSP). RNSP's service area includes the communities of Hiouchi and Klamath. RNSP also provides wildland fire protection to residents in their 164-square-mile service area in Del Norte County.

The Del Norte unit of RNSP is located in Humboldt County at Hwy. 101 in Orick. During the fire season there is one fire engine stationed in Orick and one stationed in Del Norte County at the Hiouchi station as shown in the following table and Map 10, above. The Hiouchi station has a Captain, one to two firefighters, and a floating Duty Officer that splits time between Orick and Hiouchi.

Table 16. RNSP Fire Stations During Fire Season

Station #	Address
1	Wolf Creek Fire Cache, North of Orick
2	Hiouchi Station, Hiouchi

[76] Most of the information in this section was provided by Redwood National and State Parks Fire Management Officer Rick L. Young, personal communication, October 2004 and February 2005.

In terms of response times within Del Norte County, RNSP responds to 30% of its service area in more than 15 minutes. Ten percent of RNSP's service area can be reached within ten minutes, 2% within five minutes, and 1% of their service area is within a three-minute response from the RNSP stations or engines.

At times, RNSP does respond to more than just wildland fires within park boundaries. Last year they responded to three non-Park-related calls. Two were wildland fires, and one was a vehicle accident.

RNSP has mutual aid agreements with CDF and SRNF. The following table shows the extent of equipment resources currently available to RNSP.

Table 17. RNSP Equipment Resources

Type of Equipment	Engine #	Year	Gallons of Water Capacity
Wildland Fire Engines:			
	P-11	2003	200
	E-30	1997	300
	E-10	1996	500

The contact for RNSP is Rick L. Young, Fire Management Officer, PO Box 7, Orick, CA 95555, 707-464-6101 x5290.

5.2.5. Pelican Bay State Prison[77]

The Pelican Bay State Prison provides first response fire and medical service to approximately 4,200 residents of the Prison located in Del Norte County.

All 12 staff members are paid: four Correctional Fire Captains and eight firefighter personnel that are inmates. The Prison is funded primarily through state funds and is located at 5905 Lake Earl Drive in Crescent City.

Within the Prison, fire personnel can respond to incidents in the entire Prison within a three-minute response time. All responses are to fire alarms.

In addition to providing service within the correctional facility itself, Prison fire personnel on occasion will respond outside of the Prison boundaries. They have mutual aid agreements with all of the Fire Protection Districts in Del Norte County (although these agreements are out-of-date). The following table shows the extent of equipment resources currently available to the Prison. A water tender is more than 30 years old; this has been identified as a priority need for the Prison.

[77] Most of the information in this section was provided by Pelican Bay State Prison Fire Chief Tony Martell, personal communication, 9/29/04.

Table 18. Pelican Bay State Prison Equipment Resources

Type of Equipment	Year	Gallons of Water Capacity
Structural Fire Engines:		
	1988	600
Water Tenders:		
	1971	1200

In addition to the equipment needs identified above, one of the greatest resources needed by the Prison is a quick attack truck (a purchase requisition is in process at this time).

The contact for Pelican Bay is Tony Martell, Fire Chief, 5905 Lake Earl Drive, Crescent City, CA 95531, 707-465-9105.

6. WILDLAND-URBAN INTERFACE (WUI) PLANNING AREAS

6.1. Klamath Community Planning Area

6.1.1. Klamath Community Description

The Klamath planning area is the southernmost area in Del Norte County. The county border here with Humboldt County occurs near the northern end of the Prairie Creek Redwoods State Park. Much of the land along the coast in this planning area is managed by Redwood National and State Parks. This is the home of the Yurok Reservation, totaling approximately 15,000 acres in Del Norte County (most of it is in Humboldt County). The Resighini Reservation is on the south side of the river east of Highway 101, with approximately one dozen homes. Much of the land in this planning area is private timberland owned by Green Diamond Resource Company (formerly Simpson Timber), except for the thin band of private residential parcels along both Highway 101 and the Klamath River, and the Yurok Reservation which includes one mile on both sides of the river. The northern extent of this planning area is near the mouth of Wilson Creek and the Del Norte Coast Redwoods State Park and Redwood National Park.

This area includes the communities of Klamath and Klamath Glen with a combined population of approximately 1,200. Much of Klamath Glen was destroyed by the 1964 flood. Shortly after that a dike was built to better protect the town.

Klamath was the first Community At Risk to be so designated by the US Department of Interior in Del Norte County, on January 4, 2001.

Map 11. Klamath Community Planning Area

6.1.2. Klamath Current Fire Environment

Historically, the big fires in the Klamath area are the Blue Creek (1929), unnamed 1956 and 1957, Blake (1998), and Hunter Creek (1998) Fires. The Blake Fire began on a weeknight in the rain from arson. Because of the steep terrain, helicopters were used to fight the fire, at a total cost of more than $1 million.

The town of Klamath has a hydrant system. Klamath Glen is currently finishing the process of installing a hydrant system there, including a 200,000-gallon water tank. There are no hydrants in Hunter Creek or Requa. There are currently 10,000 gallons of water in tanks at the Margaret Keating School that were purchased and installed by the Klamath Fire Protection District. Previously a hydrant system existed on the Resighini Reservation at the casino. However, the casino no longer exists and hence the hydrants are not used. That reservation uses private residential water.

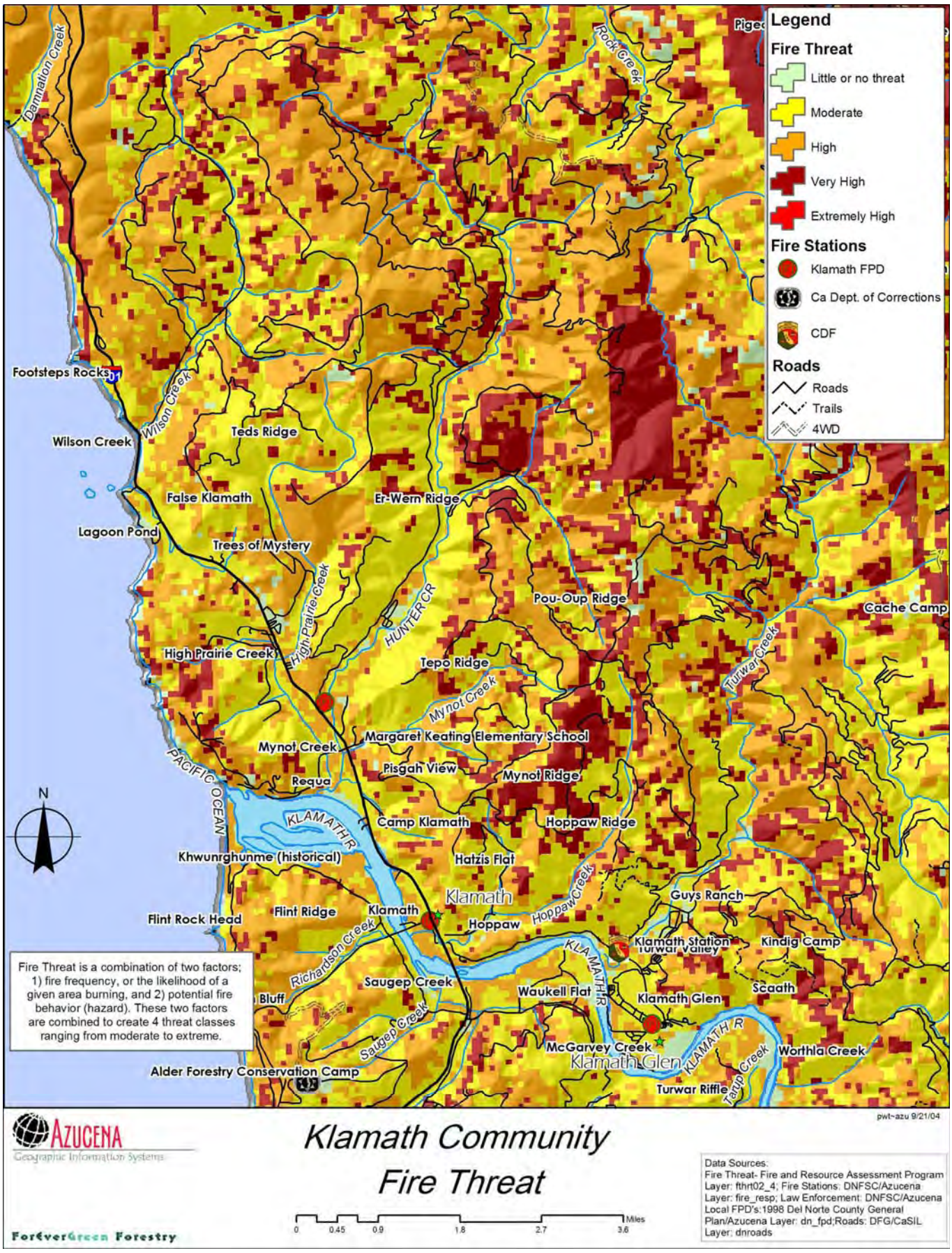
Much of this planning area is along the coast, with redwood and mixed conifer-hardwood forests. There are several open and marshy areas, especially along sections of Highway 101 here. The coastal climate is cooler than other areas in the county. However, the river produces strong upriver afternoon winds, most notably during fire season.

In Klamath Glen, Trinity Way was originally developed for a subdivision. However, because of the proximity to the river and potential for flooding, it was never completed. There is now a series of abandoned roadways here, where fires are often started. Historically, Del Norte County would burn this area below the dike annually, with CCC and/or Alder Camp Fire Crew labor. This burning has not been carried out for several years, likely due to budgetary constraints with both the County and CCCs.

The DNFSC facilitated Pelican Bay State Prison crew removal of six to eight acres of brush at the Klamath Glen Airport to clear the runway approaches.

Klamath FPD provides emergency medical and fire response here. Both the Resighini and Yurok Tribes have an agreement with KFPD for fire protection. For more information on KFPD, please see Section 5.1.1, Klamath Fire Protection District.

The following map shows fire threats in the Klamath area as designated by CDF. Note the "pixelization" of this data. This is due to statewide scale data being shown at the local scale. The colored squares represent grids, not any specific demarcation on the ground. This same effect will be seen on all such community maps.



Map 12. Klamath Fire Threats

6.1.3. Klamath Community Fire Planning Meeting[78]

The Klamath area community meeting was held at the Margaret Keating School on March 23, 2004. The meeting was attended by the following people:

Residents:

Easter Lara

Ernest and Rhoene Bednar, Retired Professor, Humboldt State University

Judy Del Ponte

Ralph Rode

Walter Lara

Klamath Agency/Organizational Representatives:

Shawn McMahon, Yurok Tribe Forestry

Dean and Gayla Bruhy, Klamath Fire Protection District

Brandon Shafer, Klamath Fire Protection District

Frank Chase, Klamath Fire Protection District

Ken Scott, Klamath Fire Protection District

James Hanes, Klamath Fire Protection District/Redwood National Park

Lonnie Levi, Chief, Klamath Fire Protection District

David Finigan, Del Norte County Supervisor

Project Participants:

Gary Dean, CDF

Tracy Katelman, Del Norte Fire Safe Plan Coordinator

Dan and Sharol Leavitt, DNFSC

Dan and Linda McGath, DNFSC

Kristen Moss, DNFSC Administrative Assistant

Karen Phillips, DNFSC Local Coordinator

John Pricer, Green Diamond Resource Co., DNFSC

Peter Tittmann, DNFSC GIS Consultant

Rick Young, Redwood National Park, DNFSC

Ernie Bednar, retired HSU professor and Arcata resident, previewed his lightning rods (Lightning Dissipation Tower) and demonstrated how the rods attract lightning to protected areas. Some are designed to be dropped from a helicopter. Several prototypes have been placed in the Dakotas and elsewhere in the Midwest.

For more information on Klamath Community-Identified Risks and Hazards, as well as Potential Projects, see Community Meeting Input information in Appendix D.

6.1.4. Klamath Assets at Risk

- Arbor Glen Trailer Park
- Blue Creek Watershed
- Camp Marigold
- CCC
- Experimental Forest
- Forest Café/Motel Trees
- Klamath and Klamath Glen community residences and businesses
- Klamath area recreational businesses
- Klamath Glen Airport
- Klamath River riparian areas
- Margaret Keating School
- Mystic Forest RV
- Old Klamath Town Site
- Power Plant
- Radio Antenna
- Redwood National Park
- Requa Inn
- Trees of Mystery
- Water System
- Wilson Creek Youth Hostel
- Woodland Villa/Don's Gas

[78] Complete notes from the community meetings are available. Contact DNFSC for copies.

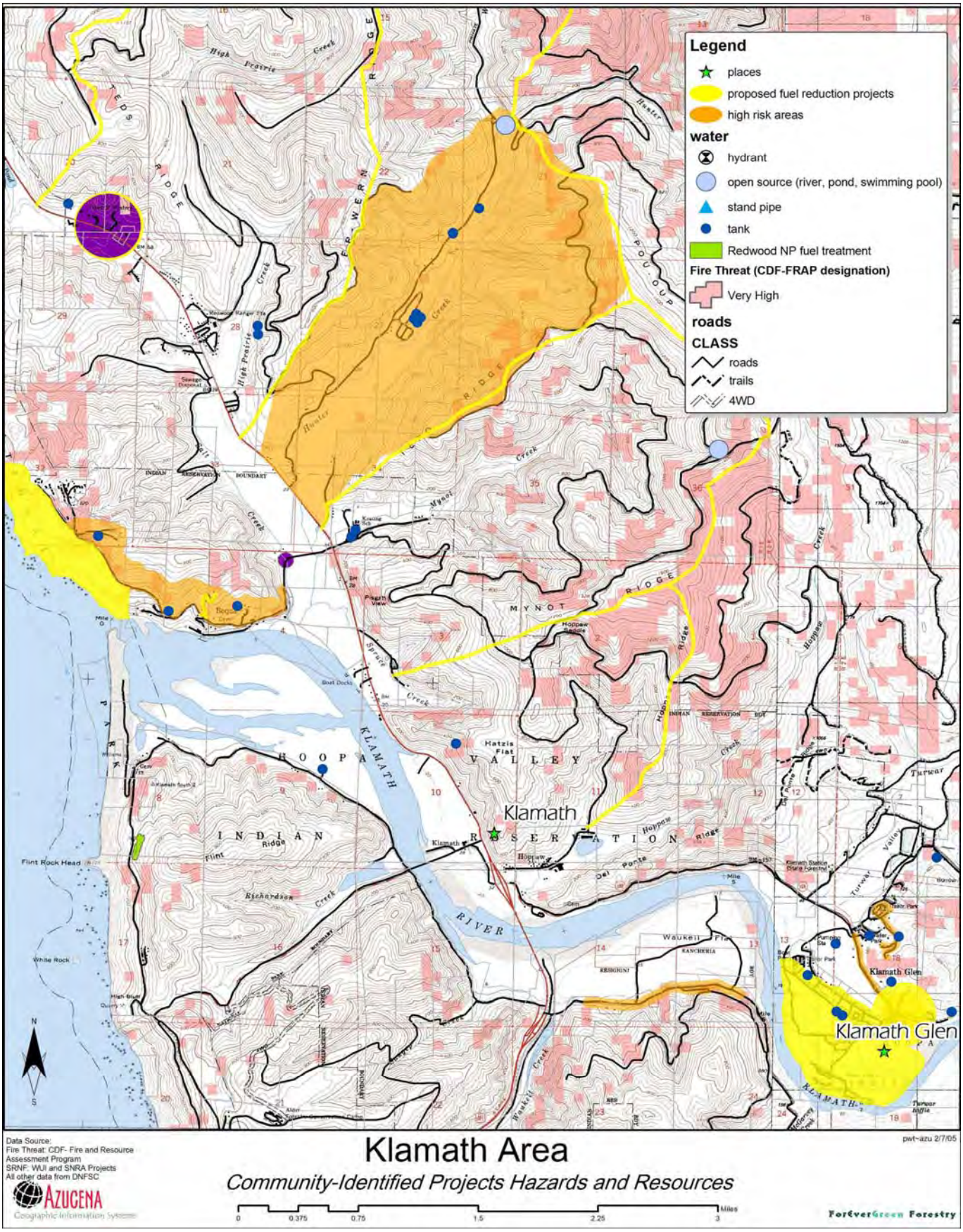
- Yurok Tribal Offices and Headquarters

6.1.5. Klamath Mitigation Strategy: Priority Projects

1. DNFSC work with Yurok Tribe, Redwood National Park, and Green Diamond to identify the best area for a strategic fuelbreak on the east side of Highway 101 to protect this community from fires originating on National Forest or Green Diamond lands to the northeast.
2. Reduce fuel in Requa and Klamath Overlook area. This includes working with Yurok Tribe and RNP to burn the slopes on the north side of the mouth below the overlook, in conjunction with manually reducing fuel in Requa neighborhoods. *See* Figure 12.
3. Identify locations for additional water storage and purchase and place tanks in cooperation with KFPD, such as Hunter Creek Fire Station, Margaret Keating School, and Klamath town site.
4. Ensure that all residences have legal address and street signs to enable efficient emergency response. Klamath FPD and Del Norte County need to work together to acquire necessary funds to implement an area-wide addressing system.
5. County and KFPD work together to improve Requa Bridge over Salt Creek to ensure safe passage by emergency vehicles.

Figure 12. Klamath Overlook Area, Potential Prescribed Burn Site

6. Residents in this area must be diligent in creating and maintaining their defensible space. (For information on creating and maintaining defensible space, please see Section 2.2.1.) For those in interface areas with forest and brush close to their homes, this should be a minimum of 100 feet, especially in the Requa area and outlying areas around Klamath Glen.
7. Educational programs in the local schools are a great way to get the word out about fire safety and emergency preparedness. The SRNF, CDF, and DNFSC all participate in various public fire safe education efforts. These parties should work together with the Del Norte Unified School District and the Yurok Tribe to implement fire safe curriculum in many different grade levels. Community projects such as fire safety education signs created by school children can be very effective. Signs about fire safety and defensible space could be placed along the Klamath River and Highway 101, especially to remind visitors that although it looks green, this area can burn.
8. Support ongoing efforts of DNFSC, Green Diamond, and CDF in creating a shaded fuelbreak along Johnson Ridge, beginning in Del Norte County and continuing into Humboldt County.



Map 13. Klamath Community-Identified Risks, Hazards, and Projects. Note: This map is for planning purposes only. See Section 3.4 for more information.

6.2. Crescent City Community Planning Area

6.2.1. Crescent City Community Description

The Crescent City planning area encompasses the city and surrounding private lands. "Crescent City is 1.6 square miles in size with a population of 7,542 and a surrounding urban service area of approximately 15,000,"[79] of the county's total population of approximately 27,000. Principal employment here is with federal, state, and local government, as only 28% of Del Norte County is privately owned, and the City is the county seat.

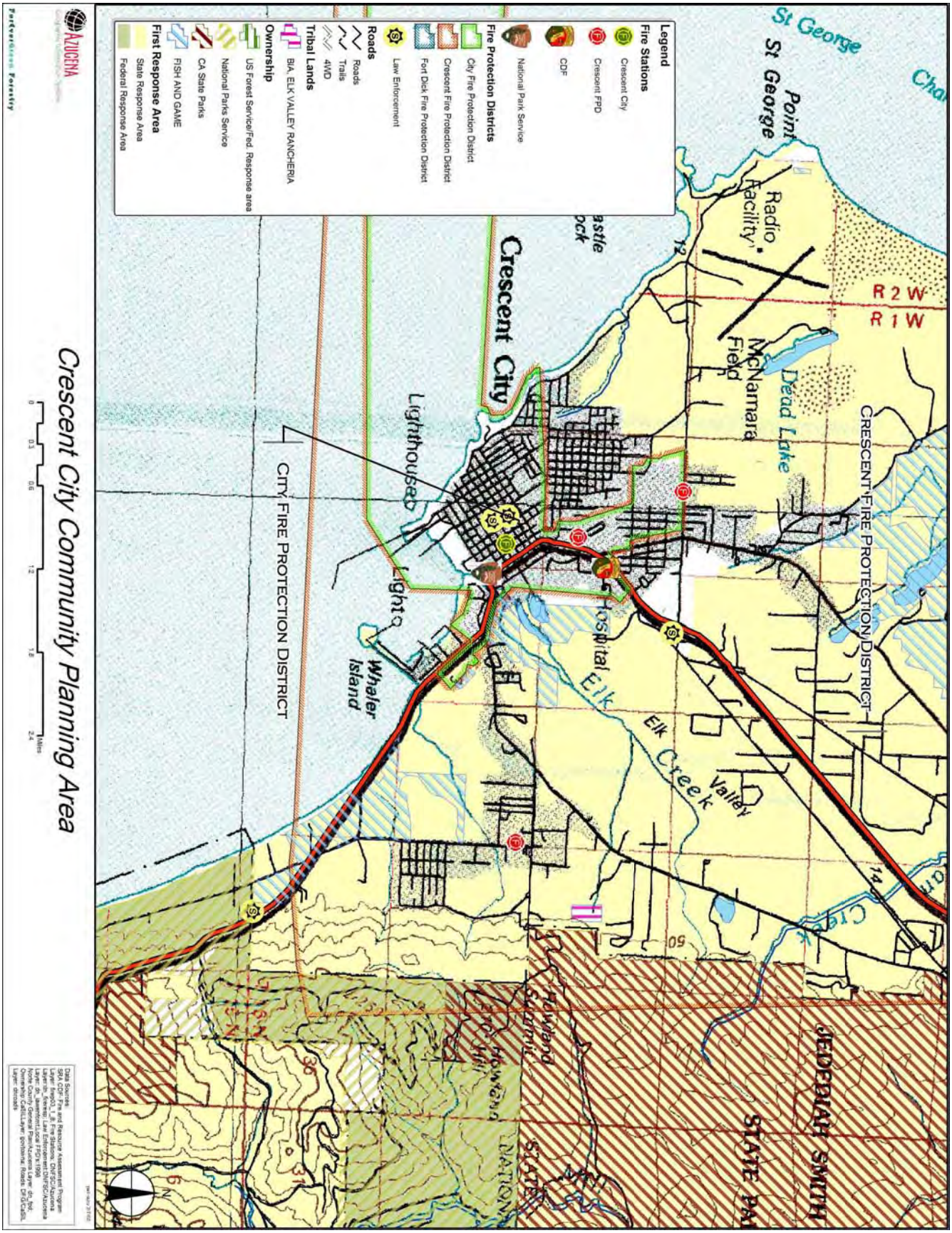
The city lies on the Pacific, just south of Point Saint George, and about twenty miles south of the Oregon border. It is perhaps best known for its tsunami in 1964, and hence the name "Comeback City USA."

> "Located on a natural harbor at the edge of Redwood National Park, Crescent City is the only incorporated city in Del Norte County. The beauty of the land and the nearby abundant wildlife provide the basis for a strong tourism sector of the local economy. As a gateway to America's Wild Rivers Coast, activities such as fishing, hiking, bicycling, boating, kayaking, swimming, wildlife watching and beachcombing are important recreational activities along the City's rugged coastline and in nearby forests and rivers."[80]

Wildland-urban interface here is predominantly on the south and eastern edges of the area. To the south, Crescent City butts up against the Del Norte Coast Redwoods State Park and Redwood National Park (RNP). To the east, RNP and Jedediah Smith Redwoods State Park interface with the edge of the suburban development. These interface areas are predominantly redwood forests, of all age classes. The younger forests tend to have high fuel loads and ladder fuel.

[79] City of Crescent City, http://www.crescentcity.org/

[80] http://www.crescentcity.org/html/about_crescent_city.html



Map 14. Crescent City Community Planning Area

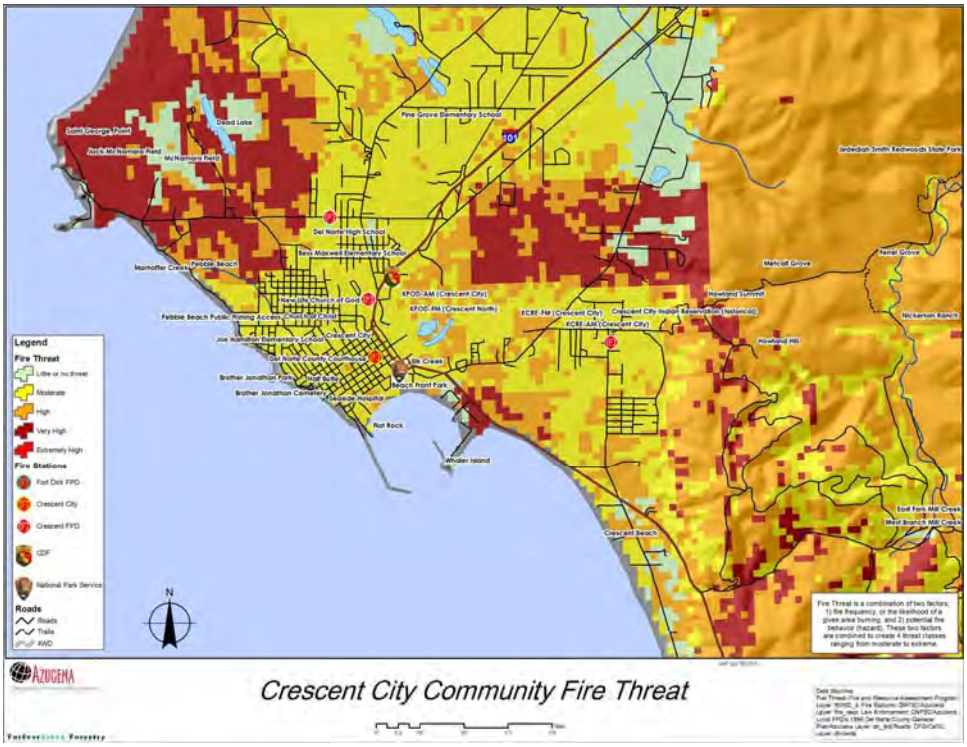
6.2.2. Crescent City Current Fire Environment

Given this area's location near the coast and the fact that it is an urban area, it does not have a notable wildfire history. Structure fires are obviously more common because of the large concentration of structures. No fires were documented in this area during the community meetings; however, there are burned redwood stumps, which bear witness to the natural fire history of the redwood region. "Summer temperatures are seldom higher than 80 degrees on the coast with 60 to 70 degrees as average. Prevailing winds: SSE. Mean Hourly Speed: 8.1 knots."[81]

"The City of Crescent City is the major supplier of water to the city and the surrounding unincorporated county areas, with maximum delivery capacity of 28 million gallons a day."[82] There is a hydrant system within the city limits and some areas beyond. Other areas are on wells or community water tank systems, such as in the Church Tree subdivision (30,000-gallon water tank) and Meadowbrook Acres. Pine Grove School has a 20,000-gallon water tank.

Crescent City has two fire departments. The city is primarily serviced by Crescent City Volunteer Fire Department. The unincorporated areas are served by the Crescent Fire Protection District. These two departments have an auto aid agreement. This means that they both respond to calls in each other's district. They are also increasingly cooperating on projects such as training. *For more information on Crescent City VFD and Crescent FPD, please see Sections 5.1.2 and 5.2.1.*

The following map identifies degrees of fire threat for the Crescent City Planning Area. As shown, the area around Point Saint George, western Washington Boulevard (surrounding the airport), and the subdivisions east of Highway 101 and Washington are among the Very High Fire Threat areas of the County. This is of special importance because of the relatively high population density in these areas. The blocky nature of the map is due to using data from a statewide scale. Therefore, these maps are not to be used for exact designations, rather to give a sense on different degrees of fire threat throughout the area.



Map 15. Crescent City Community Fire Threat

[81] Ibid.

[82] Ibid.

6.2.3. Crescent City Community Fire Planning Meeting

Two meetings were held in the Crescent City area. The first was the "Eastside Crescent City" meeting held on July 8, 2004 at the Brooks' home. The second meeting was the "Westside Crescent City" meeting held on July 26, 2004, at the Crescent Fire Protection District office.

Crescent City Residents:

Don and Debbie Brooks, Hosts
James McKiniery, Sleepy Hollow
Jim Nelson, Church Tree
Mike Suit, Marie Lane
Harry Tedsen, Fort Dick Fire Protection District
Marion Westphal, Church Tree

Project Participants:

Karen Haban, DNFSC
Tracy Katelman, Del Norte Fire Safe Plan Coordinator
Dan and Sharol Leavitt, DNFSC
Praline McCormack, Coordinator Assistant
Dan and Linda McGath, DNFSC
Karen Phillips, DNFSC Local Coordinator
Kim Price, CDF
John Pricer, Green Diamond Resource Company, DNFSC
Sheila Schulze, SRNF, DNFSC
Dave Webb, SRNF

Crescent City Agency/Organizational Representatives

Lane Crist, Crescent Fire Protection District
Drew Davis, Crescent Fire Protection District
Daniel Dukeman, Crescent Fire Protection District
John McFarland, Chief, Crescent Fire Protection District
Jim Nelson, Crescent Fire Protection District
Cal Sherrick, Crescent Fire Protection District
Darrin Short, Crescent Fire Protection District
Dennis Sutton, Crescent Fire Protection District
Troy Wood, Crescent Fire Protection District

Discussion was held regarding a fire on a property on Church Tree where loose brush and ivy were thrown over the hillside (over a period of years) to compost without having been packed down or chipped. The brush combusted and caused a significant fire. The neighbors are concerned about use of low-growing plants (ivy seems to be all over the property) to keep the erosion problems at bay but becoming a fire hazard at the same time. The DNFSC chipper would have been a good option in this case.

Road access, which is a problem with some roads in the Church Tree, Parkway, and Humboldt Road areas, impede emergency response vehicles and can obscure some residences from view of emergency responders. Church Tree has a 30,000-gallon water tank and hydrants. Discussion was held about placing a tank on Sleepy Hollow for public firefighting use.

For more information on Crescent City Community-Identified Risks and Hazards, as well as Potential Projects see Community Meeting Input information in Appendix D.

6.2.4. Crescent City Assets at Risk

In addition to the homes and businesses in the greater Crescent City area, the following places were identified as particularly important assets to the community, and those that would need special protection from wildfire:

- Addie Meedom House
- Airport (McNamara Field)
- Camp Lincoln
- College of the Redwoods
- Crescent Fire Protection District Office
- Del Norte High School
- Elk Valley Rancheria Community Center and Casino
- Hambro Forest Products
- Lake Earl Wildlife Area

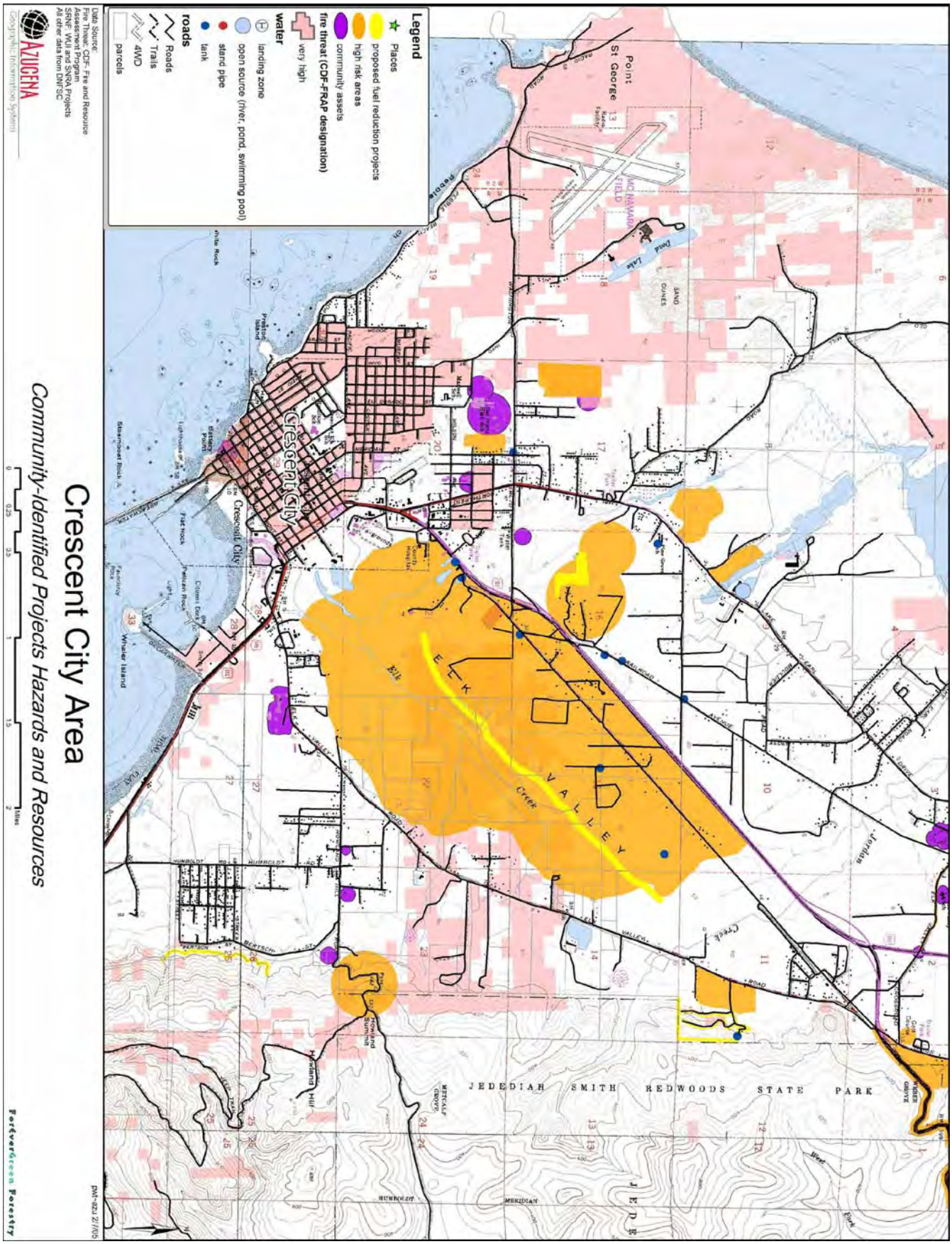
- Point Saint George buildings
- Schools
- State Park Headquarters off Elk Valley Road
- Sutter Coast Hospital

6.2.5. Crescent City Mitigation Strategy: Priority Projects

Given the urban/suburban nature of Crescent City and its close proximity to densely forested wildlands, critical fire mitigation issues here will be in terms of emergency response and evacuation. Some outlying areas could have devastating consequences if a wildfire approached. Brush density here has been increasing. These areas are primarily located east of Highway 101, in the Parkway Drive, Elk Valley Road, and Howland Hill neighborhoods. The Church Tree subdivision is especially hazardous. They tend to have large, expensive homes, narrow streets, little water supply, and heavy tree and brush cover. In addition, the area around Point Saint George, Washington Boulevard and east of 101 in the Elk Valley Road/Parkway Drive area are all identified as Very High Fire Threat by CDF. Therefore, projects should be prioritized in these areas.

1. Steps need to be taken to ensure safe and efficient emergency vehicle access in many of the outlying Crescent City neighborhoods. The City and County should provide regular brush clearing of public roadways. Brush clearing on private property as prescribed in SB 1369 will complement the public efforts. Finally, local governments should work with DNFSC and CDF to provide community chipper days, where cleared material may be easily discarded. Donation of a dump truck for use on these chipper days would increase their effectiveness. (A similar program is in place in the community of Cameron Park, in the Sierra foothills. *See Appendix B.12. for information on that program.)*
2. Implement new UWI Building standards *(see Appendix B.7.)* for all new construction in interface areas surrounding Crescent City to the east and south, and near Point Saint George and Washington Boulevard.
3. A set of strategic fuelbreaks should be created in outlying Crescent City. Local fire behavior tells us that the large fires will generally come from the northeast. Northeast of Crescent City are large areas of redwood forest. Luckily, redwood forests have evolved with fire. Ancient redwood forests, as are found in the nearby parks, are not generally considered to be of high risk for wildfire. However, the 2003 Canoe Fire in Humboldt County reminded North Coast residents that old redwood trees can burn under the right (or wrong!) conditions. The greatest hazard here is densely stocked second-growth forests in the vicinity of the older forests. Areas for strategic fuelbreaks identified in the community meetings and in conjunction with local firefighters were: between Church Tree and Bertsch Tract and the Parks, and between Elk Valley/Parkway Drive through the Elk Creek drainage. All of these fuelbreaks would have to be done in conjunction with State and National Park personnel and Fish and Game to ensure that environmental protection and habitat needs are met. State Parks has been facilitating such fuel reduction efforts recently through their "Old Growth Recruitment" program.
4. City, County, Airport, and others explore possibility of regular mowing, burning, and/or grazing of area surrounding Point Saint George and the Airport to reduce fuel loads in this area of Very High Fire Threat.
5. Ensuring that all residences in the Crescent City planning area have legal address and street signs is a critical step to ensure efficient emergency response. This is especially crucial in the neighborhoods east of Highway 101 mentioned above. Crescent City, Crescent VFD, Crescent FPD, and Del Norte County need to work together to acquire necessary funds to implement an area-wide addressing system. A corresponding educational program to local residents explaining the need for signs would increase the program's effectiveness.
6. Identify locations of additional water storage for fire-fighting, such as subdivisions along Parkway Drive. Purchase and install tanks with fire departments.

7. Educational programs in the local schools are a great way to get the word out about fire safety and emergency preparedness. The SRNF, CDF, and DNFSC all participate in various public fire safe education efforts. These parties should work together with the Del Norte Unified School District to implement fire safe curricula in many different grade levels. Community projects such as fire safety education signs created by school children can be very effective. Signs could be placed in areas such as Howland Hill Road near Stout Grove reminding visitors to be careful with fire for both the health of the forest and its creatures, and nearby residents. Other signs could be placed along South Beach, reminding visitors there that nearby brush can burn if campfires are abandoned.
8. DNFSC work with State Farm and other insurers to develop a service learning program in the High Schools focused on fire safety and defensible space.



Map 16. Crescent City Community-Identified Risks, Hazards, and Projects. Note: This map is for planning purposes only. See Section 3.4 for more information.

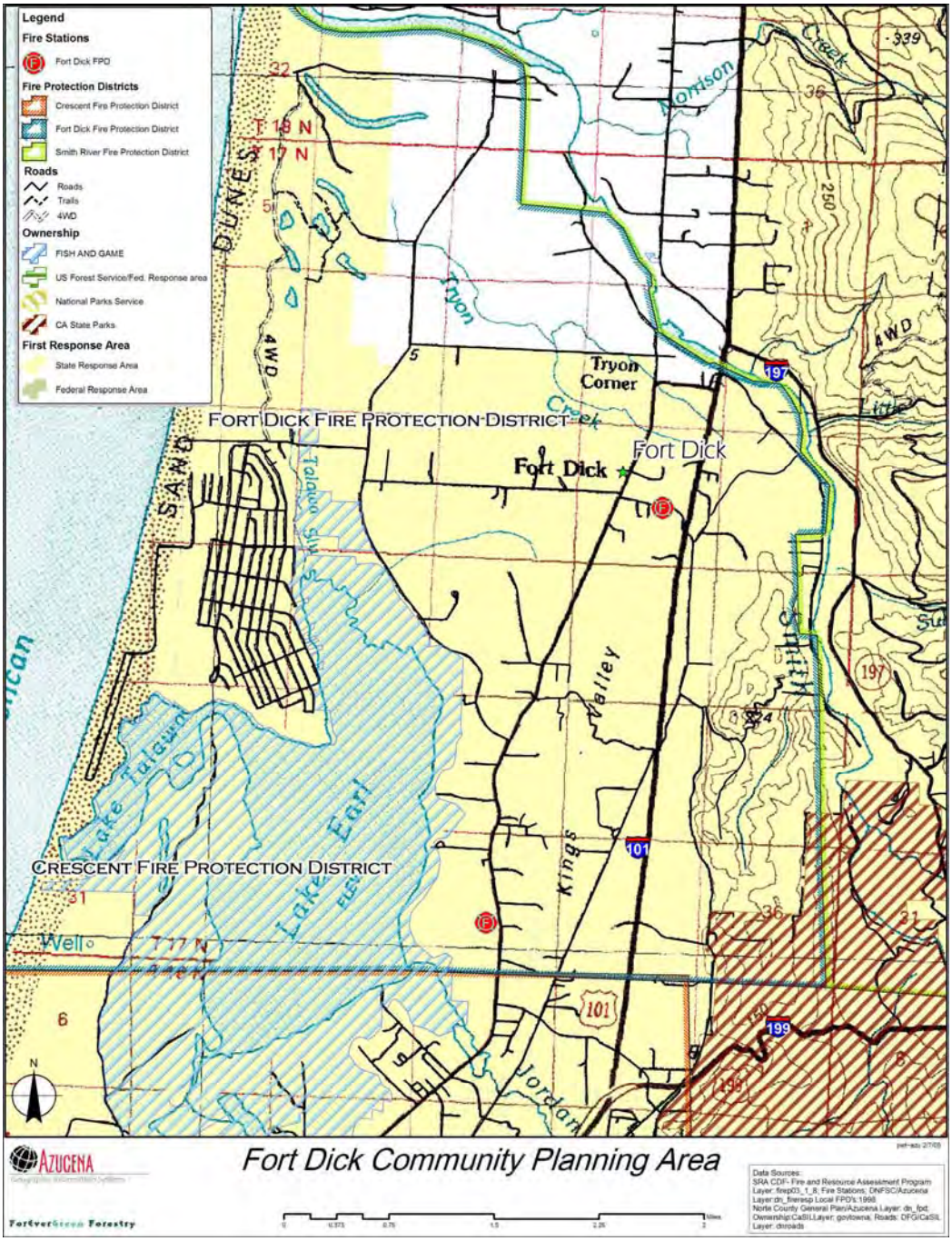
6.3. Fort Dick Community Planning Area

6.3.1. Fort Dick Community Description

The Fort Dick planning area is between the town of Crescent City to the south, the Pacific to the west, and the Smith River to north and east. Much of the land surrounding this area is agricultural, with many acres in flower bulb production. Lake Earl State Park/Tolowa Dunes is a dominant landscape feature.

The Pelican Bay State Prison is located within this planning area, although legally a part of Crescent City. It has 4,200 people on site.

Fort Dick was designated as a Community At Risk from wildfire by CDF and the California Fire Alliance in 2001.



Map 17. Fort Dick Community Planning Area

6.3.2. Fort Dick Current Fire Environment

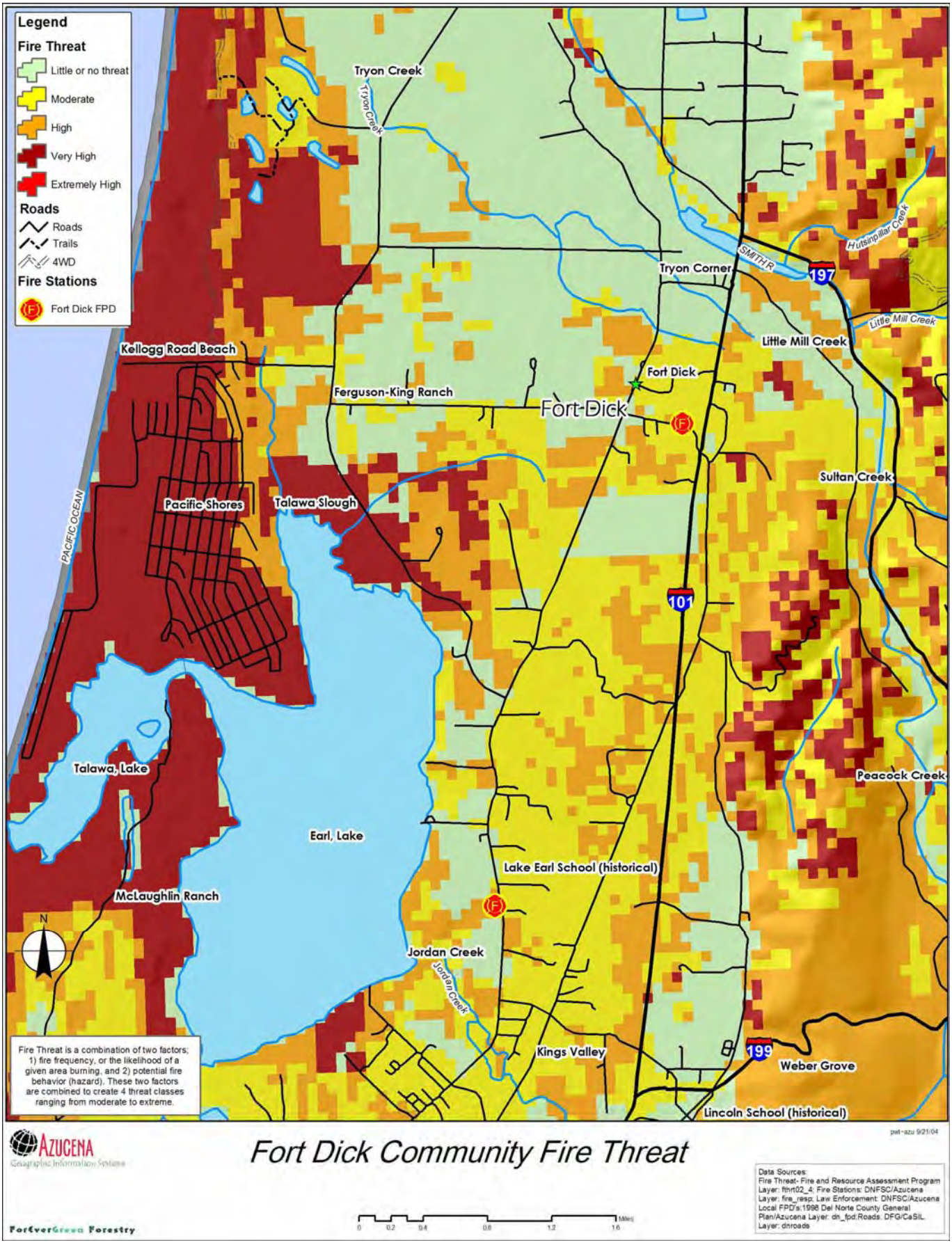
Although Fort Dick is located along the coast, with primarily urban and agricultural lands, much of the western portion is identified by CDF as Very High Fire Threat. This is likely due to strong coastal winds and the history of fire starts in this area, especially around Lake Earl. The Pacific Shores area is especially susceptible to fire.

Redwood School and Fort Dick Bible Academy are the designated evacuation locations for the Fort Dick community; however, both need defensible space. The South Bank Road area only has one way in and out. The road enters the area under Dr. Fine Bridge. If an earthquake were to take this bridge out, the neighborhood would have no evacuation route.

Water sources were identified as 12 hydrants on the east side of Highway 101 (Kings Valley Road), two off Arrowhead, and two off Wonder Stump Road. Nearly all water in the area is from wells with no generator backup. Six hydrants are projected for Wonder Stump Road at the intersections and projected subdivision to the north of Kings Valley Road. The hydrant system is supported by a 120,000-gallon tank. There is also a large pond in a field along Kings Valley Road.

Historically the big fires in the Fort Dick area include the mercantile store 30 to 40 years ago, the Alexander Dairy Barn Fire three years ago (started in a burn barrel), a beach fire on Kellogg Beach (400 acres, started by a vehicle), a fire 75 years ago south of present Pelican Bay State Prison (Skeleton Park), a 1988 fire across the street from the Prison (transient-started, 80 acres), and a Simpson land fire 10 to 15 years ago (started by arson).

Fort Dick FPD provides emergency fire and medical response here. For more information on FDFPD, please see Section 5.1.3, Fort Dick FPD.



Map 18. Fort Dick Community Fire Threat

6.3.3. Fort Dick Community Meeting

The Fort Dick community meeting was held at the Fort Dick Fire Hall on April 6, 2004.

Residents

Brian Morris, Retired District Ranger SRNF - Smith River National Recreation Area

Fort Dick Agency/Organizational Representatives

Susie Campbell, Fort Dick Fire Protection District

Randy Crawford, Chief, Fort Dick Fire Protection District

Harry Tedsen, Fort Dick Fire Protection District

Project Participants:

Kevin Cox, Captain CDF

Karen Haban, DNFSC Council

Tracy Katelman, Del Norte Fire Safe Plan Coordinator

Dan and Sharol Leavitt, DNFSC

Dan and Linda McGath, DNFSC

Kristen Moss, DNFSC Administrative Assistant

For more information on Fort Dick Community-Identified Risks and Hazards, as well as Potential Projects see Community Meeting Input information in Appendix D.

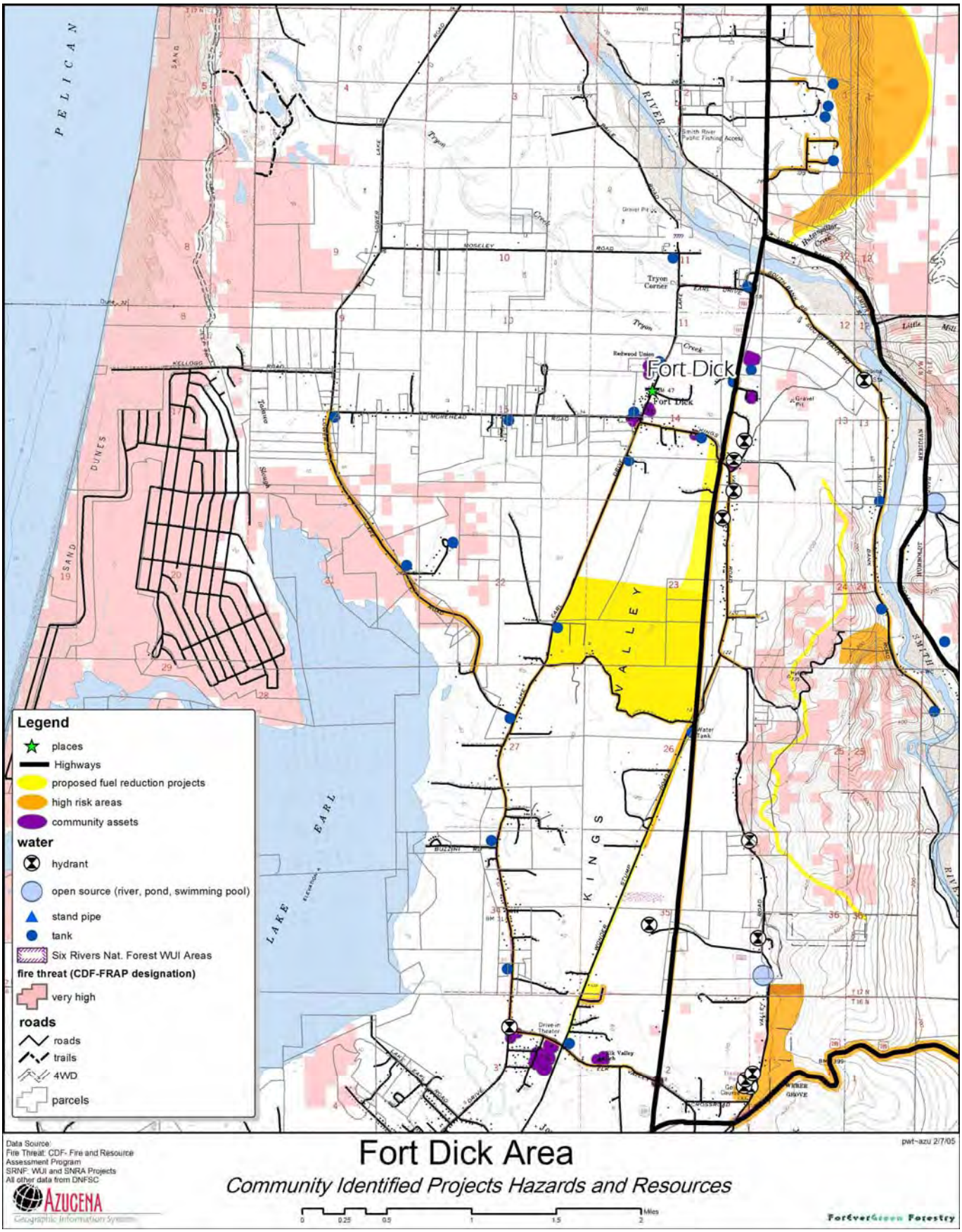
6.3.4. Fort Dick Assets at Risk

- Camp Lincoln House (historical)
- Elk Valley School
- Fort Dick Bible Academy and Church
- Fort Dick Fire Hall
- Golf Course
- Grange Hall
- High-value homes with non-defensible space
- Lake Earl/Tolowa Dunes
- Power Stations
- Redwood School
- Ruby Van Deventer Park
- Tomasini's Bar (oldest liquor license in California)

6.3.5. Fort Dick Mitigation Strategy: Priority Projects

1. Create defensible space around key assets at risk in downtown Fort Dick, including the Redwood School, Grange Hall, Tomasini's Bar, and Fort Dick Bible Academy and Church.
2. Prescribe burn or mechanical fuel reduction in strategic areas in Tolowa Dunes State Park, Pacific Shores, and Lake Earl. This is one of the Very High Fire Threat areas in the county, according to the State's Fire and Resource Assessment Program (FRAP).
3. Shaded fuelbreak along Hytree Ridge, between South Bank Road and Kings Valley Road, along Green Diamond logging road for south half.
4. Ensure that all residences have legal address and street signs to enable efficient emergency response. This is especially crucial in the Wonder Stump and Kings Valley neighborhoods. Fort Dick FPD and Del Norte County need to work together to acquire necessary funds to implement an area-wide addressing system. Do this in conjunction with community education program on need for good signage.
5. Purchase and install water storage tanks for fire-fighting at Redwood School and on South Bank Road. Identify locations for additional water hydrants or tanks at key intersections throughout Fort Dick. Purchase and install in cooperation with Fort Dick FPD.
6. Create a shaded fuelbreak along Wonder Stump Road.
7. Educational programs in the local schools are a great way to get the word out about fire safety and emergency preparedness. The SRNF, CDF, and DNFSC all participate in various public fire

safe education efforts. These parties should work together with the Del Norte Unified School District to implement fire safe curricula in many different grade levels. Community projects such as fire safety education signs created by school children can be very effective. Signs about fire safety and defensible space could be placed along Highway 101 in the forested section that runs through the Fort Dick planning area.



Map 19. Fort Dick Community-Identified Risks, Hazards, and Projects. Note: This map is for planning purposes only. See Section 3.4 for more information.

6.4. Smith River Community Planning Area

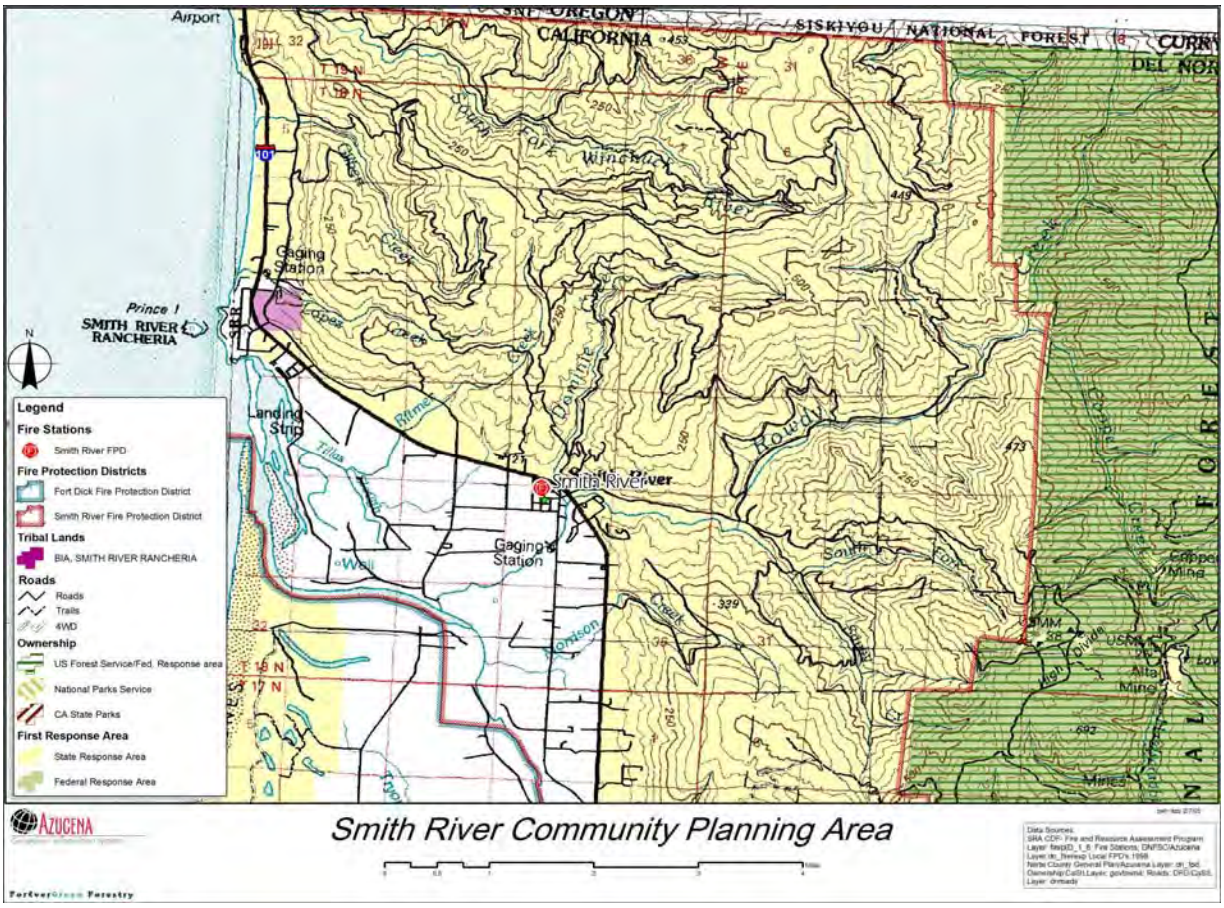
6.4.1. Smith River Community Description

Smith River is the northernmost community in coastal Del Norte, with a population of 2,000. The Smith River planning area is centered on the community of Smith River, just south of the Oregon border and east of the mouth of the river. The town center is located near Rowdy Creek. On the east it is bounded by Green Diamond Resource Company lands and the south by the Smith River.

This planning area is seeing significant development, especially on the hills facing the ocean. Recent subdivisions like Spyglass and Nautical Heights have only one principal access road, winding up the ridge with no alternate access. This is especially significant given that the eastern border of these developments is forested, making this a serious interface issue.

The western edge of Smith River is covered in agricultural land, where flower bulbs are principally grown, giving this community the title of "Easter Lily Capital of the World." The industry brings in approximately $6.6 million annually, making it one of the largest in the County.[83] In fact, Dahlstrom and Watt Bulb Farm is the fourth-largest employer in the County, ahead of Del Norte County itself.[84]

Smith River was designated as a Community At Risk from wildfire by CDF and the California Fire Alliance in 2001.



Map 20. Smith River Community Planning Area

[83] http://www.sfgate.com/cgi-bin/article.cgi?file=/chronicle/archive/2003/04/18/MN68940.DTL

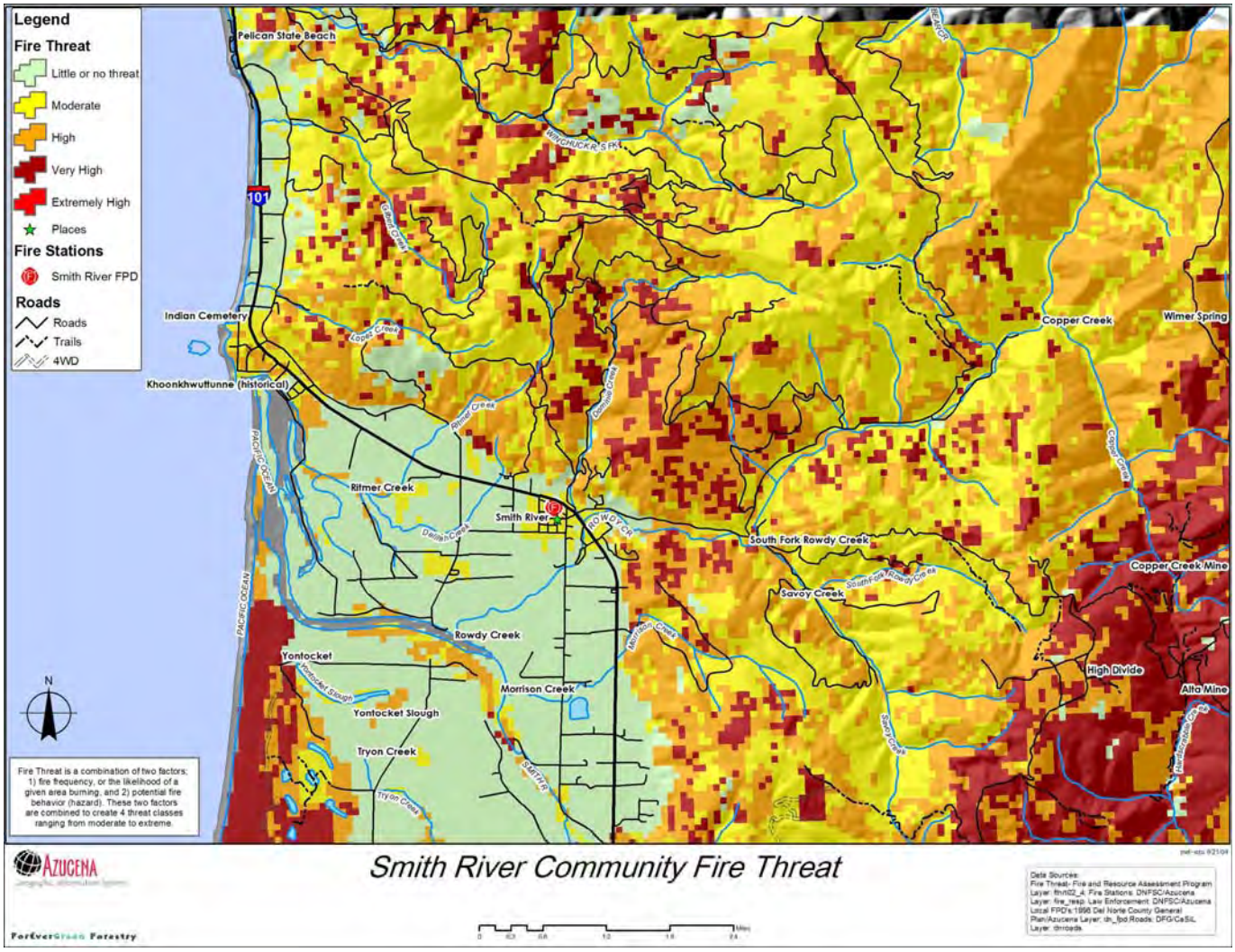
[84] www.northerncalifornia.net/county_demographics.htm

6.4.2. Smith River Current Fire Environment

Smith River is a coastal community, with much of its outer area in agricultural land.

The town water system has four wells, and 750,000 gallons total water storage (two 250,000, one 150,000, and several small tanks in subdivisions). There are water availability issues along Rose Lane, Knutsen, High Meadow Drive, Rossine, and Oma Lane. Many of these areas are on wells. Nautical Heights has a 100,000-gallon tank. Spyglass has 40,000- and 75,000-gallon tanks. There is a pond at the end of Sun River Road and a 10,000-gallon water tank on the road.

Smith River FPD has one station here one in Hiouchi, and a third near the top of Low Divide Road. *For more information, see Section 5.1.4, Smith River FPD.*



Map 21. Smith River Community Fire Threat

6.4.3. Smith River Community Meeting

The Smith River meeting was held at the Smith River Community Hall on March 17, 2004.

Residents:

Marilyn Scott, Oceanview Drive Resident

Smith River Agency/Organizational Representatives:

Glenn Hill, Assistant Chief, Smith River Fire Protection District

Brock Richards, Smith River Rancheria and Oceanview Drive Resident

Jerry Schnell, Smith River Fire Protection District

Myron Williamson, Chief, Smith River Fire Protection District

Project Participants:

Karen Haban, DNFSC

Tracy Katelman, Del Norte Fire Safe Plan Coordinator

Dan and Sharol Leavitt, DNFSC

Dan and Linda McGath, DNFSC

Kristen Moss, DNFSC Administrative Assistant

Karen Phillips, DNFSC Local Coordinator

Dieter Schmitt, CDF

Pete Villa, SRNF

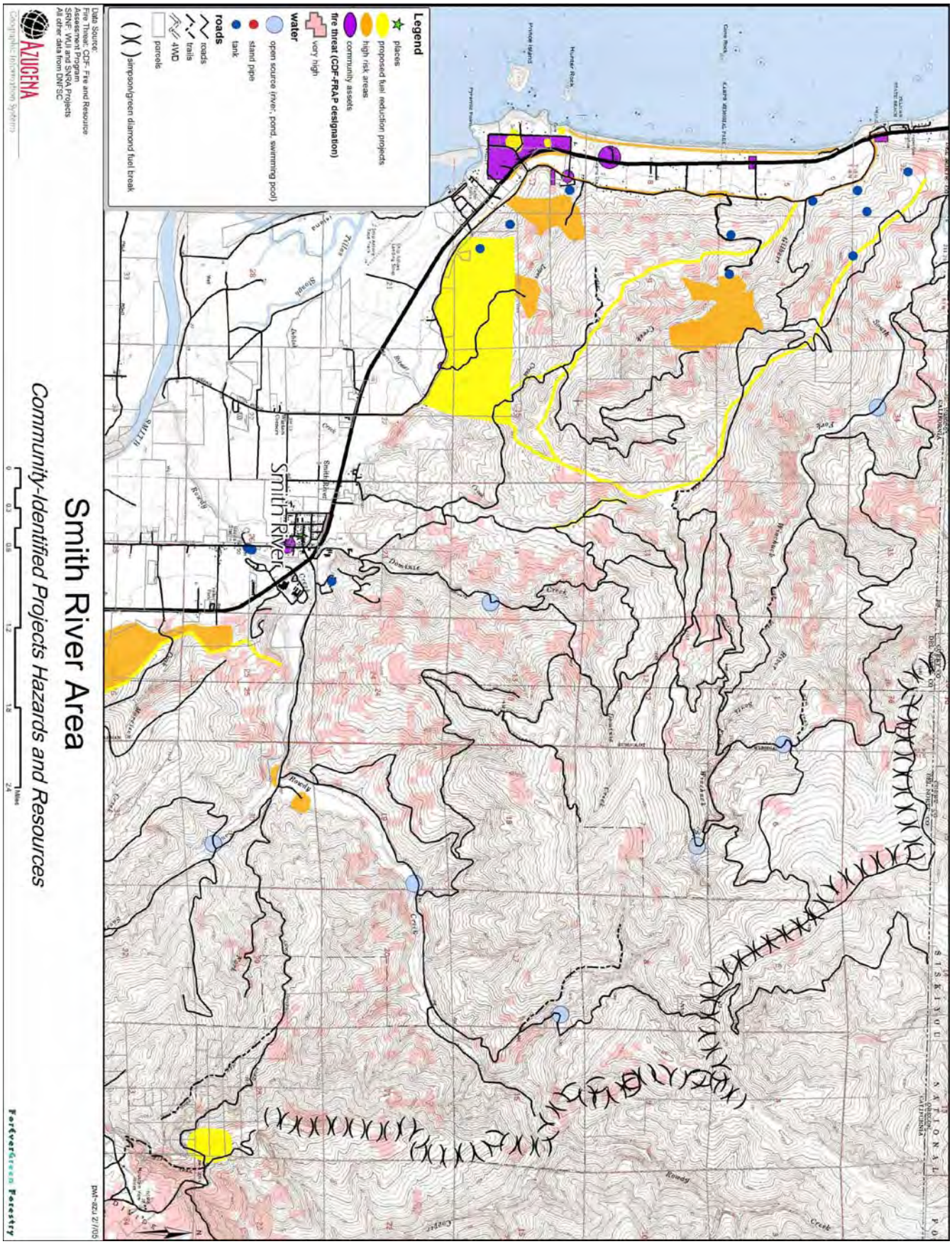
For more information on Smith River Community-Identified Risks and Hazards, as well as Potential Projects see Community Meeting Input information in Appendix D.

6.4.4. Smith River Assets at Risk

- Agricultural areas
- Lucky 7 Casino and gas station/Smith River Rancheria
- Nautical Inn Restaurant
- Pacific Power substation
- Power line corridor along Sultan Creek
- River banks
- Rowdy Creek Fish Hatchery
- Ruby Van Deventer Park
- Sea Escape Motel (multiple families/children/pets)
- Ship Ashore Resort
- Smith River community/businesses
- Smith River Rancheria School and adjacent historical buildings
- Water chlorination station for Crescent City
- Water pump house at corner of Oceanview and Surfsound
- White Rock Resort

6.4.5. Smith River Mitigation Strategy: Priority Projects

1. Smith River is experiencing some of the strongest development pressure in the County. It is still possible to build homes here with stunning ocean views. Developments are rapidly entering the area. Both the Spyglass and Nautical Heights subdivisions are building without alternate escape routes, with narrow, winding, steep roads. These neighborhoods will be very dangerous in a large wildfire event. Given their proximity to the wildlands—from where a wildfire would likely come—this is a possible scenario. Strong steps must be taken by the County to ensure that any future development east of Highway 101 here is absolutely fire safe. An alternate evacuation route for existing subdivisions must be developed. Developers must cooperate and comply with the needs of local emergency personnel, such as Smith River FPD, to ensure the safety of future homeowners.
2. Identify locations for shaded fuelbreaks along the northeastern side of Highway 101, to protect the new developments there.
3. Identify locations and create shaded fuelbreaks along the first ridge east of Highway 101 and north of Dr. Fine Bridge.
4. Facilitate controlled burn, possibly through state Vegetation Management Program, of private property from Lopez Creek to Ritmer Creek, in conjunction with Smith River Rancheria.
5. Ensure that all residences have legal address and street signs to enable efficient emergency response. Smith River FPD and Del Norte County need to work together to acquire necessary funds to implement an area-wide addressing system.



Map 22. Smith River Community-Identified Risks, Hazards, and Projects. Note: This map is for planning purposes only. See Section 3.4 for more information.

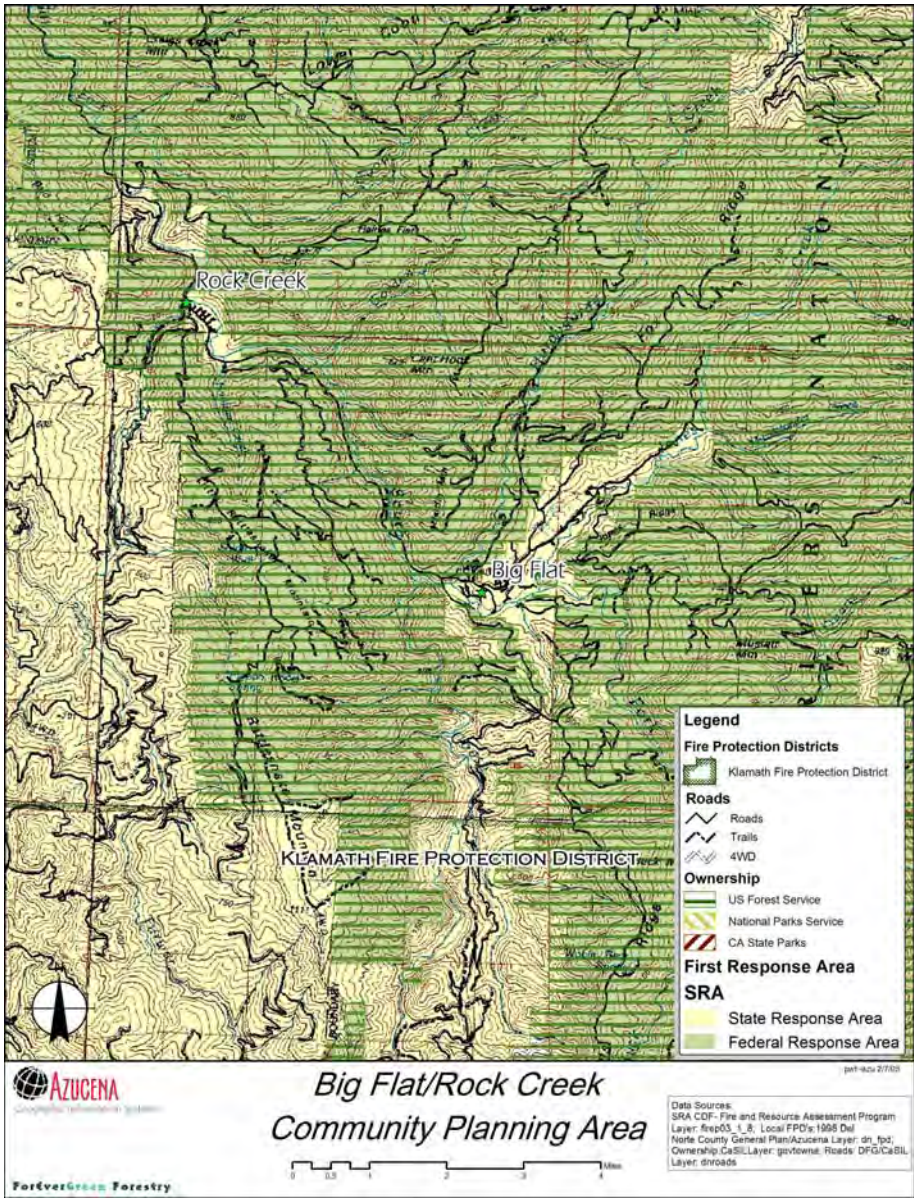
6.5. Big Flat/Rock Creek Community Planning Area

6.5.1. Big Flat/Rock Creek Community Description

Big Flat and Rock Creek are two communities along the South Fork Road (USFS Road 427) completely surrounded by Six Rivers National Forest, Smith River National Recreation Area. Both were designated as Communities At Risk by the US Department of Interior in the *Federal Register* on August 17, 2001.

The land is a mix of ranches and small rural homesteads. Both communities are situated along the South Fork of the Smith River. Big Flat is a large meadow that straddles the Jones Ridge Road off the South Fork Road.

This community is off both the electrical and phone grid. There is very little cell phone service here. Therefore, this community is very isolated in terms of electronic communication. There is a current discussion regarding bringing a power line down the South Fork Road to these communities. Senator Feinstein's staff has visited the area and is working with residents to explore communication and power options.



Map 23. Big Flat/Rock Creek Community Planning Area

6.5.2. Big Flat/Rock Creek Current Fire Environment

This community is surrounded by Very High Fire Threat areas as defined by CDF.

Historically, the big fires in the Big Flat/Rock Creek area have been the Buck Fire, Hurdy Gurdy (1953), Sugar (1967), Jones Creek Ridge, Rock Creek (1950), Rattlesnake (1959), Big Flat (1962), and Haines (1960) Fires.

The Rock Creek subdivision has a 15,000-gallon water tank that provides storage for the neighborhood and several hydrants. The system is run on direct pressure from Deer Creek. There is another 5,000 gallons of water stored in tanks on the Boulder Creek Road near South Fork Road.

Through the RAC grant to DNFSC, several tanks were placed in both communities. Big Flat residences get their water from springs or wells. Several homes have water storage tanks. As of the meeting date (March 25, 2004), there were still three 2,500-gallon tanks to place. In Big Flat, the Stevens Ranch has 10,000 gallons among several tanks, the Stokes Ranch has 3,000 gallons, and there are 5,000 gallons at Bill Jones' residence (2,500 by east end and 2,500 at the west end of the flat).

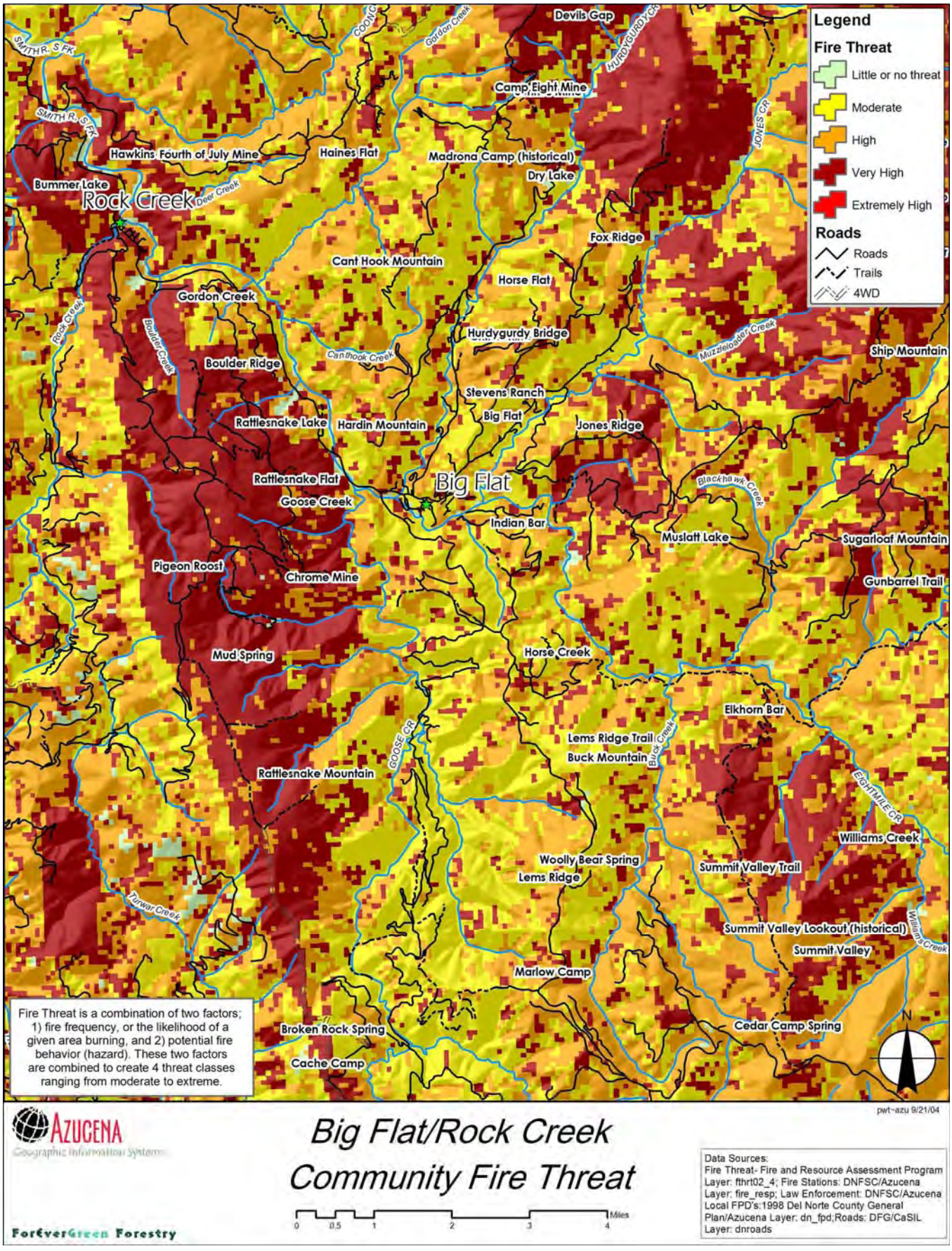
Evacuation is a critical issue here, as there is only one primary road in and out. It is 16 miles from the end of Big Flat to 199 along the main (South Fork) road. There are, however, alternate evacuation routes that travel through the National Forest.

The French Hill Road (USFS Road 411 and 405) is a County-maintained road, as it was the original road into Big Flat. The south end of the road is called the Big Flat Road as well. It is a narrow, one-lane road along the top of the ridge in many sections. The Camp 6 repeater site is on the top of the ridge on French Hill Road. The French Hill Road meets Highway 199 just west of Gasquet. It would not be a quick evacuation route, but it is an alternative.

The Jones Ridge Road (USFS Road 16) travels the Big Flat valley and then climbs up Jones Ridge as a rough, one-lane road to become Ship Mountain Road. The Ship Mountain Fire Lookout is located here. It is staffed through fire season by SRNF personnel. This road is a two-lane gravel road along the top of the ridge when it becomes Jawbone Road. Road 16 is another long, slow evacuation route out of the Big Flat/Rock Creek area. This road meets Highway 199 several miles east of Gasquet, just west of Washington Flat. Both of these routes, however, are northeast of the South Fork Road, the direction of a typical fire conflagration scenario here.

The west slope of South Fork Smith watershed from Rock Creek to Goose Creek is identified as a Very High Fire Threat level. The headwaters of Jones and Hurdy Gurdy Creeks in the area near Four Brothers is also identified as Very High Fire Threat. This area is directly northeast of Big Flat. Given that most severe fires in this area come from the northeast, this is a very real threat to Big Flat.

Big Flat and Rock Creek do not have a local fire department. Gasquet FPD and Smith River FPD (from Hiouchi Station #2) will respond here, as well as CDF (Crescent City) and SRNF (Gasquet), however, it will likely take them around half-an-hour on the roads to arrive.



Map 24. Big Flat/Rock Creek Community Fire Threat

6.5.3. Big Flat/Rock Creek Community Meeting

The Big Flat/Rock Creek meeting was held in the Blackburn home in Big Flat on March 25, 2004.

Residents:

Neal Austin, Rock Creek

Chuck (Del Norte County Supervisor) & Missy Blackburn, Big Flat Hosts

Loyal Conde, Rock Creek

Mary Fisher-Brooks & Fred Brooks, Rock Creek

Bill Jones, Big Flat

Clarke Moore, Boulder Creek

Mike Muldoon, Big Flat

John Nichelson, Big Flat

Alan Porteous and Linda Fruchman, Big Flat

Dale Roberts, Rock Creek

Kate Smith-Hanssen & Mark Poffenburger, Big Flat

Perry Statham, Big Flat

Anne Stevens, Big Flat

Project Participants:

Don Brooks, CDF

Tracy Katelman, Del Norte Fire Safe Plan Coordinator

Dan and Sharol Leavitt, DNFSC

Dan and Linda McGath, DNFSC

Kristen Moss, DNFSC Administrative Assistant

Karen Phillips, DNFSC Local Coordinator

Mary Kay Vandiver, District Ranger, SRNF Smith River National Recreation Area

Dave Webb, SRNF Smith River National Recreation Area

For more information on Big Flat/Rock Creek Community-Identified Risks and Hazards, as well as Potential Projects see Community Meeting Input information in Appendix D.

6.5.4. Big Flat/Rock Creek Assets at Risk

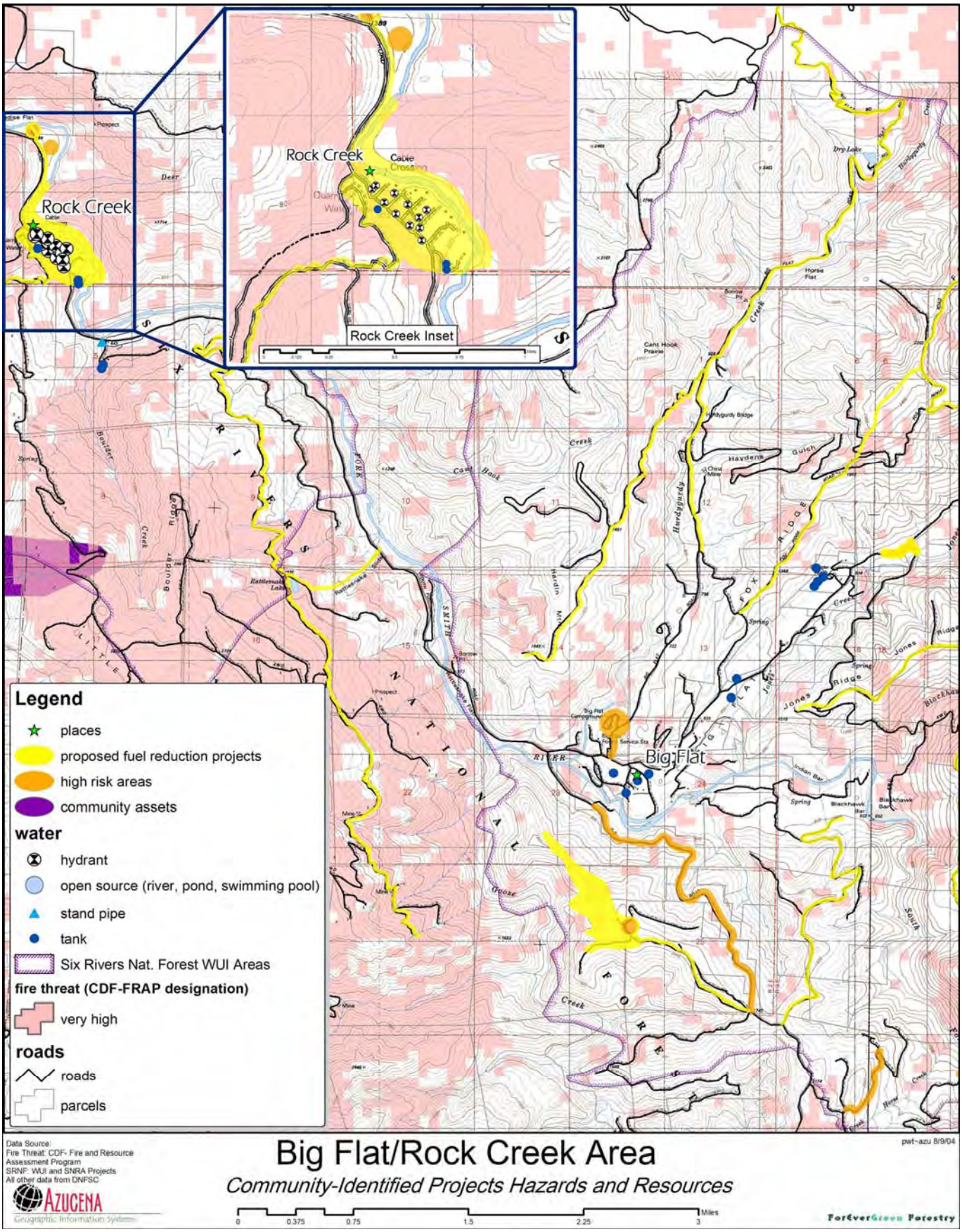
- Big Flat and Rock Creek communities
- Rock Creek Ranch
- Wild and Scenic Smith River
- Big Flat Campground
- Ranger Station
- Jedediah Smith State Park
- Mill Creek State Park

6.5.5. Big Flat/Rock Creek Mitigation Strategy: Priority Projects

1. Given the lack of communication infrastructure here, an emergency communication system for both Rock Creek and Big Flat is vital. Exploration of a cellular phone repeater on Ship Mountain would be most cost effective. With the Camp 6 repeater nearby, it seems plausible to bounce the signal down into this valley. This emergency communication would be beneficial for both medical and fire emergencies.
2. According to CDF, one of the highest fire threat areas in the County sits northeast of Big Flat, in the headwaters areas of Jones and Hurdy Gurdy Creeks. Given that major fire conflagrations often are pushed by winds from the northeast, this is a direct threat to this community. Therefore, a first priority for defensibility of the community is to create a shaded fuelbreak around the valley. The community meeting identified a break following the bottom of Jones Ridge/Ship Mountain Road to USFS Road 16N02T following natural breaks such as ridges and creeks, encircling the valley to the northeast and connecting to Fox Ridge Road. This project should be done in collaboration with SRNF.
3. In the Rock Creek area, shaded fuelbreaks should be created along the river across from the Rock Creek Subdivision, the lower Rock Creek Road, along South Fork Road at Haines Flat, and along Rattlesnake Slide and Rattlesnake Lake Road.
4. Big Flat residents, with the leadership of resident Supervisor Blackburn have secured a fire truck from Calistoga to be stationed in the community. A location has been found to house the truck.

The next challenge will be training a crew to operate the engine. This is compounded by the fact that few residents are full-time Big Flat residents, most work in Crescent City at least during the day. Smith River and Gasquet FPDs have offered to train any interested volunteers. Organizational structure to reduce liability is being explored. The County, FPDs, and SRNF should help facilitate this local fire protection in any way possible.

5. All residents in this area must be diligent in creating and maintaining their defensible space, to a minimum of 100 feet. Beyond the new Big Flat fire engine, additional fire suppression support is likely to take at least one-half hour before reaching here. Therefore, residents will absolutely have to rely on their defensible space treatments.
6. Shaded fuelbreaks should be created along the French Hill Road and Ship Mountain Road routes both to serve as fuelbreaks and improve access. Horseshoe turns along these roads are the first priority in upgrading these roads for access.
7. Ensure all residences have legal address and street signs to ensure efficient emergency response. GPS all residences and key road points. Smith River FPD and Del Norte County need to work together to acquire necessary funds to implement this.
8. Work with State Parks to explore options for alternative emergency evacuation route to the coast via the Rock Creek/Mill Creek forest.
9. Support ongoing efforts by SRNF to reduce fuel in the area, in cooperation with community members.
10. Big Flat and Rock Creek residents must be prepared for evacuation. To this end, all residents should create a Family Disaster and Evacuation Plan (see the American Red Cross at http://www.redcross.org/services/disaster/0,1082,0_601_,00.html for how to do family disaster planning, or visit http://www.redcross.org/services/disaster/0,1082,0_6_,00.html for how to create an evacuation plan). Additionally, residents should consider storing their most valuable items in Crescent City during extreme fire weather conditions.



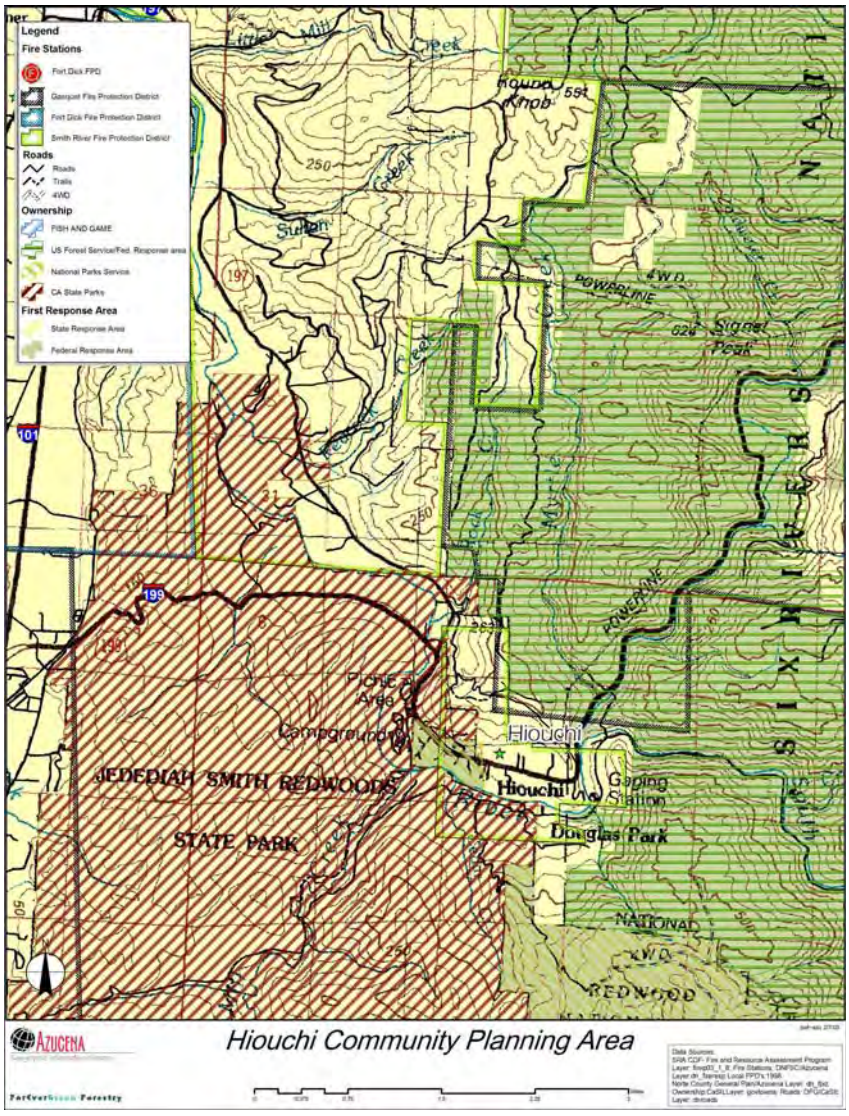
Map 25. Big Flat/Rock Creek Community-Identified Risks, Hazards, and Projects. Note: This map is for planning purposes only. See Section 3.4 for more information.

6.6. Hiouchi Community Planning Area

6.6.1. Hiouchi Community Description

Hiouchi is a small town located along Highway 199, just east of the Jedediah Smith State Park old-growth redwood forest, at an elevation of 163 feet. The town straddles the highway and the main stem of the Smith River just west of the confluence of the South and Middle Forks, hence its native name: "high, clear water."[85] Highway 197—also known as North Bank Road—follows the Smith River from Highway 199 to Highway 101. The 197 area is included in the Hiouchi planning area. Hiouchi is experiencing increasing development on both sides of the highway, including Hiouchi mountain on the north, South Fork, Howland Hill, and Douglas Park areas on the south side of the Smith River, and along North Bank Road. It is bordered by Redwood National and State Parks to the west and Smith River National Recreation Area to the north, east, and south.

Hiouchi was designated as a Community At Risk by the US Department of Interior in the *Federal Register* on August 17, 2001.



Map 26. Hiouchi Community Planning Area

[85] Hiouchi Café & Motel, http://www.tiki.net/~jkistler/

6.6.2. Hiouchi Current Fire Environment

Hiouchi is situated on the Smith River and hence receives canyon winds; the afternoon breeze comes up the river. It is on the edge of the maritime climate, with the fog reaching the nearby redwoods, so it is cooler than Gasquet just a few miles upriver.

There are developments going in at a fairly rapid pace in nearly all directions from Hiouchi: along North Bank Road (Highway 197), south side of Smith River, Hiouchi Mountain north of town. Several of these areas have one-way in and out access and are in densely vegetated or steep terrain. Together, these areas are both a risk and hazard.

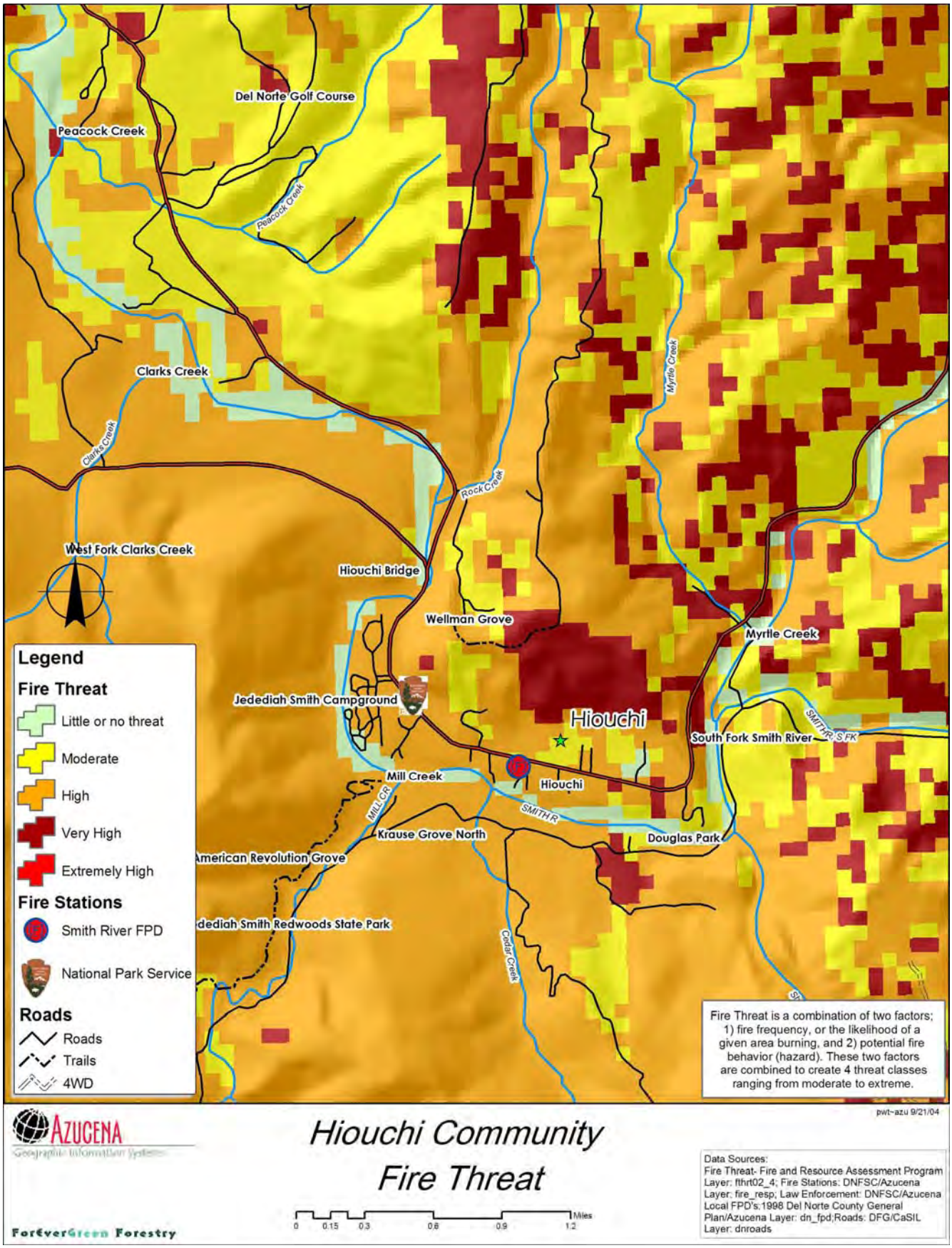
Historically, the big fires in the Hiouchi community have been the Howard and Biscuit (2002) Fires. Some outer Hiouchi residents were evacuated during the Biscuit Fire.

Water is an issue for many outlying areas of Hiouchi, as only central Hiouchi has a hydrant system. DNFSC installed two 2,500-gallon water tanks on Douglas Park, and four tanks on Low Divide and six on upper Ashford Road at Hyatt Heights. Christensen Way (a cul-de-sac) at the forks of the Smith River has a 25,000-gallon swimming pool and a 5,000-gallon pond; two houses to the west on Douglas Park there is another swimming pool. A residence on North Bank Road has a 25,000-gallon swimming pool. There are four irrigation ponds at the golf course on North Bank Road with 500,000 gallons storage. HRC Community Services District has eight tanks, with 75,000 to 85,000 gallons storage off Low Divide. Jed Smith Lane subdivision off North Bank Road has its own water system.

Redwood National Park created a shaded fuelbreak along the eastern edge of its property adjacent to the Hiouchi community.

Smith River FPD provides fire and medical emergency response to Hiouchi, from its Station #2 in downtown Hiouchi, and Station #3 on upper Low Divide Road. *For more information on SRFPD, see Section 5.1.4, Smith River FPD.*

As the map below shows, there are scattered areas of Very High Fire Threat to the north and east of Hiouchi.



Map 27. Hiouchi Community Fire Threat

6.6.3. Hiouchi Community Meeting

A community meeting was held in Hiouchi on March 18, 2004, at the Smith River Fire Station #2 in Hiouchi. The following people participated in the meeting:

Residents:

Art Arten, Hiouchi Drive
Karl and Marianne Beyerle, Hiouchi
Ed Finley, Hiouchi Drive
Jeff Johnson, North Bank Road
Laura Juden (Elk Valley Rancheria/Hiouchi RV Park)
Dan Peeples, Hyatt Heights/Hiouchi Mountain
George and Cheryl Petit, Hiouchi
Ed Ruiz, Low Divide Road
Lila Schrader, Hiouchi
Maelene Steele, Club Drive
Jean Yarbrough, Club Drive

Hiouchi Agency/Organizational Representatives:

Glenn Hill Assistant Chief, Smith River Fire Protection District,
Brett Juden, Smith River Fire Protection District
Dan and Sharol Leavitt, DNFSC, Low Divide Road Residents
Dan and Linda McGath, DNFSC, Low Divide Road Residents
Jeff Walsworth, Smith River Fire Protection District, Blackberry Lane Resident
Myron Williamson, Chief, Smith River Fire Protection District

Project Participants:

Karen Haban, DNFSC
Jim Karanopoulas, Gasquet Fire Protection District
Tracy Katelman, Del Norte Fire Safe Plan Coordinator
Kristen Moss, DNFSC Administrative Assistant
Karen Phillips, DNFSC Local Coordinator
John Pricer, Green Diamond Resource Company, DNFSC
Dieter Schmitt, California Department of Forestry and Fire Protection
Dave Webb, SRNF Smith River National Recreation Area
Rick Young, Redwood National and State Parks
Paul Zerr, SRNF Smith River National Recreation Area

For more information on Hiouchi Community-Identified Risks and Hazards, as well as Potential Projects see Community Meeting Input information in Appendix D.

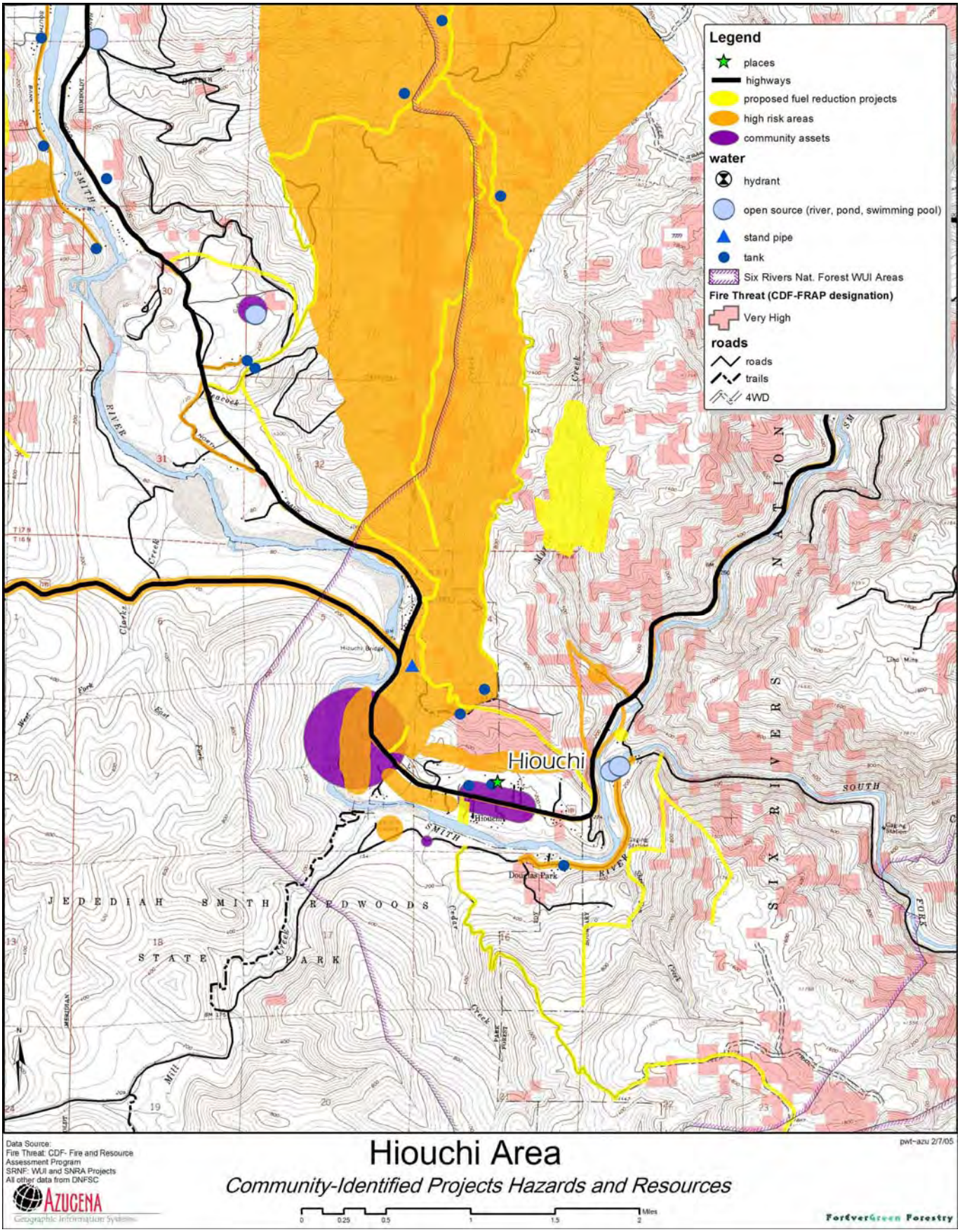
6.6.4. Hiouchi Assets at Risk

- Covered Bridge
- Hiouchi Businesses
- Hiouchi Café
- Hiouchi Community and Residences
- Hiouchi Hamlet
- Hiouchi Water System (water tank and pump)
- Jedediah Smith Redwoods State Park/Ranger Station
- Myrtle Creek Botanical Area
- Smith River FPD Stations #2 and #3
- Wild and Scenic Smith River

6.6.5. Hiouchi Mitigation Strategy: Priority Projects

1. Create a shaded fuelbreak from Hiouchi Mountain Road to Ashford Road to connect to SRNF fuelbreak. This will help protect the community of Hiouchi from wildfires coming from SRNF or further north or northeast. SRNF is creating the 200-foot-wide Hiouchi Ridge Fuelbreak from Serpentine Point off Hiouchi Mountain Road along the ridge to the northwest to tie into road 17N23, where SRNF is creating a fuelbreak along the top of this road for one-and-a-half miles.

2. Create a shaded fuelbreak along Low Divide Road. This will serve as a fuelbreak between the new development on Highway 197 and the community of Hiouchi. It will also provide improved evacuation access for residents along the road and serve as an alternate route to Gasquet and possibly Hiouchi.
3. Park Service should maintain shaded fuelbreak between Jedediah Smith Redwoods State Park and the town of Hiouchi.
4. Work with SRNF to identify alternate evacuation route north from Hiouchi to Low Divide Road, while protecting Myrtle Creek Botanical Area.
5. The Hiouchi area is experiencing strong development pressure. Much of this is happening in interface lands, with homes being built in forested areas, adjacent to either the Parks or Green Diamond land. These neighborhoods will be very dangerous in a large wildfire event. Strong steps must be taken by the County to ensure that any future development along Highway 197 and 199 here is absolutely fire safe. UWI Building Standards must be strictly enforced here. This includes many areas along Highway 197 and south of the Smith River such as Douglas Park. As well, developers must cooperate and comply with the needs of local emergency personnel, such as Smith River FPD, to ensure the safety of future homeowners.
6. Residents in this area must be diligent in creating and maintaining their defensible space. For those in interface areas with forest and brush close to their homes, this should be to a minimum of 100 feet.
7. Ensure that all residences have legal address and street signs to enable efficient emergency response. Smith River FPD and Del Norte County need to work together to acquire necessary funds to implement an area-wide addressing system. Do this in conjunction with community education program.
8. Create a shaded fuelbreak—the Hiouchi Fuelbreak—behind Hiouchi from Serpentine Point west to the existing fuelbreak on the border of Jedediah Smith Redwoods State Park.



Map 28. Hiouchi Community-Identified Risks, Hazards, and Projects. Note: This map is for planning purposes only. See Section 3.4 for more information.

6.7. Gasquet Community Planning Area

6.7.1. Gasquet Community Description

Gasquet is small community of approximately 500 year-round residents (over 600 summer residents) nestled along the banks of the Middle Fork Smith River and Highway 199, completely surrounded by the Smith River National Recreation Area. It is 18 miles in from Highway 101 and the coast. Gasquet was designated as a Community At Risk by the US Department of Interior in the *Federal Register* on August 17, 2001.

> "The village of Gasquet has grown a great deal since Horace (Gasquet) erected the first building back in 1857. Gasquet now boasts a church, an elementary school (K-8), a craft shop, Gasquet Mobile Home Park, volunteer fire department, a US Post Office, an American Legion Hall, a US Forest [Service] Ranger Station, a Community Council, a cafe, a motel, a village store, and even a small airstrip for private aircraft."[86]

This planning area includes the various private parcels along Highway 199 to the Oregon border. Bar-O Boys Ranch is a Juvenile Facility located at Washington Flat and affiliated with the Del Norte County Unified School District. Approximately 70 boys live here, as well as 10 to 12 permanent staff. The Ranch has participated in DNFSC fuel reduction projects. Patrick Creek Lodge is a historical building at the mouth of Patrick Creek on the Smith River. Across the highway is a Forest Service campground. There are also a few homes on Siskiyou Fork Road.

Map 29. Gasquet Community Planning Area

[86] Gasquet Mobile Home Park, http://www.harborside.com/~hnvweth/5.html

6.7.2. Gasquet Current Fire Environment

The Gasquet planning area is one of the highest fire risk and hazard areas in the County. This interface community is surrounded by National Forest lands, many of which have been either previously logged or have increasing numbers of dead trees, both resulting in high fuel loads. In addition, this community is isolated, being situated along winding Highway 199. There are several alternate evacuation routes (Gasquet Mountain Road, French Hill Road, Jawbone Road). However, all of these roads are narrow and winding, often only one lane and gravel for long stretches. Therefore, they are not conducive to rapid evacuation.

The Gasquet community is different from most other Del Norte communities in that it does not have the coastal influence. Therefore, temperatures here are on average at least ten (sometimes twenty to thirty!) degrees higher than Crescent City. As well, in the late afternoon, the winds increase blowing up the Smith River.

Historically, the big fires in the Gasquet area are the Panther (1996), Biscuit (2002), and Shelly (2002) Fires. This community is getting accustomed to big fires and evacuation. The entire community was evacuated during the Biscuit Fire. Everything north of the Middle Fork Bridge (North Fork Loop and Azalea Lane) was also evacuated in 1996 for the Panther Fire.

Gasquet Community Services District pumps water from the river into a large (1/2 million gallon) tank with gravity feed. In the past, when power has been out, the fire department has pumped the water, as there may be no generator back up. DNFSC has installed twelve 2,500-gallon water tanks in the greater Gasquet area, and another six on the North Fork Loop. In addition, they put in four tanks at the Bar-O Boys Ranch.

As shown in the following map, Gasquet is surrounded by Very High Fire Threat areas. In addition, there are many dead trees on National Forest land around Gasquet. The Forest Service has been very active with fuel reduction and educational efforts in and around Gasquet. They recently cleared ladder fuel on Forest Service lands surrounding Pioneer Village. DNFSC received funding to create defensible space on the private property adjacent to the Forest Service project as well as in the North Fork Loop neighborhood. Finally, the Gasquet landfill has a spot to dump yard waste. The Forest Service burns this twice a year for the residents.

DNFSC has taken its chipper to the North Fork Loop and Mountain School to create defensible space in these locations.

Gasquet FPD provides fire and medical emergency response here. *For more information see Section 5.1.5, Gasquet FPD*.

Map 30. Gasquet Community Fire Threat

6.7.3. Gasquet Community Meeting

The Gasquet community meeting was held at Mountain School on March 10, 2004. The following people participated in that meeting:

Gasquet Agency/Organizational Representatives:

Karen Haban, DNFSC, Gasquet Resident

Jim Karanopoulas, Gasquet Fire Protection District, DNFSC Planning Committee

Buzz Parlasca, Gasquet Fire Protection District

Sheila Schulze, SRNF – Smith River National Recreation Area, DNFSC

Pete Villa, SRNF Smith River National Recreation Area

Project Participants:

Tracy Katelman, Del Norte Fire Safe Plan Coordinator

Kristen Moss, DNFSC Administrative Assistant

Dan and Sharol Leavitt, DNFSC

Dan and Linda McGath, DNFSC

Karen Phillips, DNFSC Local Coordinator

Dieter Schmitt, CDF

Dave Webb, SRNF

Residents:

Nick Balent

Bruce & Susie Barber

Glen Bartley

Richard Baxter

Joann & Stan Bellatti

Rick Bennett

Ivan & Mary Bolen

Jeff Bommke

Phil & Barb Bono

Joan Dean

Vicky Dodge

Robert & Erma Downing

Cliff Hickman

Richard Holley

Tim Johnson

Debra Karanopoulas

Phyllis Kortie

Jules Legier

Richard & Charlotte MacAdam

Hal Martin

Jim & Jerye Mooney

Mike Morgan

June Naegeli

Frances Nielson

Marie O'Shaughnessey

R.A. Pickenpaugh

Robert Plassmeyer

Nancy Powers

Paul Sanders

Monte Satern

Al Smith

Shelly Todd

Annabelle Walkley

Ruel & Judy Wilson

Everett Young

Cindy Young

For more information on Gasquet Community-Identified Risks and Hazards, as well as Potential Projects see Community Meeting Input information in Appendix D.

6.7.4. Gasquet Assets at Risk

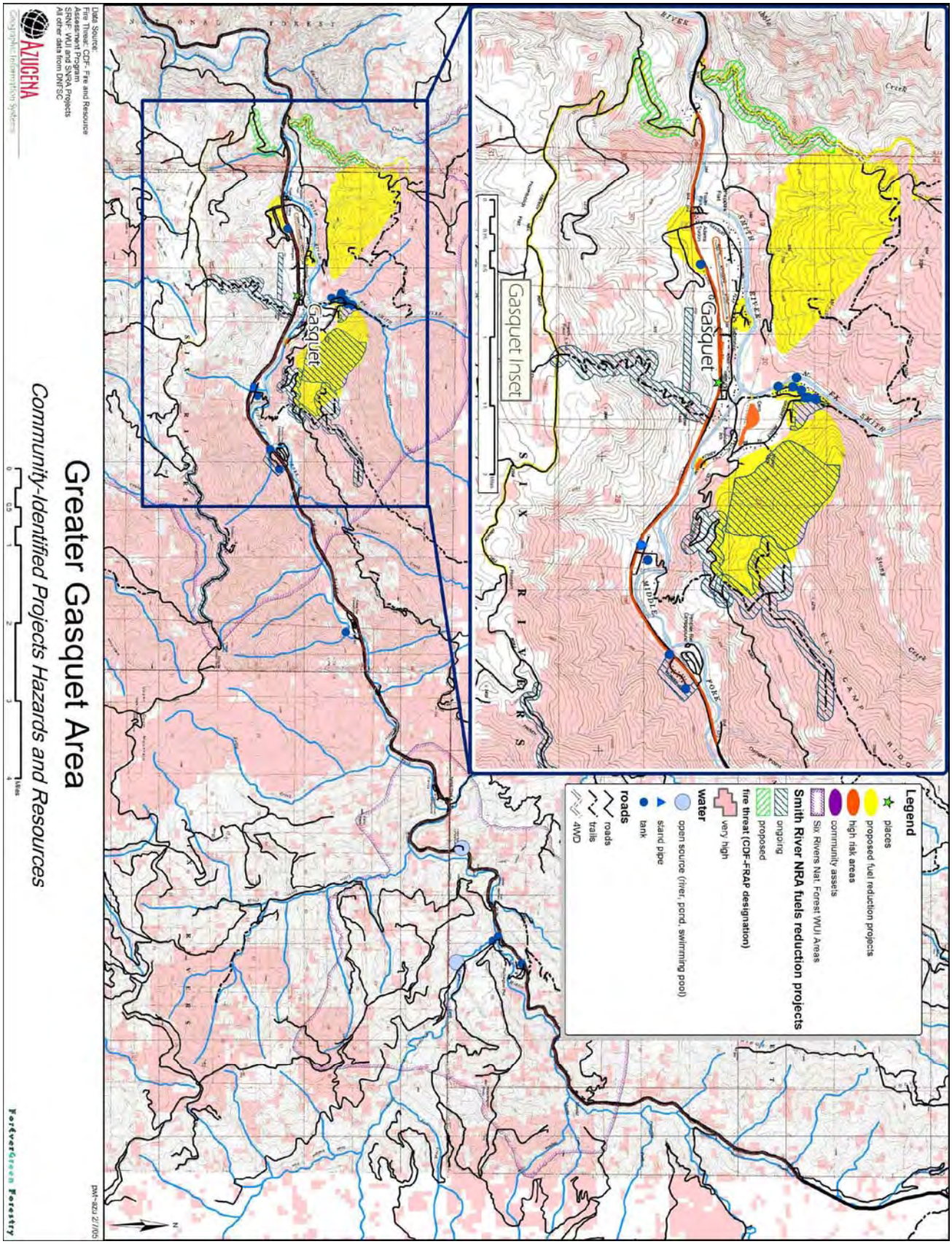
- Bar-O Boys Ranch
- Gasquet Community and Businesses
- Patrick Creek Lodge and Campground
- Mountain School
- SRNF Ranger Station
- Airport
- Power Substation
- CalTrans Yard
- Power Line
- Water Treatment Facility
- Madame Gasquet Grave Site (Historical Site)
- CCC Cabins next to Gasquet Mobile Home Park
- Gasquet Ranger Station (includes historical buildings)
- Adams Station
- Pappas Flat Cultural Site
- Darlingtonia species plants on Middle Fork and North Fork Loop Roads, and Highway 199 near Pioneer Road

6.7.5. Gasquet Mitigation Strategy: Priority Projects

1. Work with SRNF to reduce fuel on the hillsides immediately to the northeast of Gasquet, above Gasquet Middle Fork Road and Gasquet Toll Road. Combine this with intensive defensible space treatments around private properties in this area.
2. Work with SRNF and private property owners to reduce fuel on the hillside directly north of the Gasquet community.
3. Work with SRNF to create a shaded fuelbreak along Gasquet Mountain Road, both to use in fire suppression efforts, and to improve this road as an evacuation route from Gasquet to the coast (via Rowdy Creek or Low Divide Roads).
4. Residents in this area must be diligent in creating and maintaining their defensible space. For those in interface areas with forest and brush close to their homes, this should be 100 to 200 feet. This includes the outlying areas of Gasquet and scattered inhabited parcels along Highway 199.
5. DNFSC received National Fire Plan funding in 2004 for fuel reduction in Pioneer Village and North Fork Loop. Residents in these areas should fully cooperate with this project to increase the effectiveness of fuel treatments.

   The Pioneer Road subdivision lies along a single road that is accessed from Hwy 199 across from the Panther Flat campground. There are 13 homes on this dead-end road, most in small parcels of two to five acres. SRNF completed 18 acres of shaded fuelbreak on their boundary. That break now needs to be extended onto the private land, continued through the curtilage areas around the homes in the form of defensible space, and then followed along the Pioneer Road. This project is approximately 20 acres to undertake complete fire safing for this remote neighborhood, including cutting of the brush and chipping.

   The North Fork Loop Road follows the North Fork of the Smith River, through Gasquet towards SRNF to the north of town. SRNF treated 27 acres in this area. The DNFSC is treating the lands between the North Fork Road and SRNF shaded fuelbreak, as well as providing a fuelbreak along the road. There are 20 landowners along this stretch of road, and the project encompasses approximately 15 acres.
6. Create a shaded fuelbreak along French Hill and Jawbone, Ship Mountain roads. This will also provide improved evacuation ability for Rock Creek and Big Flat. Connect these with a fuelbreak along USFS Road 17N04 to protect this community from fires coming from the south.
7. Explore options for a secondary emergency access route for the Bar-O Boys Ranch and Washington Flat area residents. This may be via Jawbone Road to Ship Mountain.
8. Ensure that all residences have legal address and street signs to enable efficient emergency response. Gasquet FPD and Del Norte County need to work together to acquire necessary funds to implement an area-wide addressing system. Do this in conjunction with an intensive community education program on the need for good signage.
9. Support ongoing efforts by SRNF to reduce fuel in the area, in cooperation with community members.
10. Gasquet residents must be prepared for eventual evacuation. Residents should develop a Family Disaster and Evacuation Plan (see the American Red Cross at http://www.redcross.org/services/disaster/0,1082,0_601_,00.html for how to do family disaster planning, or visit http://www.redcross.org/services/disaster/0,1082,0_6_,00.html for how to create an evacuation plan). During extreme fire weather conditions, residents should move highly valuable items to a safe location in Crescent City.



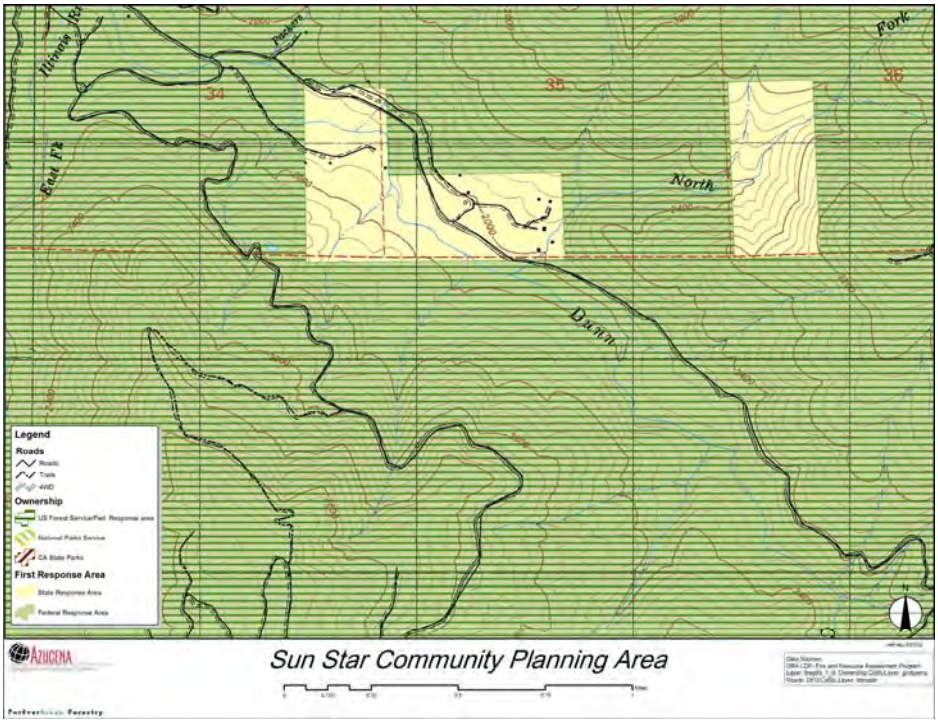
Map 31. Gasquet Community-Identified Risks, Hazards, and Projects. Note: This map is for planning purposes only. See Section 3.4 for more information.

6.8. Sun Star Community Planning Area

6.8.1. Sun Star Community Description

Sun Star is a 160-acre ranch inholding in the Rogue River-Siskiyou National Forest. It lies at the northern edge of Del Norte County, east of Highway 199. The acreage includes valley bottom on both sides of Dunn Creek of the East Fork Illinois River, as well as areas rising up the east and west slopes. Access to this remote area is primarily via Takilma, Oregon, and USFS roads 4904 and 4906. However, an alternate seasonal access is also available through USFS road 4808.

This property contains approximately 20 homesteads, with 15 of those usually occupied throughout the year. The population of the community increases in summer months. All homes are off the electrical grid, with private water sources. Some homes have water tanks, and all get their water from gravity-fed spring boxes or creek diversions. All the roads here are gravel, some maintained by the SRNF. Some sections of these roads are steep and may prove a challenge to fire-fighting equipment. There are phones in most or all of the homesteads. However, some of these lines are not buried and hence would likely not be available in a large wildfire. Two homes on opposite sides of Sun Star have CB base stations in case of phone failure.



Map 32. Sun Star Community Planning Area

6.8.2. Sun Star Current Fire Environment

Given that this area is surrounded on all sides by Rogue River-Siskiyou National Forest, it has had a dramatic fire history. The most recent large fire was the Longwood Fire in 1987, which burned approximately 12,000 acres, including a small portion of Sun Star. In 1987, the Chicago and Whiskey Fires also occurred in the area. The nearby Biscuit Fire did not reach this area. Lightning strikes are frequent here, with five strikes in one storm in 2003. Several small fires have burned in the last decade in the vicinity of Sun Star.

Summer and fall fire weather is affected by late afternoon winds that go up the Illinois Valley canyon and then turn back down the canyon in the evening. Given the bowl-like nature of this area, the winds can also swirl around Sun Star in many different directions.

Sun Star is technically served by the Gasquet Fire Protection District. However, it would take Gasquet engines a minimum of one hour to reach Sun Star. The Illinois Valley Fire District (based in Cave Junction, OR) will also respond to fires in Sun Star, if their equipment and volunteers are available. For instance, if a large fire from the Cave Junction or Takilma area threatened Sun Star, IVFD resources would likely be prioritized in these Oregon communities. Rogue River-Siskiyou National Forest also has wildland fire-fighting engines stationed at the Illinois Valley Ranger District office in Cave Junction, approximately 45 minutes away. These engines will respond to fires in Sun Star if resources are available, with the understanding that either a structural or wildland fire starting here would threaten the National Forest lands.

The Sun Star community has a private truck that has been equipped as a quick-attack fire truck for first response. It is housed on the property in the Fire Station near the meadow. That truck has a 300-gallon water tank with a pump, 1,500 feet of one-and-a-half-inch hose and 800 feet of one-inch hose, and Wajax portable pump. Smith River Fire recently donated Nomex protective wildland fire-fighting clothing and Gasquet Fire donated hose fittings, nozzles, and fire hose adapters to this local crew. The truck has a radio, and two homes on the property have CBs that are on at all times during emergencies.

Rogue River-Siskiyou National Forest has delineated two planning areas around Sun Star for hazardous fuel reduction. The first is East Fork Illinois (Dunn), and is adjacent to Sun Star to the east, with the project area primarily to the southeast. The other is called East Fork Illinois (East Fork), and is southeast of Sun Star.

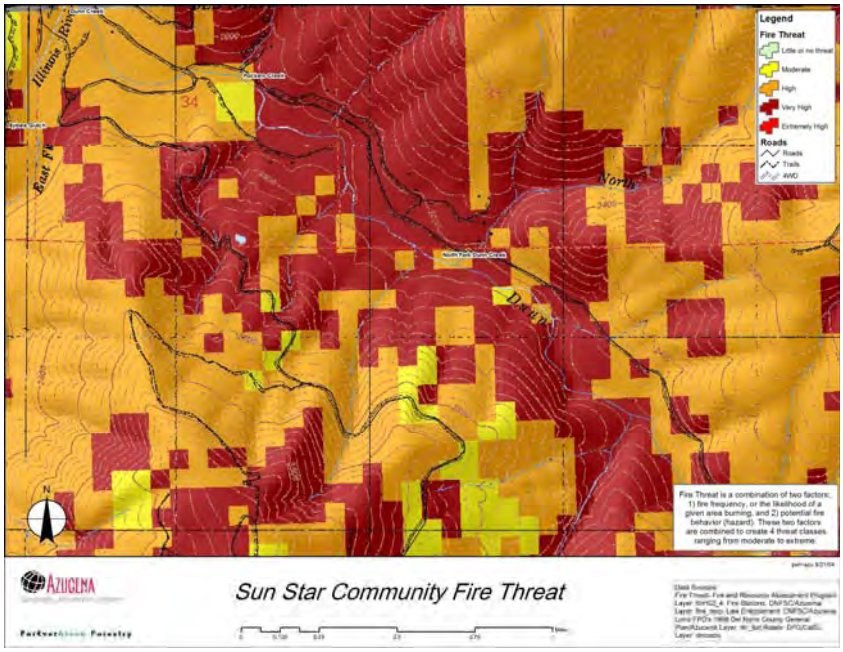
> Both projects plan to use prescribed fire, manual and mechanical treatments. Each of these planning areas is 2,000-4,000 acres.
>
> Both areas have some completed [biological] surveys. Best guess is these cover only one-quarter to one-third of each of these areas. No NEPA[87] is planned to start until surveys are completed. No additional surveys have been implemented in either of these areas for the past two to three years because of a lack of funding.
>
> Within and outside of these two planning areas are various 'managed stands.' For the purpose of definition, you can assume a managed stand is a regenerated clearcut, wildfire, etc. This definition, however, does not entirely cover all managed stand situations, <u>but</u> it covers most. Such 'managed stands' are currently covered by an approved NEPA document (EA[88]) signed in June 2002 and called 'Plantation Thinning and Fuels Reduction.' This EA approved manual and mechanical treatment within such stands over approximately 44,000 acres of the Siskiyou National Forest. However, this EA <u>does not</u> approve understory or broadcast burning. It does approve thinning up to twelve-inch diameter trees by either manual or mechanical means, extraction of material, lopping/scattering, handpiling/pile burning, etc.
>
> Any of these 'managed stands' we could treat literally tomorrow if we had the funds to do so. The Longwood Fire area is an example of an area we could treat if funds were available.
>
> Currently we have a 216-acre hazardous fuel reduction project being worked in the Longwood Fire area (approx. sixty acres felled (thinned) to date. I have the funds and plan to award two other hazardous fuel reduction projects in the Longwood Fire area (in Oregon) this year. The first will be an agreement with the Northwest Youth Corps for approx 25 acres of thinning and handpiling immediately adjacent to private land in T41S, R8W, S15. The second project is an FY05 funded [Siskiyou] RAC project for hazardous fuel reduction work in the Longwood Fire area. This contract will complete hazardous

[87] NEPA is National Environmental Policy Act

[88] EA is Environmental Assessment

fuel reduction work over approximately forty acres in Oregon, but the exact location is not yet determined. [89]

Safe zones for Sun Star were identified as the meadow (which is mowed and could be kept irrigated from the North Fork Illinois to improve its usefulness as a safe zone), the White Bridge, and the big culvert on the North Fork Illinois.



Map 33. Sun Star Community Fire Threat

6.8.3. Sun Star Community Meeting

A community meeting was held in the Sun Star meadow on August 17, 2004, from 3 to 5 pm. The following people attended the meeting.

Residents:

David R. Baker
Brigid Baker
Dudley Douglas
Gray Eagle
Kenny Houck
Helen Matthews
Jim and Jeanette Phillips
Solomon Roncalio
Don Shaw
George Shook
Kelpie Wilson

Sun Star Agency/Organizational Representatives:

Don Bellville, Two Rivers, Siskiyou National Forest
Dick Boothe, Two Rivers, Siskiyou National Forest
Jerry Schaeffer, Illinois Valley Fire District, Fire Marshal

[89] Don Bellville, Prescribed Fire/Fuels Planner, Two River Fire Zone, Siskiyou National Forest, personal communication, 2/15/04.

Project Participants:

Tracy Katelman, Del Norte Fire Safe Plan Coordinator

Dan and Sharol Leavitt, DNFSC

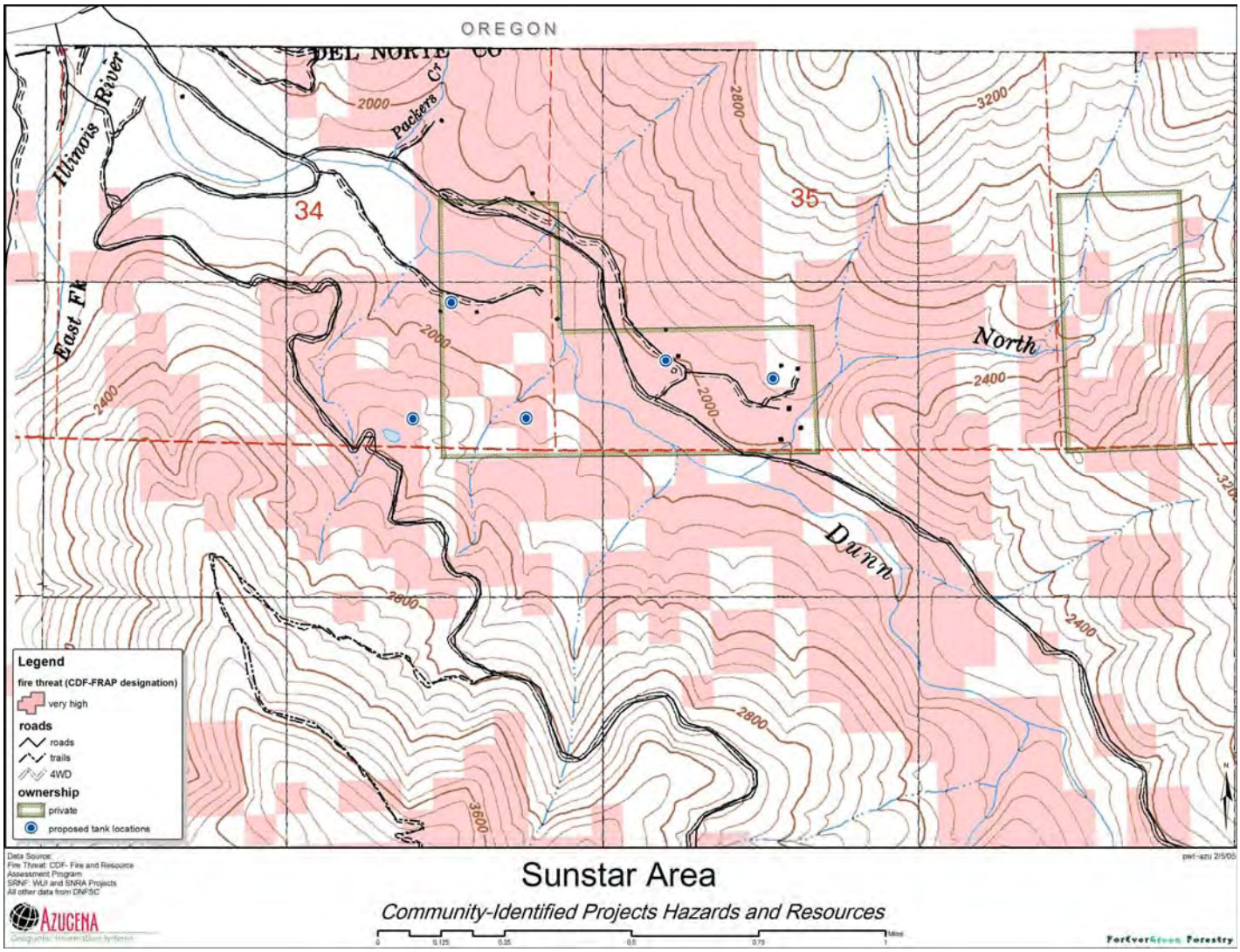
For more information on Sun Star Community-Identified Risks and Hazards, as well as Potential Projects see Community Meeting Input information in Appendix D.

6.8.4. Sun Star Assets at Risk

The assets at risk at Sun Star are the twenty-plus homesteads here, and the headwaters of the Wild and Scenic Illinois River.

6.8.5. Sun Star Mitigation Strategy: Priority Projects

1. Water storage for fire is critical here. The DNFSC is working with Sun Star residents to identify locations for a series of community water tanks for fire-fighting. The following five tank locations were identified through this process. Two tanks are currently being installed at site 4 in a cooperative project between the Illinois Valley Fire District, Gasquet Fire Protection District, and DNFSC. These came from DNFSC's existing Resource Advisory Committee (RAC) tank project that had been designated for the Gasquet area and offered by Gasquet FPD. A proposal is being developed for three more tanks to submit to the RAC.
    - 1 is midslope, fairly dense young forest and brush on south side of Sun Star on the west side of the valley. The entire west side is dependent on two small tributaries which have very little flow during fire season. There is one dwelling at this location with a conventional lawn about 30 feet out from house.
    - 2 is at the southwest corner of Sun Star, the highest point on the property. The proposed tank location is actually on SRNF land on spur 017 of Forest Service Road 4906, just above house, next to domestic use water tank. Because of elevation and slope, any fire on the west side of Sun Star is likely to move up here. Immediately above this location is 50-year-old tree plantation.
    - 3 is at base of slope on west side between two residences about 75 yards apart. Base of slope is one hundred yards or more distant from Dunn Creek. There are other dwellings in the vicinity.
    - 4 is on the east side of Sun Star between firehouse and meadow-safety zone. It would be primarily to protect safety zone in the event of major fire.
    - 5 is located in a major population center on east side of Sun Star. This would afford protection should fire destroy water line from North Fork Dunn Creek, which supplies six residences in this vicinity.
2. Fuel reduction and shaded fuelbreaks are the other critical component to protect this community. SRNF fuel reduction projects in the Hogue's Meadow and Longwood Fire areas are a priority here. Creating a shaded fuelbreak to protect the community from down-canyon fires also makes sense here. The ridge between Long and Cedar Gulches has been identified by this community, as well as for the community of Takilma, Oregon, in the Illinois Valley Fire Plan process in 2004. An assessment of other areas for potential shaded fuelbreaks to protect this remote community is a necessary next step for these residents in cooperation with Siskiyou National Forest, to protect both the public and private resources.
3. A top priority for this community is improving its ability to defend itself from wildfire. To that end, the Del Norte Fire Safe Council has facilitated donations of fire-fighting equipment from the Smith River and Gasquet Fire Protection Districts.
4. Designate Sun Star as a Community At Risk when the list is re-opened.



Map 34. Sun Star Community-Identified Risks, Hazards, and Projects. Note: This map is for planning purposes only. See Section 3.4 for more information.

7. PUBLIC, TRIBAL, AND INDUSTRIAL LANDS FIRE MANAGEMENT

7.1. Public Lands

7.1.1. USDA Forest Service, Six Rivers National Forest

The USDA Forest Service (USFS) manages the Six Rivers National Forest (SRNF), which "lies east of Redwood State and National Parks in northwestern California, and stretches southward from the Oregon border for about 140 miles."[90] Forty-three percent of the Forest is in Del Norte County (411,764 acres) and is managed out of the Gasquet Ranger District. The Smith River National Recreation Area (SRNRA) comprises a major portion of this district. Management of Six Rivers National Forest is guided by the 1995 Land and Resource Management Plan. A Fire Management Plan was developed in 2004. In terms of current fire management practices, SRNF is undertaking an active fuel reduction program, including mechanical treatments and prescribed burning, as well as fire detection, suppression, and defensible space education in conjunction with CDF and neighboring State and National Park Service units.

Within the Wildland-Urban Interface, specific management actions take place by the USFS in order to reduce fuel risks based on guidelines established by the Healthy Forest Restoration Act. Fuel reduction projects within the WUI will be designed on a site-specific basis, but their direction can be found in the SRNF Land and Resource Management Plan, and the SRNF Management Plan.[91]

From 2001 to 2004 the SRNF completed twenty-eight hazardous fuel reduction projects in the SRNF, the majority of which lie in the Gasquet area. Another thirteen projects are proposed for the Gasquet area in the future. Burning is planned for French Hill, Panther 1996, Panther 1973, Pioneer Village, the upper portion of French Hill Trail, North Fork, and Gasquet Mobile Home Park the winter of 2004-2005.[92] Also, in the Gasquet area there are dead trees accumulating around Pioneer Village and within the Middle Fork canyon from east of Gasquet to Patrick Creek. These are mostly sugar pine and western white pine trees that are dying primarily from blister rust and/or insects. In the past to address the problem SRNF has used timber sales, but the agency does not have any sales planned in the future. [93] These areas will need addressing with fuel treatments.

In regard to designing specific fuel reduction prescriptions, the Forest Service considers the following: resource needs, Forest Plan requirements, individual stand condition, as well as line officer direction. During the public comment period of the NEPA process, prescriptions can be modified. Recent prescriptions have been designed to remove brush and smaller trees with the objective of creating a break in the fuel ladder. Prescriptions may also be designed to thin dense vegetation.[94]

SRNF Fire Prevention staff is a very active participant in the Del Norte Fire Safe Council, especially Sheila Schulze, North Fork Fire Prevention Technician, Six Rivers National Forest, Smith River National Recreation Area.

For more information on USFS SRNF policies, fire history, fire guidelines, completed and proposed projects, WUI boundary development, and SRNF fire prevention education, please see Appendix G.

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[90]USDA Forest Service, Six Rivers National Forest Home Page, http://www.fs.fed.us/r5/sixrivers/.

[91]Lucy Salazar, Vegetation Management Specialist/Air Coordinator, Six Rivers National Forest, personal communication, 9/28/04.

[92]David Webb, District Fire & Timber Management Officer, Smith River National Recreation Area, Six Rivers National Forest, personal communication, 8/31/04.

[93]Ibid.

[94] David Webb, personal communication, 9/29/04.

7.1.2. National Park Service, Redwood National and State Parks

Redwood National and State Parks consist of four parks, three of which are in Del Norte County:

- Redwood National Park, 106,000 acres, established in 1968 and expanded in 1978, is a federal park under the jurisdiction of the National Park Service (NPS);
- Del Norte Coast Redwoods State Park, 6,400 acres, established in 1925, is a state park under the jurisdiction of the California Department of Parks and Recreation (State Parks); and
- Jedediah Smith Redwoods State Park, 10,000 acres, established in 1929, is also a state park under the jurisdiction of the California Department of Parks and Recreation.

In 1994 the NPS and State Parks signed a memorandum of understanding and agreed to cooperatively manage these parks. The legislated National Park boundary includes these federal and state park lands and collectively they are called Redwood National and State Parks (RNSP). In Del Norte County RNSP federal acreage is 6,500 and state is 16,400.

The overall direction of RNSP is set forth in the General Plan, and RNSP has developed a Fire Management Plan dated December 2004. As described in this Plan fire management is as "all activities undertaken to prevent, control, suppress, and utilize fire for the protection of human safety, personal property, and irreplaceable natural and cultural resources. This Fire Management Plan (FMP) provides the operational guidance the National Park Service (NPS) will use to manage wildland fire in RNSP safely while protecting park resources and human life and property."[95] This Fire Management Plan is meant to supplement the 1995 Fire Management Plan.[96]

In regard to vegetation management, old-growth forests are the primary resource of RNSP. The 50,000 acres of second-growth forests in the RNSP are still recovering from timber harvests that took place before the establishment of the parks wherein the forests were seeded with exotic tree species, which has slowed the attainment of old-growth conditions. RNSP actions involve the management of second-growth forests as well as prairie restoration. These actions include re-establishing a historic fire regime as a means of shortening the time involved in attaining old-growth characteristics and the restoration of prairies and oak woodlands as maintained by Native Americans prior to European arrival. Actions also include manual removal of Douglas fir which have encroached upon prairie and oak woodlands.

RNSP has three fuel reduction projects proposed for Del Norte County in the 2004 Fire Management Plan. They include:

- A prescription burn in Little Bald Hills;
- A prescription burn in the coastal prairies of DeMartin; and
- A prescription burn in the coastal prairies of Flint Ridge.

In addition, there is a shaded fuelbreak that needs ongoing maintenance along the edge of Jedediah Smith Redwoods State Park on Redwood National Park lands on both sides of US Highway 199 to Hiouchi Mountain.

Redwood National Park Fire Management Officer Rick Young is an active participant in the Del Norte Fire Safe Council.

For more information on RNSP parks and fire management, please see Appendix G.

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[95] Redwood National and State Parks, Fire Management Plan, December 2004, p. 1.

[96] Redwood National and State Parks, General Management Plan/General Plan Environmental Impact Statement/Environmental Impact Report, p. 36.

7.1.3. California Department of Parks and Recreation: Del Norte Coast Redwoods State Park/Mill Creek, Jedediah Smith Redwoods State Park, Tolowa Dunes State Park, Pelican State Beach

As mentioned above, in cooperation with the National Park Service, the California Department of Parks and Recreation (State Parks) manages Redwood National and State Parks (RNSP). In Del Norte County RNSP State Parks include Del Norte Coast Redwoods State Park and Jedediah Smith Redwoods State Park. In addition to these, State Parks also manages the 5,000-acre Tolowa Dunes State Park (which includes the Lake Earl State Park Project and Wildlife Areas), the 5-acre Pelican State Beach, and the newly acquired 25,000-acre Mill Creek Property.

State Parks has an outdated Fire Plan for Tolowa Dunes State Park. CDF is the primary responder to this state park.

The Mill Creek Property is a forty-square-mile area located six miles southeast of Crescent City that includes 121 acres of old-growth redwood and Douglas fir forest. The property links large areas of old-growth redwood forest with National Forests in the western part of the Klamath-Siskiyou Mountains. Save-the-Redwoods League (SRL) negotiated an option to purchase the property from Stimson Lumber Company in 2001, and the sale was finalized in June 2002. At that time, Save-the-Redwoods League transferred ownership and land management to the State under stewardship of the State Parks.

More than a century of timber harvesting on the Mill Creek property has resulted in a landscape dominated by dense, young, even-aged conifers that lack structural complexity and biological diversity. It is estimated that there are 700-1,200 trees per acre. State Parks goals are to restore the complexity, diversity, and ecological values associated with the desired conditions of older forests on the property. Along these lines State Parks will develop long-term forest and fire management plans for the property. "Fire no longer functions as a natural disturbance agent in managed timberlands and in parks such as the Mill Creek property. Fire suppression and timber management over the last 50 years has increased the amount of surface, crown, and ladder fuel; and the risk of stand-altering fires that could affect old-growth forests on and adjacent to the property."[97]

Management recommendations have been set forth in the Mill Creek Interim Management Recommendations report prepared by Stillwater Sciences for Save-the-Redwoods League and the Coastal Conservancy, dated August 2002. Recommendations include reducing fuel and fire hazard in second-growth forests. To achieve this, the development of a long-term fuel and wildfire management plan is recommended. Recommended actions include thinning the young, second-growth forests because this will decrease density, open the canopy, and increase tree growth, while also reducing fire risks by reducing surface, crown, and ladder fuel. Areas will be thinned to approximately 100-170 trees per acre. Along these lines, nearly seven square miles have been identified as a high priority for thinning to reduce wildfire risk. Three square miles have been identified as a high priority for managing both fuel reduction and ecological benefits. Young stands next to existing old growth were identified as a high priority because they have a greater risk of transmitting wildfire to the old-growth areas. Areas in the northern part of the property have also been identified as a high priority because of their close proximity to old-growth stands in Jedediah Smith Redwoods State Park. It is recommended that high-priority areas that have roads with high erosion risk be treated first so that the roads can be treated soon thereafter. Shaded fuelbreaks on ridge tops and slope breaks are also recommended in order to create defensible fire lines and promote old-growth characteristics. In the long term, it is recommended that planning consider fuelbreaks around public use areas, roads of high use, and areas adjacent to commercial timberlands in order to minimize the risk of fire spreading to and/or from these properties. Once a road network is established, fuel management zones should be considered. Prescribed burning cannot occur

[97] Mill Creek Property Interim Management Recommendations, August 2002, p. 78.

on the property until high fuel loads and fuel ladders are reduced through thinning or natural stand-replacing events.

In the short term, thinning of the young, second-growth forests could result in increased ground fuel loads and fire risk for at least three to five years following treatment. To mitigate this, the Interim Management Recommendations suggest 1) piling and burning thinned materials during the winter months, 2) cutting thinned materials into sections and placing them on the ground to accelerate decomposition, 3) lopping and scattering or chipping small materials, and 4) creating shaded fuelbreaks of 50 feet.

Two fuel reduction projects were proposed to occur over two years in the wettest parts of the property. In 2003-2004, an area of 96 acres with 700 to 1,200 trees per acre was thinned to either 75 or 150 trees per acre, with 30 acres as an untreated control. In 2004-2005 400 acres are proposed to be thinned to 100 or 170 trees per acre.[98]

For more information on lands managed by State Parks, including Mill Creek, please see Appendix G.

7.1.4. California Department of Fish and Game

In Del Norte County the California Department of Fish and Game (DFG) manages the 5,624-acre Lake Earl Wildlife Area, 339-acre Crescent City Marsh Wildlife Area, 160-acre Elk Creek Wetlands Wildlife Area, and the 28-acre Waukell Creek Wildlife Area.

Native Americans used to burn the area that is now the Lake Earl Wildlife Area (LEWA) about every four years in the very early spring. The burning had several beneficial effects. First, it allowed for continual new growth that provided forage for many game animals. Second, many plant species that were used for basketry were aided by the burning practices. Lastly, it protected the area from more severe fires because the continual burning meant that fuel did not build up. The landscape in this area was quite different a century ago before logging, farming, and fire suppression activities caused large vegetational changes to occur. The Lake Earl/Tolowa area was nearly surrounded by a belt of old-growth redwood, and the Lake Earl people conducted hunting behind the belt in the Elk Valley area.[99]

The California Department of Fish and Game (DFG) has prepared for public review a draft Lake Earl Wildlife Area Management Plan and Draft Environmental Impact Report. "The plan provides long-term direction for managing the LEWA to benefit wetlands and water-associated fish and wildlife, native plants, and appropriate public use."[100] DFG currently does not have a fire management plan. The area is susceptible to severe fire weather due to offshore prevailing winds associated with flows from the Gulf of Alaska, and Old Mill Road is a possible ignition source. A fire burned the property on the other side of the lake about two years ago. Because it is a State Responsibility Area (SRA), CDF acts on any wildfires in the area.

For more information about the lands managed by DFG, please see Appendix G.

7.2. Tribal Lands

7.2.1. Yurok Reservation[101]

The Yurok Reservation is approximately 53,000 acres, with almost half in Del Norte County, the majority being in Humboldt County. The Yurok have a forestry department, which actively manages much of their land, including prescribed burning and slash burning. In addition, their environmental

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[98] Dan Porter, Forest Ecologist, Save-the-Redwoods League, personal communication, 9/30/04.

[99] Brock Richards, Environmental Programs Assistant, Smith River Rancheria, personal communication, 10/1/04.

[100] Department of Fish and Game, Lake Earl Wildlife Area, http://www.dfg.ca.gov/lewa/.

[101]Shawn McMahon, Yurok Tribal Forestry, personal communication, 10/28/04. Kenny Peugh, Assistant Fire Management Officer, Yurok Tribal Forestry, personal communication, 10/29/04.

programs staff does manual brush clearing as part of an alternatives-to-herbicide program. The tribe has a home clearance program where they create defensible space around tribal members' homes. Some of these homes were treated in the Requa area. The Yurok use fire as a cultural management tool as well, as they have done for many generations. Currently those efforts are focused on producing bear grass for cultural uses such as basketry.

Tribal forestry staff identified the previous fuelbreaks along roads in the Blue Creek watershed as a priority for re-treatment, as well as creation of a shaded fuelbreak along Lonesome Ridge Road. A priority is a fuelbreak at the mouth of the river between the old mill site and Requa. They also support burning the slope below the Lookout at Requa, and recommend doing this in July before the fog comes in heavy.

7.2.2. Smith River Rancheria

Smith River Rancheria is 160 acres along Highway 101 just south of the Oregon border. The following was shared by their Environmental Programs Assistant Brock Richards:

"Burning was conducted in very early spring 'when the ferns first pop from the ground.' It was done at this time because revegetation would start immediately, being spring, winter having just passed, which meant that erosion from winter rains would not be a problem and immediate spring regrowth would prevent erosion from the coming winter. The benefits were numerous, a few of which were that the continual new growth added forage for many 'game' animals, and many plant species that were used for basketry were aided by the burning practice. Another benefit (although I never heard it described as such) would be as a form of fire protection. An area would be burned every four years, I believe. Because of the continual burning, fires were nowhere near as intense as they seem to be now, and fuel build-up as it exists now was not a factor or not as big of a factor.… I believe it was practiced around every town/village (although … I always heard it in the context of near Howonquet (Smith River Rancheria). Also the landscape here in the past as described to me was quite a bit different than exists today. Large vegetational shifts have occurred due to logging, farming, and a no-fire policy (for 100 or so years?)."[102]

7.3. Industrial Lands

7.3.1. Green Diamond Resource Company

Green Diamond (formerly Simpson Timber) is the largest private landowner in Del Norte County. They actively manage most of their lands for timber production. Green Diamond has been active in fire suppression efforts during large fires such as the Biscuit Fire in 2002, cutting firebreaks. They are in the process of creating a shaded fuelbreak on Johnson Ridge, which will be primarily just south of Del Norte County in Humboldt County, but supported by DNFSC and local CDF staff.

> "The Johnson Ridge Shaded Fuelbreak is proposed to be developed the entire length of Johnson Ridge. This fuelbreak will run from the CDF fire station (Elk Camp) on Bald Hills Road eleven miles north along the ridge and Johnson Road down to the Klamath River. This firebreak will split the south side of the river slopes for fire suppression efforts and enable the public living on the south side of the river an escape route. Since this area is covered by the CDF Battalion from Del Norte, Crescent City, and is fully supported by the CDF Humboldt-Del Norte Unit, the Del Norte Fire Safe Council decided to endorse the project.
>
> "The shaded fuelbreak is proposed to be 200 feet wide and straddle Johnson Ridge or the county road when it is on the ridge. When the road is not on the ridge it will have extra brush widening to make it more defensible and safe to travel. Preliminary work will

[102]Brock Richards, personal communication, 10/1/04.

be done within the month, flagging boundaries, and surveying for cultural, wildlife, and botanical resources. Until all landowners can be contacted this work will be confined to Green Diamond ownership."[103]

Green Diamond is a timber company. As such they do extensive logging. Slash is often the result of these operations. Many residents throughout this process identified the company's land as a fuel hazard in wildland-urban interface areas. According to forester John Pricer:

> "I believe that fire hazard from standing dead oak stands will be minimal due to the fact there is none to little ladder fuel and the oak remains standing for several years before the tops begin to break-up and fall, a little at a time. Thus, over a five- to six-year period seedlings that were planted under the dead oaks will be released and begin growing in partial to full sunlight. Some say that the falling oak will damage the seedlings, but I have some four-year-old stands with very little damage."[104]

Green Diamond has a yearly "Fire Plan" provided to CDF for reporting and responding to wildfires. It outlines fire suppression responsibilities in the company. They are responsible for initial attack on the lands they manage, but notify CDF immediately of any fires. Green Diamond has several water trucks, bulldozers, and pumpers, and two wildland fire engines for fire-fighting. According to their "Fire Plan and Resources Inventory," the following is their prevention program:

1. Enforce 2004 Fire Regulations.
2. Maintain fire weather record during periods of high fire danger.
3. Post signs on all public roads indicating hazards.
4. Support fire weather forecast on TV and radio.
5. Participate actively in Redwood Region Conservation Council fire prevention program.
6. Fire patrolman to contact visitors on the property, check recreation permit and warn of hazard, or request to leave as may be most appropriate according to directions received from Area Manager.
7. Closure of recreational areas when fire danger is extreme.[105]

In addition to the above list, Green Diamond Forester John Pricer is a very active participant in the Del Norte Fire Safe Council.

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[103] John Pricer, Forester, Green Diamond Resource Company, personal communication, 10/4/04.

[104] John Pricer, personal communication, 9/30/04.

[105] Fire Plan and Resources Inventory, Green Diamond Resource Company (Klamath) – LTO Permit A-100.

8. MITIGATION STRATEGY: DEL NORTE FIRE SAFE ACTION PLAN

➢ *Action items are identified with this arrow throughout this mitigation strategy chapter.*

The following mitigation strategy and policy recommendations support the Del Norte County Board of Supervisors' "Adopted Goals." Specifically, Board goals addressed are:

- To prioritize and coordinate the grants process.
- Empower our community by affirming safe and healthy children, families, and individuals.
- Identify, develop, and prioritize a long-range and short-range plan for meeting future buildings, facilities, roads, equipment, and recreational facility needs.
- Manage County government to be more effective and efficient in the delivery of quality customer-focused services.
- Build and improve partnerships with all public and private entities; and
- Do everything within our authority to ensure that the public is provided with adequate and efficient infrastructure (i.e. Transportation, Sewer, Roads, Cable, Water).

8.1. Policy

Throughout the community planning process for this Fire Safe Plan, project staff was continually asked by residents what could be done about property owners who did not create defensible space and hence posed a risk or hazard to their neighbors. This is the type of issue that is either best addressed by regulation and/or policy, or through incentives. Given the independent nature of many Del Norte residents, it may be most effective to motivate through incentives rather than through regulations. However, some regulations will be necessary, especially in terms of new development. With the exception of Crescent City, all of Del Norte County is unincorporated. Therefore, the issue of countywide defensible space must be addressed at the County level. This is not an issue unique to Del Norte.

8.1.1. Insurability of Del Norte Homes with Defensible Space

One of the principal issues with many rural Del Norte residents is whether or not they are able to obtain fire insurance. One family—active with the Fire Safe Council and with a fire station literally in their back yard—was unable to obtain insurance because there are no hydrants on their property, which is some distance up a dirt road in the hills. However, after requesting and completing an insurance inspection, their rates decreased by one-third because of their defensible space and water storage.

Discussion began between the Fire Safe Council, County Supervisors, Fire Protection Districts, and the insurance industry regarding a model project in Del Norte County. This project would tie insurability to defensible space, meaning having inspected and approved defensible space around your home would increase your ability to obtain fire insurance. The defensible space would need to be assessed[106] and signed-off, potentially by a fire-fighting agency or DNFSC. The County Board of Supervisors could provide a leadership role in working with the insurance industry to develop a model program. This project is still in the preliminary discussion phase. It is unclear how it would work in Del Norte County. The best news is that all parties are motivated to find a solution.

➢ Fire Safe Council, CDF, Fire Chiefs[107], County, and insurance industry continue to explore viability of insurance-based incentives for defensible space implementation.

Other incentives need to be explored for existing Del Norte residences. Programs to facilitate creation of defensible space will certainly help. This is discussed in Section 8.2, Defensible Space.

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[106] A fire-safe inspection program is being developed at UC Davis to train people such as FSC members to conduct these inspections.

[107] The reference to Fire Chiefs throughout this chapter means the Del Norte Fire Chiefs Association, representing and providing leadership to all firefighters in Del Norte.

8.1.2. Defensible Space in New Developments

Development pressures are increasing in Del Norte County. This can be seen especially in the interface between wildlands and residential areas. Del Norte is likely the last place in the State where forested land with an ocean view is still available. The Board of Supervisors will need to take strong measures to ensure that development occurs without increasing fire risk to current residents. For example, it would be unwise to allow development in Del Norte County that does not have a secondary emergency access route. The eastside Oceanview Drive area of Smith River has examples of development that do not meet adequate fire safety standards.

The following statement from the California Attorney General's office provides the legal framework for taking action to ensure local fire safety:

> The Legislature of the State of California hereby finds and declares that the unrestricted use of grass-, grain-, brush-, or forest-covered land within the State is a potential menace to life and property from fire and resulting erosion…. Counties, cities and counties, cities, and districts may adopt ordinances, rules, or regulations to provide fire prevention hazard conditions.[108]

Through this process, several areas in the County have been identified as being either especially hazardous, with high fire risk, or both. It makes sense to both place stricter regulations on any new developments, as well as focusing enforcement of existing regulations in these Target Areas *(see below)*. As more lands are being developed, the risk to existing homes generally increases. The County has a responsibility to current residents to minimize the impact on them of future development. One way to do this is to ensure that all new development adheres to accepted fire safety standards.

Target Areas in Del Norte County for Defensible Space, Fire Safe Construction, and Alternate Access Programs:

- Big Flat
- Crescent City areas east of Highway 101
- Douglas Park (Hiouchi)
- Gasquet
- Hiouchi Mountain
- Klamath Glen outlying areas
- North Bank Road (Highway 197, Hiouchi)
- Pacific Shores and coastal areas near Fort Dick
- Point Saint George and northwest Crescent City
- Requa (Klamath)
- Rock Creek

➢ Focus fire safety efforts in the Target Areas listed above, including defensible space, fire resistant building, and providing for alternate access routes.

SB 1369 was passed into law on September 23, 2004. In addition to expanding defensible space standards to 100 feet in most rural, forested areas, it requires owners proposing new construction or reconstruction after a fire to obtain a certificate of compliance from local building officials, which can then be given to insurance providers. *(For more information on SB 1369, see Section 2.2.2.)*

The bill also authorizes CDF to remove vegetation not consistent with the new clearance requirements and place a lien against the property for payment of that removal. Finally, it makes violation of defensible space standards a crime.

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[108] Office of State Fire Marshal, Fire Hazard Zoning Guide, Appendix D, http://osfm.fire.ca.gov/pdf/fireengineering/zoning/AppendixD.pdf

Given staffing and funding constraints at the County, the best approach to ensure SB 1369 is met may be to authorize the DNFSC to conduct these assessments, and be paid a fee for their efforts. The cost of the assessment could be added onto the permit fee as part of the permitting process. This would provide the added benefit of funding DNFSC which would allow them to undertake other fire safety efforts in the County.

- Del Norte County familiarize itself with the provisions of SB 1369 and implement it for all new construction in interface areas of the County.
- County, CDF, and DNFSC explore options for DNFSC role in fire assessments for building permits as per SB 1369, including payment for each assessment from permit fees.

8.1.3. Uniform Fire Code Update

Del Norte County has adopted a Uniform Fire Code but much of it is very out of date, not being in compliance since 1991.[109] This must be updated.

- County review its existing Uniform Fire Code regulations with CDF and Fire Chiefs and update them to meet State standards (Title 14, Division 1.5, Chapter 7, Subchapter 2, Articles 1-5) and SB 1369. The areas of fire safe inspection, comprehensive and updated definitions, maintenance of defensible space, driveways, one-way roads, emergency water, and fuel modification standards especially need updating.

8.1.4. Urban-Wildland Interface Building Standards

Assembly Bill 1216 was passed into law in 2004 requiring fire safe building materials for new construction in interface areas. *(For more information on AB 1216, see Section 2.2.2.)* To meet the requirements of AB 1216, the State Fire Marshal and CDF with many cooperators drafted new standards for fire safe building materials and construction, called the California Building Code (CBC) "Urban-Wildland Building Interface Standards," *(see Appendix B.7.).* These standards are being submitted to the California Building Standards Commission, and will apply to all communities on the Communities At Risk list.

Del Norte State and Federally Designated Communities At Risk:

- Big Flat
- Douglas Park
- Fort Dick
- French Hill
- Gasquet
- Hiouchi
- Klamath
- Klamath Glen
- Lado Del Rio
- Major Moore's
- Patrick Creek
- Pioneer Tract
- Requa
- Rock Creek
- Smith River
- Yurok Indian Reservation

- County Board of Supervisors adopt new Urban-Wildland Building Standards for new development and construction in Communities at Risk in Del Norte, especially in listed Target Areas *(see 8.1.2)*.

8.1.5. Signage of Roads and Structures (Addressing)

Throughout the County, firefighters and other emergency personnel are faced with the challenge of finding homes quickly and safely during an emergency. Every Fire Protection District in the County has issues of inadequate addressing. At a minimum, existing County standards that require streets and

[109] Jim Smith, CDF Crescent City Battalion Chief, personal communication, 1/8/05.

homes to be visibly addressed must be enforced. This enforcement action needs to be explored creatively. Certainly if the prior-mentioned insurance program is enacted, addressing would be included in those defensible space requirements. Coordination among fire, law enforcement, and the Code Enforcement Officer could facilitate an effective enforcement strategy. It is important to note that many of the 1,787 green and white reflective address signs that have been posted on new homes and buildings since 1990 have been replaced by owners with signs that are not reflective. This is ostensibly done for aesthetics. This is a clear example of a need for public education regarding the practical reasons for using reflective signs.

- Law Enforcement, Fire Departments, CDF, SRNF, and County collaborate to enforce existing signage requirements for streets and residences.
- Fire Departments, Law Enforcement, CDF, SRNF, DNFSC, and County explore incentives for private signage conformance, including public education.
- County and City explore modifying codes so that adequate signage is required upon sale of a property.
- County explore ongoing funding for Code Enforcement Officer to support this effort, perhaps through Homeland Security.

In addition to signage enforcement, funds are needed to provide street and home address signs. Homeland Security funding may be available for a countywide system.

- County work with Fire Departments, Law Enforcement, CDF, SRNF, and DNFSC to raise funds to purchase and place road signs and addresses on all occupied residences in Del Norte County.

8.1.6. Designation of Communities At Risk

As stated above, most communities in Del Norte are already listed as a Community At Risk either by federal or state designation. The only community still needing to be identified as such in Del Norte County is Sun Star. The California Fire Alliance will likely develop a Web-based method for nominating communities for the list. This nominating mechanism will be available at www.cafirealliance.org.

- CDF add Sun Star to Communities At Risk list when the list is reopened.

8.1.7. Designation of Wildland-Urban Interface Areas

The wildland-urban interface (WUI) is a general term describing the area where homes and wildland meet. It also has a federal definition as the "line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuel as defined in the *Federal Register* (*FR Vol. 66, No. 3, Pages 751-754, January 4, 2001*)."[110] It is within the WUI that specific federal management actions take place in order to reduce fuel risks based on guidelines established by the Healthy Forest Restoration Act (HFRA). According to HFRA, "the HFRA provides administrative procedures for hazardous-fuel-reduction projects on [USFS] and BLM lands in the WUIs of at-risk communities. The act encourages the development of Community Wildfire Protection Plans under which communities will designate their WUIs, where HFRA projects may take place."[111] At the same time, federal agencies are charged with developing WUI designations for the properties they manage. Six Rivers National Forest, the largest federal land manager in the County, is actively revising its WUI designations, in cooperation with the Del Norte Fire Safe Council. SRNF staff actively participated in the community planning meetings held during this Fire Safe Planning process and incorporated community feedback from those meetings into their draft WUI designations.

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[110] Implementation Direction for Identifying and Prioritizing Hazardous Fuel Reduction in Wildland-Urban Interface/Intermix, Region 5, 2003.

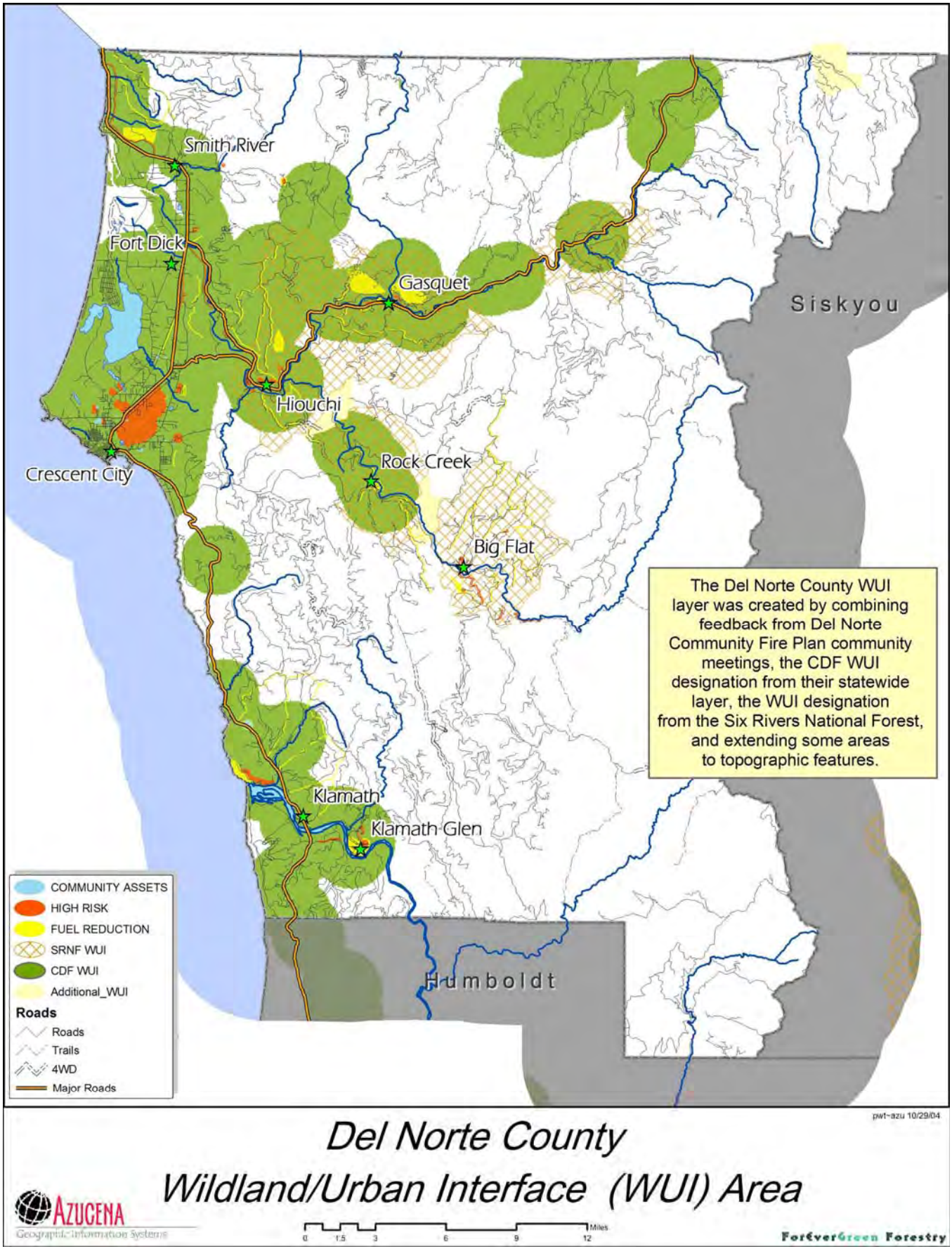
[111] Healthy Forests Initiative and Healthy Forests Restoration Act, Interim Field Guild, Title I, Wildland-Urban Interfaces Within or Adjacent to At-Risk Communities, FS-799, February 2004.

> WUI areas were defined by the Six Rivers National Forest based on strategic locations that incorporated topography, access, fuel hazard, fire risk, past fire history, typical fire weather, and projected developments. These areas were specifically chosen to connect with community defense zones, evacuation routes, and escape routes/access for fire suppression. In many areas identifiable locations on the ground were used, such as roads, drainages, and ridges, rather than an arbitrary distance that may have landed midslope.[112]

As per HFRA, this Fire Safe Plan proposes WUI designations for Del Norte County. These designations were developed combining SRNF draft WUI designations, Community-Identified High Risk and Hazard Areas, Community-Identified Project Areas, Community Assets, CDF's WUI designation, and issues of topography, landscape characteristics, access, fire threat designation, fire weather, etc. As illustrated on the following map, this plan proposed adding a few small areas (in light yellow) between previously identified state-and federal WUI designations. As such, projects in these designated areas should be prioritized for funding and implementation under the National Fire Plan.

- Federal agencies accept WUI designations defined in this plan, including those previously identified by CDF.
- Federal agencies work with DNFSC and other interested community members to reach agreement on projects proposed within WUI areas in Del Norte County.

[112] Lucy Salazar, Vegetation Management Specialist/Air Coordinator, Six Rivers National Forest, personal communication, 9/28/04.



Map 35. Del Norte County Wildland-Urban Interface (WUI)

8.2. Defensible Space

Implementation of SB 1369 will have a significant impact on the creation of defensible space in Del Norte County.

In addition, projects can be undertaken to assist residents in creating their defensible space. The Del Norte Fire Safe Council, CDF, and SRNF cooperate on such projects, along with the Del Norte Resource Advisory Committee, Hambro Forest Products, Pelican Bay State Prison, and others. Thanks in large part to CDF, DNFSC has several chippers available for use. As described in Chapter 1, DNFSC uses these on private and public lands throughout the county to reduce fuel loads. Residents are asked to donate funds to cover the fuel costs. Maintenance and liability insurance are two items for which DNFSC will always need to be funded. Additional Safety Officer volunteer labor to oversee use of the chipper and other DNFSC equipment is also needed. Finally, volunteers are needed to create defensible space for those residents unable to do so themselves, such as the elderly, disabled, or infirm. This can be coordinated through DNFSC with necessary resources: funds, maintenance, and volunteer labor. Finally, at the Crescent City community meeting, residents suggested the purchase or donation of a dump truck for use in community chipper days.

- Del Norte residents in or on the edge of forested or other wildland areas be diligent in creating and maintaining their defensible space. *See Chapter 2 for examples and descriptions of appropriate defensible space treatments.*
- DNFSC work with community agencies to identify volunteers to assist with community chipper days.
- DNFSC work with Green Diamond Resource Company, Hambro Forest Products, other local businesses, or government agencies to secure use of a dump truck and provide chipper maintenance for community chipper days.
- DNFSC work with public and private sector to identify funding sources for chipper fuel and liability insurance.

Effective community education is crucial for effective defensible space implementation. *See Section 8.7 for suggested educational actions.*

8.3. Fuel Reduction

Reducing hazardous fuel is a challenge for most communities in the western United States. The amount of accumulated fuel is far greater than most communities can afford to handle, hence the need to prioritize projects. The research is still unclear regarding the most effective and efficient way to reduce fuel without compromising ecosystem health. New research by Mark Finney at the Fire Science Lab[113] challenges current theories in landscape-level fuel treatments and models strategic locations for fuel reduction treatments. That said, it is generally agreed that such treatments should be focused first around communities in the wildland-urban interface. Many residential areas in Del Norte County qualify for such treatments, and thus were identified at the community meetings and are listed in this document.

Fuel reduction treatments need to begin within the Home Ignition Zone[114] with defensible space treatments as described in Chapter 2. Beyond this, strategic locations around communities should be identified and prioritized for creating shaded fuelbreaks. "Fuelbreaks are never designed to stop fires but to allow suppression forces a higher probability of successfully attacking a wildfire."[115] The

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[113] http://www.firelab.org/fbp/fbpstaff/mfinney.htm , http://outreach.cof.orst.edu/resilientfire/finney.htm

[114] Jack Cohen, Fire Science Lab, http://www.firelab.org/fbp/fbpstaff/jcohen.htm.

[115] Agee et al., "The use of shaded fuelbreaks in landscape fire management," *Forest Ecology and Management 127* (2000) 55-66, p. 56.

combination of effective defensible space and shaded fuelbreaks around communities is one of the best-known strategies to protect communities from wildfire.

There is no "one size fits all" prescription for shaded fuelbreaks. For example, the width can vary widely, ranging from fifty to three hundred feet.[116] For breaks created along roads on the coast, fifty feet below and one hundred feet above the road is recommended.[117] "A shaded fuelbreak is created by altering surface fuel, increasing the height to the base of the live crown, and opening the canopy by removing trees."[118] One such prescription was described in Chapter 2 for fuelbreaks to be located beyond the Home Ignition Zone around residences with acreage.

In addition to initial implementation, maintenance of fuelbreaks is often costly. Maintaining the shade helps to reduce these costs by slowing regeneration.

> "Manual treatment is very expensive, and mechanical treatment is only feasible on gentle terrain. Prescribed fire can be effective (Schimke and Green, 1970) but there is potential for fire escape along the edges. Late winter burns, where the previous year's production is cured, the perennials have not yet greened up, and the adjacent forest is not very flammable, may be a possible cost-effective treatment to avoid risk of escape from maintenance burns and achieve effective maintenance at low cost."[119]

Therefore, a program should be developed in conjunction with CDF to regularly burn shaded fuelbreaks where they are not in immediate proximity to residential development. This could be done in cooperation with local tribes, who have centuries of burning experience in Del Norte. To most effectively maintain fuelbreaks throughout the County, an "Adopt a Fuelbreak" program could be developed by the DNFSC in cooperation with community or neighborhood groups, homeowner's associations, and others whereby each group would be responsible for ongoing maintenance of their adopted fuelbreak. This should be done in cooperation with experienced fire professionals to ensure participant safety and fuelbreak effectiveness.

- DNFSC develop an "Adopt a Fuelbreak" program for maintenance of fuelbreaks. Work with CDF, tribes, and other fire professionals to employ prescribed fire techniques where appropriate.

8.3.1. Priority Strategic Fuel Reduction Projects in Del Norte County

The following list includes the priority shaded fuelbreaks and other projects to be implemented in Del Norte County. These projects were generally identified at a community meeting, or otherwise as a result of this planning process. Projects were prioritized based on CDF fire threat level and assets at risk, with an emphasis on human population centers.

- DNFSC work with appropriate agency and community partners to fund and implement the following identified strategic fuelbreaks and fuel reduction efforts throughout Del Norte County.

Top Priority Fuel Reduction Projects, for Immediate Implementation:

- Steps need to be taken to ensure safe and efficient emergency vehicle access in many of the outlying Crescent City neighborhoods. The City and County should provide regular brush clearing of public roadways. Residents clearing brush on private property as prescribed in SB 1369 will complement public efforts. Additionally, local governments should work with DNFSC, RNSP, and CDF to provide community chipper days, where cleared material may be easily discarded. Donation of a

[116] The Quincy Library Group promotes one-quarter-mile-wide fuel breaks. This is generally considered too large on the coast.

[117] Dave Kahan, Full Circle Forestry, personal communication.

[118] Agee et al., p. 56.

[119] Agee et al., p. 60.

dump truck by industry or government for use on these chipper days would increase their effectiveness.

- DNFSC and others work with SRNF to reduce fuel on the hillsides immediately to the northeast of Gasquet, above Gasquet Middle Fork Road and Gasquet Toll Road. This needs to be combined with intensive defensible space treatments around private properties in this area.
- According to CDF, one of the higher fire threat areas in the County sits northeast of Big Flat, in the headwaters areas of Jones and Hurdy Gurdy Creeks. Given that major fire conflagrations often are pushed by winds from the northeast, this is a direct threat to this community. Therefore, a first priority for defensibility of this community is to create a shaded fuelbreak around the valley. The community meeting identified a break following the bottom of Jones Ridge/Ship Mountain Road to USFS Road 16N02T, following natural breaks such as ridges and creeks, encircling the valley to the northeast, and connecting to Fox Ridge Road. This project should be done in collaboration with SRNF.
- Rock Creek is a community surrounded by Very High Fire Threat areas. Create priority shaded fuelbreaks here along the river across from the Rock Creek Subdivision, the lower Rock Creek Road, and along South Fork Road at Haines Flat. This is also the primary access route for Big Flat.
- Create a shaded fuelbreak from Hiouchi Mountain Road to Ashford Road to connect to SRNF Hiouchi Ridge Fuelbreak. This will help protect the community of Hiouchi from wildfires coming from SRNF or further north or northeast. SRNF is creating the 200-foot-wide Hiouchi Ridge Fuelbreak from Serpentine Point off Hiouchi Mountain Road along the ridge to the northwest to tie into road 17N23, where it is creating a fuelbreak along the top of this road for one-and-a-half miles.
- DNFSC and others work with SRNF and private property owners to reduce fuel on the hillside directly north of the Gasquet community.
- A set of strategic fuelbreaks should be created in outlying Crescent City. Areas identified in the community meetings and in conjunction with local firefighters were: between Church Tree and Bertsch Tract and the Parks, and between Elk Valley Road and Parkway Drive through the Elk Creek drainage. All of these fuelbreaks would have to be done in conjunction with State and National Park personnel and Fish and Game to ensure that environmental protection and habitat needs are met.
- DNFSC received National Fire Plan funding in 2004 for fuel reduction in Pioneer Village and North Fork Loop areas around Gasquet. Residents in these areas should be encouraged to fully cooperate with this project, to increase the effectiveness of fuel treatments.

Second Priority Fuel Reduction Projects:

- Create a shaded fuelbreak in sections along French Hill, Jawbone, and Ship Mountain roads. This will provide improved evacuation ability for Rock Creek and Big Flat. Connect these with a fuelbreak along USFS Road 17N04. Together, these will provide defensible fuelbreaks for Big Flat, Rock Creek, and Gasquet. Prioritize initial treatments in dense, horseshoe, and hairpin turn areas of these roads.
- Create a shaded fuelbreak along Low Divide Road. This will serve as a fuelbreak between the new development on Highway 197 and the community of Hiouchi. It will also provide improved evacuation access for residents along the road and will function as an alternate evacuation route to Gasquet and possibly Hiouchi.
- City, County, Airport, and others explore possibility of regular mowing, burning, and/or grazing of the area surrounding Point Saint George and the Airport to reduce fuel loads in this area of Very High Fire Threat.
- Prescribed burn or mechanical fuel reduction in strategic areas in Tolowa Dunes State Park, Pacific Shores, and Lake Earl. This is one of the high Fire Threat areas in the County, according to CDF's Fire and Resource Assessment Program (FRAP).

- Work with SRNF to create a shaded fuelbreak along Gasquet Mountain Road, both for fire suppression efforts and to improve this road as an evacuation route from Gasquet to the coast (via Rowdy Creek or Low Divide Roads).
- Support ongoing efforts by SRNF to reduce fuel in the Big Flat/Rock Creek area, in cooperation with community members.
- SRNF fuel reduction projects in the Hogue's Meadow and Longwood Fire areas are a priority in the Sun Star area. Creating a shaded fuelbreak to protect the community from down-canyon fires also makes sense here. The ridge between Long and Cedar Gulches has been identified by this community, as well as for the community of Takilma, Oregon, in the Illinois Valley Fire Plan process in 2004. An assessment of other areas for potential shaded fuelbreaks to protect this remote community is a necessary next step for these residents in cooperation with Siskiyou National Forest, to protect both the public and private resources.
- Support ongoing efforts of DNFSC, Green Diamond, and CDF in creating a shaded fuelbreak along Johnson Ridge, beginning in Del Norte County and continuing into Humboldt County.
- National Park Service maintain the shaded fuelbreak between Jedediah Smith Redwoods State Park and the town of Hiouchi.

Third Priority Fuel Reduction Projects:

- DNFSC work with Yurok Tribe, Redwood National Park, and Green Diamond to identify the best area for a strategic fuelbreak on the east side of Highway 101 to protect the Klamath community from fires originating on National Forest or Green Diamond lands to the northeast.
- Reduce fuel in Requa and Klamath Overlook area. This includes working with Yurok Tribe and RNP to burn the slopes on the north side of the river mouth below the overlook, in conjunction with manually reducing fuels in Requa neighborhoods.
- Create a shaded fuelbreak—the Hiouchi Fuelbreak—behind Hiouchi from Serpentine Point west to the existing fuelbreak on the border of Jedediah Smith Redwoods State Park.
- Identify locations and create a shaded fuelbreak along the first ridge east of Highway 101 and north of Dr. Fine Bridge.
- Identify locations for shaded fuelbreaks along the northeastern side of Highway 101 in Smith River, to protect the new developments there.
- Create shaded fuelbreak along Wonder Stump Road.
- Create shaded fuelbreak along Hytree Ridge, between South Bank Road and Kings Valley Road.
- Create shaded fuelbreaks along Rattlesnake Slide and Rattlesnake Lake Road near Rock Creek.
- Facilitate controlled burn, possibly through state Vegetation Management Program, of private property from Lopez Creek to Ritmer Creek, in conjunction with Smith River Rancheria.

One way to dispose of vegetative fuel following treatments is burning. This can be an inexpensive and efficient way to quickly remove fuel. However, there are many restrictions on residential burning. Often these regulations are conflicting or don't make sense to residents. There are examples of days in Del Norte County when residents are not allowed to burn piles yet agencies are undertaking large controlled burns. This only confuses, frustrates, and/or angers residents. Effort needs to be made to review existing regulations in terms of burning, such as air quality, burn barrels, burn permits etc. As well, there are often escaped fires or other accidents from inexperienced people trying to burn debris. Coordinated educational efforts are needed to reduce the risks resulting from residential burning, and minimize air pollution.

- ➢ Fire Chiefs, CDF, Air Quality, and County work together to develop practical, sensible burning regulations for Del Norte County.
- ➢ Fire Chiefs, CDF, SRNF, DNFSC, and Air Quality work together to educate residents on proper methods of burning for best air quality and community safety.

8.4. Reducing Structural Ignitability[120]

As discussed in Section 2.2.2, AB 1216 became law in 2004, mandating fire safe building for new construction in designated Communities At Risk *(see 8.1.4 for the list of Del Norte communities on the list).* Many of the following items are now covered by the proposed Urban-Wildland Interface Building Standards for new construction. The following are recommended actions to begin converting existing non-fire safe structures into ones that have a better chance to survive a wildfire.

8.4.1. Roofing

Efforts should be made to eliminate all wood shake roofs. Shake roofs are a leading cause of home loss in wildfires. Research shows that homes with a non-combustible roof and clearance of at least 30 to 60 feet have a 85-95% chance of survival in a wildfire *(see 2.2.3 Fire-Safe Building Materials and Reducing Structural Ignitability.)*

- DNFSC, CDF, SRNF, Fire Chiefs, and County educate residents on the importance of replacing wood shake roofs.
- County and City explore modifying code measures which may include, but not be limited to:
  - Investigating a "reduced or no fee" permit for residents that change from a wood shake to a non-combustible roof.
  - Expediting the elimination of wood shake roofs by requiring replacement upon sale of the home.
- Explore a County and City financial assistance program for wood shake roof replacement through the County Housing Authority, Community Development, and/or others for qualifying individuals.

8.4.2. Vent Openings

Provided that adequate defensible space is maintained, screening of vent openings with steel screens will prevent embers (during the ember blizzard that comes with a wildfire) from entering attics and crawl spaces. Currently standards exist in the County for new construction, but not older structures.

- DNFSC, CDF, SRNF, Fire Chiefs, and County educate residents on importance of steel vent screening.
- DNFSC, CDF, SRNF, Fire Chiefs, and County explore incentives for homeowners to encourage steel screening of vent openings.
- County and City consider modifying code measures which may include, but not be limited to, requiring steel screening of vent openings upon sale.

8.4.3. Decks

Provided that adequate defensible space is maintained, most solid wood decking is fire-resistant enough to withstand short-term heat load. The next greatest threat from decks is firefighter safety. Many new materials (synthetics) ignite more easily than wood and have a rapid structural collapse when subjected to high heat loads, creating a situation where firefighters could fall through.

- DNFSC, CDF, SRNF, Fire Chiefs, and County educate residents on importance of fire-safe decking.
- County and City consider modifying code measures in Target Areas *(8.1.2)* which may include, but not be limited to, prohibiting unsafe synthetic decking which has a significantly higher flammability and significantly lower structural rating than wood of comparable dimension.

8.4.4. Outbuildings

Outbuildings (e.g. storage, wood, and tool sheds) with less than 30 feet of separation from main structures place homes at a high risk of loss, because if they catch fire, they can more easily catch the house on fire.

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[120] Most of the information in this section comes from Jerry Hurley, personal communication, 10/26/04.

- DNFSC, CDF, SRNF, Fire Chiefs, and County educate residents on need for separation of heat loads from their residence.
- County and CDF enforce clearing 30-100 feet around structures, as per State law.

8.4.5. Wood Piles

Wood piles with less than 30 feet of separation from structures often place homes at a high risk for loss.

- DNFSC, CDF, SRNF, Fire Chiefs, and County educate residents on need to have a minimum of 30 feet separation of firewood piles and woodsheds from their residence.

8.4.5. Propane Tanks

Tanks with less than 10 feet of clearance around them and 30 feet of separation from houses may place homes at a risk of loss.

- DNFSC, CDF, SRNF, Fire Chiefs, and County educate residents on need to have vegetative and flammable material clearance around propane tanks near their residence.
- DNFSC, CDF, SRNF, Fire Chiefs, and County educate residents on need to keep propane tanks and other flammable materials at least 30 feet from homes and outbuildings.

8.5. Utilization

8.5.1. Small-Diameter Wood Products

There are two nearby mills that process small-diameter wood products. South Coast Lumber Company in Brookings processes conifer logs (Douglas fir, hemlock, spruce, grand fir, and white fir) as small as five inches in diameter on the small end of the log, for logs twelve to sixteen feet in length. They also process alder eight inches minimum diameter at the small end. Twelve-inch or larger-diameter tan oak, madrone, and myrtle/pepperwood are also purchased. Simpson Timber will purchase redwood logs down to a six-inch diameter, twelve feet in length.

- DNFSC, CDF, SRNF, timber industry, and economic development community work with local wood processing and manufacturing businesses to develop markets for small-diameter wood products.

8.5.2. Biomass

Several initiatives have explored the possibility of biomass plants on the North Coast. To date, none have been commercially successful. There is clearly enough material to power small-scale biomass plants whether for heat or electricity in Del Norte County. The challenge is transportation costs. What is needed is a regional study reviewing all past and present efforts to explore biomass energy production.

- DNFSC work with SRNF and other interested parties to develop a regional biomass feasibility study related to North Coast fuel hazard reduction efforts.

8.6. Fire Protection

8.6.1. Fire Atlas

A firefighter's map book or Fire Atlas is being developed with this Fire Safe Plan and through the geographic information system (GIS) used to create these maps. The Atlas will provide both local and out-of-area firefighters and other emergency responders detailed maps of all residential areas in the county, as well as information on water sources, and other fire-fighting resources. Del Norte County Information Technology (IT) will receive all GIS data and maps developed from this process.

- County IT work with DNFSC, CDF, SRNF, Fire Chiefs, and law enforcement to maintain and update Del Norte Fire Atlas.

8.6.2. Dispatch/Communication

The Del Norte County Sheriffs Department serves as the primary public safety answering point (PSAP) for the County's 911 system. The Sheriff's Department also serves as the direct dispatch center for the six local fire departments in Del Norte County, but not for the wildland protection agencies. Often, the PSAP does not transfer or relay a reported wildland fire to the agency having jurisdiction of the fire. Fortunately for the PSAP when a wildland fire is reported they only need to transfer or relay the information to one inter-agency dispatch center in Fortuna. Under California Code the PSAP centers are required to have a minimum of three methods for handling emergency calls. These methods include direct dispatch, transfer, and relay of the emergency to the appropriate response agency.

- The Sheriff's Department through an inter-agency cooperative, work to improve the call handling procedures that will fully meet the approved 911 system configuration.

Given the lack of communication infrastructure in Big Flat/Rock Creek, an emergency communication system for both Rock Creek and Big Flat is vital. Exploration of a cellular phone repeater on Ship Mountain would be most cost-effective. With the Camp 6 repeater nearby, it seems plausible to bounce the signal down into this valley. This emergency communication would be beneficial for both medical and fire emergencies.

- County, SRNF, and Big Flat and Rock Creek residents facilitate installation of a cellular telephone tower at the Ship Mountain lookout.

8.6.3. Evacuation

A preliminary description of evacuation routes is contained in each community planning area section. However, a more detailed countywide evacuation plan is needed for all emergencies.

- County work with Law Enforcement, DNFSC, CDF, SRNF, and Fire Chiefs to update (where necessary) and educate residents on evacuation options for their community.
- County, Law Enforcement, Fire Chiefs, CDF, SRNF, and DNFSC explore development of alternate evacuation routes.
- Residents in remote areas must be prepared for evacuation. To this end, they should create a Family Disaster and Evacuation Plan (see the American Red Cross at: http://www.redcross.org/services/disaster/0,1082,0_601_,00.html for how to do family disaster planning, or visit http://www.redcross.org/services/disaster/0,1082,0_6_,00.html for how to create an evacuation plan). Additionally, residents in remote, rural Target Areas *(see 8.1.2)* should consider storing their most valuable items in Crescent City during extreme fire weather conditions.

In terms of evacuation, gates can pose a serious obstacle. Automatic gates that do not open during power outages are especially dangerous.

- County explore changing codes to require back-up power for automatic gates.
- Law Enforcement, Fire Chiefs, CDF, SRNF, and DNFSC initiate informational programs to educate residents about the importance of easily passable gates during emergencies.
- County, Law Enforcement, Fire Chiefs, CDF, SRNF, and DNFSC explore incentives for fire-safe gates.

8.6.4. Water

Water is critical for successful fire suppression. Minimum firefighting water requirements for developments not on a hydrant system are 2,500 gallons. The DNFSC has placed forty water tanks around the County adjacent to federal lands with RAC[121] support.

- Continue RAC-funded DNFSC program to place water storage tanks on lands adjacent to federal lands.

[121] RAC is the Del Norte Resource Advisory Committee.

- DNFSC, County, Fire Chiefs, and CDF explore funding for a water storage tank program on private lands not adjacent to federal lands.
- County Assessor do not increase property values and taxes when water storage is added to private properties when this is a legal option for the County.[122]
- DNFSC, County, Fire Chiefs, and CDF explore incentives for increasing water storage on private properties.
- County work with Fire Chiefs, CDF, and SRNF to develop acceptable standards for water storage in new developments.

8.6.5. Public Information

Jackson County, Oregon, is implementing an integrative emergency phone notification system for residents in the Applegate watershed. This is an optional system for participating rural residents where they can be notified by telephone of emergency situations, especially fire, in a quick and efficient way. The program was developed by Tele-Works, Inc., http://www.tele-works.com/evision/frm.html.

The emergency phone system will be capable of:

- Launching a pre-recorded message to target a precise geographic location at a rate of 960 calls per hour, to quickly provide residences threatened by wildfire with more detailed information, more time for possible evacuation, and a greater sense of security.
- Keeping track of which residents were actually notified.
- Providing a touch-tone automated menu, which could provide citizens with detailed information such as safe escape routes, designated safety zones, areas where livestock can be transported to, and other life-saving information quickly.
- Option out those residents who don't want to be notified by the system.
- Being activated remotely by designated emergency personnel.
- Activating a call list such as phone tree directories.
- Contacting those citizens who have hearing impairments.
- Sending out warning messages via email and faxes.[123]

This program would be very effective for emergency communication in Del Norte.

- County work with CDF, SRNF, DNFSC, Law Enforcement, and Fire Chiefs to find funding to implement an emergency communications program similar to that in Jackson County, Oregon.

Additionally, several rural property owners are absentee owners. Web-based information regarding current fires in the region would be useful for these landowners.

- DNFSC, CDF, and SRNF develop a Web-based local fire information service.

8.6.6. Equipment

Big Flat residents, with the leadership of resident Supervisor Blackburn, have secured a fire truck from Calistoga to be stationed in the community. A location has been found to house the truck. The next challenge will be training a crew to operate the engine. Smith River and Gasquet FPDs have offered to train any interested volunteers. Organizational structure to reduce liability is being explored.

- The County, Fire Protection Districts, CDF, and SRNF facilitate local fire protection in any way possible in areas without quick-response fire protection such as Big Flat and Rock Creek.

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[122] This is being explored at the state level to provide counties this option.

[123] Sara Nicholson, County Emergency Manager, Josephine County Sheriff's Office, personal communication, 10/18/04.

8.7. Education

Many people are happy to create a fire safe home if they understand why it is to their advantage. To this end, educational programs targeted at local residents are very successful.

- DNFSC work with CDF, SRNF, County, federal and local insurance industry, and others to implement a countywide community fire safety education program, including PSAs in all local media.
- DNFSC work with CDF, SRNF, County, and City to educate elected officials including the Board of Supervisors, City Council, and Planning Commissions on need for fire safety regulations and their enforcement.

Educational programs in the local schools are a great way to get the word out about fire safety and emergency preparedness. The SRNF, CDF, and DNFSC all participate in various public fire safe education efforts. These entities should work together with the Del Norte Unified School District to develop and implement fire safe curricula for many different grade levels. Several curricula exist and likely would only need minimal adjustments to be used in Del Norte. Community projects such as fire safety education signs created by schoolchildren can be very effective. Informative signs could be created by local kids and placed in high fire risk and hazard areas throughout the county.

- DNFSC work with agencies and School District to implement fire safety curricula in all grade levels throughout the County, in conjunction with community educational projects.
- DNFSC work with insurance industry to develop a service learning program in local high schools focused on fire safety and defensible space.

Trinity County Fire Safe Council has developed a "Big Red Truck Program." In this program they take a fire truck to homes as part of a defensible space assessment. This is a very graphic and effective way to show homeowners whether or not their home could be defended in a fire by first seeing if the truck can even safely make it to their home. This has also been a fundraiser for local fire departments, as they get paid for each assessment. A similar program in Del Norte could be developed. It would be necessary to structure this with a set schedule to allow fire department volunteers to participate.

- DNFSC work with Fire Chiefs to institute a "Big Red Truck Program" for defensible space education and assessments. Explore state and federal funding options for the program.

Another community defensible space project could also be done in conjunction with local fire departments. This project would entail leaving green, yellow, and red rocks at the end of driveways to indicate defensible homes (green), non-defensible homes (red), and marginally defensible homes (yellow).

- DNFSC work with Fire Chiefs to conduct red/yellow/green rock education program in various areas of the County.

As stated elsewhere, development and real estate are healthy industries in Del Norte. Through those ventures, new people are moving to Del Norte County, many of them from urban areas. These new residents often do not have experience with fire in a wildland-urban interface. Educational programs are needed targeting both the development and real estate industries, as well as their clients.

- DNFSC, CDF, SRNF, Fire Chiefs, County, and City target fire safety educational efforts to real estate and development industries.

DNFSC, CDF, SRNF, Fire Chiefs, County, and City target fire safety educational efforts to new Del Norte County residents, especially those coming from urban areas and others with little experience with fire in the wildland-urban interface.

8.8. Facilitating Del Norte Fire Safety in the Long Term

The existence of the Del Norte Fire Safe Council has been a critical component in improving fire safety in Del Norte County. Through its collaborative process, many varied partners have come to the table to implement fuel reduction and fire safety projects in Del Norte County. Therefore, ongoing support and participation in the Del Norte Fire Safe Council is absolutely necessary for its development and continuing operations.

- Public and private sector organizations, agencies, and individuals work with DNFSC to develop ongoing financial and in-kind support for FSC activities and development.
- Del Norte County Board of Supervisors appoint representatives to actively and regularly participate in the Fire Safe Council. These appointees could represent Community Development, Emergency Services, the Planning Commission, and/or the Board.
- All local, state, and federal public and private land management agencies appoint a representative to actively and regularly participate in the Fire Safe Council.
- Public and private sector organizations, agencies, and individuals (including County, RAC, SRNF, and CDF) facilitate long-term funding to provide a half-time to full-time staff coordinator position at DNFSC.

Finally, no plan is ever permanent. This plan was written in 2004 based on current conditions and best available information. The field of fire safety is rapidly changing. It is likely new developments will occur in the coming years. Therefore, it will be important to review this plan every five years and update it as needed. This can be done as an Appendix to this document. Additionally, acquiring and updating countywide data at a local scale will ease in readability and use of GIS data and maps.

- DNFSC, County, and RAC review the Del Norte Fire Safe Plan every five years and update it as needed, using a collaborative public process.
- DNFSC, County, and Agencies cooperate to seek funding to update GIS data at county scale.