Del Norte Fire Safe Plan

Community Wildfire Protection Plan

September, 2005

This plan is a project of the:

Del Norte Fire Safe Council

POB 1564, Crescent City, CA 95531

707-951-5437, dnfsc@charterinternet.com

www.delnortefiresafe.org

Produced by:

Tracy Katelman, Registered Professional Forester, ForEverGreen Forestry

POB 1276, Eureka, CA 95502, 707-443-2400, FAX: 707-443-5597, tracy@sohum.net

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:

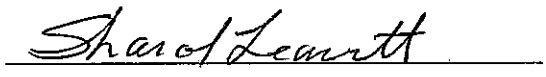
Martha McClure, Chair
Del Norte County Board of Supervisors

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

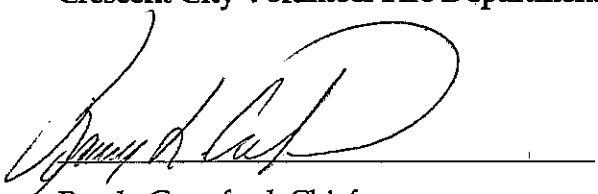
The following stakeholders participated in the development of this CWPP and accept this as the Del Norte County Community Wildfire Protection Plan.



Sharol Leavitt, Director
Del Norte Fire Safe Council

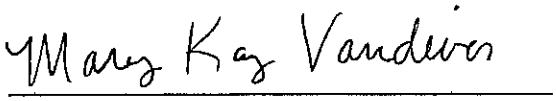
John Pricer, Chief Forester
Green Diamond Resource Company

Steve Wakefield, Chief
Crescent City Volunteer Fire Department

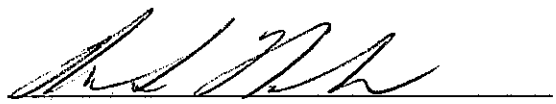


Randy Crawford, Chief
Fort Dick Fire Protection District

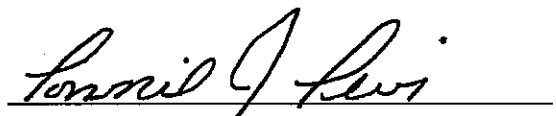
Buzz Parlasca, Chief
Gasquet Fire Protection District



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

[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

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Core Planning Team

- Tracy Katelman, Fire Safe Plan Coordinator, ForEverGreen Forestry
- Sharol Leavitt, Director, Del Norte Fire Safe Council
- Dan Leavitt, Facilitator, Del Norte Fire Safe Council
- Praline McCormack, Assistant to Coordinator, ForEverGreen Forestry
- Kristen Moss, Administrative Assistant for community meetings
- Karen Phillips, Fire Safe Plan Local Coordinator, *PS Secretarial Services
- Peter Tittmann, Azucena Geographic Information Systems (GIS)

DNFSC Fire Planning Committee Members

- Don Brooks, (retired), California Department of Forestry and Fire Protection
- Jim Karanopoulos, Assistant Fire Chief, Gasquet Fire Protection District
- Sharol Leavitt, Director, Del Norte Fire Safe Council
- Dan Leavitt, Facilitator, Del Norte Fire Safe Council
- Martha McClure, Supervisor, Del Norte County
- Linda McGath, Del Norte Fire Safe Council
- John Pricer, Chief Forester, Green Diamond Resource Company
- Jay Sarina, Administrative Services Manager, Del Norte County
- Sheila Schulze, North Fork Fire Prevention Technician , US Forest Service, Smith River National Recreation Area
- Jim Smith, Battalion Chief, California Department of Forestry and Fire Protection, Del Norte
- Steve Wakefield, Del Norte Office of Emergency Services Fire Coordinator, Crescent City Volunteer Fire Department
- Rick Young, Fire Management Officer, Redwood National and State Parks
- Paul Zerr, South Fork Fire Prevention Technician, US Forest Service, Smith River National Recreation Area

Other Partners

- George Albert, Cartographer, US Forest Service, Six Rivers National Forest
- Chris Adams, California Office of Emergency Services, Disaster Assistance Division (Retired)
- Steve Beckwitt, ESRI
- Don Bellville, Prescribed Fire/Fuels Planner, Two River Fire Zone, Siskiyou National Forest
- Charles Blackburn, Supervisor, Del Norte County
- Gerald Cochrane, Assessor, Del Norte County
- Randy Crawford, Chief, Fort Dick Fire Protection District
- Del Norte County Board of Supervisors
- Del Norte County Resource Advisory Committee
- Rebecca Ellin, Coastal Program Analyst, Coastal Commission
- Elk Valley Rancheria
- Kathy Glass, Editor
- Karen Haban, Del Norte Fire Safe Council
- Hambro Forest Products
- Chris Jacobson, GIS Coordinator, US Forest Service, Six Rivers National Forest
- Heidi Kunstal, Community Development Department, Del Norte County
- Lonnie Levi, Chief, Klamath Fire Protection District
- Ray Martel, EPA Manager, Elk Valley Rancheria
- Tony Martell, Fire Chief, Pelican Bay State Prison
- John McFarland, Chief, Crescent Fire Protection District
- Shawn McMahon, Tribal Forestry, Yurok Reservation
- Clarke Moore, Resource Specialist, Del Norte InfoCenter
- Grant Mulligan, CD Data
- Buzz Parlasca, Chief, Gasquet Fire Protection District
- Will Patterson, GIS Specialist, Department of Fish and Game
- Ernest Perry, Executive Director, Del Norte County Community Development Department
- Kenny Peugh, Assistant Fire Management Officer, Yurok Reservation
- Dan Porter, Forest Ecologist, Save-the-Redwoods League
- Kim Price, Pre-Fire Planning Fire Captain, California Department of Forestry and Fire Protection, Humboldt-Del Norte Unit
- Brock Richards, Environmental Programs Assistant, Smith River Rancheria
- Lucy Salazar, Vegetation Management Specialist, US Forest Service, Six Rivers National Forest
- David Sapsis, Fire Modeling and Behavior, California Department of Forestry and Fire Protection, Fire and Resource Assessment Program (FRAP)
- Rachel Sarina, Information Technology Department, Del Norte County
- Shawn Saving, GIS, California Department of Forestry and Fire Protection, Fire and Resource Assessment Program (FRAP)
- Hugh Scanlon, Pre-Fire Management Battalion Chief, California Department of Forestry and Fire Protection, Humboldt-Del Norte Unit
- Jim Smith, Battalion Chief, California Department of Forestry and Fire Protection, Crescent City
- Victoria Smith, GIS Coordinator, Bureau of Land Management
- Jim Spero, Analyst, Fire Economics, California Department of Forestry and Fire Protection, Fire and Resource Assessment Program (FRAP)
- Seth Sutherland, SpaceGraph, Inc.
- Mary Kay Vandiver, District Ranger, US Forest Service, Six Rivers National Forest
- Steve Wakefield, Chief, Crescent City Volunteer Fire Department
- Judy Wartella, GIS Specialist, Redwood National and State Parks

- Dave Webb, Vegetative Management Officer (Silviculturist), US Forest Service, Six Rivers National Forest, Smith River National Recreation Area
- Myron Williamson, Chief, Smith River Fire Protection District
- Allen Winogradov, Del Norte Office of Emergency Services
- Amy Zeigler, Fire Planner, US Forest Service, Six Rivers National Forest

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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
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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.

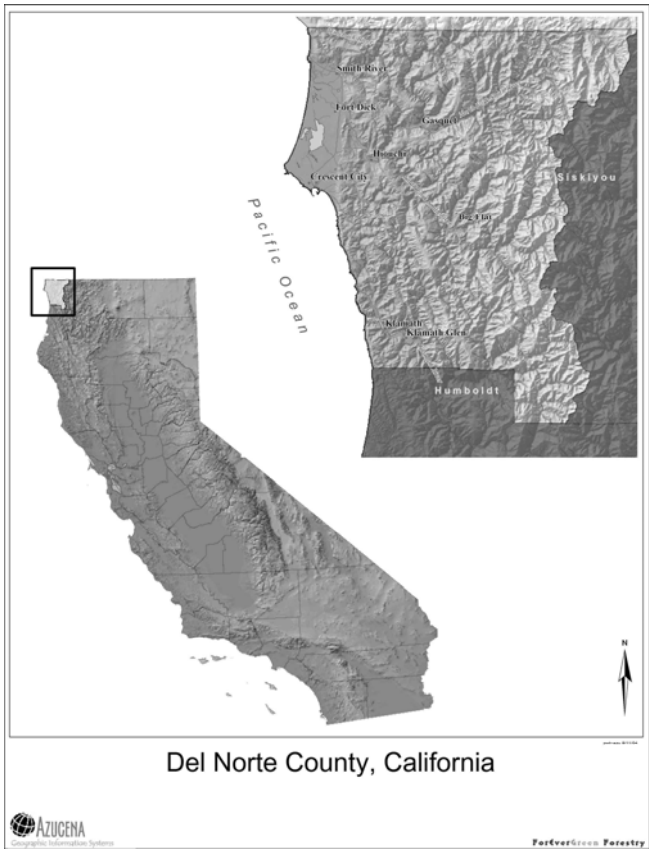
Appendix G is background information on public lands and fire management.

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



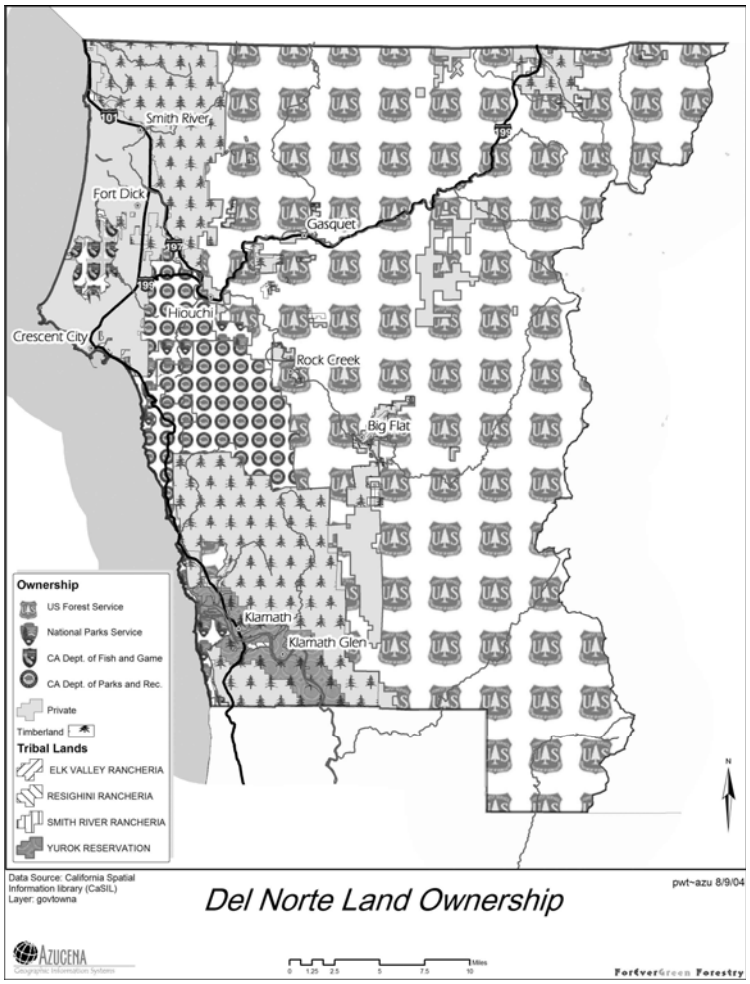
Del Norte County is the northernmost county on the California coast. Created in 1857, Del Norte County was formed out of territory that belonged to the now-dissolved Klamath County. It is bounded on the north by Oregon (Curry and Josephine Counties), on the east by Siskiyou County, on the south by Humboldt 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)

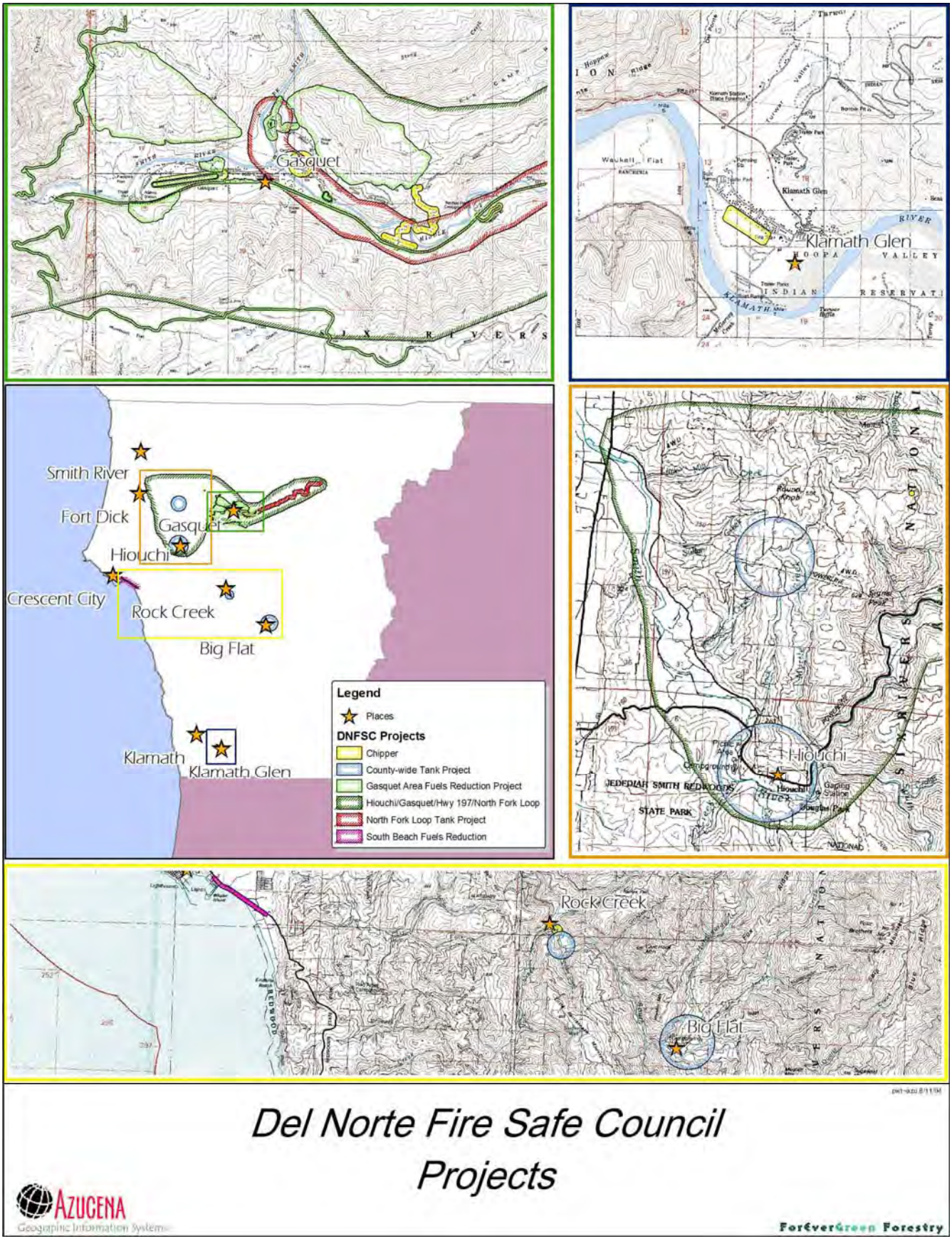
- Sun Star, two tanks being installed in conjunction with Illinois Valley Fire District.

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]

Landscaping and Defensible Space Basics

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.

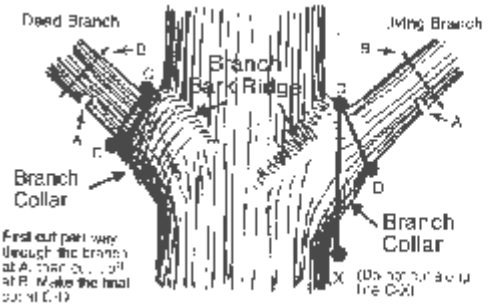
landscape. Pruning is one of the most difficult skills to master but it is also one of the most important. For tips on proper pruning techniques, see "Prune trees for better health and higher value," by the California Forest Stewardship Program (http://ceres.ca.gov/foreststeward/html/prune2.html). The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

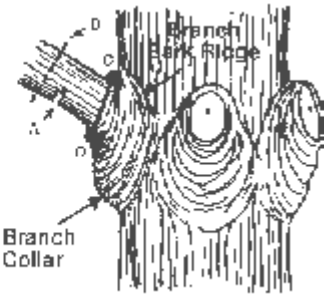
Figure 2. Proper Pruning Techniques[38]

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.

[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]

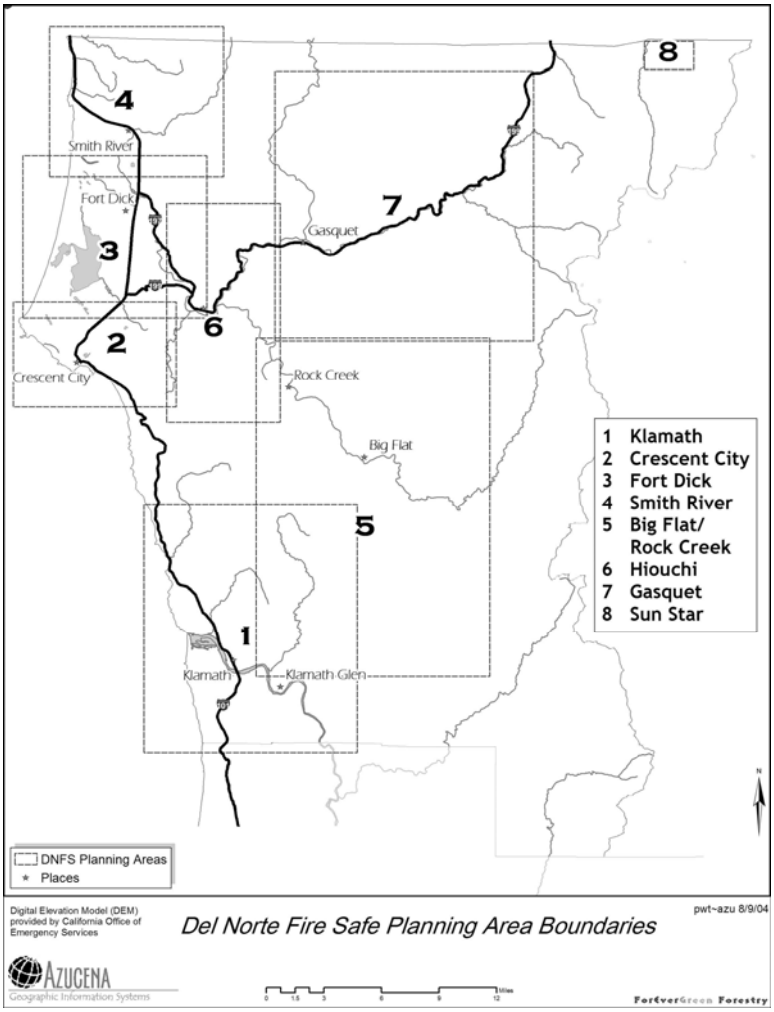
Furthermore, if you are in the unfortunate situation of losing your home to fire, learn from the fire in terms of what areas burned around your property versus those that didn't. Design your new fire-safe landscaping with this in mind. Perhaps most importantly, build or rebuild your home with fire-resistant 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

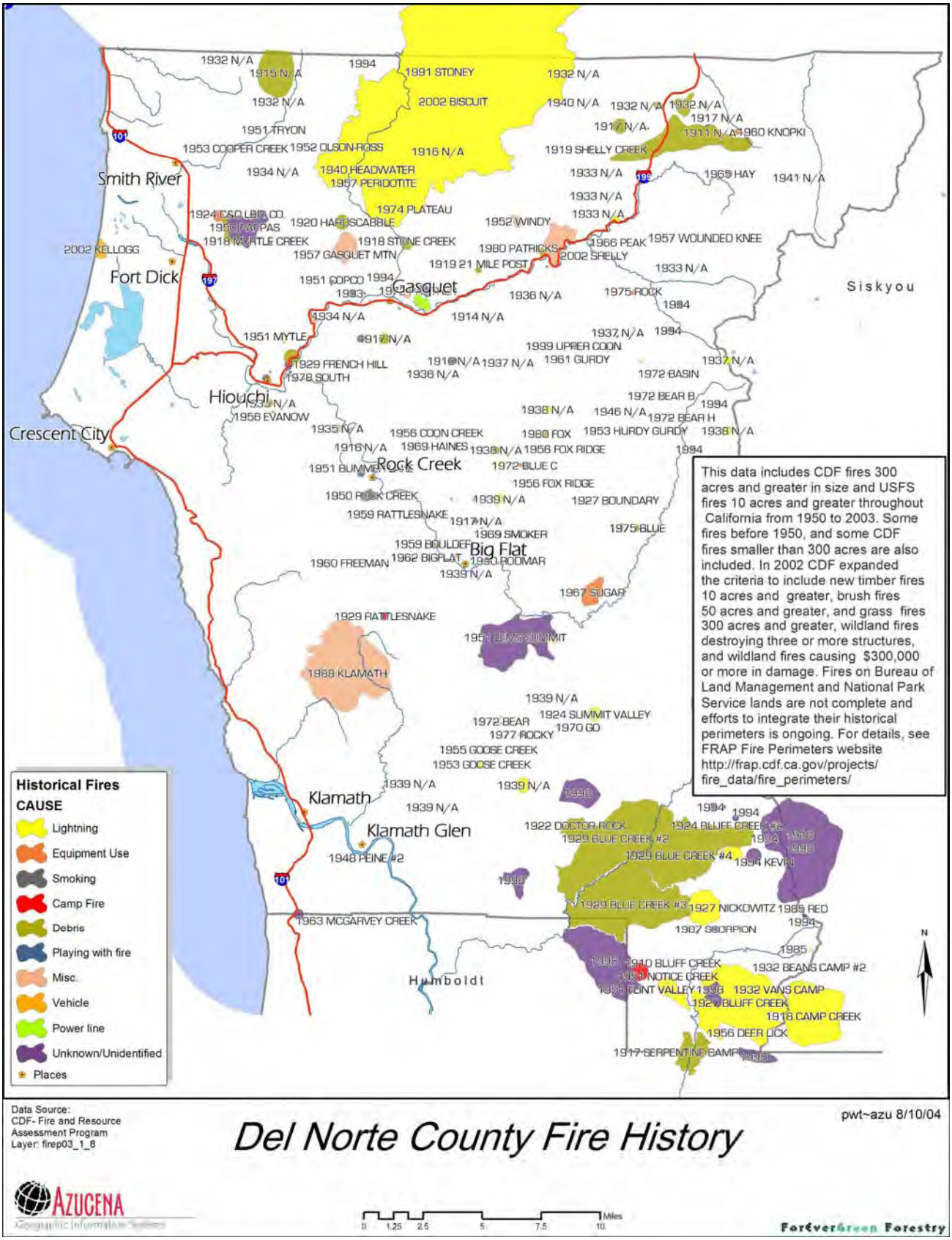
> During the pre-settlement period (before 1875) the Native American people commonly used fires. The Native Americans found this area to be well suited to their needs. The access to the coast for trading and food, relatively mild temperatures, and the many tributaries provided for fresh water and food. 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.

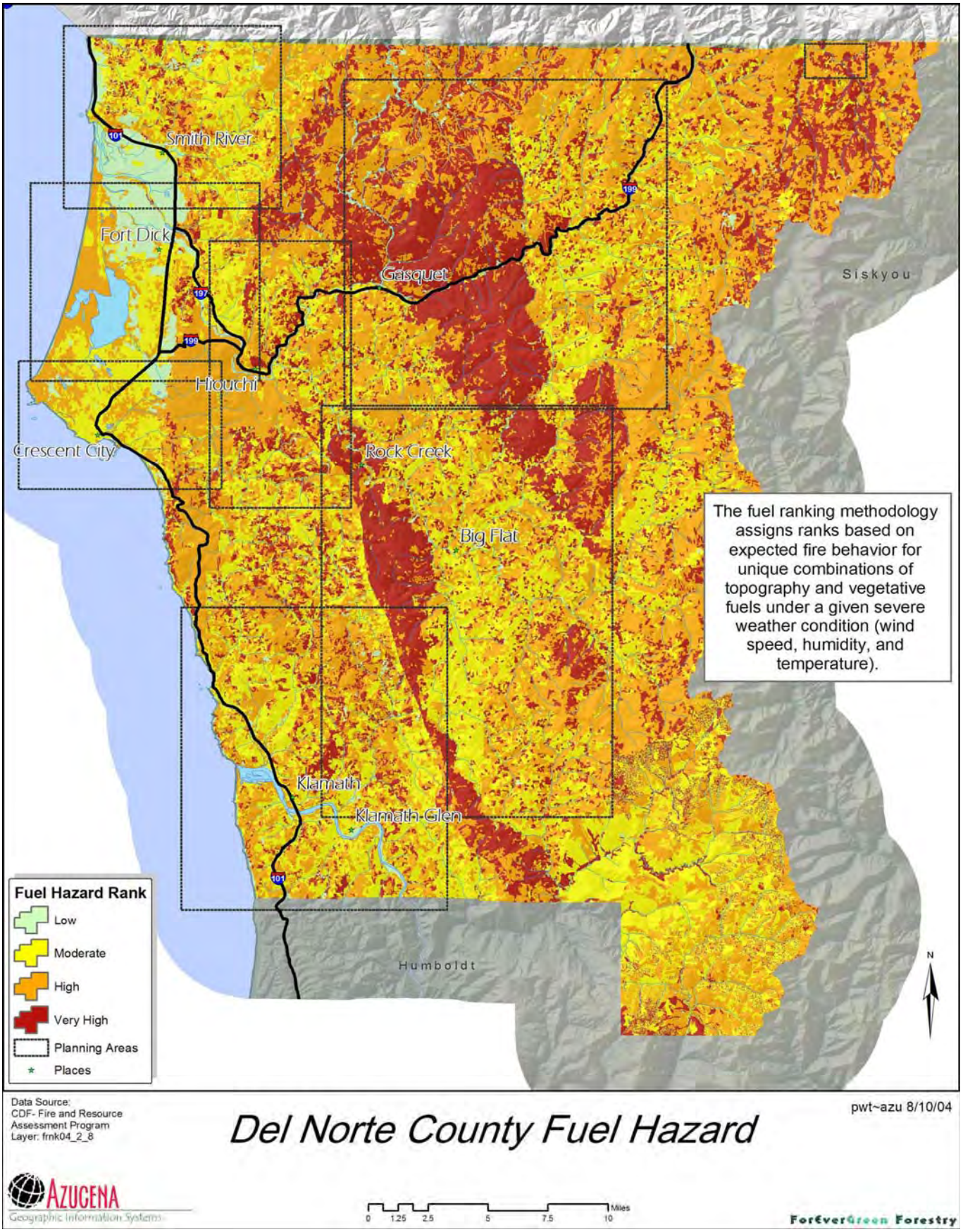
[60] See Section 2.3.

> 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.

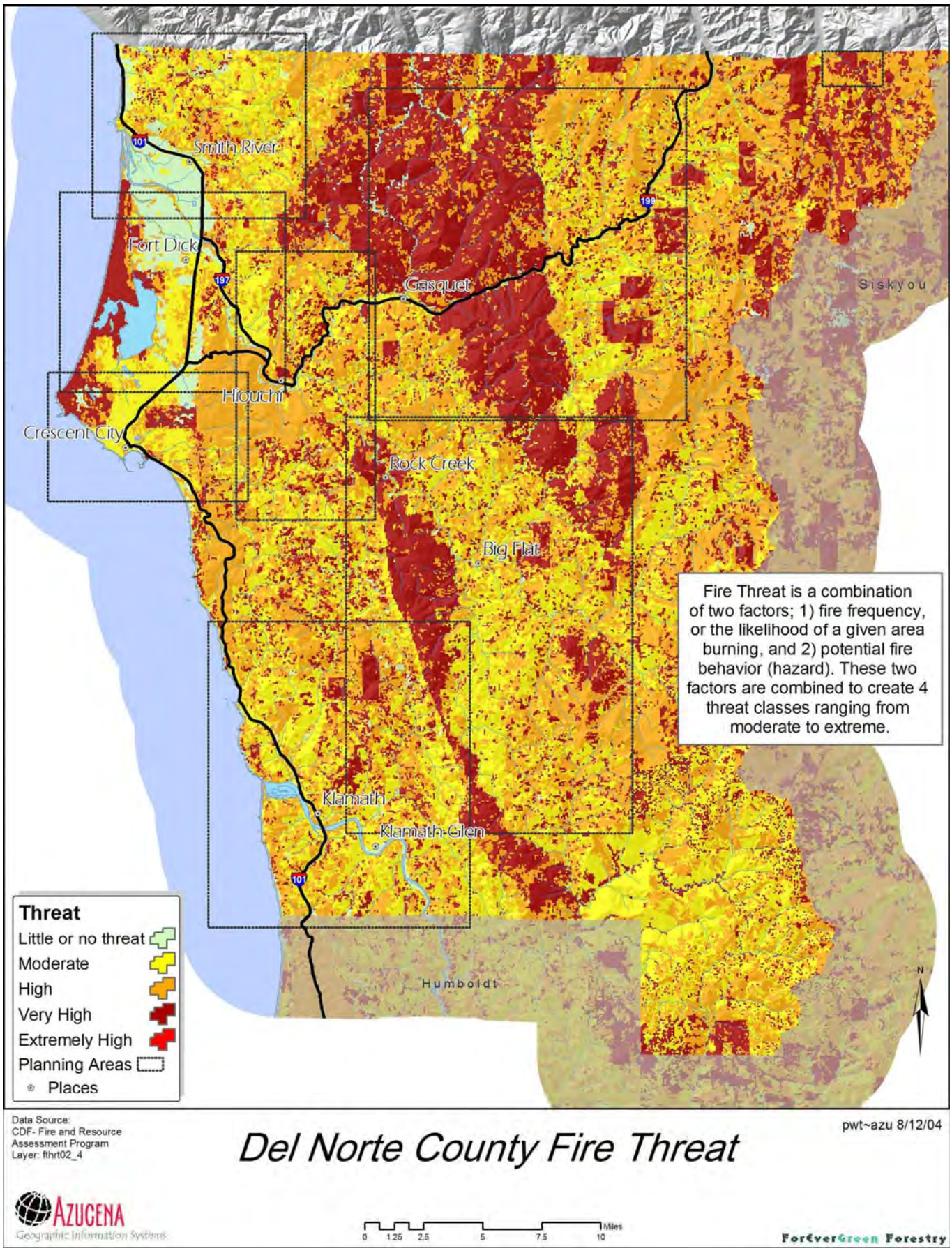
Fire Threat

> "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);

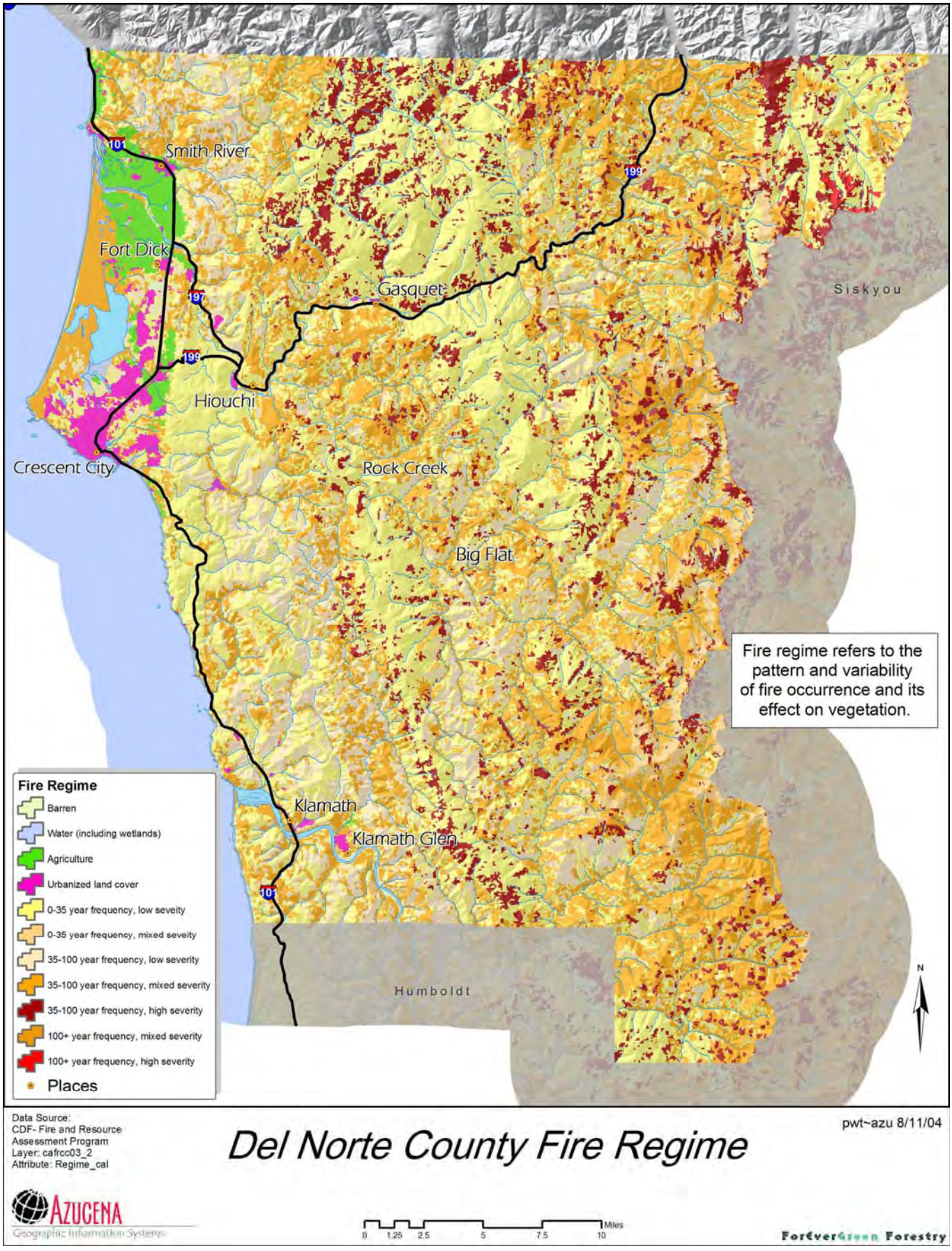
V – 200+ year frequency and high (stand replacement) severity.[66]

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.

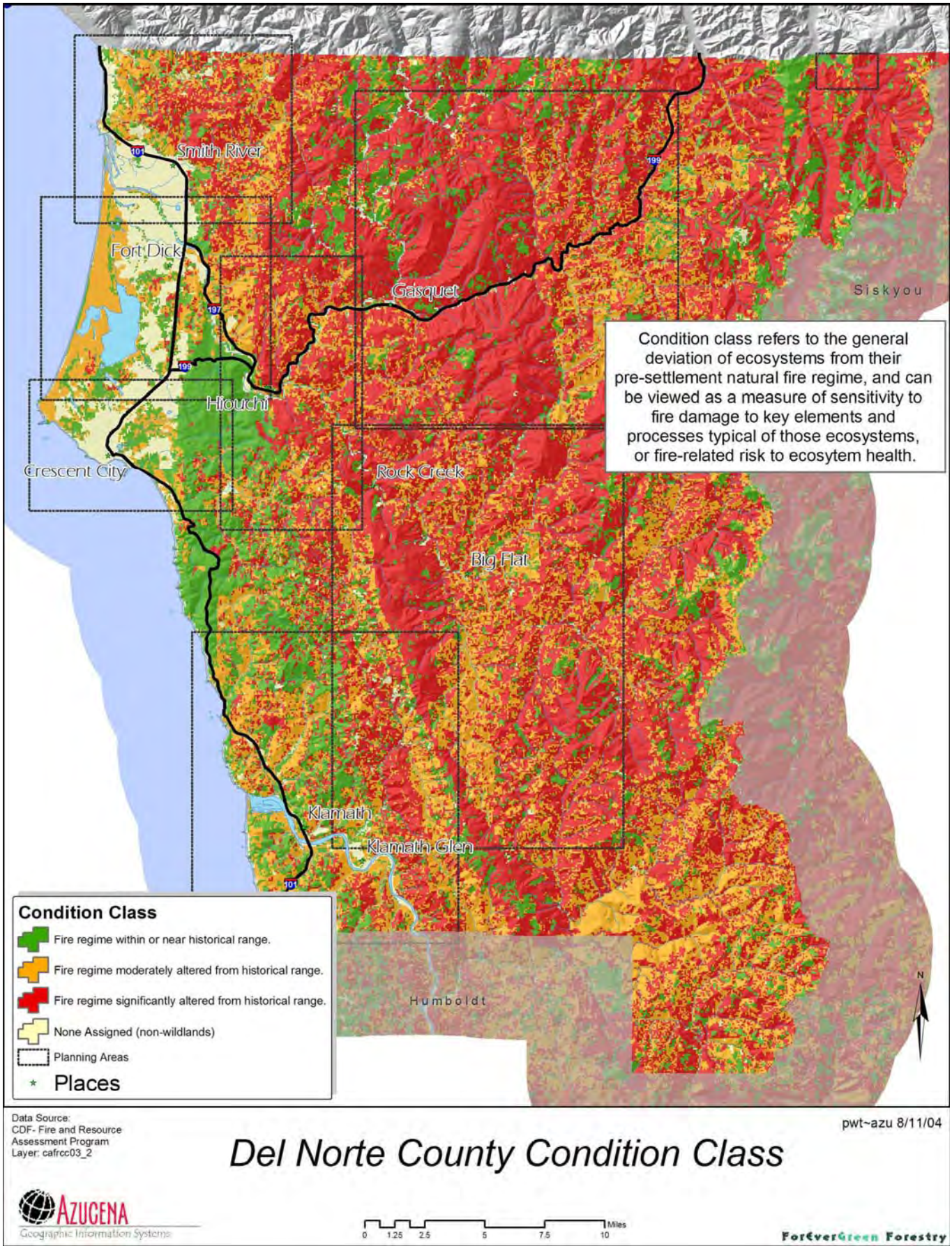


Map 8. Del Norte County Fire Regime

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:

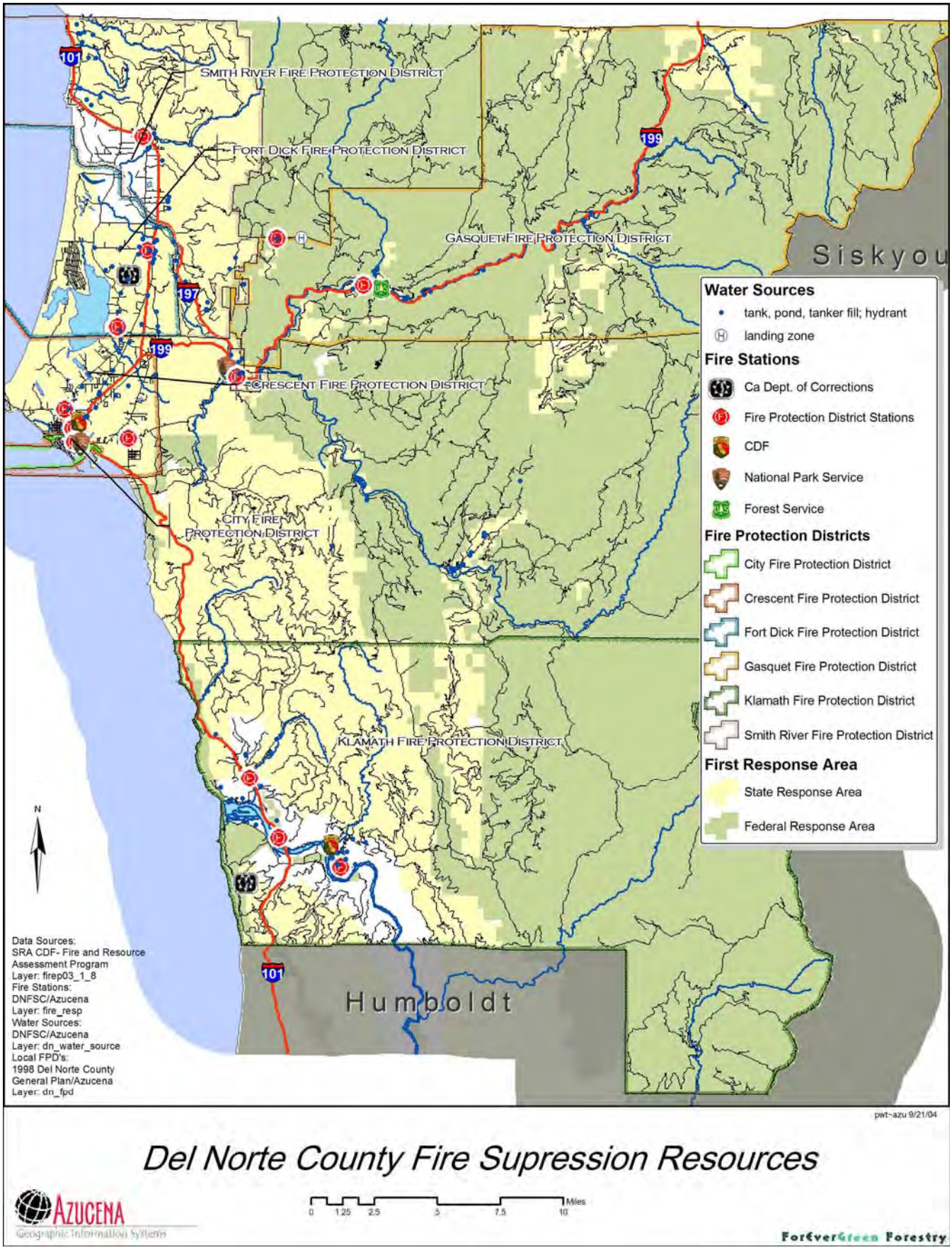
- Crescent City Volunteer Fire Department
- California Department of Forestry and Fire Protection
- US Forest Service, Six Rivers National Forest
- Redwood National and State Parks
- Pelican Bay State Prison

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.

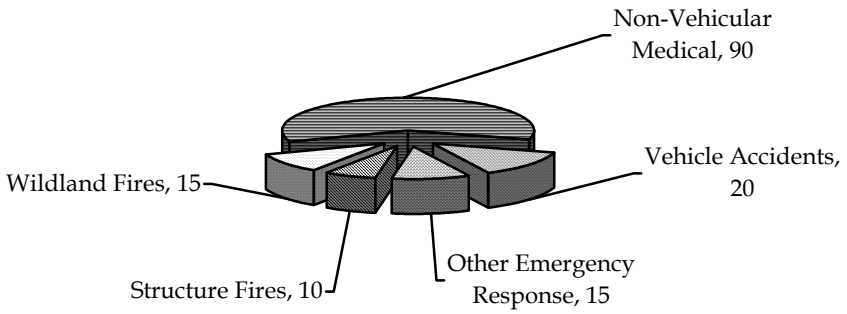
Table 5. Klamath Fire Protection District Stations

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.

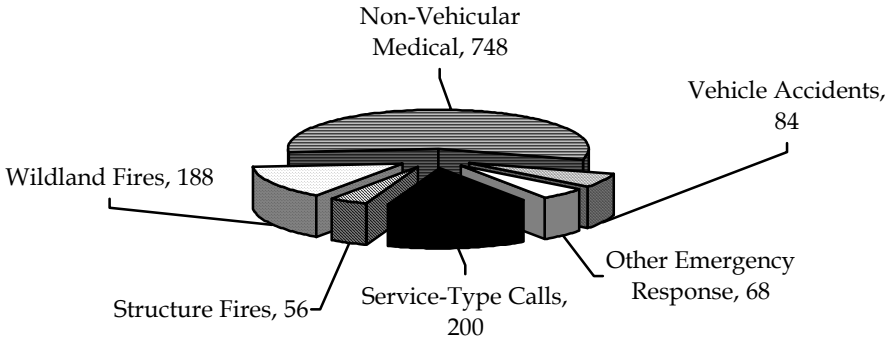
Table 7. Crescent Fire Protection District Stations

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.

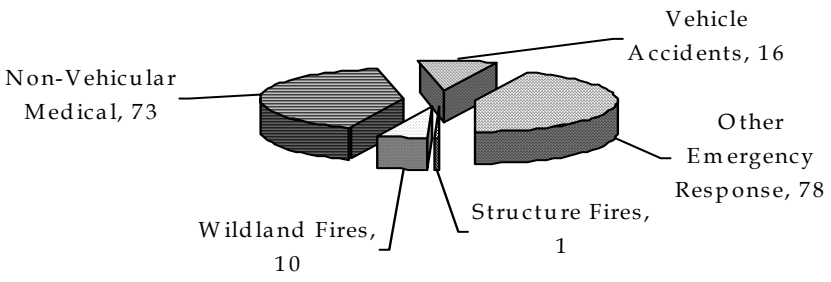
Fourteen local residents currently volunteer with FDFPD, all of which are "active" firefighters. Three other volunteers act as explorers. There is one paid staff member, the Fire Chief. The District is funded primarily through a parcel tax assessment collected and distributed by Del Norte County, totaling 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

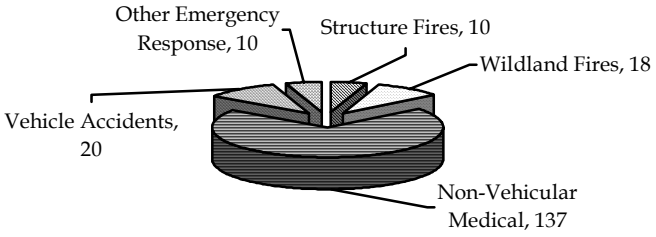
[71] Most of the information in this section was provided by SRFPD Fire Chief Myron Williamson, personal communication 9/16/04.

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]

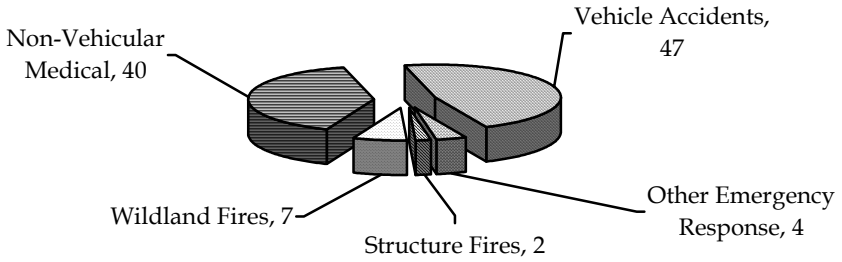
The Gasquet Fire Protection District (GFPD) provides first response fire and medical service to approximately 700 residents in their 400-square-mile District in Del Norte County.

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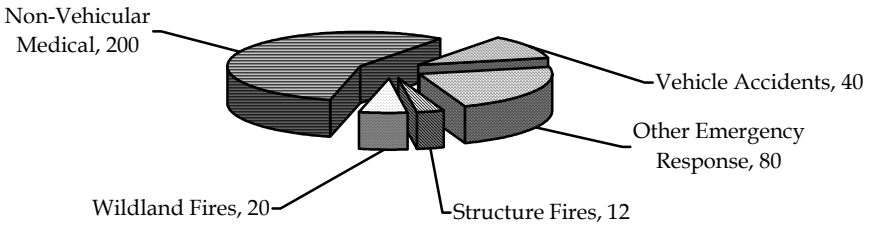
[73] Most of the information in this section was provided by CCVFD Fire Chief Steve Wakefield, personal communication 9/29/04.

[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.

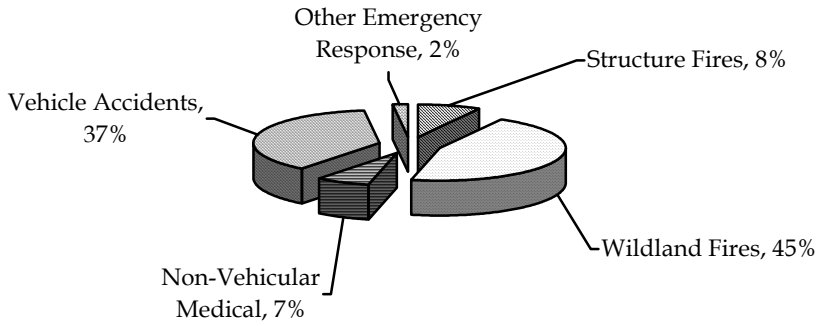
Table 13. CDF Stations

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

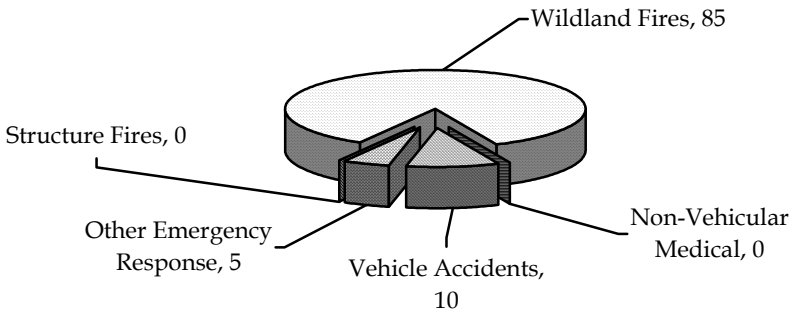
Within Del Norte County, the US Forest Service (USFS) provides wildland fire protection on National Forest lands and private in-holdings within the boundaries of the Six Rivers National Forest (SRNF). SRNF's service area includes the communities of Washington Flat, Gasquet, Low Divide, Hiouchi, Rock 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.

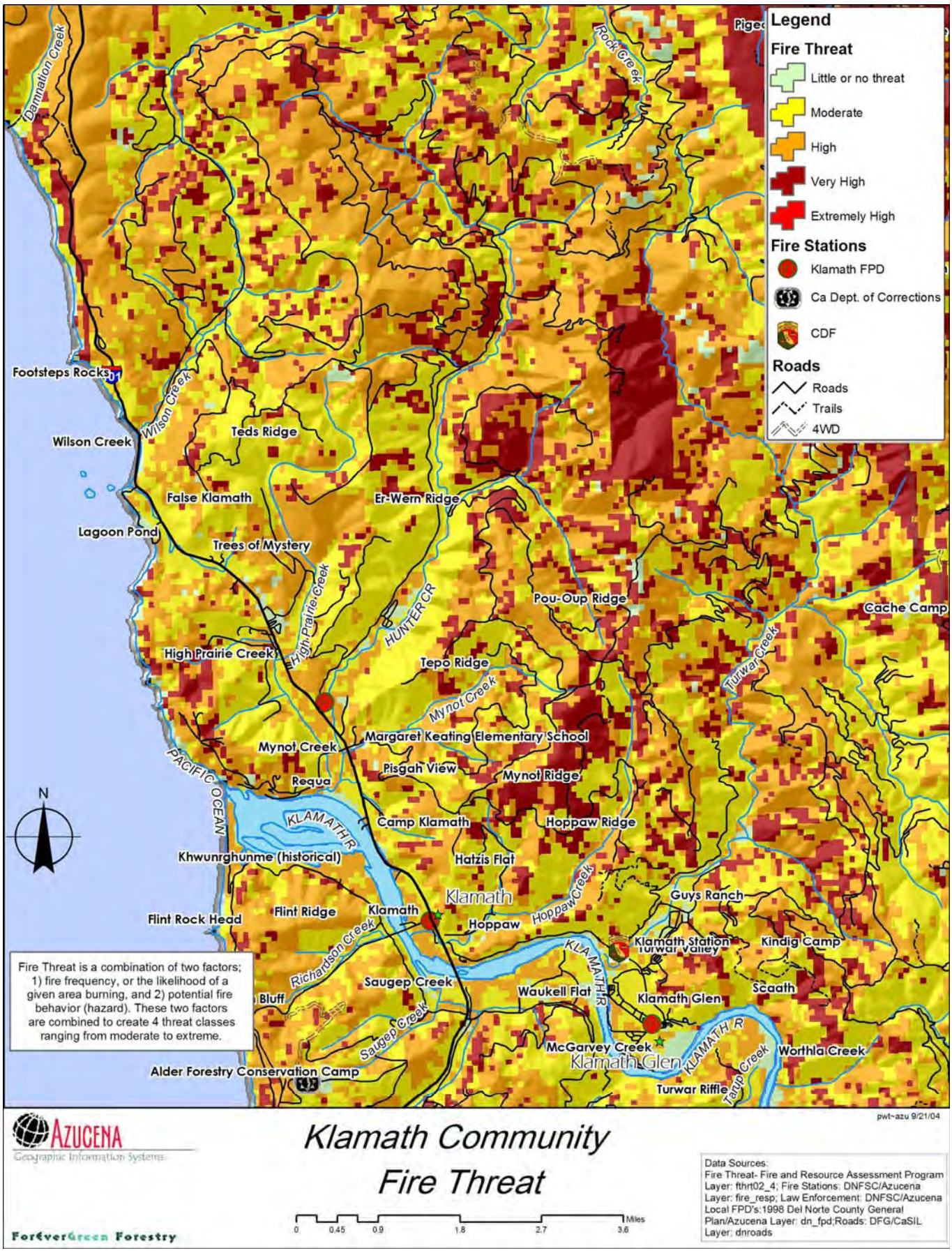
Much of this planning area is along the coast, with redwood and mixed conifer-hardwood forests. There are several open and marshy areas, especially along sections of Highway 101 here. The coastal climate is cooler than other areas in the county. However, the river produces strong upriver afternoon winds,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

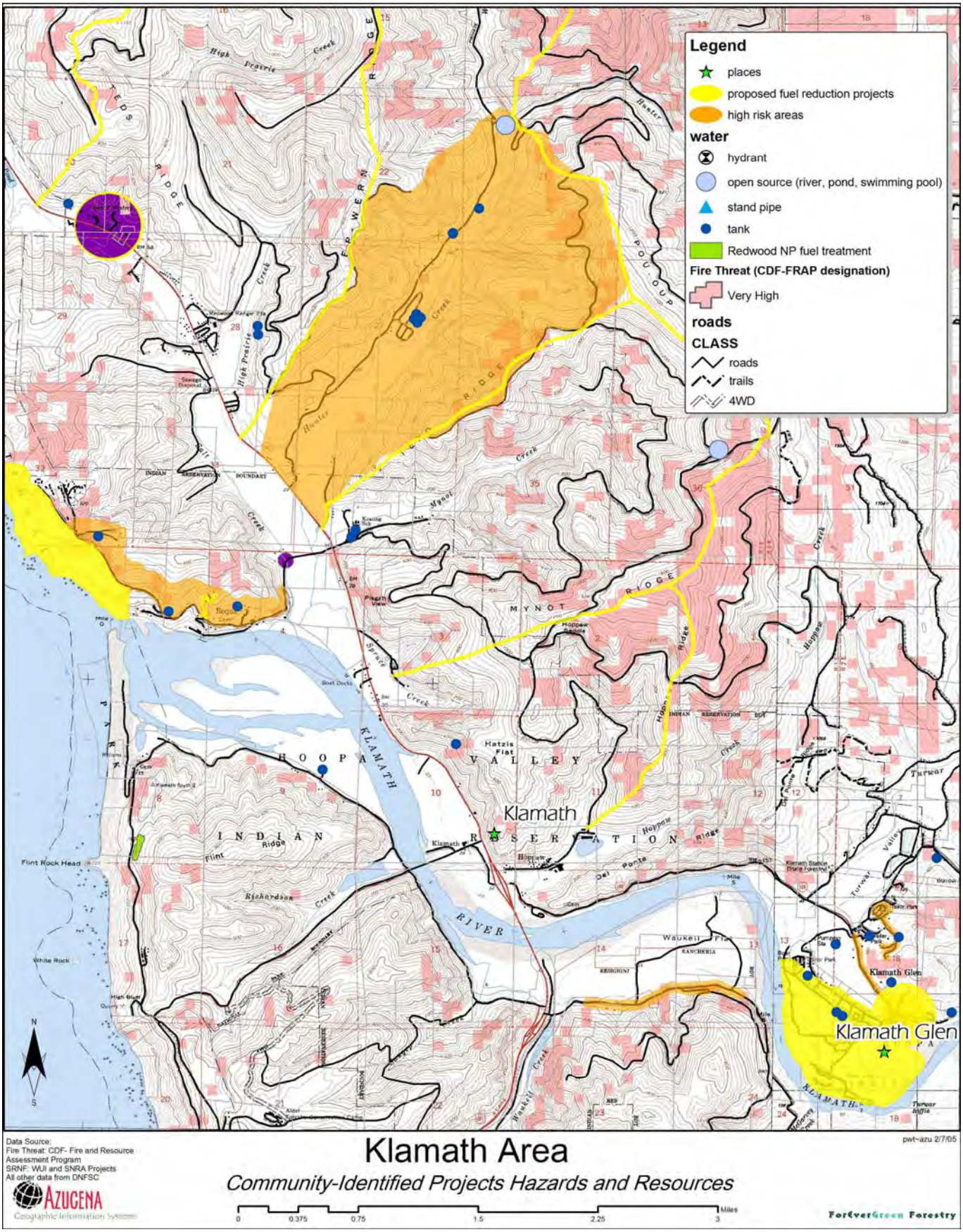
- Yurok Tribal Offices and Headquarters

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.

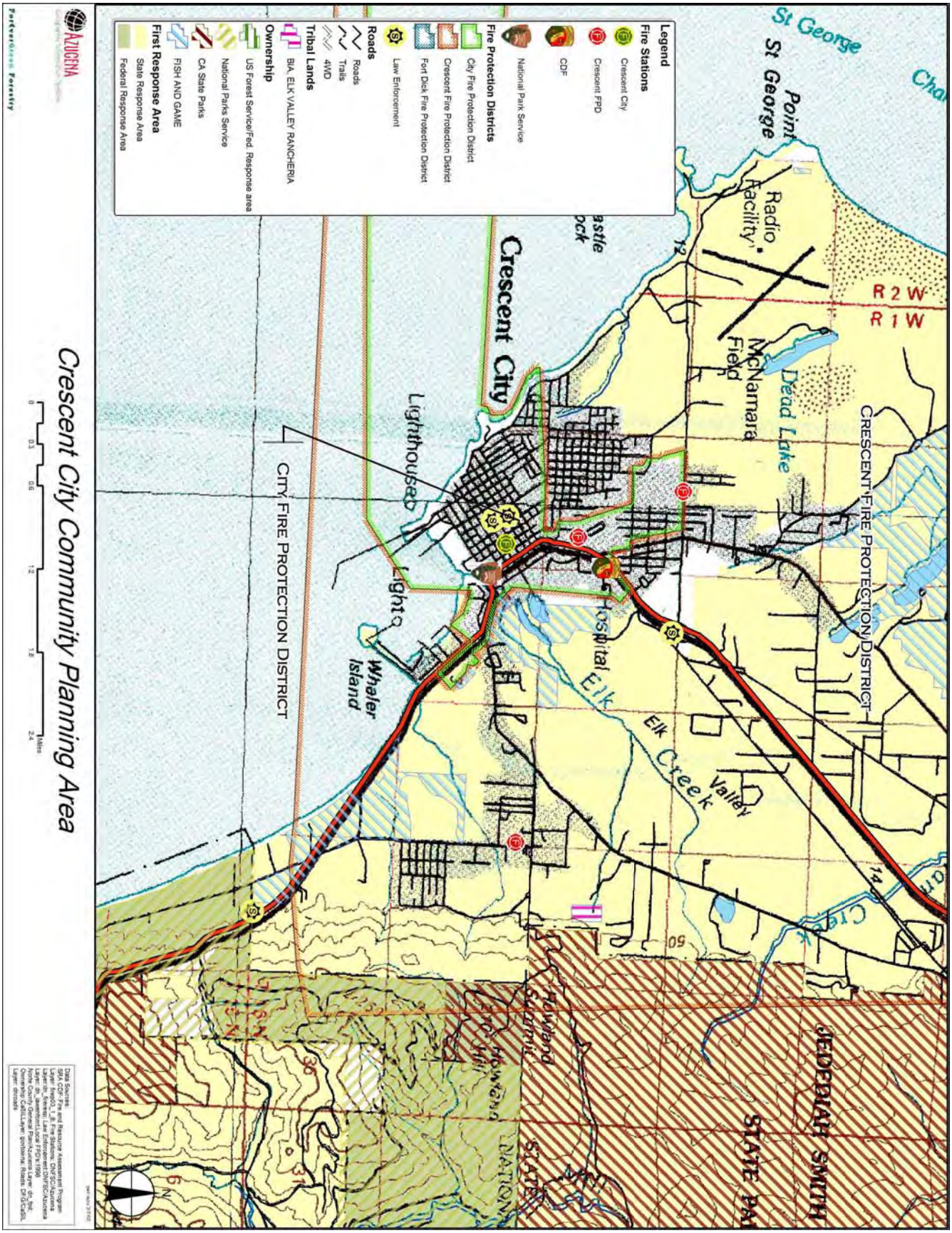
The city lies on the Pacific, just south of Point Saint George, and about twenty miles south of the Oregon border. It is perhaps best known for its tsunami in 1964, and hence the name "Comeback City USA."

> "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

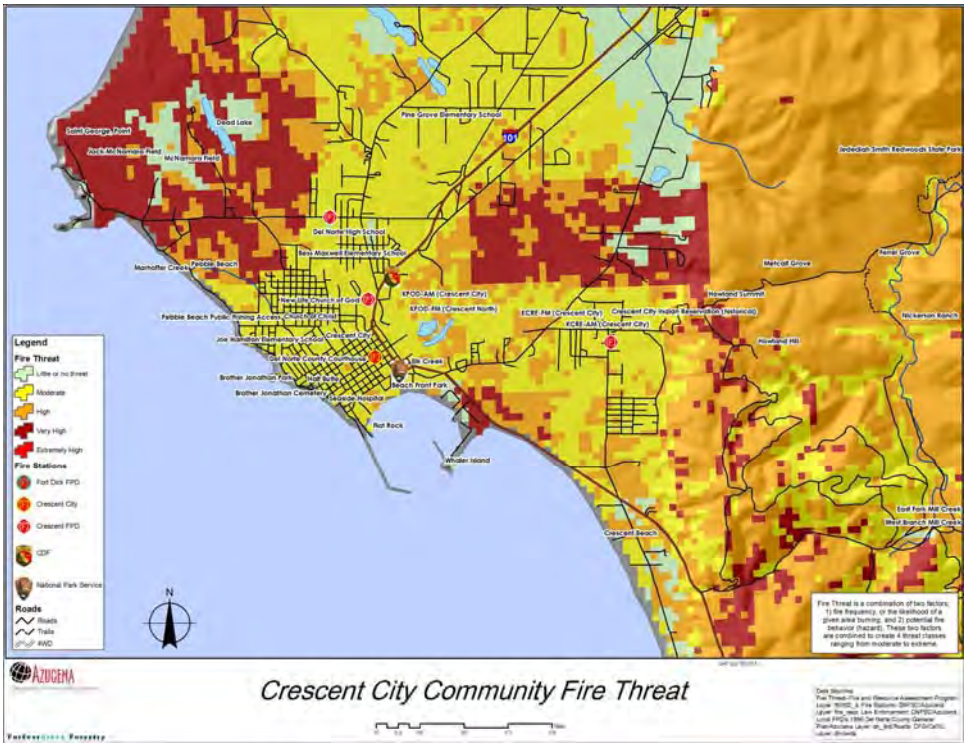
6.2.2. Crescent City Current Fire Environment

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

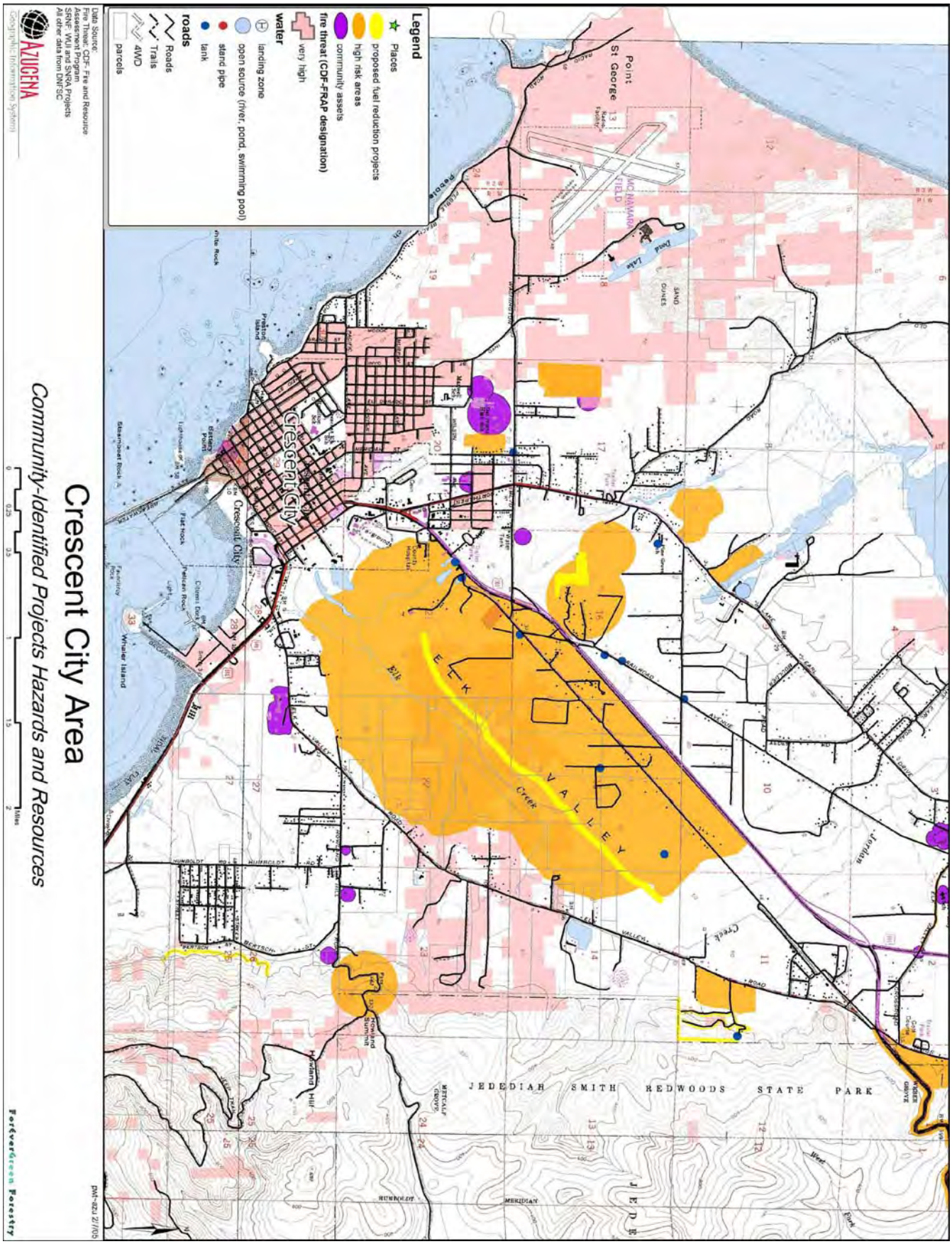
- Point Saint George buildings
- Schools
- State Park Headquarters off Elk Valley Road
- Sutter Coast Hospital

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.

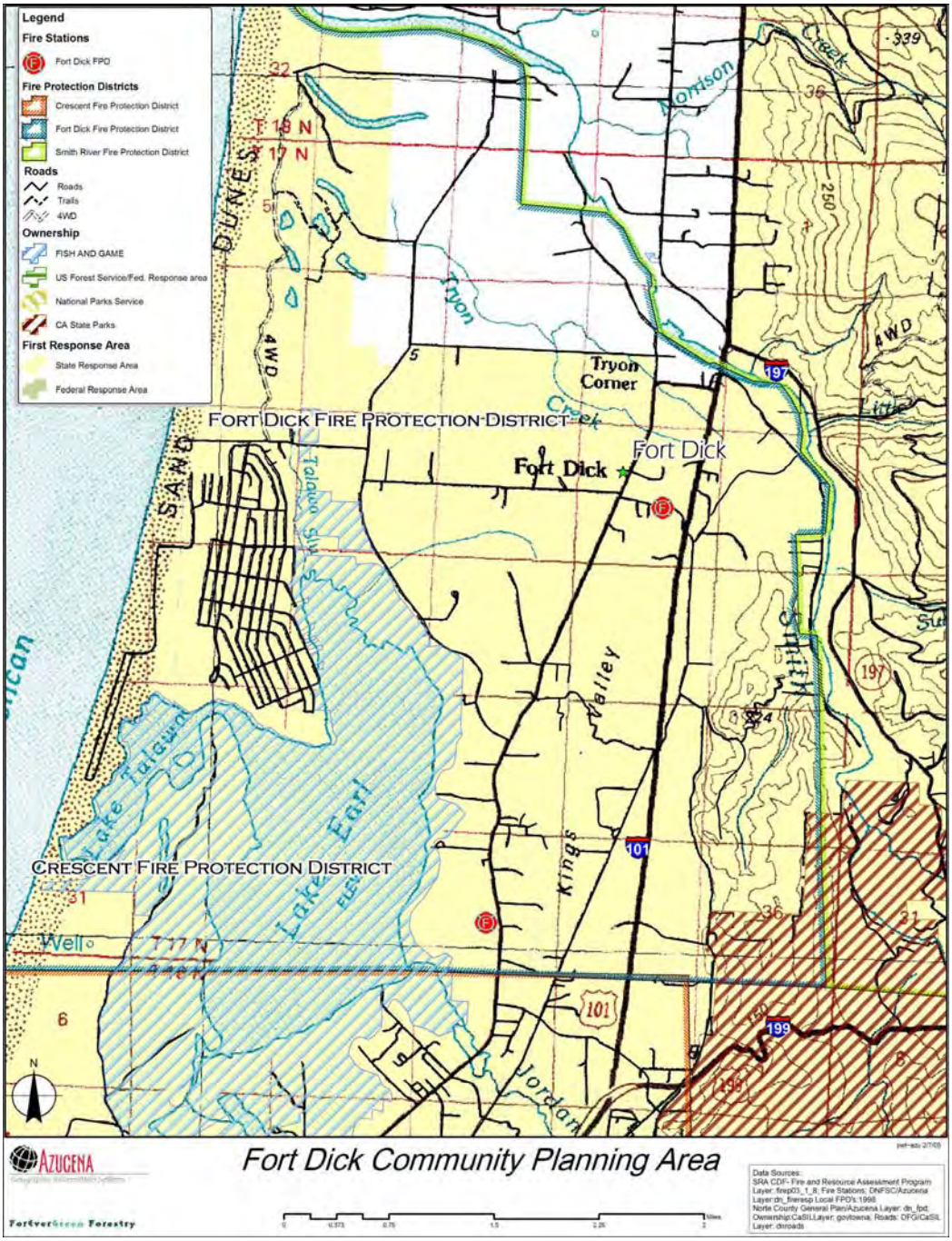
6.3. Fort Dick Community Planning Area

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

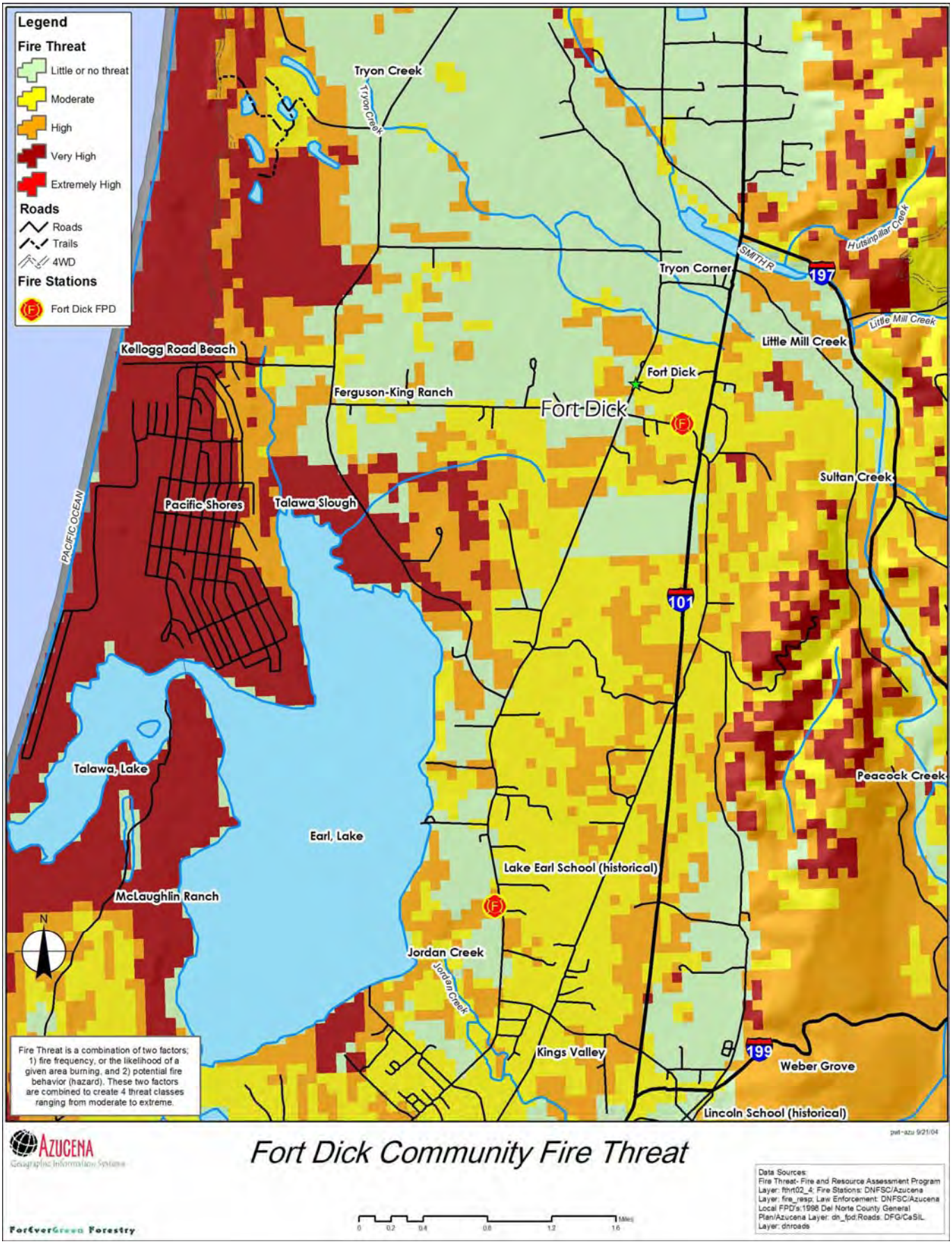
Although Fort Dick is located along the coast, with primarily urban and agricultural lands, much of the western portion is identified by CDF as Very High Fire Threat. This is likely due to strong coastal winds and the history of fire starts in this area, especially around Lake Earl. The Pacific Shores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

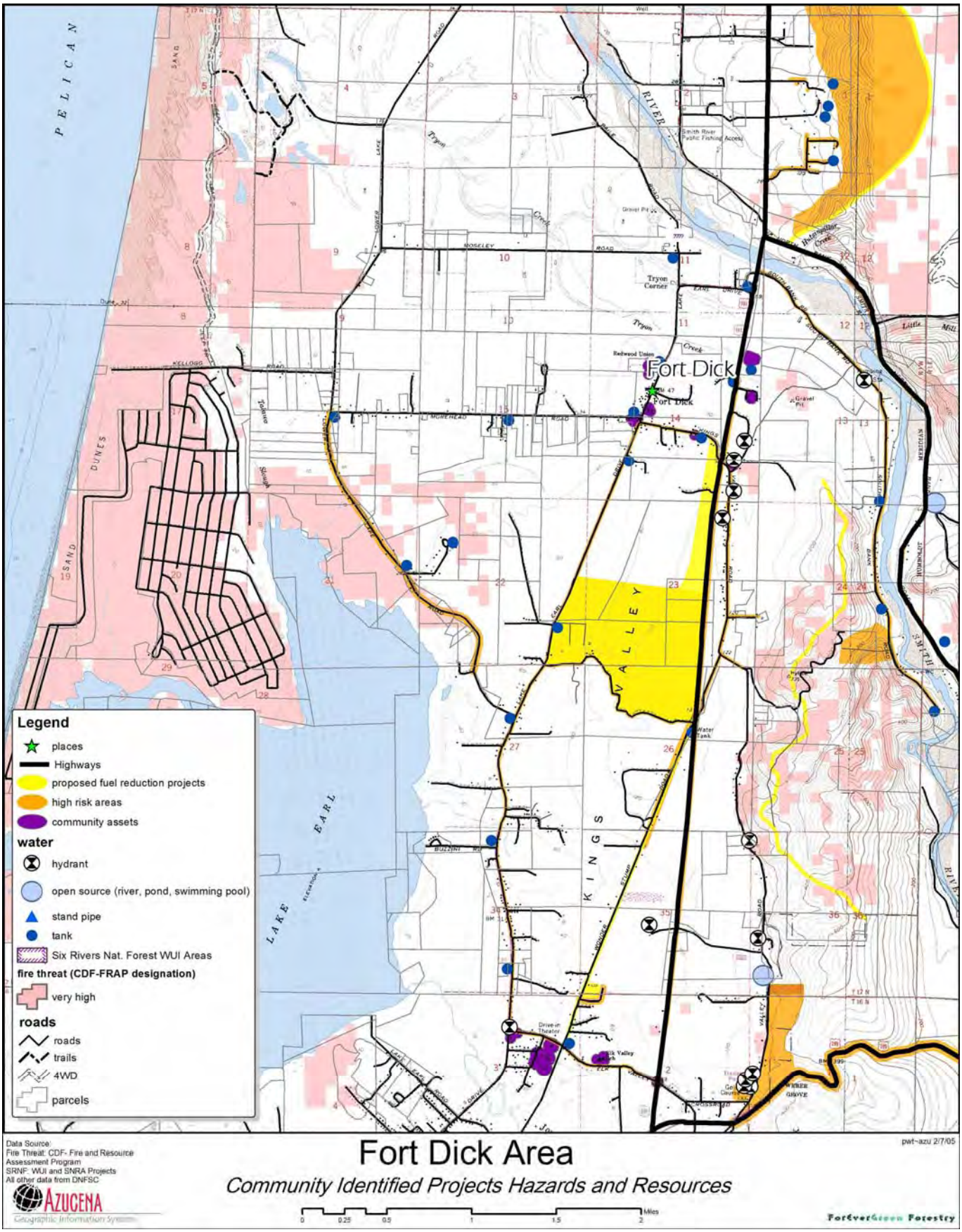
6.3.4. Fort Dick Assets at Risk

- 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

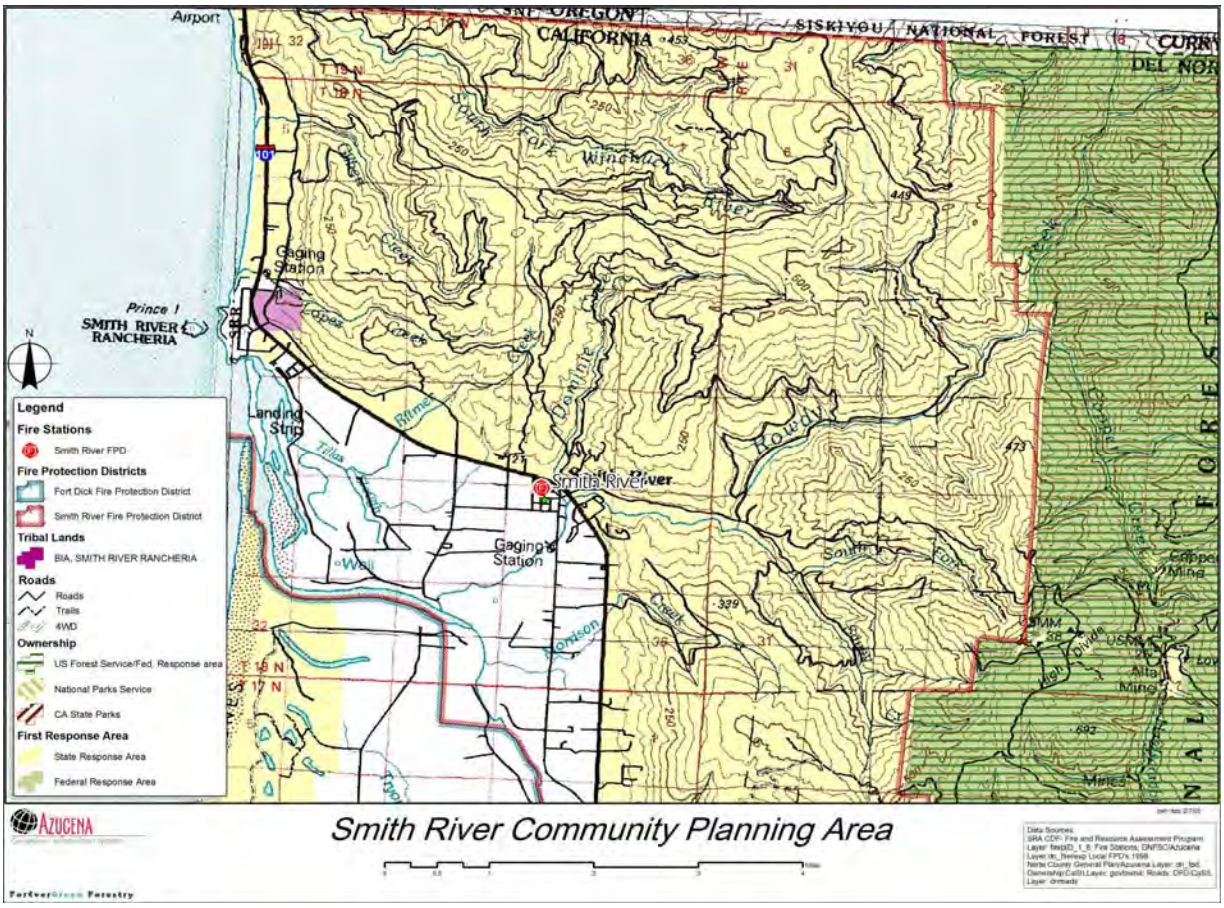
6.4.1. Smith River Community Description

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

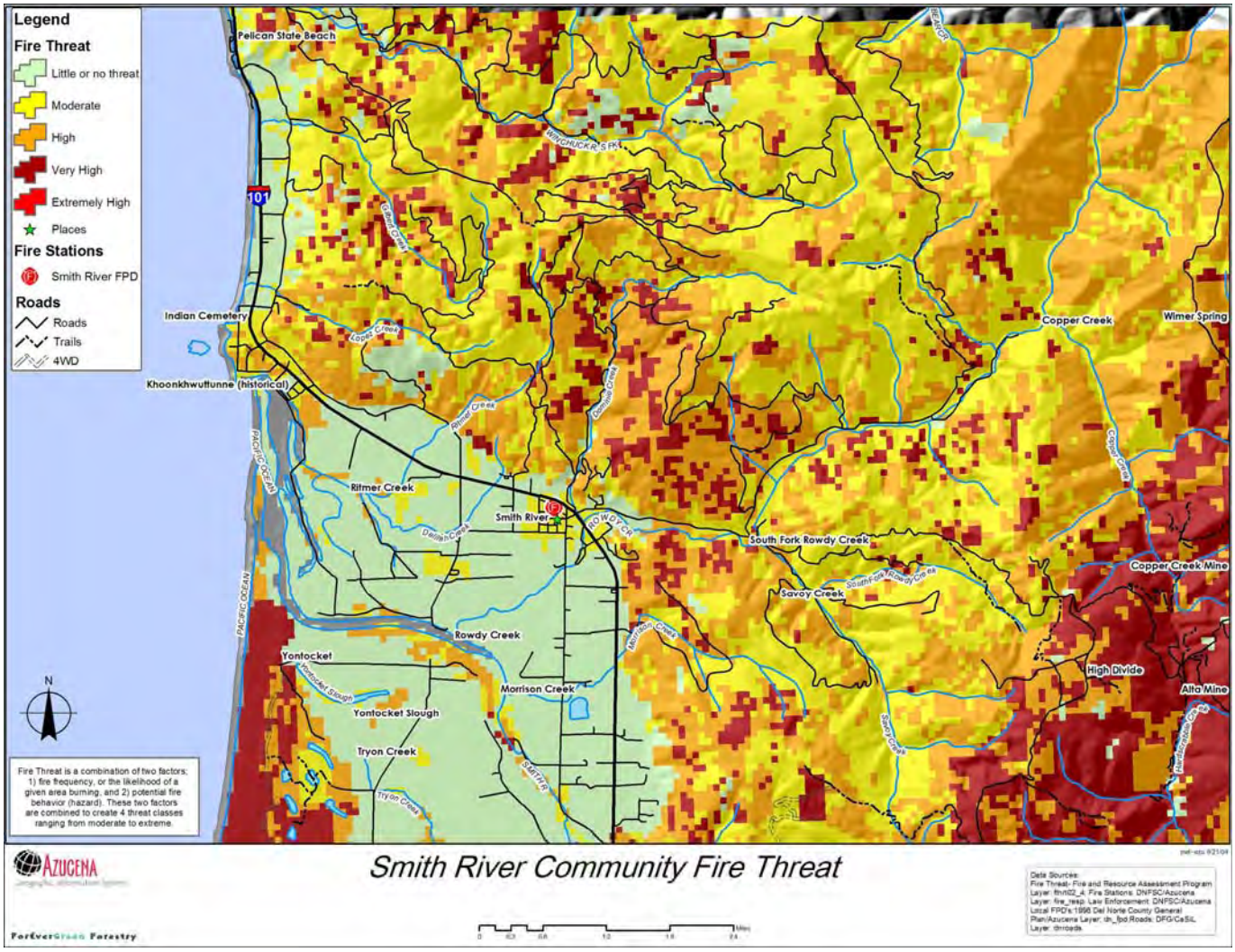
[84] www.northerncalifornia.net/county_demographics.htm

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

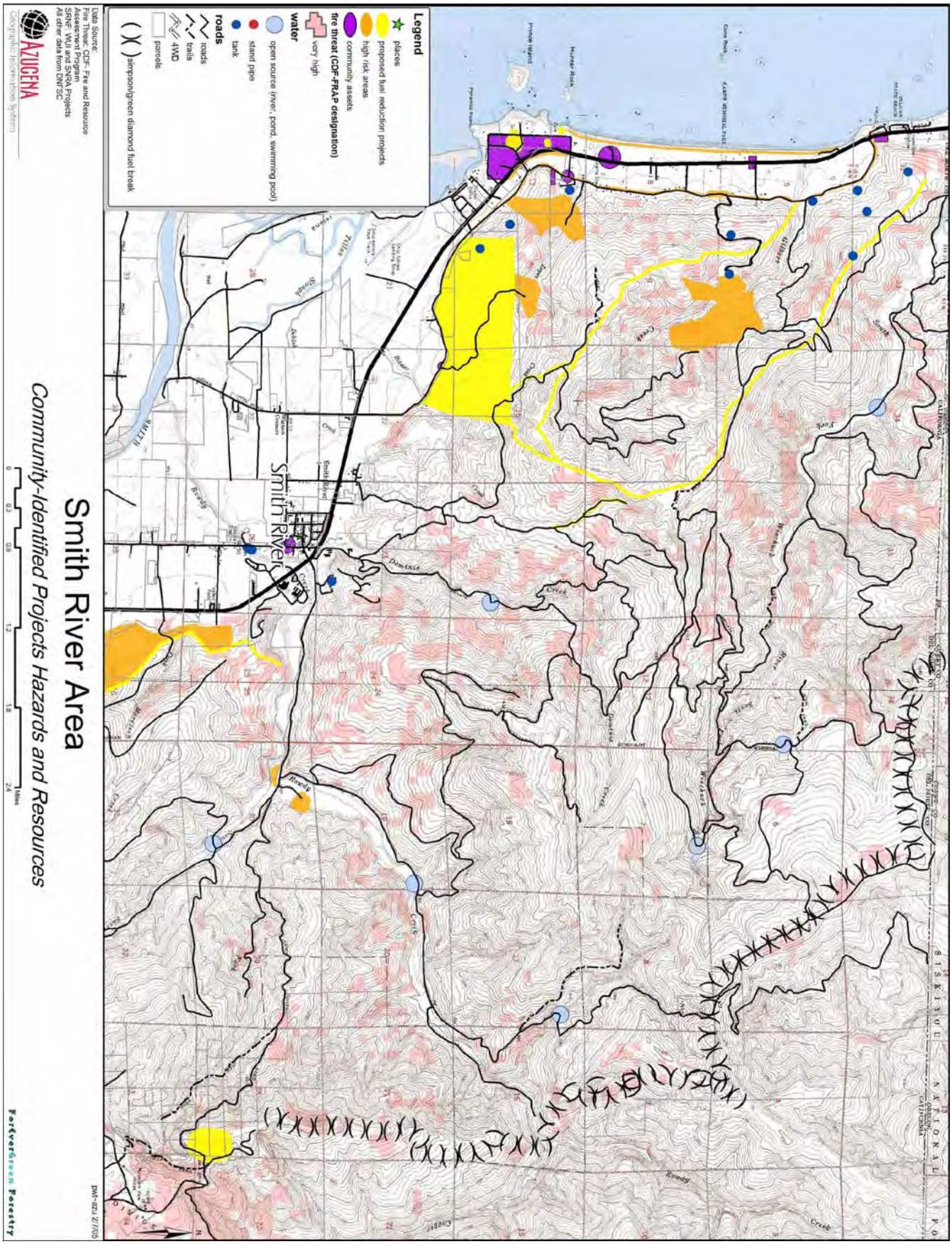
For more information on Smith River Community-Identified Risks and Hazards, as well as Potential Projects see Community Meeting Input information in Appendix D.

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.

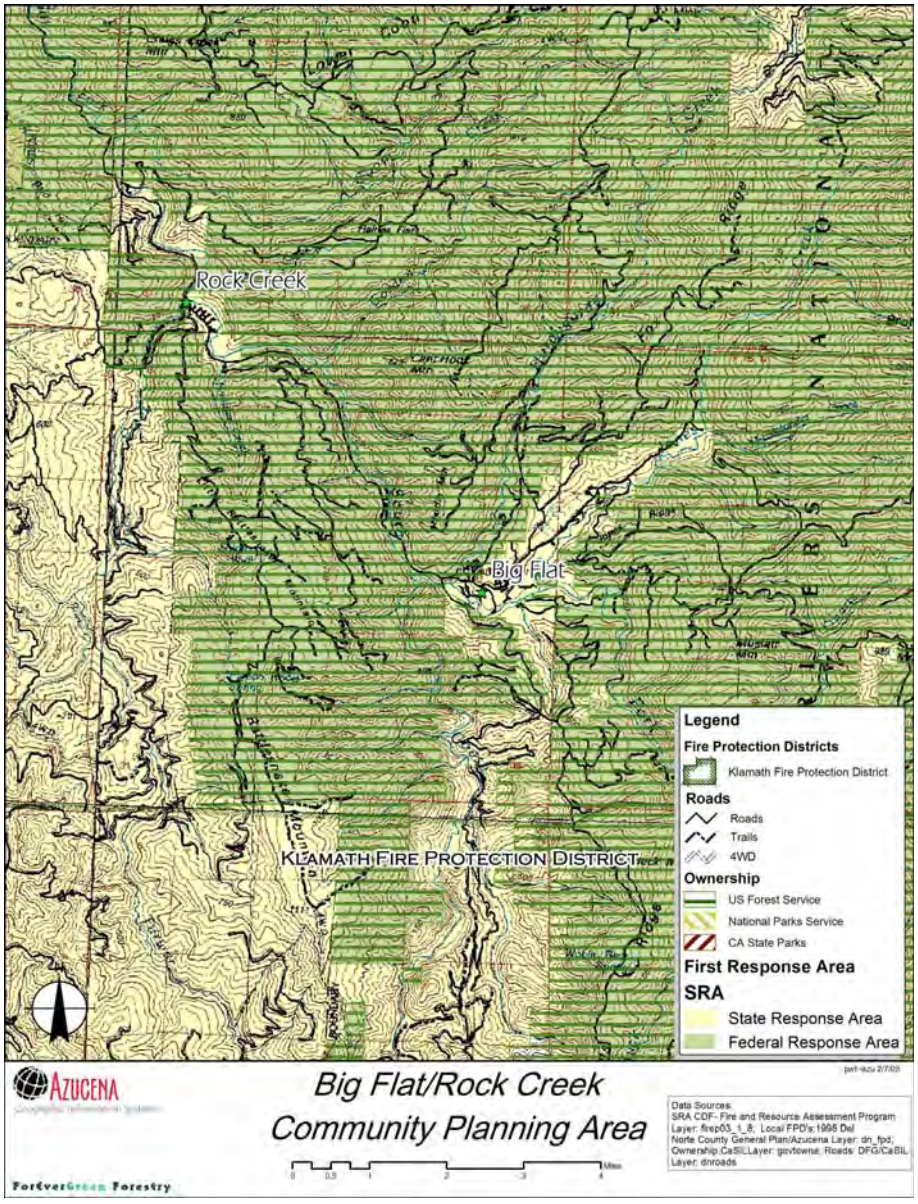
6.5. Big Flat/Rock Creek Community Planning Area

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).

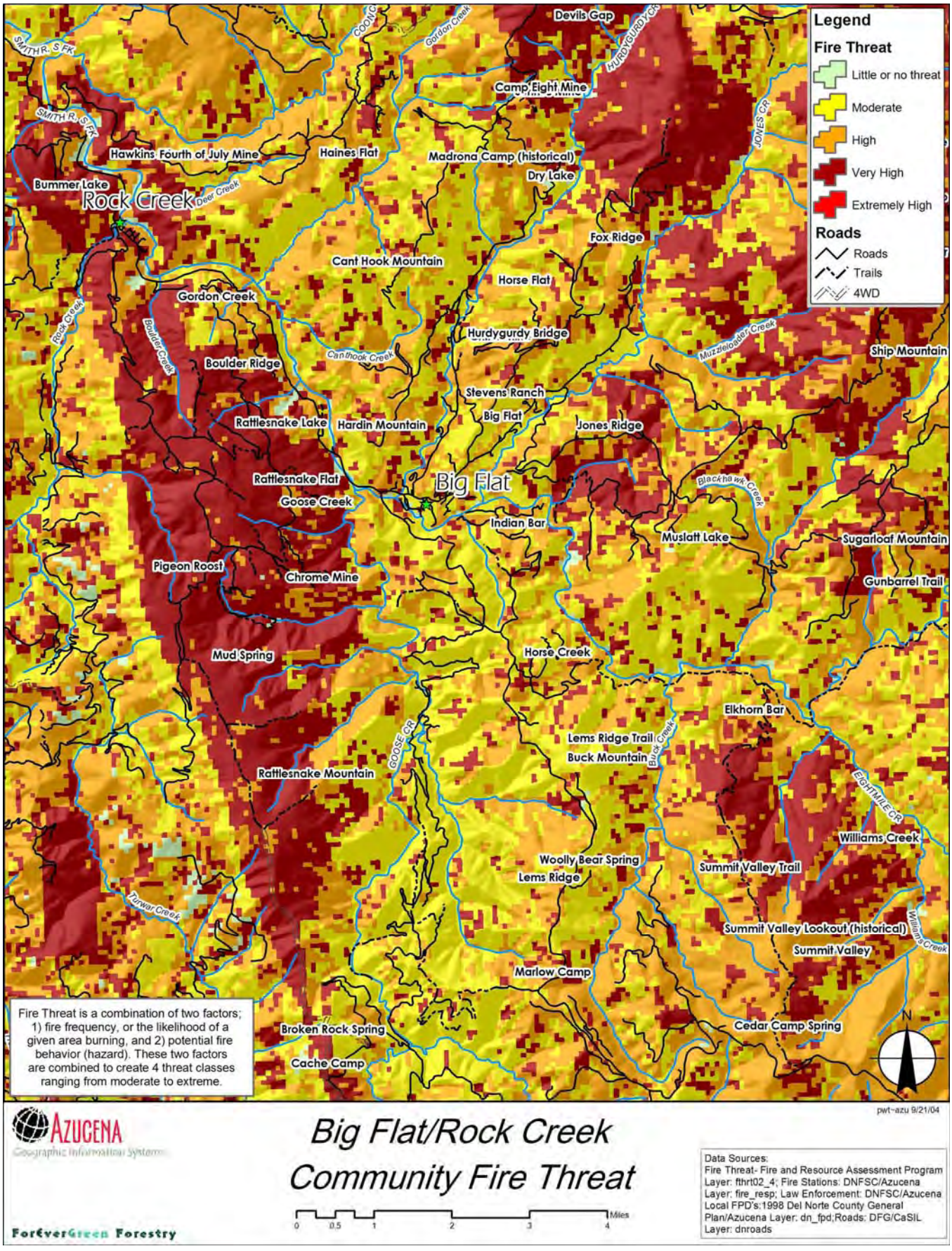
Evacuation is a critical issue here, as there is only one primary road in and out. It is 16 miles from the end of Big Flat to 199 along the main (South Fork) road. There are, however, alternate evacuation routes that travel through the National Forest.

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

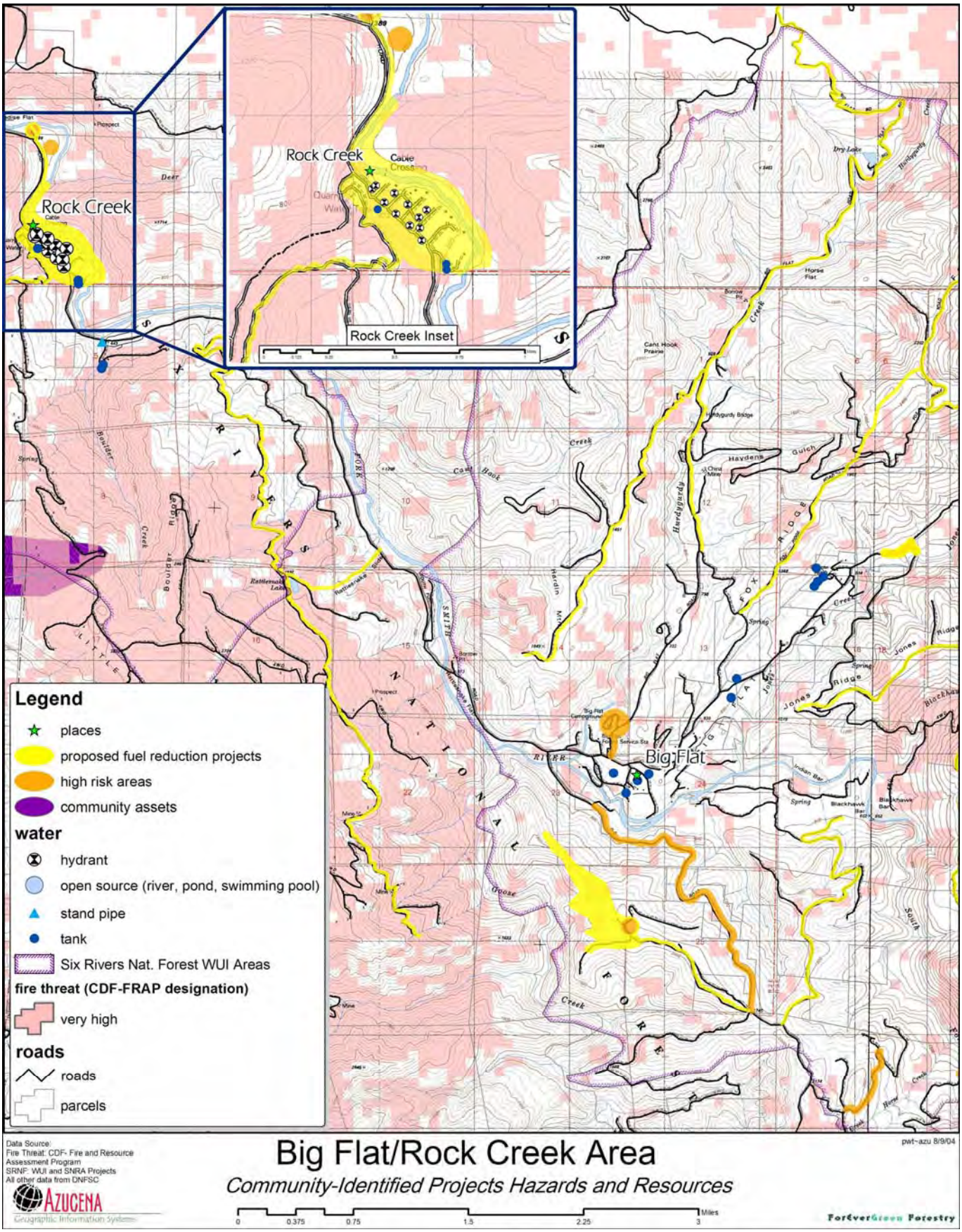
- Big Flat and Rock Creek communities
- Rock Creek Ranch
- Wild and Scenic Smith River
- Big Flat Campground
- Ranger Station
- Jedediah Smith State Park
- Mill Creek State Park

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.



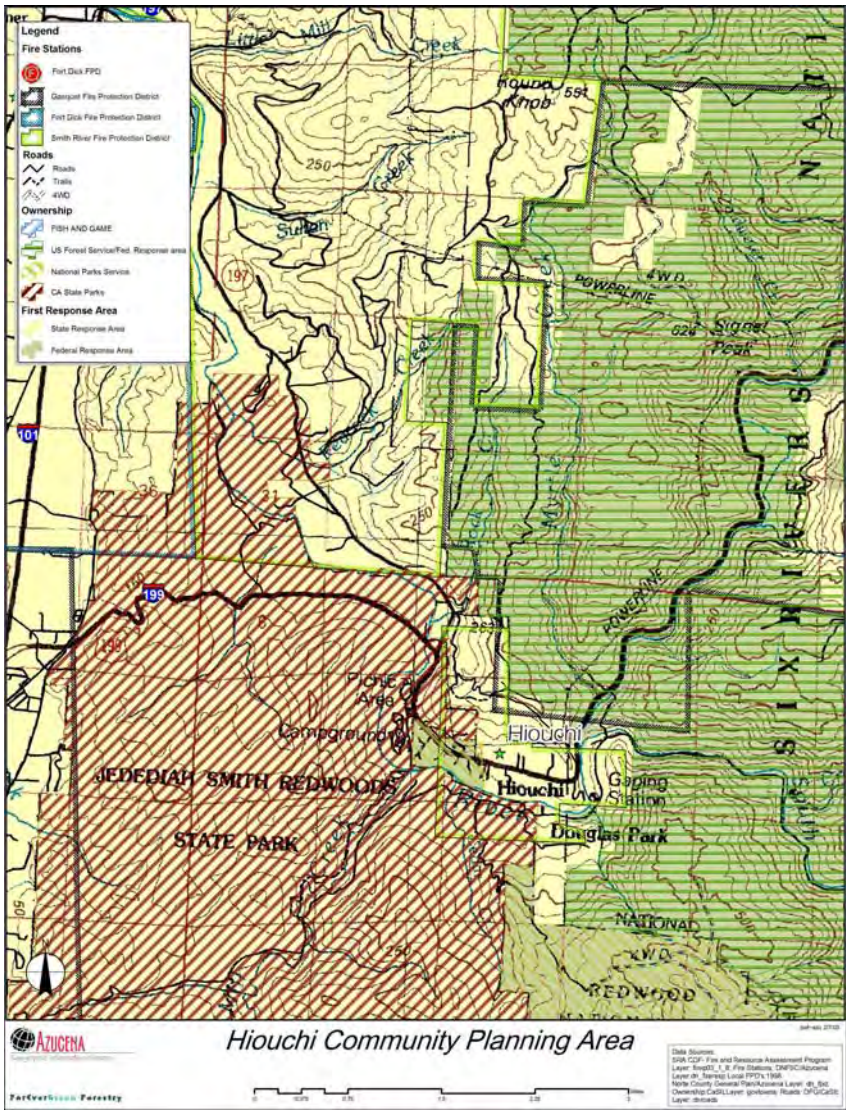
Map 25. Big Flat/Rock Creek Community-Identified Risks, Hazards, and Projects. Note: This map is for planning purposes only. See Section 3.4 for more information.

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.

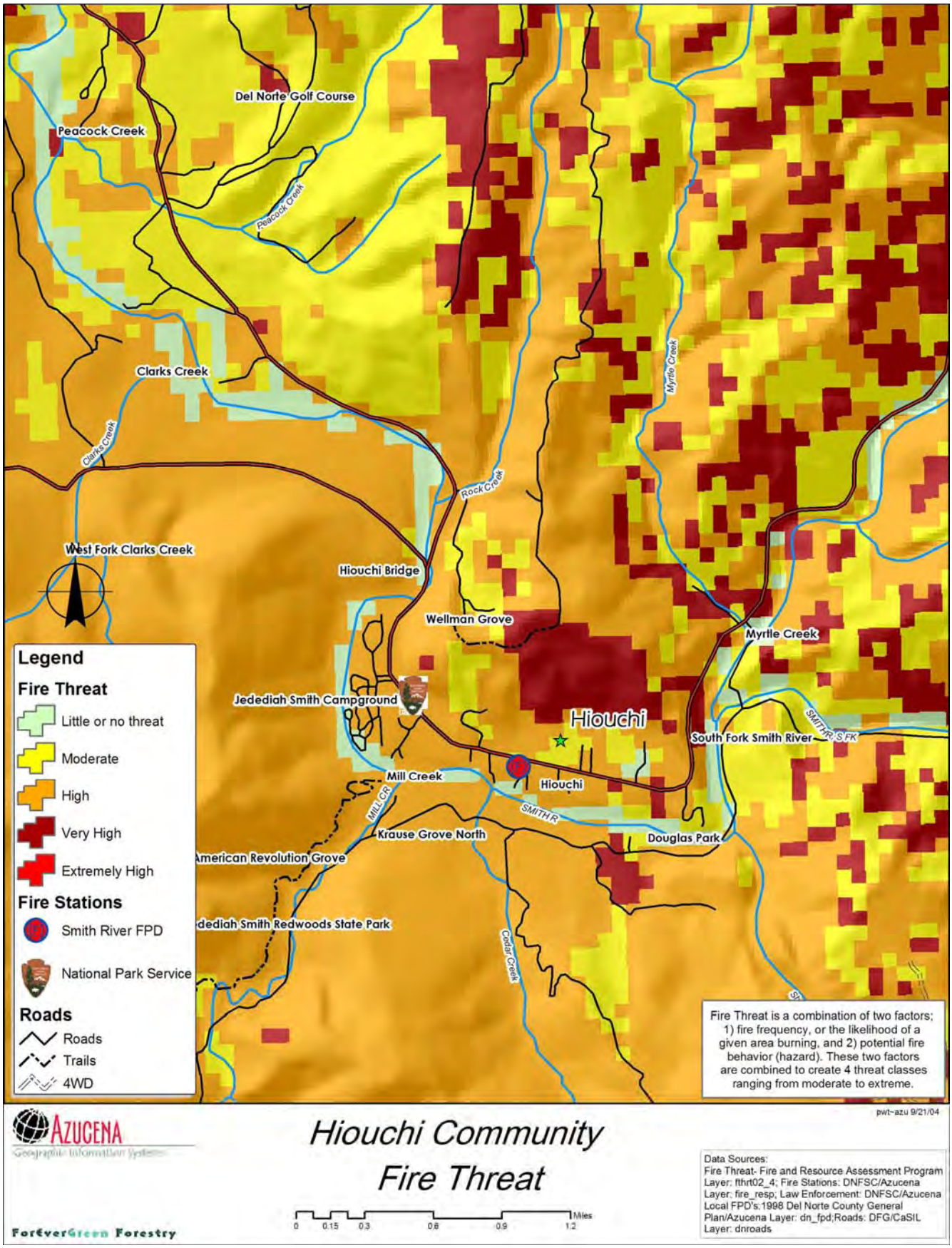
Historically, the big fires in the Hiouchi community have been the Howard and Biscuit (2002) Fires. Some outer Hiouchi residents were evacuated during the Biscuit Fire.

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.

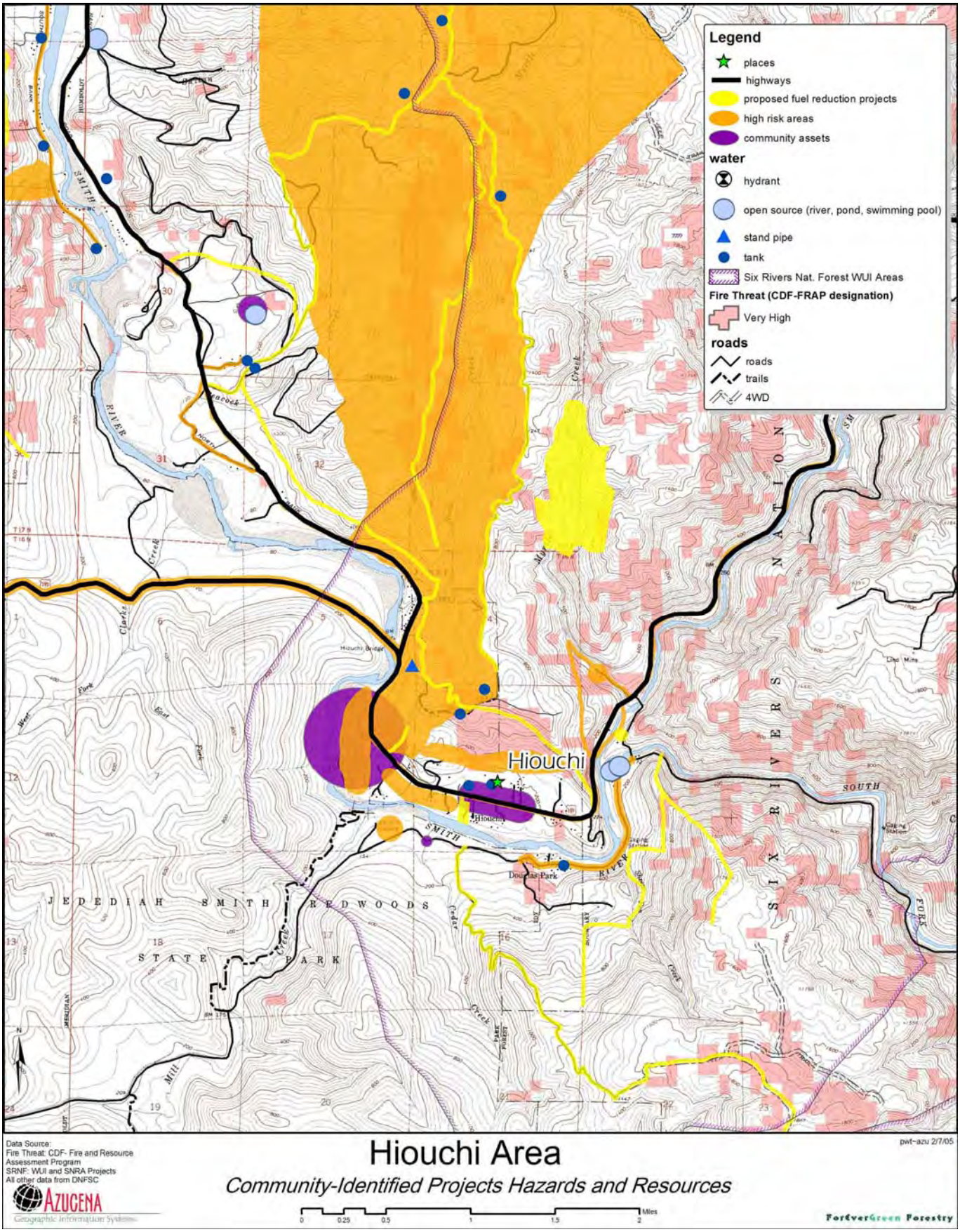
6.6.4. Hiouchi Assets at Risk

- 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

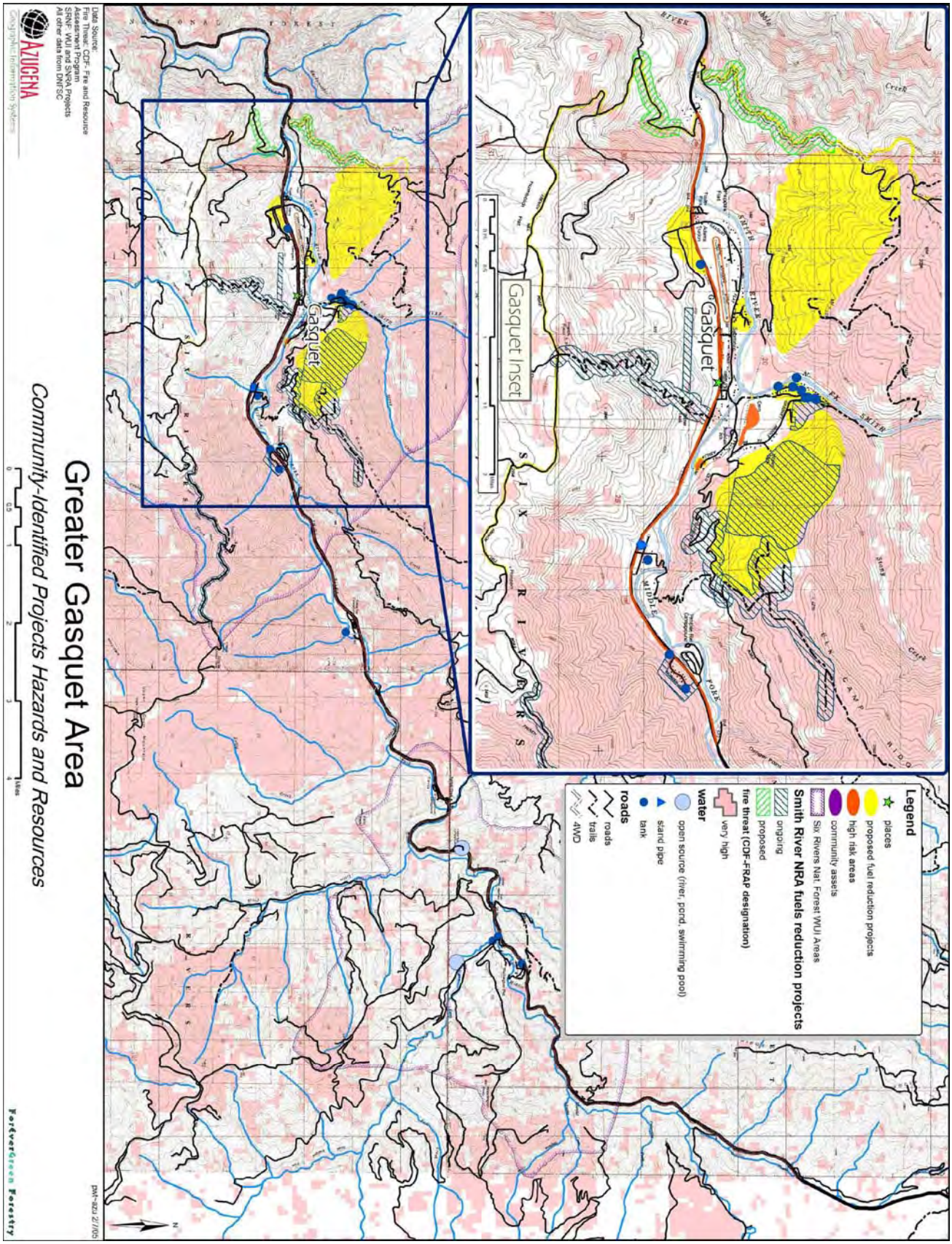
- Bar-O Boys Ranch
- Gasquet Community and Businesses
- Patrick Creek Lodge and Campground
- Mountain School
- SRNF Ranger Station
- Airport
- Power Substation
- CalTrans Yard
- Power Line
- Water Treatment Facility
- Madame Gasquet Grave Site (Historical Site)
- CCC Cabins next to Gasquet Mobile Home 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.



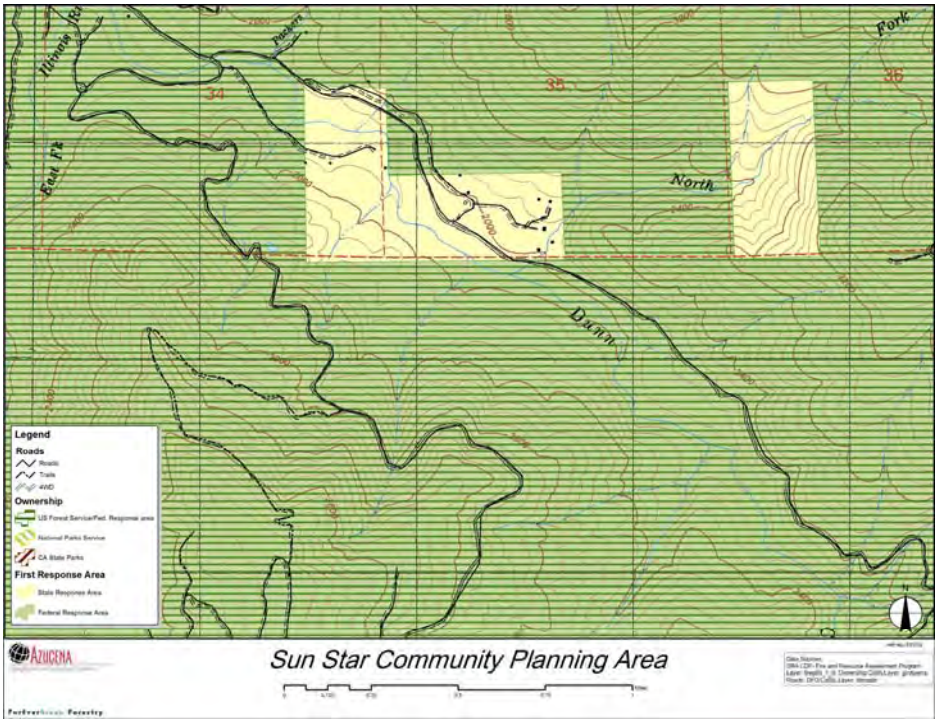
Map 31. Gasquet Community-Identified Risks, Hazards, and Projects. Note: This map is for planning purposes only. See Section 3.4 for more information.

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.

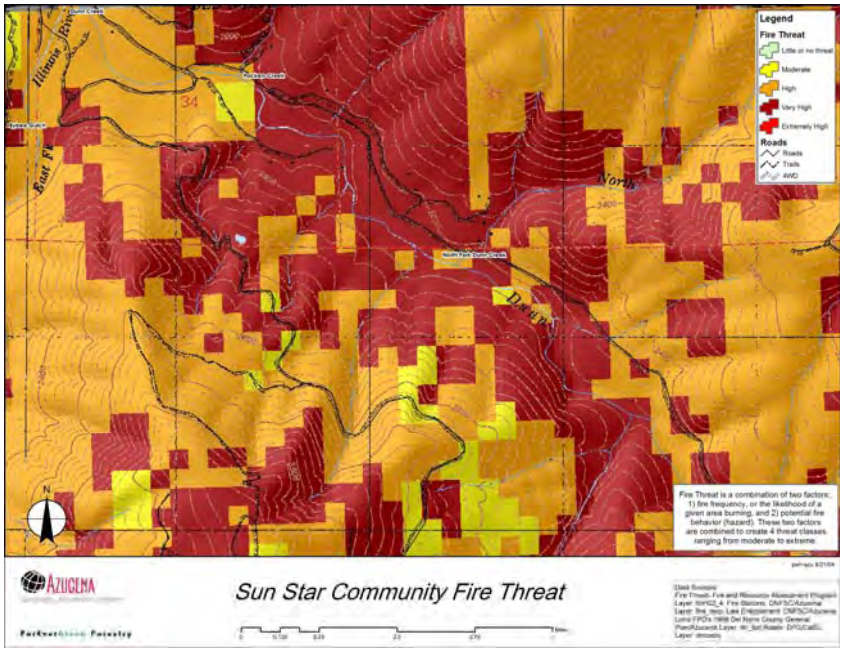
> Both projects plan to use prescribed fire, manual and mechanical treatments. Each of these planning areas is 2,000-4,000 acres.
>
> Both areas have some completed [biological] surveys. Best guess is these cover only one-quarter to one-third of each of these areas. No NEPA[87] is planned to start until 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

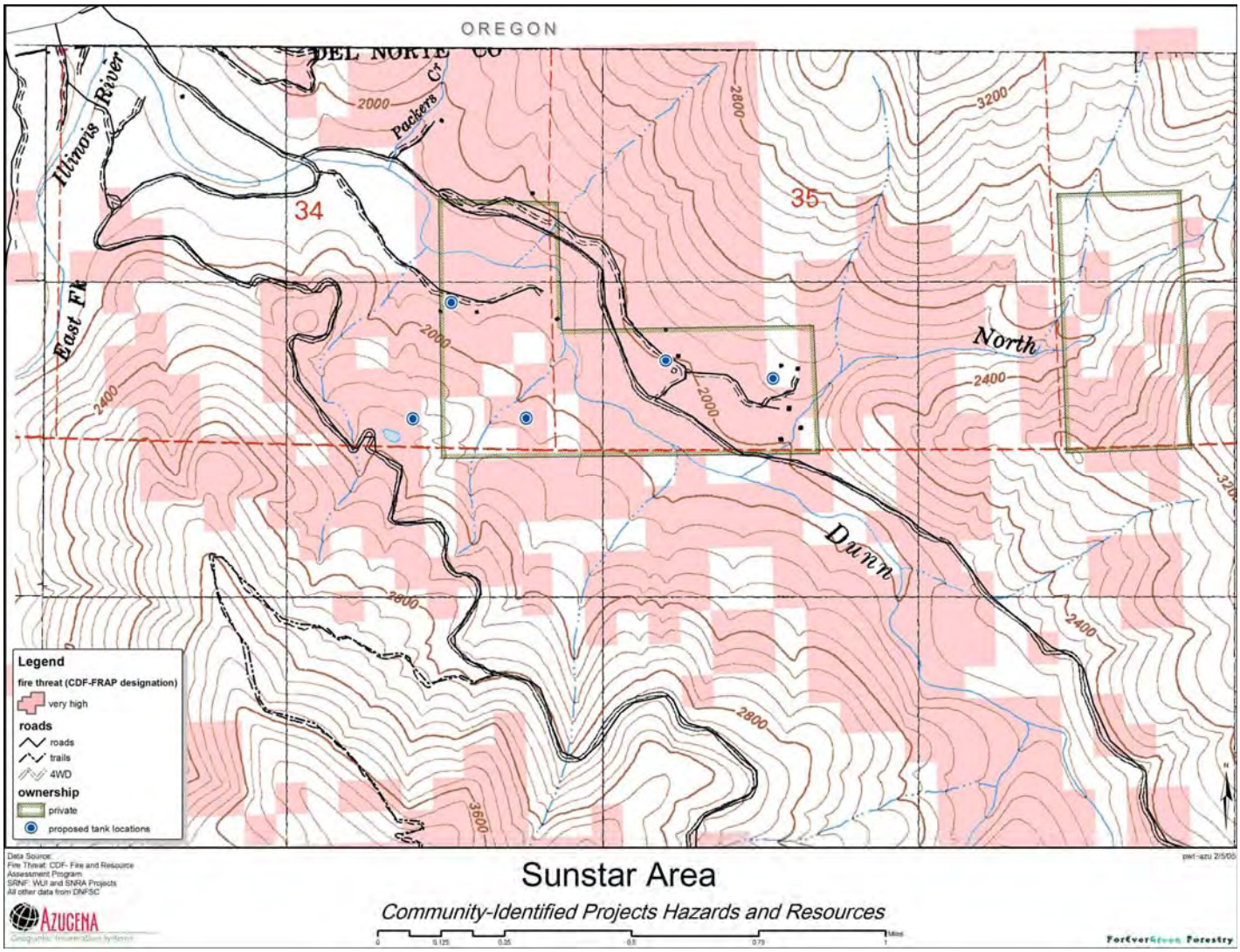
For more information on Sun Star Community-Identified Risks and Hazards, as well as Potential Projects see Community Meeting Input information in Appendix D.

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.

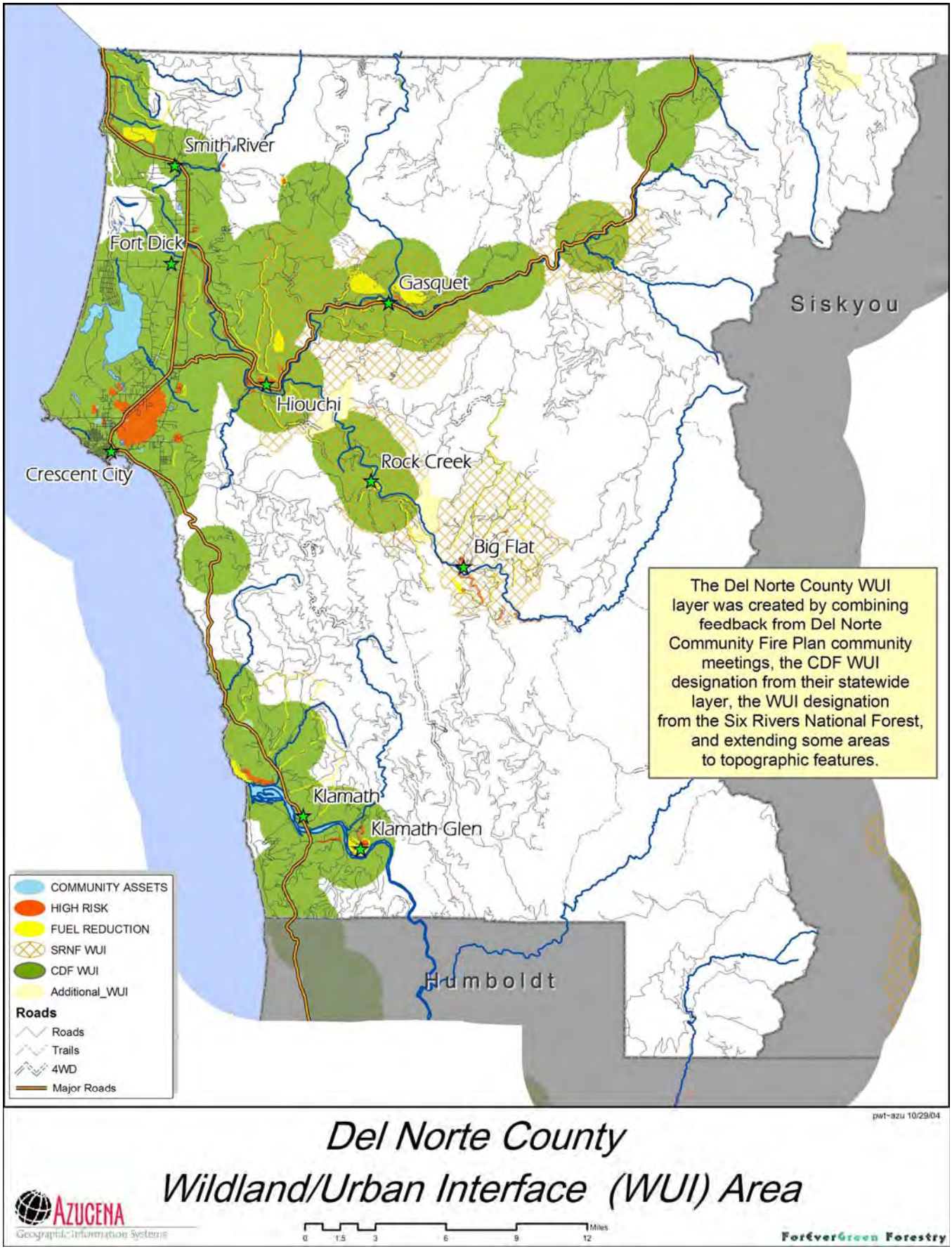
[111] Healthy Forests Initiative and Healthy Forests Restoration Act, Interim Field Guild, Title I, Wildland-Urban Interfaces Within or Adjacent to At-Risk Communities, FS-799, February 2004.

> 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.

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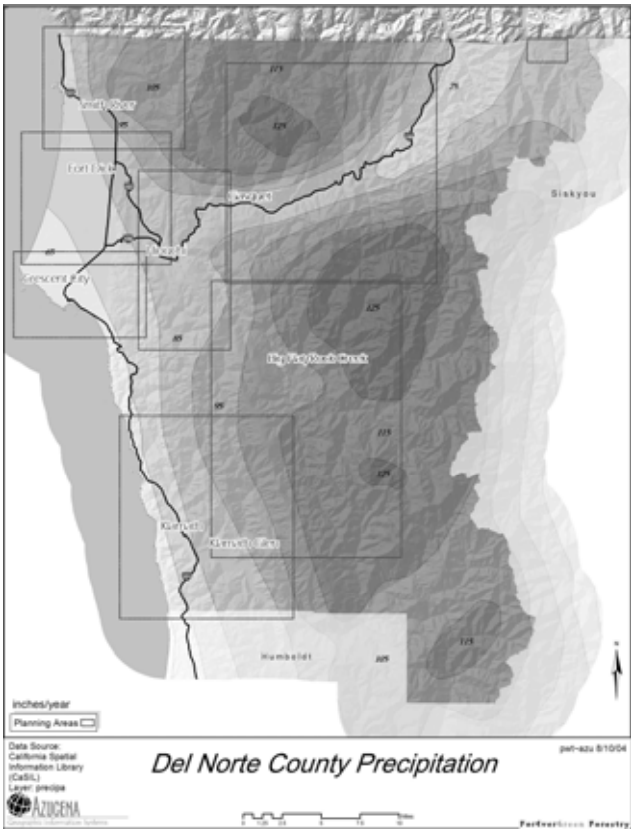
Appendix A. DEL NORTE COUNTY DESCRIPTION

Physical Environment

The mountainous terrain associated with the Coastal Range and the Klamath Mountains dominates Del Norte County's geography. Elevation ranges from sea level to over 9,000 feet. Although much of the county is made up of steep terrain, there are small patches of flat terrain along the coast and in isolated mountain valleys. There are 37 miles of coastline in the county, forming a coastal zone that covers approximately 51,000 acres (80 square miles). A broad coastal plain can be found in the northwest portion of the county with the western edge of the Klamath Mountains as its easterly boundary. Rising abruptly from the coastal plain, the Klamath Mountains extend north into Oregon and are situated between the Cascade Range to the east and the Coast Range to the north. Narrow river canyons with steep terrain are characteristic of these mountain ranges. The streams in the area run westward through the deep canyons to the Pacific Ocean.



Running from north to south, the Coast Range often acts as a barrier to storms moving inland from the west. Thus, this coastal range greatly affects the area's climate. The ocean acts to moderate temperatures; therefore, the coastal areas of the county experience cool summers with frequent fog and mild winters. Annual precipitation in the county is commonly between 60 to more than 120 inches,[1] the majority of which falls between October and April. The Klamath Mountains "receive more precipitation than other mountain ranges in California."[2] While most of this precipitation is in the form of rain, above 4,000 feet it is often snow. Away from the marine influence, inland areas experience hot, dry summers and cold, wet winters. Overall, higher elevations tend to experience cooler temperatures year round. Winds in the county vary by season. "During the summer, frequent strong north to northwesterly winds are common. In winter, storms from the south Pacific increase southerly winds. Offshore and onshore wind flows are also common along the coast… The average annual wind speed is about eight miles per hour…."[3]

Map a. Del Norte County Precipitation

The main stream basins in Del Norte County are the Smith River and the Klamath River. The minor stream basins include:

- Lake Earl
- Elk Creek

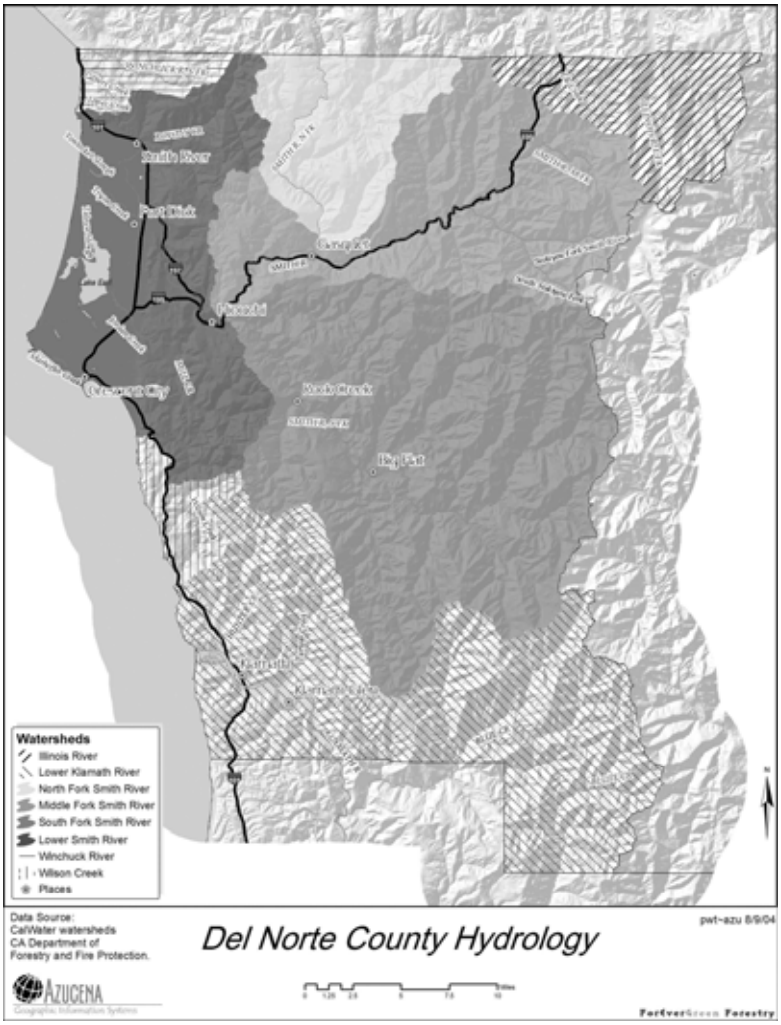
[1]Oregon State University. 2000. Spatial Climate Analysis Service. Average Annual Precipitation California (for the period 1961-1990), http://www.ocs.orst.edu/pub/maps/Precipitation/Total/States/CA/ca.gif.

[2]Del Norte County General Plan Revised Draft Background Report. 1998 May 1, p. 1-2.

[3]Ibid, p. 1-83.

- Marhoffer Creek
- Wilson Creek
- Winchuck River
- Gilbert and Lopez Creeks
- Illinois River

Map b. Del Norte County Hydrology



The Smith River is the largest watershed in Del Norte County, covering 628 square miles. In 1972 the State of California designated approximately 299 miles of the Smith River and its tributaries as a Wild and Scenic River. In 1981 the Smith River was included in the national Wild and Scenic River system. The river has six large tributaries: the North Fork, Middle Fork, South Fork, Siskiyou Fork, Rowdy Creek, and Mill Creek. The Smith River basin flows through the Smith River National Recreation Area within Six Rivers National Forest as well as Jedediah Smith and Redwood National and State Parks.

The Klamath River watershed drains a total of 15,000 squares miles; however, only 234 square miles of this river are located in southern Del Norte County. The Klamath is the second-largest river in the state, after the Sacramento River. In 1972 the State of California designated the Klamath River and its tributaries a Wild and Scenic River. In 1981 the Klamath River was included in the national Wild and Scenic River system. In 2002 the Klamath River was listed under Section 303(d) of the Clean Water Act as an impaired water segment.[4] According to the State Water Resources Control Board, this designation means that the Klamath River does not meet water quality standards. To mitigate this, the river is required to adhere to Total Maximum Daily Loads of sediment (TMDLs). In Del Norte County, tributary drainages of the Klamath River include Blue Creek and Bluff Creek in the east and Turwar Creek and Hunter Creek in the west. Parts of the Klamath basin are also in the Six Rivers National Forest.

A minor coastal drainage, Lake Earl, including Lake Tolowa, covers 27 square miles of the county. Jordan Creek supplies the majority of the water in these lakes. “However, Lake Earl also receives

[4]California Environmental Protection Agency. State Water Resources Control Board Water Quality. 2002 Clean Water Act Section 303(d) List of Water Quality Limited Segments, http://www.swrcb.ca.gov/tmdl/303d_lists.html.

drainage from other small creeks, wetlands, and hillslopes in the basin, including Tolowa Slough, Tryon Creek, Yonkers Creek, Yontocket Slough, Russell Creek, and the Pelican Bay State Prison grounds…Tidal inflow and floodwaters from Smith River occasionally contribute water to Lake Earl during large flow events."[5]

Located northeast of Crescent City, Elk Creek is a small stream that drains 4,120 acres in the coastal plain. The creek originates in the upland forests of Jedediah Smith Redwoods State Park. Several small tributaries flow from the steep slopes northwest of the park and from the flat terrain southeast of the park. They combine just west of Elk Valley Road to form the main channel. The creek then flows southwesterly, draining Elk Valley (and Elk Valley and Parkway Drive), and empties into the Crescent City Harbor, where it has a one-square-mile floodplain.

Marhoffer Creek is a small coastal stream that drains in the northwest portion of Crescent City, entering the Pacific Ocean at Pebble Beach. Topography varies in this drainage from flat terrain to slopes over 30%.

Wilson Creek originates in Green Diamond timber lands east of Del Norte Coast Redwoods State Park and flows south to the Pacific Ocean between Crescent City and Klamath.

Located in the northwest corner of the County, the South Fork of the Winchuck River flows into Oregon before discharging to the Pacific Ocean near the Oregon border north of the Smith River.

Flowing south of the Winchuck River, Gilbert and Lopez Creeks drain directly to the Pacific Ocean.

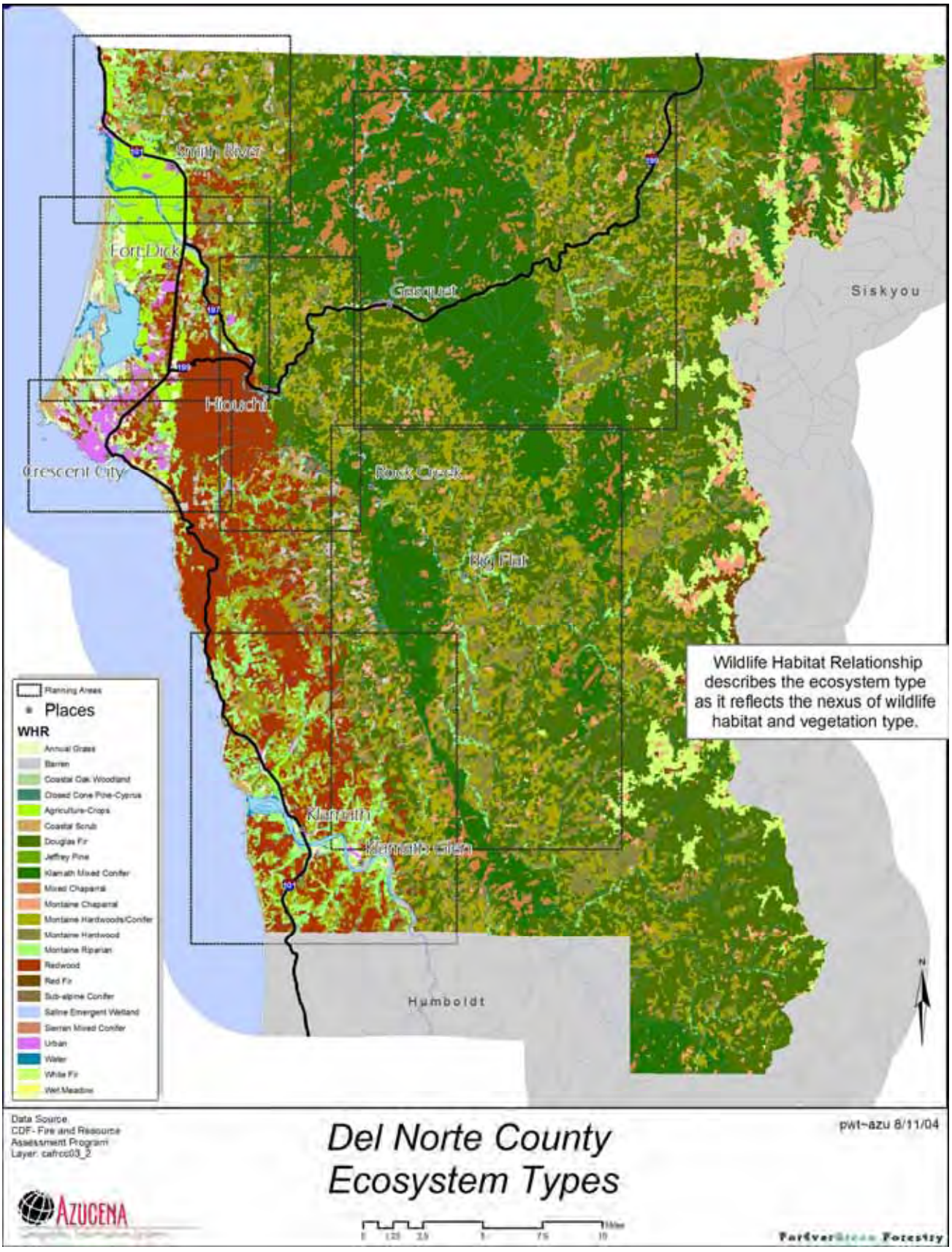
The Illinois River basin is located in Siskiyou National Forest. Its headwaters are located in the northeast corner of Del Norte County, draining north into Oregon.

Ecosystem Types

Del Norte County is dominated by coniferous forests but also includes coastal habitats, wetlands and riparian areas, hardwood forests, chaparral and grasslands, as well as old-growth stands of coast redwood.

[5]Del Norte County General Plan Revised Draft Background Report. 1998 May 1, p. 1-6.

Appendix A. DEL NORTE COUNTY DESCRIPTION



Map c. Del Norte County Ecosystem Types

Appendix A. DEL NORTE COUNTY DESCRIPTION

The coastal plains of Del Norte County are dominated by dunes and scrub. Scrub areas are dense communities of small trees and bushes. Within the County dunes are extensive from north of Crescent City at Point St. George north to the Smith River. The greatest extent of dunes occurs in the Fort Dick area, around Pacific Shores. Within dune and scrub communities near and facing the ocean are high sea cliffs with very little vegetation. These sea cliffs occur primarily north of the Smith River, from Point St. George to Crescent City, and along the Redwood National Park coastline.

The extensive coniferous forests of Del Norte County include upland redwood forest, Sitka spruce–grand fir forest, western hemlock forest, and Douglas fir forest.

Upland redwood forests occur along the coast and are primarily composed of coast redwood. Inland redwood is interspersed with Douglas fir and on drier slopes with tan oak and madrone. At times, grasslands occur within these upland redwood forests.

Sitka spruce–grand fir forests can be found on slopes facing the sea as well as coastal headlands in areas that have frequent fog. These two species form a dense canopy, usually along with Douglas fir. Other species in these forests include broadleaved trees such as red alder and bigleaf maple.

Western hemlock forests are found in the outer Coast Ranges of the County on moist slopes and valley bottoms in slightly swampy areas. On exposed coasts they are often intermixed with Sitka Spruce–grand fir forests, and on drier inland sites western hemlock forests intermix with upland redwood forest.

Douglas fir forests can be found throughout Del Norte County in well-drained areas. At times this forest type supports western hemlock as well.

Hardwood forests occur at lower elevations in all of the Community Planning Areas and include one or more of the following species: California bay, tan oak, red alder, and madrone. This forest type can be found on drier sites than the coniferous forests. Red alder is often found along rivers and streams.

Chaparrals are dense thickets of shrubs that occur on dry, rocky, often steep slopes with little soil. The presence of chaparrals may be indicative of a climax community where replacement of dead plants by younger individuals of the same species occurs, or may be indicative of plant re-growth after fire. In Del Norte County chaparral communities range from coastal, montane, to serpentine chaparral. Serpentine is a mineral that is low in plant nutrients such as potassium and calcium, with high levels of toxic elements such as magnesium, chromium, and nickel. Plants that live on serpentine soils are adapted to survive in these unusual chemical conditions. Chaparrals are most common in the Smith River canyons and Klamath Community Planning Area.

Grasslands are composed of a variety of annual or perennial grasses and forbs. Forbs are perennial herbs with broader leaves than grasses that tend to be drought-resistant. Forbs include sunflowers, goldenrod, loco weed, and clover. Because of their limited statewide distribution, perennial grasslands are important, whereas annual grasses are common regionally and statewide.

Wetlands occur in seasonally or perennially moist areas along drainages, ponds and lakes, seeps, and estuaries. They are largely herbaceous communities and within Del Norte County occur in the Smith River and Fort Dick Community Planning Areas, from the Smith River to south of Lake Tolowa. Wetlands are protected by the California Department of Fish and Game. In addition, areas defined as wetlands under Section 404 of the Clean Water Act are subject to the U.S. Army Corps of Engineers jurisdiction.

Riparian communities occur on the banks of rivers, creeks, and drainages that are seasonally or perennially flooded and have a year-round high water table. Species commonly found in this community include red alder, bigleaf maple, and willows. Along the edges of riparian areas redwood and Port Orford cedar can be found. Riparian areas occur in all Community Planning Areas.

Threatened and Endangered Habitat Types

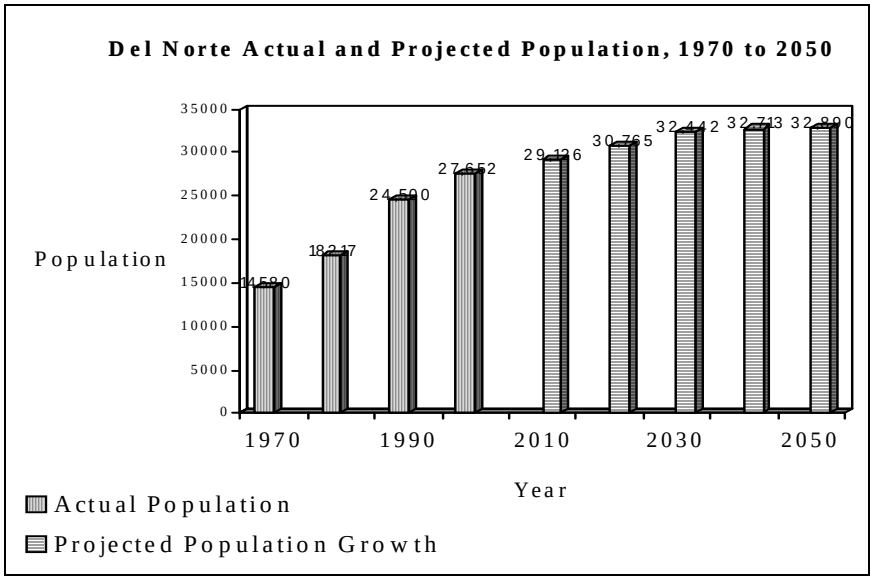
Del Norte County has 115 special-status plant species. "Special-status plant species are plants and animals that are legally protected under State and Federal Endangered Species Acts or other regulations, and species that are considered sufficiently rare by the scientific community to qualify for such designation… Most of these species are associated with serpentine substrates, wetland habitats, coastal habitats, or rocky areas…Two plants are both federally and state-listed as endangered (McDonald's rock cress and western lily), and one plant is state-listed as rare (leafy reed grass)."[6]

Del Norte County also supports 57 special-status animal species. Four animals are both federally and state-listed as threatened or endangered (brown pelican, bald eagle, American peregrine falcon, marbled murrelet). Nine animals are federally listed as threatened, endangered, or proposed to be listed as such (southern torrent salamander, tidewater goby, steelhead trout, Coho salmon, Aleutian Canada goose, coastal western snowy plover, northern spotted owl, tufted puffin, Townsend's western big-eared bat). Two animals that can be found in Del Norte County are state-listed as endangered or threatened (bank swallow, wolverine).

Population, Demographics

Del Norte County has a total population of 27,507[7]. The Klamath Community Planning Area has a population of 1,205, Smith River has 2,003 residents, Gasquet a population of 514, and Crescent City has 23,785. Population growth projections presented in the Del Norte County General Plan Revision indicate that population will continue to grow at a slow but steady rate through 2050 as illustrated the following figure.

Figure a. Actual and Projected Population, 1970 to 2050[8]



[6]Del Norte County General Plan Revised Draft Background Report. 1998 May 1, p. 1-33.

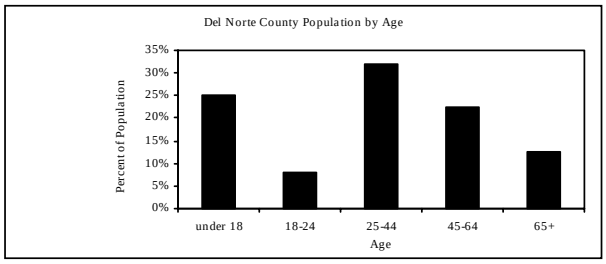
[7]All population numbers from this section came from the US Census 2000, unless otherwise noted.

[8]Actual population data from: CensusScope (data from US Census, 2000), http://www.censusscope.org. Projected population data from: California Department of Finance Demographic Research Unit, Population Projections by Race/Ethnicity, Gender and Age for California and Its Counties 2000-2050, May 2004, http://www.dof.ca.gov/HTML/DEMOGRAP/DRU_Publications/Projections/P3/P3.htm.

Appendix A. DEL NORTE COUNTY DESCRIPTION

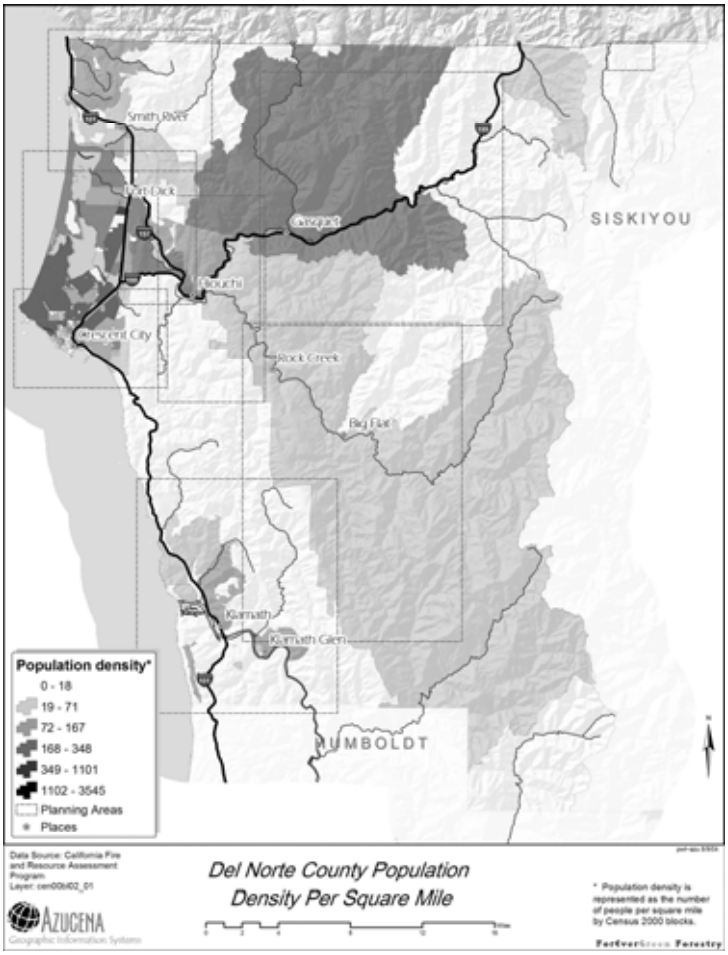
There are 9,170 households in Del Norte County; 33.5% have children under the age of 18, 50% are married couples living together, 13.6% are a female householder with no husband present, 25.3% are individuals, and 10.1% are households with individuals over the age of 65. The following figure illustrates the County population by age.

Figure b. Del Norte County Population by Age[9]



The racial composition of Del Norte County is 78.9% white, 13.9% Hispanic or Latino, 6.4% Native American, 4.3% Black or African American, 4.1% are from two or more races, 3.9% of the population are from other races, while 2.3% are Asian, and 0.1% Pacific Islander.

The median income for a household in the county is $29,642, and the median income for a family is $36,056. Males have a median income of $40,072 versus $22,212 for females. 20.2% of individuals and 16.4% of families are at or below the Federal poverty line. Out of the total people living in poverty, 24% are under the age of 18, and 8.2% are 65 or older.[10]



Map d. Del Norte Population Density per Square Mile

Community Legal Structure, Jurisdictional Boundaries

There are 23 special districts in the County which include a range of services within their individual boundaries. In some cases, the boundaries for these special districts overlap. For instance, in the Smith River area there is a Community Services District and a Fire Protection District. Each district has its own sphere of influence but their service areas overlap. The following is the Special District list:

- Bertsch Ocean View Community Services District
- Big Rock Community Services District
- Church Tree Community Services District
- County Service Area No. 1
- Crescent City Harbor District
- Crescent City Volunteer Fire Department

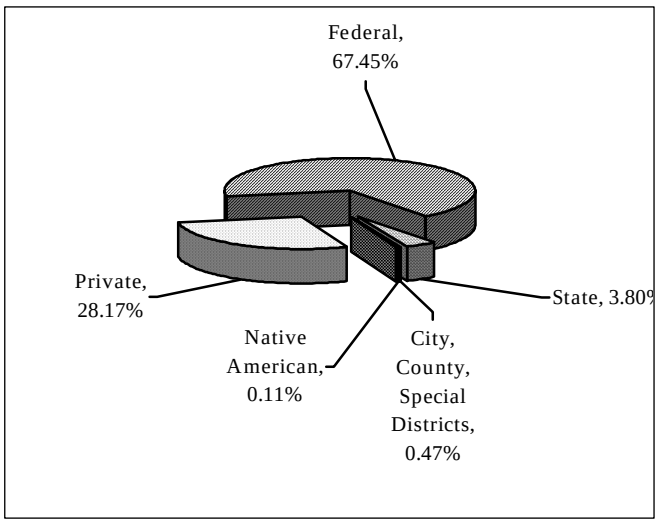
[9]US Bureau of the Census, Profile of General Demographic Characteristics: 2000.

[10]US Census Bureau, Census 2000.

- Crescent Fire Protection District
- Del Norte County Unified School District
- Del Norte Healthcare District
- Del Norte Library District
- Fort Dick Fire Protection District
- Gasquet Community Services District
- Gasquet Fire Protection District
- Hunter Valley Community Services District
- Hussey Ranch Community Services District
- Klamath Community Services District
- Klamath Fire Protection District
- McBeth Acres Water District
- Meadowbrook Acres Water District
- Pacific Shores Water District
- Redwood Park Community Services District
- Smith River Community Services District
- Smith River Fire Protection District

Del Norte County comprises about 683,500 acres, of which about 192,357 acres are privately owned and about 489,697 acres are publicly owned, as indicated in the following figure.

Figure c. Del Norte County Private and Publicly Owned Lands by Percentage[11]



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 on on-site wells for water supply, which is not adequate for fire fighting in late summer and/or fall.

By 2020, the unincorporated county area is estimated to grow by approximately 11,000 persons and by 4,200 dwelling units using the historical growth rate of 2%. Under the Draft General Plan Land Use Diagram, the county can accommodate an additional 7,100 new dwelling units and 17,000 new residents. This Draft General Plan increases the development potential from the existing General Plan by approximately 1,600 units and 4,300 residents. At buildout, the General Plan Land Use Diagram can accommodate a total of 14,454 dwelling units and 35,697 residents. Indirect impacts of housing construction may result from increased traffic, the loss of valuable natural

[11]Del Norte County General Plan Revised Draft Background Report, 1 May 1998, p. 2-16.

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

resources such as wildlife habitat, and the increase in demand for public services and facilities.[13]

Increase in fire risks and hazard is also another impact.

To address the County's potential growth, additional dwelling units would need to be developed.

In 1998 it was determined that, under the 1976 General Plan / 1983 Coastal Plan, the rural subareas of Smith River, Smith River Canyon, Fort Dick / Kings Valley and Klamath had a rural area development potential in the range of 2,000 additional dwelling units. The unincorporated Crescent City subarea was identified as having a remaining potential of 3,200 units (mostly urban units). The updated General Plan provides a potential for 7,000-8,000 new units.[14]

Development proposed under the Draft Land Use Diagram would result in an increase of approximately 17,500 new residents and additional commercial and industrial uses. This increase would create a demand for additional fire protection, such as new stations and additional staff. Since new development would increase the geographic area for which fire services must respond to, typical response times would likely increase.[15]

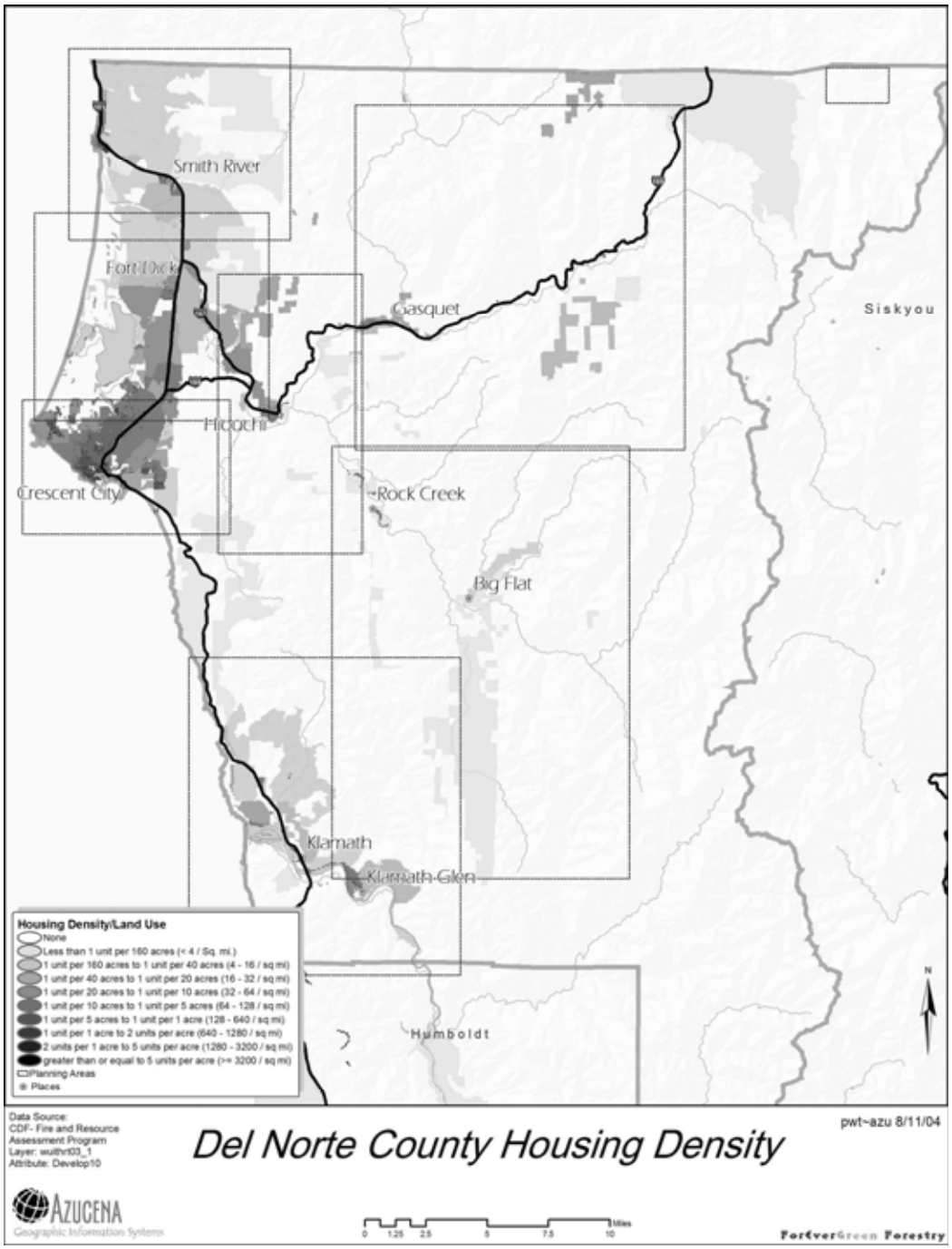
See Chapter 8, Mitigation Strategy for proposed actions to mitigate these increased development pressures on future Del Norte fire safety.

[13]Del Norte County General Plan Update Final Environmental Impact Report, 28 January 2003, p. 3-16.

[14]Del Norte County General Plan, 28 January 2003.

[15]Del Norte County General Plan Update Final Environmental Impact Report, 28 January 2003.

Appendix A. DEL NORTE COUNTY DESCRIPTION



Map e. Del Norte County Land Use

Relevant Land Use Policies

The following are County-adopted policies that pertain to fire hazards, general public facilities, water supply and delivery, and fire protection from the Del Norte County General Plan. Many need updating. See Chapter 8, Mitigation Strategy for proposed actions.

Policies Regarding Fire Hazards

- "The County shall continue to apply to new development the Uniform Fire Code and its hillside and road development standards programs which have been reviewed and adopted by the

California Department of Forestry and Fire Protection as consistent with the Public Resources Code Fire Safe Standards."[16]

- "The County should avoid development in areas identified as high or extreme fire hazard areas when possible. Where such development is permitted, structures located in extreme or high fire hazard areas should be constructed with fire-resistant materials, utilizing fire-resistant design standards, and the surroundings should be irrigated."[17]
- "Projects that encroach into areas which are determined to have a high or extreme fire hazard shall be reviewed by the appropriate fire agency to determine if special fire prevention measures are advisable."[18]
- "The County shall not approve major developments if fire-fighting services are not available or are not adequate for the area."[19]
- "The County shall require development within State Responsibility Areas in Del Norte County to conform to the fire safe standards adopted by the County and approved by the California [Department] of Forestry."[20]
- "The County shall continue to cooperate with the California [Department] of Forestry, the Six Rivers National Forest, and local fire districts in their fire prevention programs throughout the county."[21]
- "The County assigns responsibility for maintenance of private properties, including private roads, in a fire safe manner to the property owner pursuant to California Civil Code, and to those local and State agencies responsible for water and fire code enforcement."[22]
- "The County shall encourage local fire districts to develop and implement programs for the identification and upgrading of substandard commercial and/or public facilities to meet current fire codes."[23]

Policies Regarding Public Facilities and Services

General Public Facilities:

- "The County shall ensure through the development review process that adequate public facilities and services are available to serve new development when required. The County shall not approve new development where existing facilities are inadequate unless the applicant can demonstrate that all necessary facilities will be installed or adequately financed and maintained (through fees or other means.)"[24]
- "The County shall direct high-density growth to those areas that are already served by public infrastructure and utilities."[25]

[16]Del Norte, policy 2E1, p. 2-6.

[17]Del Norte, policy 2E3, p. 2-6.

[18]Del Norte, policy 2E4, p. 2-6.

[19]Del Norte, policy 2E5, p. 2-6.

[20]Del Norte, policy 2E6, p. 2-6.

[21]Del Norte, policy 2E7, p. 2-6.

[22]Del Norte, policy 2E8, p. 2-7.

[23]Del Norte, policy 2E9, p. 2-7.

[24]Del Norte, policy 7A1, p. 7-1.

[25]Del Norte, policy 7A2, p. 7-1.

- "The County shall encourage new development to contribute its fair share to providing all public services and infrastructure necessary to serve that development."[26]
- "The County will limit development densities in areas where the County determines that emergency response time is excessive."[27]

Water Supply and Delivery:

- "In areas of identified water deficiency, the County shall approve new development only if an adequate water supply to serve such development is demonstrated and require that water supplies serving new development meet State water quality standards."[28]
- "The County shall consider provision of a public water system to designated urban areas a high priority."[29]

Fire Protection:

- "The County shall encourage local fire protection agencies in Del Norte County to maintain and improve their Insurance Service Organization (ISO) ratings."[30]
- "The County shall support the location of new fire stations to achieve a service level capability consistent with existing and planned land uses."[31]
- "The County shall continue to provide local fire districts the opportunity to review proposed projects for compliance with fire safety standards per the Uniform Fire Code and other State and local ordinances."[32]
- "The County shall cooperate with local fire protection districts who inventory and propose to eliminate structurally unsafe and fire-hazardous housing structures that are beyond repair or rehabilitation."[33]
- "The County shall continue to encourage local fire districts to maintain and strengthen automatic aid agreements to maximize efficient use of available resources."[34]

Infrastructure

Roads, Driveways, Utilities, Communication, Water Supply, Schools, Hospitals

Information presented in this section has been taken from the Del Norte County General Plan Update Final Environmental Impact Report, 28 January 2003 (unless otherwise noted). Specific page numbers are indicated in each sub-section.

[26]Del Norte, policy 7A3, p. 7-1.

[27]Del Norte, policy 7A4, p. 7-1.

[28]Del Norte, policy 7B1, p. 7-2.

[29]Del Norte, policy 7B3, p. 7-2.

[30]Del Norte, policy 7H1, p. 7-7.

[31]Del Norte, policy 7H2, p. 7-7.

[32]Del Norte, policy 7H3, p. 7-7.

[33]Del Norte, policy 7H4, p. 7-7.

[34]Del Norte, policy 7H5, p. 7-7.

Roads[35]

Four state highways pass through Del Norte County and are managed by the California Department of Transportation (CalTrans) – U.S. Highway 101, U.S. Highway 199, State Route 197, and State Route 169. These highways are the most heavily traveled roads in the County, and comprise 94 miles. In addition, the state highways account for less than 15% of the County's total roadway mileage, but they accommodate over half of the total vehicle miles traveled in the County.

Del Norte County maintains approximately 300 miles of County roads. The most prominent County roads include:

- Washington Boulevard (east-west Crescent City area);
- Parkway Drive (north-south Crescent City area);
- Elk Valley Road, which roughly parallels U.S. 101 to the east, in northeast Crescent City;
- Lake Earl Drive, providing access to Pelican Bay State Prison and to newly developing lands north of Crescent City;
- Fred D. Haight Drive, which runs parallel to and west of U.S. 101 through to the community of Smith River;
- Elk Valley Crossroad;
- Kings Valley Road;
- Kings Valley Crossroad;
- North Bank Road (Highway 197).

The SRNF maintains approximately 516 miles of National Forest Roads in the County. Of these, approximately 57 are paved and the rest are gravel.

State Parks maintains approximately 27 miles of State Park Roads in the County, only seven of which are paved and the rest are gravel.

The County also contains a system of private roads that serve some development areas. Although these roads are not under the County's jurisdiction, the County does enforce standards for their development.

Utilities and Communication[36]

Pacific Power & Light, privately owned, provides electricity to most of the County. Some areas such as Low Divide, French Hill, South Fork/Big Flat, and Sun Star use alternative on-site energy due to the lack of electrical service and other utilities.

GTE provides telephone communication infrastructure to most of the County. Some areas of the County have no telephone lines and therefore must rely on cellular phone service. Due to the varying topography of the County, cellular phone access is limited. There are several cellular providers in the County including: US Cellular, MobiLink, SKYCELL, and Edge Wireless.

Falcon Cable provides the cable television service to the County.

Water Supply[37]

The City of Crescent City water system provides water for the Bertsch Ocean View Community Service District and most of the unincorporated area within the Crescent City urban boundary. There are three areas within this service area that do not receive their water from the City's water system, and

[35]Ibid, pp. 4-1, 4-2.

[36]Del Norte County General Plan Update Final Environmental Impact Report, 28 January 2003, p. 5-44.

[37]Ibid, pp. 5-1 – 5-4.

these areas have individual wells. The City's water system draws its water from the Smith River. From the river, the City runs a transmission line south to the Crescent City area. Along the transmission line are a 50,000-gallon reservoir and two booster pump stations. Within the City of Crescent City are two more booster pump stations and two reservoirs that together store 2.5 million gallons of water. The Bertsch Ocean View Community Service District connects to the City's water system near Highway 101 and consists of a pump station and a 750,000-gallon storage tank.

The Smith River Community Planning Area gets its water from the Smith River Community Services District (SRCSD). The SRCSD gets its water from two wells adjacent to Rowdy Creek, upstream from Fred Haight Drive. The SRCSD provides water to the community of Smith River as well as to northern neighborhoods along Highway 101, Ocean View Drive, and Indian Road. Some water service is available in the southern foothills area near Wilson Lane. The rest of the area relies on individual wells.

The Fort Dick Community Planning Area is served by on-site wells only, except for Pelican Bay State Prison, which taps into the City's water system. This is a "spot annexation" (i.e., the prison is within the city boundaries) even though it is not adjacent to the city. "The area has experienced some problems caused by shallow (less than 30-foot) wells."[38] The valley areas of Kings Valley and Elk Valley are mainly served by on-site wells. The Camp Lincoln area is served by a city main extension. The corridor next to the City water system main line through the Kings Valley / Elk Valley area is also served by hook-ups to the City system. Meadowbrook Acres Water System purchases water from the City and serves a groundwater-deficient area south and east of Highway 101 and 199 where older, urban density development exists. The Church Tree Community Services District also purchases water from the City and serves a small, hillside area east of Elk Valley Road. Church Tree has a 30,000-gallon water tank.

In the Hiouchi Community Planning Area the Big Rock Community Services District gets its water from a well adjacent to the Smith River and a 100,000-gallon storage tank, providing water to the community of Hiouchi. The Hussey Ranch Community Services District gets its water from a well adjacent to the Smith River and provides water to the Del Norte Golf Course (northwest of Hiouchi along North Bank Road) and an adjacent residential area. Several small private systems have been developed in this area in response to deficient water supplies. The largest of these private systems are the Jed Smith, Blackberry, and Rock Creek systems, which are in the North Bank Road and Douglas Road areas.

Gasquet gets its water from the Gasquet Community Services District, which pumps water from a well at the forks just below the Middle Fork Bridge on Gasquet Flat Road. The areas of French Hill and Highway 199 have difficulty obtaining water.

French Hill, Big Flat, Siskiyou Forks, and Stateline 199 rely on on-site well systems.

In the Klamath Community Planning Area the Klamath Community Services District provides water to the New Klamath Townsite and draws its water from two wells adjacent to the Klamath River. The Klamath Glen area receives its water from the McBeth Acres Water System, which draws water from springs and wells. Redwood Park Community Services District serves an older subdivision and gets its water from two wells adjacent to High Prairie Creek. Hunter Valley Community Services District provides water to 72 parcels in an older subdivision in a semi-isolated valley located on Hunter Creek Road. The system gets its water from a single well adjacent to Hunter Creek.

Schools[39]

The Del Norte County Unified School District (DNCUSD) operates ten public schools, including two high schools and one middle school. DNCUSD also offers alternative education including Bar-O Boys

[38]Ibid, p. 5-3.

[39]Del Norte County General Plan Revised Draft Background Report, 1 May 1998, p. 5-35.

Ranch, Paul McCarthy Alternative Education School, Community School, and Juvenile Hall. There are four private schools in the County: St. Joseph's Catholic School, Fort Dick Bible School, Four Square Christian School, and Crescent City Junior Academy. College of the Redwoods is the County's only school providing college-level courses.

Hospitals[40]

The Del Norte Healthcare District sponsors the Community Medical Clinic located on A Street in the City of Crescent City. There is also Sutter Coast Hospital on Washington Boulevard near Highway 101, in the unincorporated area around Crescent City.

Emergency Services[41]

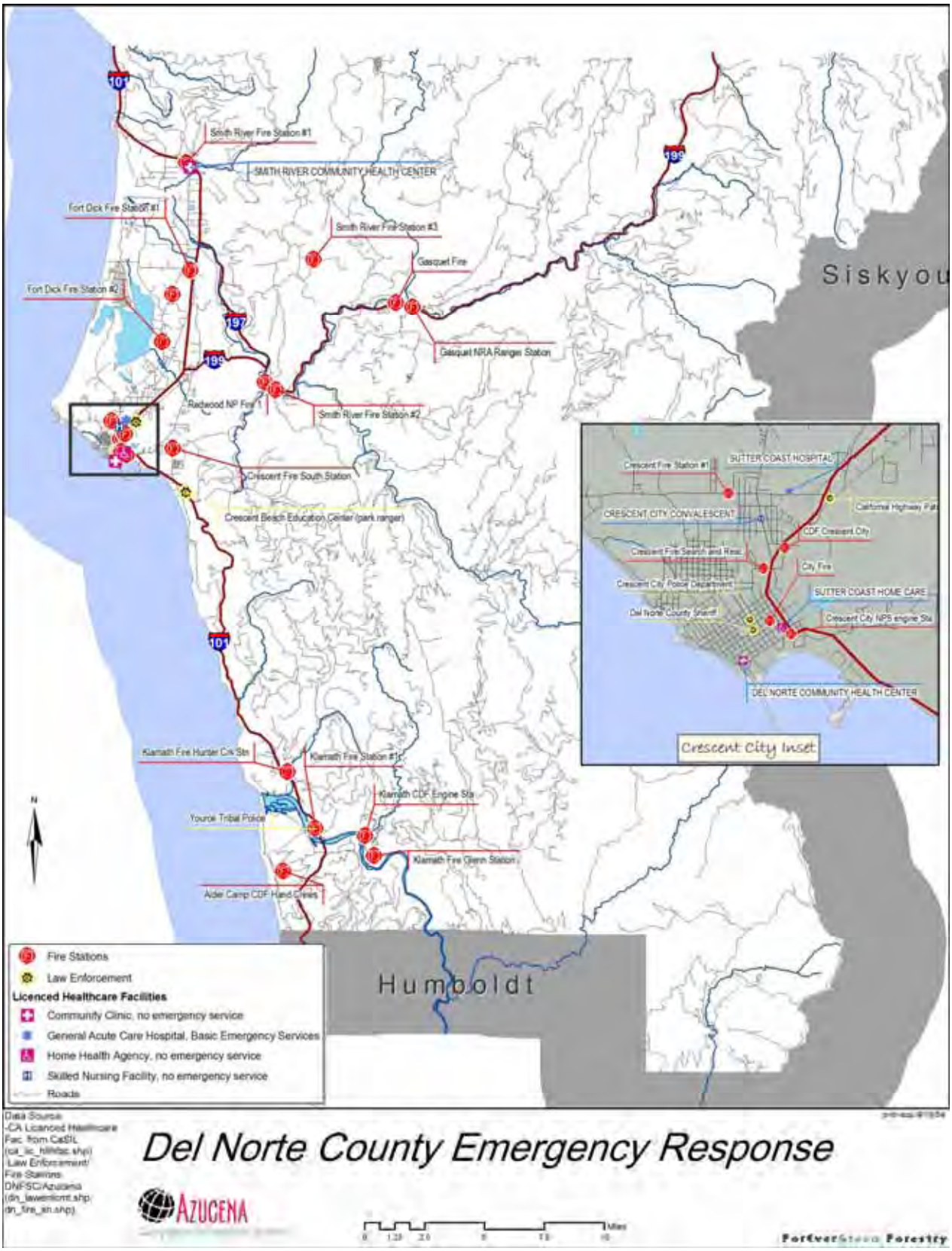
Unincorporated County areas are served by seven different fire protection agencies. Mainly these districts focus on emergency response (EMT) services and structural fires, but they also handle wildfires. Crescent Fire Protection is capable of handling aircraft emergencies. The Sheriff's Department is located at 650 5th Street in Crescent City and has 56 personnel including 16 uniform deputies, four sergeants, administrative staff, and volunteers. The Department serves an area of 1,007.9 square miles and a population of 22,933.[42] The Crescent City Police Department is located on 686 G Street, and the County Office of Emergency Services is located at 981 H Street. Much of the traffic patrol is conducted by the California Highway Patrol, which has 23 uniformed officers that patrol throughout the County. County-wide ambulance service is provided by Del Norte Ambulance in Fort Dick. Air ambulance service is based at McNamara Field in Crescent City, and provided by Del Norte Ambulance and CAL-ORE Life Flights (based in Brookings, Oregon).

[40]Ibid, p. 5-15.

[41]Ibid, p. 5-27.

[42]Ibid, p. 5-13.

Appendix A. DEL NORTE COUNTY DESCRIPTION



Map f. Del Norte County Emergency Services

Appendix A. DEL NORTE COUNTY DESCRIPTION

Insurance Ratings

"The Insurance Services Office (ISO) is an independent organization that serves insurance companies, fire departments, insurance regulators, and others by providing information about fire risk. ISO's expert staff collects information about municipal fire-protection efforts in communities throughout the United States. In each of those communities, ISO analyzes the relevant data and assigns a Public Protection Classification (PPC) – a number from 1 to 10. Class 1 represents exemplary fire protection, and Class 10 indicates that the area's fire-suppression program does not meet ISO's minimum criteria.

A Community's PPC depends on fire alarm and communications systems, the fire department, and the water supply system. The classifications are developed with the following criteria:

- 10% fire alarm and communication systems, including telephone systems, telephone lines, staffing, and dispatching systems
- 50% the fire department, including equipment, staffing, training, and geographic distribution of fire companies
- 40% the water supply system, including the condition and maintenance of hydrants, and a careful evaluation of the amount of available water compared with the amount needed to suppress fires.

The Insurance Service Office's PPC program evaluates communities according to a uniform set of criteria, incorporating nationally recognized standards developed by the National Fire Protection Association and the American Water Works Association. The PPC program provides a useful benchmark that helps fire departments and other public officials measure the effectiveness of their efforts – and plan for improvements. The PPC program could serve as one indicator of a community's limited capacity to deal with wildfire protection.[43]

Ratings depend on availability of hydrants near residences. Therefore, some communities have one rating for those households with hydrants available, versus those without that water resource. The following is a list of Del Norte ISO ratings as of 2004.

Table a. Del Norte ISO Ratings

Fire Protection District	ISO Rating
Crescent City Volunteer Fire Dept.	4 (with hydrants)
Crescent Fire Protection District	4 (with hydrants)
Fort Dick Fire Protection District	6 (with hydrants), 8 (no hydrants)
Gasquet Fire Protection District	5 (with hydrants), 8 (no hydrants)
Klamath Fire Protection District	5 (with hydrants), 9 (no hydrants)
Smith River Fire Protection District	6 (with hydrants), 8 (no hydrants)

[43] Josephine County Integrated Fire Plan, November 2004, p. 35.

Appendix B. FIRE SAFETY INFORMATION

Table of Contents:

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

Appendix B. Fire Safety Information

B.1. Fire Safe Council Homeowner's Checklist

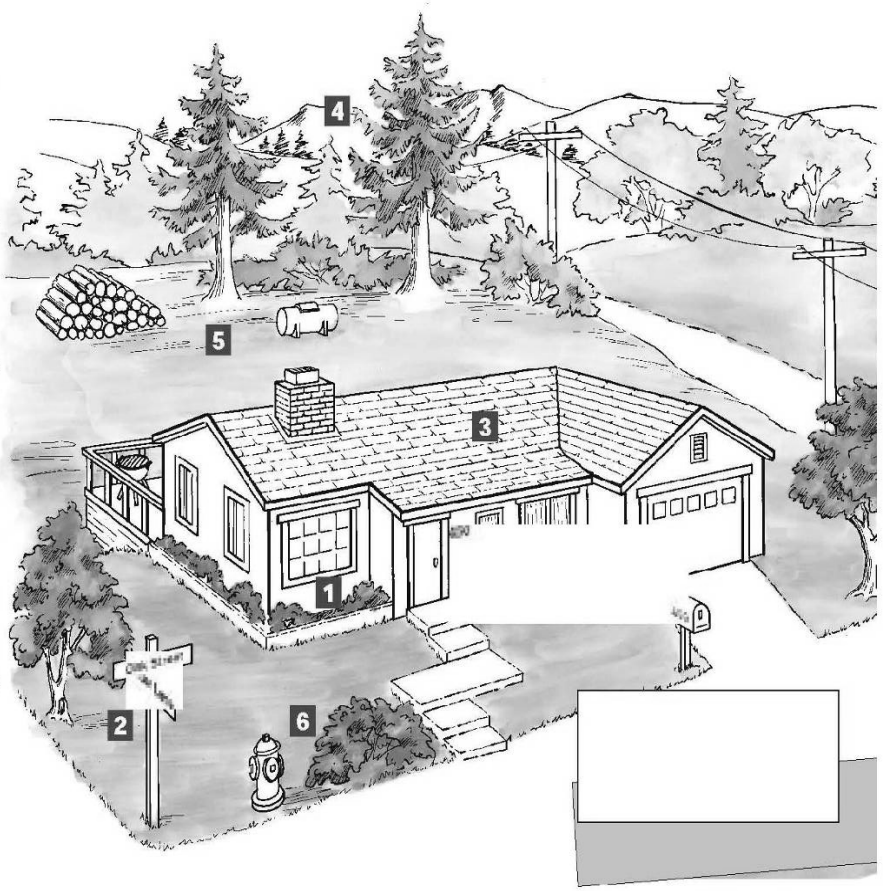
Note: 30 feet is now 100 feet for most rural Del Norte residents

Fire Safe Council

Homeowners Checklist

www.firesafecouncil.org

How To Make Your Home Fire Safe



OUTSIDE

1 Design/Construction

- ___ Consider installing residential sprinklers
- ___ Build your home away from ridge tops, canyons and areas between high points on a ridge
- ___ Build your home at least 30-100 feet from your property line
- ___ Use fire resistant materials
- ___ Enclose the underside of eaves, balconies and above ground decks with fire resistant materials
- ___ Try to limit the size and number of windows in your home that face large areas of vegetation
- ___ Install only dual-paned or triple-paned windows
- ___ Make sure that electric service lines, fuse boxes and circuit breaker panels are installed and maintained as prescribed by code
- ___ Contact qualified individuals to perform electrical maintenance and repairs

2 Access

- ___ Identify at least two exit routes from your neighborhood
- ___ Construct roads that allow two-way traffic
- ___ Design road width, grade and curves to allow access for large emergency vehicles
- ___ Construct driveways to allow large emergency equipment to reach your house
- ___ Design bridges to carry heavy emergency vehicles, including bulldozers carried on large trucks
- ___ Post clear road signs to show traffic restrictions such as dead-end roads, and weight and height limitations
- ___ Make sure dead-end roads, and long driveways have turn-around areas wide enough for emergency vehicles
- ___ Construct turnouts along one-way roads
- ___ Clear flammable vegetation at least 10 feet from roads and five feet from driveways
- ___ Cut back overhanging tree branches above roads
- ___ Construct fire barriers such as greenbelts
- ___ Make sure that your street is named or numbered, and a sign is visibly posted at each street intersection
- ___ Make sure that your street name and house number are not duplicated elsewhere in the county
- ___ Post your house address at the beginning of your driveway, or on your house if it is easily visible from the road

3 Roof

- ___ Remove branches within 10 feet of your chimney and dead branches overhanging your roof
- ___ Remove dead leaves and needles from your roof and gutters
- ___ Install a fire resistant roof. Contact your local fire department for current roofing requirements
- ___ Cover your chimney outlet and stovepipe with a nonflammable screen of ½ inch or smaller mesh

4 Landscape

- ___ Create a "defensible space" by removing all flammable vegetation at least 30 feet from all structures
- ___ Never prune near power lines. Call your local utility company first
- ___ Landscape with fire resistant plants
- ___ On slopes or in high fire hazard areas remove flammable vegetation out to 100 feet or more
- ___ Space native trees and shrubs at least 10 feet apart
- ___ For trees taller than 18 feet, remove lower branches within six feet of the ground
- ___ Maintain all plants by regularly watering, and by removing dead branches, leaves and needles
- ___ Before planting trees close to any power line contact your local utility company to confirm the maximum tree height allowable for that location

5 Yard

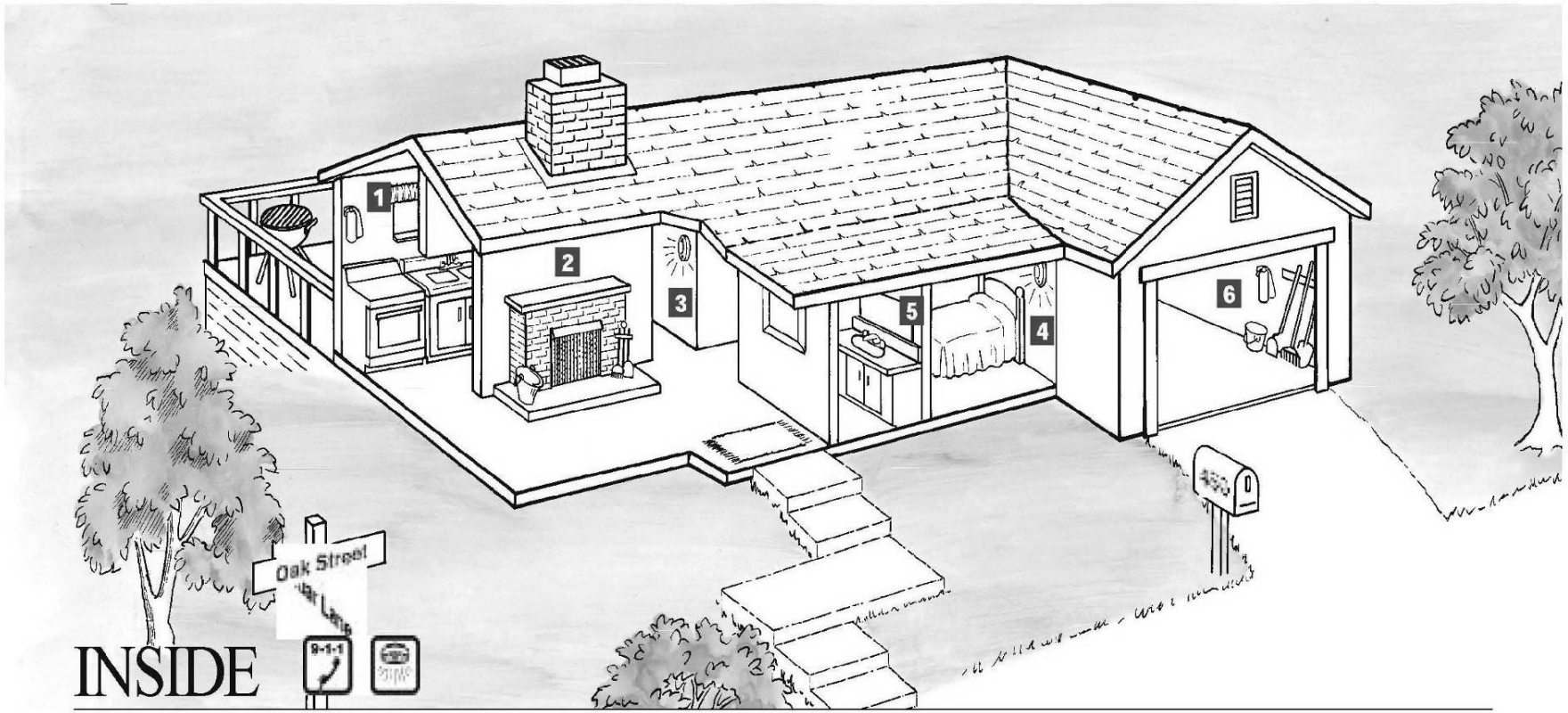
- ___ Stack woodpiles at least 30 feet from all structures and remove vegetation within 10 feet of woodpiles
- ___ Locate LPG tanks (butane and propane) at least 30 feet from any structure and maintain 10 feet of clearance
- ___ Remove all stacks of construction materials, pine needles, leaves and other debris from your yard
- ___ Contact your local fire department to see if open burning is allowed in your area; if so, obtain a burning permit
- ___ Where burn barrels are allowed, clear flammable materials at least 10 feet around the barrel; cover the open top with a non-flammable screen with mesh no larger than ¼ inch

6 Emergency Water Supply

- ___ Maintain an emergency water supply that meets fire department standards through one of the following:
  - a community water/hydrant system
  - a cooperative emergency storage tank with neighbors
  - a minimum storage supply of 2,500 gallons on your property
- ___ Clearly mark all emergency water sources
- ___ Create easy firefighter access to your closest emergency water source
- ___ If your water comes from a well, consider an emergency generator to operate the pump during a power failure

Fire's Other Power

December 2001



1 Kitchen

- __ Keep a working fire extinguisher in the kitchen
- __ Maintain electric and gas stoves in good operating condition
- __ Keep baking soda on hand to extinguish stove-top grease fires
- __ Turn the handles of pots and pans containing hot liquids away from the front of the stove
- __ Install curtains and towel holders away from burners on the stove
- __ Store matches and lighters out of the reach of children
- __ Make sure that electrical outlets are designed to handle appliance loads

2 Living Room

- __ Install a screen in front of fireplace or wood stove
- __ Store the ashes from your fireplace (and barbecue) in a metal container and dispose of only when cold
- __ Clean fireplace chimneys and flues at least once a year

3 Hallway

- __ Install smoke detectors between living and sleeping areas
- __ Test smoke detectors monthly and replace batteries twice a year, when clocks are changed in the spring and fall
- __ Install child safety plugs (caps) on all electrical outlets
- __ Replace electrical cords that do not work properly, have loose connections, or are frayed

4 Bedroom

- __ If you sleep with the door closed, install a smoke detector in the bedroom
- __ Turn off electric blankets and other electrical appliances when not in use
- __ Do not smoke in bed
- __ If you have security bars on your windows or doors, be sure they have an approved quick-release mechanism so you and your family can get out in the event of a fire

5 Bathroom

- __ Disconnect appliances such as curling irons and hair dryers when done; store in a safe location until cool
- __ Keep items such as towels away from wall and floor heaters

6 Garage

- __ Mount a working fire extinguisher in the garage
- __ Have tools such as a shovel, hoe, rake and bucket available for use in a wildfire emergency
- __ Install a solid door with self-closing hinges between living areas and the garage
- __ Dispose of oily rags in [illegible] (Underwriters Laboratories) approved metal containers
- __ Store all combustibles away from ignition sources such as water heaters
- __ Disconnect electrical tools and appliances when not in use
- __ Allow hot tools such as glue guns and soldering irons to cool before storing
- __ Properly store flammable liquids in approved containers and away from ignition sources such as pilot lights

Disaster Preparedness

- __ Maintain at least a three-day supply of drinking water, and food that does not require refrigeration and generally does not need cooking
- __ Maintain a portable radio, flashlight, emergency cooking equipment, portable lanterns and batteries
- __ Maintain first aid supplies to treat the injured until help arrives
- __ Keep a list of valuables to take with you in an emergency; if possible, store these valuables together
- __ Make sure that all family members are ready to protect themselves with STOP, DROP AND ROLL
- __ For safety, securely attach all water heaters and furniture such as cabinets and bookshelves to walls
- __ Have a contingency plan to enable family members to contact each other. Establish a family/friend phone tree
- __ Designate an emergency meeting place outside your home
- __ Practice emergency exit drills in the house (EDITH) regularly
- __ Outdoor cooking appliances such as barbecues should never be taken indoors for use as heaters

Appendix B. FIRE SAFETY INFORMATION

B.2. References: Fire Safe Curricula and Educational Resources, Fire Safe Literature, Fire Ecology and Management

Fire Safe Curricula and Educational Resources

American Red Cross Fire Prevention & Safety: http://www.redcross.org/disaster/masters/firesafety/

FEMA for Kids, Resources for Teachers: http://www.fema.gov/kids/firecurr_13.htm

Kent, WA Fire District #37 offers classes for K-12. Can look at their brochures detailing these classes, also has good handouts you can download. Offers a newsletter for school children called Fireflies: www.ci.kent.wa.us/fireprevention/publiceducation/default.htm#educationalclasses

National Fire Protection Association Risk Watch: http://www.nfpa.org/riskwatch/RWND/wildfire.html

Oregon Office of State Fire Marshal, Oregon Fire Safety Skills K-6 Curriculum: http://159.121.82.250/Comm_Ed/FSSC/FSSC.htm

South Carolina Dept. of Labor, Licensing & Regulation K-5 Curriculum: www.llr.state.sc.us/freddie.asp

Staying Alive - Teaching K-8 Curriculum: http://www.stayingalive.ca/educators.html

Texas Dept. of Insurance, State Fire Marshal's Office K-12 Curriculum: www.tdi.state.tx.us/fire/fmcurric.html

Washington State Dept. of Natural Resources K-3 Curriculum: www.dnr.wa.gov/htdocs/rp/prevention/k-3_curriculum.htm

Fire Safe Literature

The following literature is available from the Fire Safe Council, or on the internet. Many of these documents are available on the California Forest Stewardship Program website: http://ceres.ca.gov/foresteward.

A Do-It-Yourself Guide to Thinning a Young Forest, Dave Kahan, Institute for Sustainable Forestry, PO Box 1580, Redway, CA 95560, (707) 923-7004.

Before, During and After Wildfire: a Checklist, California Department of Forestry and Fire Protection (CDF), http://www.fire.ca.gov/php/education_homeowner.php and click on Before, During and After Wildfire.

Be Prepared for Wildfire, Larimer County, CO Office of Planning & Building Services, Wildfire Safety, Butte County docs, http://www.co.larimer.co.us/wildfire/prepared_for_wildfire/sld001.htm.

Breaking Up Fuel Continuity and Fuel Ladders, California Forest Stewardship Program (CFSP), *Forestland Steward* Newsletter, Summer 1999, http://ceres.ca.gov/foreststeward/html/fuelladder.html.

Chain saw safety is common sense, California Forest Stewardship Program (CFSP), http://ceres.ca.gov/foreststeward/html/chainsaw.html.

Danger spots around your home, California Forest Stewardship Program (CFSP), http://ceres.ca.gov/foreststeward/html/danger.html.

Defensible Space and Healthy Forest Handbook: A Guide to Reducing the Wildfire Threat, Placer Hills Protection District, Placer County Resource Conservation District and NRCS, contact the Placer County RCD, 251 Auburn Ravine Rd., Suite 201, Auburn, CA 95603-3719, or 916-885-3046, http://ceres.ca.gov/foreststeward/html/firesafehandbook.html.

FAQs about defensible space, California Forest Stewardship Program (CFSP), *Forestland Steward* Newsletter, Spring 2002, http://ceres.ca.gov/foreststeward/html/faqsdef.html.

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50 things you can do to protect your home, Firewise Minnesota, Minnesota Department of Natural Resources, http://www.dnr.state.mn.us/firewise/50things.html.

Fire Risk Rating for Homes, Washington State Dept. of Natural Resources, Resource Protection Division, 1111 Washington St. SE, MS: 47037, Olympia, WA 98504-7037, 360-902-1300, http://www.dnr.wa.gov/htdocs/rp/rp.html.

Fire Safe Inside and Out, CDF/CFSC, http://www.firesafecouncil.org/education/insideout/firesafebig.html.

Fire Safe Landscaping, Jeanette Knudson. CDF Tree Notes, No. 17, January 1993. These resources are available from your local forester at any CDF Unit or call/write Jesse Rios, Forest Pest Specialist, PO Box 944246, Sacramento, CA 94244, 916- 653-9476, http://ceres.ca.gov/foreststeward/html/treenotes.html

Fire Safe Landscaping, Fire Safe Council, http://www.firesafecouncil.org/education/landscaping/index.html.

Fire-Resistant Trees and Shrubs, California Forest Stewardship Program (CFSP), http://ceres.ca.gov/foreststeward/html/Moritz.html.

Firewise Landscaping, Bruce W. Hagen, California Forest Stewardship Program (CFSP), http://ceres.ca.gov/foreststeward/html/landscaping.html.

Frank Beall's Fire Mitigation/Urban-Wildland Interface Online Library, http://nature.berkeley.edu/~fbeall/FMUWIDocs.html.

Getting a handle on broom, parts I and II, John LeBlanc, California Forest Stewardship Program (CFSP), *Forestland Steward* Newsletter, Summer 2001, http://ceres.ca.gov/foreststeward/html/broom.html and http://ceres.ca.gov/foreststeward/html/broom2.html.

Home Protection Guide, 1990, Washington State Dept. of Natural Resources, Resource Protection Division, 1111 Washington ST SE, MS: 47037, Olympia, WA 98504-7037, 360- 902-1300, http://www.dnr.wa.gov/htdocs/rp/rp.html.

Homeowners Checklist: How to Make Your Home Fire Safe, CDF, Fire Safe Council, http://www.firesafecouncil.org/educationindex.html.

How to burn piles properly, Heather Morrison, California Forest Stewardship Program (CFSP), *Forestland Steward* Newsletter, Spring 2002, http://ceres.ca.gov/foreststeward/html/burnpiles.html.

Is your Home Protected from Wildfire Disaster? A Homeowner's Guide to Wildfire Retrofit, Firewise, http://www.firewise.org/pubs/is_your_home/WILDFR2.PDF.

Living with Fire, A Guide for the Homeowner, Pacific Northwest Wildfire Coordinating Group, Northwest Fire Prevention Education Program, www.or.blm.gov/nwfire/docs/Livingwithfire.pdf.

Meet the masticator, California Forest Stewardship Program (CFSP), *Forestland Steward* Newsletter, Spring 2002, http://ceres.ca.gov/foreststeward/html/masticator.html.

Numerous options for fuels management, California Forest Stewardship Program (CFSP), *Forestland Steward* Newsletter, Spring 2002, http://ceres.ca.gov/foreststeward/html/fuelsoption.html.

Protect your forest from wildfire, California Forest Stewardship Program (CFSP), http://ceres.ca.gov/foreststeward/html/protectforest.html.

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

Ranch fire highlights value of pre-fire planning, California Forest Stewardship Program (CFSP), http://ceres.ca.gov/foreststeward/html/ranchfire.html.

Ready for Wildfire? Jim Rossi, North Coast Journal, August 7, 2003, http://www.northcoastjournal.com/080703/cover0807.html.

Reducing Fire Hazard: Balancing Costs and Outcomes, US Forest Service Pacific Northwest Research Station, Science Update #7, June 2004, http://www.fs.fed.us/pnw/pubs/science-update-7.pdf.

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Seven steps to creating a defensible space, California Forest Stewardship Program (CFSP), http://ceres.ca.gov/foresteward/html/defenspace.html.

Ten simple things you can do to increase your fire safety, California Forest Stewardship Program (CFSP), http://ceres.ca.gov/foresteward/html/tensimple.html.

Thinning for increased forest health and profit, California Forest Stewardship Program (CFSP), *Forestland Steward* Newsletter, Winter 2001, http://ceres.ca.gov/foresteward/html/thinning.html.

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B.3. North Coastal California Fire-Smart Landscaping

North Coastal California Fire-Smart Landscaping

Most of us create landscapes around our homes that are aesthetically pleasing or attractive to desirable fauna such as birds and butterflies. If you live in or near a forest or rangeland, there are other factors worth considering such as plant flammability and whether your plants can stand up to wildlife such as deer. While no plant is immune to fire, certain plants do exhibit traits that can slow or reduce the spread of fire. Fire-resistant plants do not readily ignite from a flame or other ignition source. They generally look green (not brown), healthy, and vibrant. In addition, fire-resistant plants have:

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

Most deciduous trees and shrubs are fire-resistant.

The following chart is a list of fire-smart plants that will grow on California's North Coast, and some of their characteristics. Some of these plants require continual maintenance, removing dead material, to ensure their fire resistance. This list is continually evolving. If you have any changes or additions, please contact us.

Following the list are some general characteristics to consider when designing and / or maintaining your fire-safe landscape.

Common Name	Botanical Name	Plant Type	CA Native	Deer Proof	Fire Resistant
Plants Less Than 10" Tall:					
Aloe	*Aloe spp.*	Succulent		Some	√
Beach strawberry, Sand strawberry	*Fragaria chiloensis*	Perennial	√	√	√
Blue-eyed grass	*Sisyrinshium bellum*	Perennial	√	√	√
California poppy	*Eschscholzia californica*	Annual	√	√	√
Cape weed	*Arctotheca calendula*	Perennial			√
Carpet bugle	*Ajuga reptans*	Perennial		√	√
Common thrift	*Armeria maritima*	Perennial	√		√
Creeping boobialla	*Myoporum parvi-folium*	Evergreen		√	√
Creeping red fescue	*Festuca rubra*	Perennial	√		√
Creeping thyme, Mother-of-Thyme	*Thymus serpyllum, T. praecox arcticus*	Perennial		√	√
Dwarf periwinkle	*Vinca minor*	Perennial		√	√
Emerald carpet, Crinkle-leaf creeper	*Rubus calycinoides*	Evergreen		√	√

Appendix B. FIRE SAFETY INFORMATION

Common Name	Botanical Name	Plant Type	CA Native	Deer Proof	Fire Resistant
Emerald carpet manzanita, Kinnikinnick	*Arctostaphylos uva-ursi x nummularia*	Evergreen	√	√	√
Gum plant, Coastal wild gum	*Grindelia stricta*	Perennial	√	√	√
Hens and chicks	*Echevaria spp.*	Succulent			√
Iceplant	Yellow (*Delosperma nubigenum*) or Purple / pink (*D. cooperi*)	Succulent		√	√
Indian mock strawberry	*Duchesnea indica*	Perennial			√
Island alum root, Coral bells	*Heuchera maxima*	Perennial	√		√
Japanese spurge	*Pachysandra terminalis*	Evergreen			√
Lithodora	*Lithodora diffusa*	Perennial		√	√
Moss pink	*Phlox subulata*	Perennial		√	√
Snow-in-summer	*Cerastium tomentosum*	Perennial		√	√
Stonecrop	*Sedum spp.*	Succulent	√		√
Trailing ice plant	*Lampranthus spectabilis*	Succulent			√
Wild buckwheat	*Eriogonum spp.*	Perennial	√	√	√
Wild ginger	*Asarum caudatum*	Perennial	√	√	√
Yellow-eyed grass	*Sisyrinchium californicum*	Perennial	√	√	√
Plants 1-3' tall:					
Basket-of-gold	*Aurinia saxatilis*	Perennial		√	√
Beard tongue	*Penstemon spp.*	Perennial	Some		√
Brewer saltbush	*Atriplex lentiformis breweri*	Evergreen	√		√
California fuchsia, Hummingbird flower	*Zauschneria californica*	Perennial	√	√	√
Chilean guava	*Ugni molinae*	Evergreen		√	√
Chives	*Allium schoenoprasum*	Perennial		√	√
Cleveland sage	*Salvia clevelandii*	Perennial	√	√	√
Coastal wild gum	*Grindelia stricta venulosa*	Perennial	√	√	√
Common snowberry	*Symphoricarpos albus*	Deciduous	√	√	√
Common thyme	*Thymus vulgaris*	Perennial		√	√
Common yarrow, Milfoil	*Achillea millefolium white*	Perennial	√	√	√
Coreopsis	*Coreopsis spp.*	Perennial	Some	√	√
Cranesbill	*Geranium spp.*	Perennial	Some	√	√

Appendix B. FIRE SAFETY INFORMATION

Common Name	Botanical Name	Plant Type	CA Native	Deer Proof	Fire Resistant
Creeping mahonia (may pop when hot)	*Mahonia repens*	Evergreen	√	√	√
Daylily	*Hemerocallis hybrids*	Perennial			√
Evergreen currant, Catalina perfume	*Ribes viburnifolium*	Evergreen	√		√
Fireweed	*Epilobium angustifolium*	Perennial	√		√
Golden yarrow	*Eriophyllum confertiflorum*	Perennial	√		√
Gooseberry	*Ribes spp.*	Deciduous	Some	√	√
Heartleaf bergenia	*Bergenia cordifolia*	Perennial		√	√
Island bush snapdragon	*Galvezia speciosa*	Evergreen	√		√
Iris	*Iris spp.*	Perennial	√	√	√
Lamb's ears	*Stachys byzantina*	Perennial		√	√
Lavender cotton	*Santolina chamaecy-parissus*	Evergreen	√	√	√
Lemonade berry	*Rhus integrifolia*	Evergreen	√	√	√
Lilac	*Syringa spp.*	Deciduous			√
Lupine	*Lupinus spp.*	Ann / Per / Evergreen	Some	√	√
Mock orange	*Philadelphus spp.*	Dec / Ever	Some		√
Monkey flower	*Mimulus longiflorus (Diplacus longifolius)*	Perennial	√	√	√
Oregon boxwood	*Pachystima myrsinites*	Evergreen			√
Ozark Sundrops	*Oenothera missouriensis*	Perennial			√
Pacific coast iris, Douglas iris	*Iris douglasiana*	Perennial	√	√	√
Perennial blue flax	*Linum perenne*	Perennial			√
Plantain lily	*Hosta spp.*	Perennial			√
Privet	*Ligustrum texanum*	Evergreen		√	√
Purple coneflower	*Echinacea purpurea*	Perennial			√
Red-hot poker, torch-lily	*Kniphofia uvaria*	Perennial		√	√
Scented penstemon	*Penstemon palmeri*	Perennial		√	√
Sedge	*Carex spp.*	Perennial	Some		√
Squaw carpet, Mahala mats	*Ceanothus prostratus*	Evergreen	√		√
Sumac	*Rhus spp.*	Deciduous	Some	√	√
Sunrose	*Helianthemum nummularium*	Evergreen		√	√
Wood's rose	*Rosa woodsii*	Deciduous	√		√
Woolly blue curls	*Trichostema lanatum*	Evergreen	√		√

Appendix B. FIRE SAFETY INFORMATION

Common Name	Botanical Name	Plant Type	CA Native	Deer Proof	Fire Resistant
Yucca	*Yucca spp.*	Evergreen	Some	√	√
Plants/Trees over 3' tall (several of these are deer proof once they are established):					
American sweet gum	*Liquidambar styraciflua*	Deciduous			√
Ash	*Fraxinus spp.*	Deciduous	Some		√
Aspen, Cottonwood, Poplar	*Populus spp.*	Deciduous	√		√
Beech	*Fagus spp.*	Deciduous			√
Bigleaf maple	*Acer macrophyllum*	Deciduous	√	√	√
Birch	*Betula spp.*	Deciduous	Some		√
Black locust	*Robinia pseudoacacia*	Deciduous			√
Blue blossom	*Ceanothus thrysiflorus*	Evergreen	√	√	√
Butterfly bush, Summer lilac	*Buddleja davidii*	Deciduous		√	√
California buckeye	*Aesculus californica*	Deciduous	√	√	√
California lilac	*Ceanothus 'concha'*	Evergreen	√	√	√
California sycamore	*Platanus racemosa*	Deciduous	√		√
Carol Mackie daphne	*Daphne x burkwoodii var 'Carol Mackie'*	Evergreen		√	√
Chokecherry	*Prunus virginiana*	Deciduous	√		√
Coast live oak	*Quercus agrifola*	Evergreen	√	√	√
Coast redwood	*Sequoia sempervirens*	Evergreen	√	√	√
Coffeeberry	*Rhamnus californica*	Evergreen	√	√	√
Common flannel bush	*Fremontodendron californicum*	Evergreen	√	√	√
Common hackberry	*Celtis occidentalis*	Deciduous			√
Common horsechestnut	*Aesculus hippocastanum*	Deciduous			√
Eastern redbud	*Cercis canadensis*	Deciduous			√
European mountain ash	*Sorbus aucuparia*	Deciduous			√
Flowering crabapple	*Malus spp.*	Deciduous	Some		√
Flowering dogwood, Eastern dogwood	*Cornus florida*	Deciduous			√
Fremontia, Flannel bush	*Fremotodendron spp.*	Evergreen	√	√	√
Holly-leafed cherry	*Prunus ilicifolia*	Evergreen	√		√
Honey locust	*Gleditsia triacanthos*	Deciduous			√
Kentucky coffee tree	*Gymnocladus dioica*	Deciduous			√

Appendix B. FIRE SAFETY INFORMATION

Common Name	Botanical Name	Plant Type	CA Native	Deer Proof	Fire Resistant
Lodgepole pine, Beach pine	*Pinus contorta*	Evergreen	√		√
Longleaf mahonia	*Mahonia nervosa*	Evergreen	√		√
Madrone	*Arbutus menziesii*	Evergreen	√	√	√
Manzanita	*Arctostaphylos spp.*	Evergreen	√	√	√
Mountain alder	*Alnus tenuifolia*	Deciduous			√
Norway maple	*Acer platanoides*	Deciduous			√
Ocean spray, Cream bush	*Holodiscus discolor*	Deciduous	√	√	√
Oregon grape	*Mahonia aquifolium*	Evergreen	√	√	√
Oregon white oak, Garry oak	*Quercus garryana*	Deciduous	√	√	√
Pacific wax myrtle	*Myrica californica*	Evergreen	√	√	√
Pin oak	*Quercus palustris*	Deciduous			√
Pink winter currant, red flowering currant	*Ribes sanguineum*	Deciduous	√	√	√
Point Reyes ceanothus	*Ceanothus gloriosus*	Evergreen	√		√
Ponderosa pine, Western yellow pine	*Pinus ponderosa*	Evergreen	√	√	√
Quaking aspen	*Populus tremuloides*	Deciduous	√		√
Red alder	*Alnus rubra*	Deciduous	√	√	√
Redberry	*Rhamnus crocea*	Evergreen	√		√
Red oak	*Quercus rubra*	Deciduous			√
Red-osier dogwood, Redtwig dogwood	*Cornus stolonifera*	Deciduous			√
Rockrose	*Cistus spp.*	Evergreen		Some	√
Rocky mountain maple	*Acer glabrum*	Deciduous	√		√
Salal	*Gaultheria shallon*	Evergreen	√	√	√
Serviceberry	*Amelanchier spp.*	Deciduous	Some		√
Sugar pine	*Pinus lambertiana*	Evergreen	√	√	√
Sunset maple, Scarlet maple	*Acer rubrum*	Deciduous			√
Toyon, Christmas berry, California holly	*Heteromeles arbutifolia*	Evergreen	√	√	√
Vine maple	*Acer circinatum*	Deciduous	√	√	√
Walnut	*Juglans spp.*	Deciduous	Some		√
Western azalea	*Rhododendron occidentale*	Deciduous	√	√	√
Western catalpa	*Catalpa speciosa*	Deciduous			√
Western larch, Tamarack	*Larix occidentalis*	Deciduous			√

Common Name	Botanical Name	Plant Type	CA Native	Deer Proof	Fire Resistant
Western redbud	*Cercis occidentalis*	Deciduous	√	√	√
Western spirea	*Spiraea douglasii*	Deciduous	√		√
White alder	*Alnus rhombifolia*	Deciduous	√	√	√
Willow	*Salix spp.*	Deciduous	Some		√
Winged Euonymus	*Euonymus alata*	Deciduous			√

Design Tips/Considerations

- When designing a fire-smart garden, consider: the local area's fire history, site location, overall terrain, prevailing winds, seasonal weather, property contours, and boundaries.
- The area closest to your home should be a well-irrigated area encircling the home for 30' – 100' on all sides, providing space for fire suppression equipment in the event of an emergency. Plantings here should be limited to carefully spaced, low flammability species.
- 30' away from your home use low flammability plants that are low-growing, and irrigate this area as well.
- Stick to plant's that are low growing, have limited spread and little dead material.
- Moving still further away from your home continue to use low flammability plants that are low-growing as well as well-spaced trees. Keep fuel volume low.
- Plant a wide swath of native groundcover adjacent to the lawn or garden leading to fire-resistant shrubs nearer the forest in order to create a buffer between your home and the forest.
- The area furthest away from your home should be a natural area. Selectively prune and thin all plants here and remove highly flammable vegetation and *fuel ladders.*
- Consider positioning of a plant in terms of what's around it; isolate and surround a poor fire-risk plant with more resistant species to create a specimen focal point.
- Avoid planting flammable plants in large quantities or near your home.
- Consider a plant's water retention ability and its irrigation needs. Use plants that retain water and don't need much irrigation such as fleshy-leafed plants. Conserve water using non-flammable mulch. Recycle your water whenever possible. (Plants that are not properly irrigated or pruned or that are planted in an inappropriate climate zone will have increased fire risk.)
- Group plants of similar height and water requirements to create a "landscape mosaic" that can slow the spread of fire and use water most efficiently. Consider a plant's size; you don't want to plant things that have a large mass or volume in order to keep fuel volumes low.
- Keep trees furthest from your house, at least 10 feet away from the edge of the branches.
- Fire barriers of fire-resistant plants should be planted so that they cross the likely paths of possible fires i.e., downhill slopes from buildings.
- Planting fire-resistant plants in groups, rows, and wind breaks around buildings can: decrease wind speed and turbulence, catch sparks and embers, decrease fire intensity, and absorb radiant heat energy that cause other plants and structures to burn.
- Shrubs in the defensible space should be planted in (or thinned into) clumps, or islands, with open space between them (open space or cleared areas include: walkways, driveways, patios, lawns, paved areas, vegetable patches, orchards, etc.).
- Within the defensible space area, vertical separation between fuel layers should be at least three times the height of the lower fuel layer. For example, a 4' shrub growing next to a tree should be separated by 12 vertical feet (4' x 3) of open space below the lowest branches.
- Space trees at least 10' apart on flat ground, and keep branches trimmed at least 10' from your roof. For trees taller than 18', prune lower branches within 10-15' of the ground.
- Shrubs and trees with high levels of resins or volatile oils should not be planted on slopes down from or near buildings in fire prone areas.
- Use native vegetation that has evolved to thrive in local conditions.

Appendix B. FIRE SAFETY INFORMATION

- Clear vegetation around fire hydrants, cisterns, and propane tanks.
- The following chart represents the minimum spacing recommended between tree crowns as well as brush and shrub clumps based on slope. Crown separation is measured from the furthest branch of one tree to the nearest branch on the next tree. On nearly level ground, minimum spacing recommendations between clumps of brush and/or shrubs is 2 ½ times the height of the vegetation. Maximum diameter of clumps should be 2 times the height of the vegetation. As with tree crown spacing, all measurements are made from the edges of vegetation crowns.

% Slope	Tree Crown Spacing	Brush and Shrub Clump Spacing
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

Source: Harris, F.C., Colorado State Forest Service, Creating Wildfire-Defensible Zones no. 6.302.

Appendix B. FIRE SAFETY INFORMATION

Maintenance Tips

Anything over three feet needs to be pruned up from the ground and have the branch structure thinned in order to reduce the risk of fire spread. Prune all trees so the lowest limbs are 10 to 15 feet above the ground. This will reduce the *fuel ladder* which allows fire to climb from the ground into the shrubs and trees.

- Remove leaf clutter and dead branches and material on the ground or on plants near your home. Clean needles and debris from roofs and gutters.
- Trim branches that extend over the eaves of the home or within 15 feet of the chimney.
- Clear all dry grass, brush, and dead leaves at least 30 feet from your home, and at least 150 feet if you're on a hill.
- Mow the lawn regularly, until it is too hot and dry.
- Remove or chip cuttings and debris promptly, according to local regulations.
- Thin weak, dead, or overcrowded trees.
- Maintain an irrigated greenbelt immediately around your home. Water well until mid-summer to allow plants to survive the hot summer/fall.

We relied on the following people and resources in creation of this list. Thanks to all of them for their work:

- Barton, Lee Ann, California-certified nursery professional, Dazey's Supply, Redway, CA.
- California Forest Stewardship Program (CFSP), Fire-Resistant Trees and Shrubs, http://ceres.ca.gov/foreststeward/html/Moritz.html, provides information regarding the design of a firewise landscape.
- California Forest Stewardship Program (CFSP), *Forestland Steward* Newsletter, Summer 1999, Breaking Up Fuel Continuity and Fuel Ladders, http://ceres.ca.gov/foreststeward/html/fuelladder.html, provides information regarding the arrangement of fuels.
- City of Oakland, Watershed Improvement Program, Fire Wise Native Plants, http://oaklandpw.com/creeks/fireplants.htm.
- Fire Ready Wildfire Prevention & Protection Services, Defensible Space Issues & Explanations, Your Best Defense, http://www.fireready.net/noframes/defense.html#defense.
- Fire Safe Council, Fire Safe Landscaping, http://www.firesafecouncil.org/education/landscaping/index.html, provides information on defensible space, planning, spacing, watering, and maintenance.
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- Scripps Howard News Service, 20 March 2004, Consider fire-resistant plants, http://web.redding.com/newsarchive/20040320handg017.shtml, newspaper article discussing fire-resistant plants including a few examples of fire-retardant plants.
- Southern California Water Agencies, bewaterwise.com, Fire-resistant California Friendly plants, http://bewaterwise.com/fire.html, lists California native plants.
- Sunset Western Garden Book, 1995, 2001, Sunset Publishing Corporation: Menlo Park, California.
- UC Berkeley Forest Products Lab, Fire-Safe Demonstration Garden Plant List & Garden Layout, www.ucfpl.ucop.edu/HOPlantList.htm.

For Additional Information Regarding Fire-Safe Plants Go To:

- Fire-Safe Landscape Database, www.ucfpl.ucop.edu/491/Garden/searchALL.htm.
- Greater Laguna Coast Fire-Safe Council, "Fire-safe landscaping can be lifesaving!" DVD, www.lagunacoastfiresafecouncil.org.
- Nevada County Fire Safe Council, Fire Safe Plants, www.firesafecouncilnevco.com/html/fire_safe_plants.html.
- UC Berkeley Forest Products Lab, Introduction to the I-Zone, Chapter XIV – Fire-Safe Vegetation, http://www.ucfpl.ucop.edu/I-Zone/chapter14.pdf, great article regarding vegetation in the fire zone and landscape design and maintenance.
- UC Berkeley Forest Products Lab, Defensible Space Landscaping in the Urban/Wildland Interface, Plants with a Favorable Fire Performance Rating, www.ucfpl.ucop.edu/I-Zone/XIV/vegetati.htm, lists plants that have a high or moderate fire resistance rating.

This brochure was produced by Praline McCormack and Tracy Katelman of ForEverGreen Forestry, POB 9068, Eureka, CA 95502, 707-443-2400.

Appendix B. FIRE SAFETY INFORMATION

B.4. Public Resources Code 4291

Public Resources Code 4291 – A person that owns, leases, controls, operates, or maintains a building or structure in, upon, or adjoining any mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or any land that is covered with flammable material, shall at all times do all of the following:

(a) Maintain around and adjacent to the building or structure a firebreak made by removing and clearing away, for a distance of not less than 30 feet on each side of the building or structure or to the property line, whichever is nearer, all flammable vegetation or other combustible growth. This subdivision does not apply to single specimens of trees, ornamental shrubbery, or similar plants that are used as ground cover, if they do not form a means of rapidly transmitting fire from the native growth to any building or structure.

(b) Maintain around and adjacent to the building or structure additional fire protection or firebreak made by removing all brush, flammable vegetation, or combustible growth that is located within 100 feet from the building or structure or to the property line or at a greater distance if required by state law, or local ordinance, rule, or regulation. This section does not prevent an insurance company that insures a building or structure from requiring the owner of the building or structure to maintain a firebreak of more than 100 feet around the building or structure. Grass and other vegetation located more than 30 feet from the building or structure and less than 18 inches in height above the ground may be maintained where necessary to stabilize the soil and prevent erosion.

(c) Remove that portion of any tree that extends within ten feet of the outlet of a chimney or stovepipe.

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

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

(f) Provide and maintain at all times a screen over the outlet of every chimney or stovepipe that is attached to a fireplace, stove, or other device that burns any solid or liquid fuel. The screen shall be constructed of nonflammable material with openings of not more than one-half inch in size.

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

(h) Except as provided in Section 18930 of the Health and Safety Code, the director may adopt regulations exempting structures with exteriors constructed entirely of nonflammable materials, or conditioned upon the contents and composition of same, he or she may vary the requirements respecting the removing or clearing away of flammable vegetation or other combustible growth with respect to the area surrounding those structures. No exemption or variance shall apply unless and until the occupant thereof, or if there is not an occupant, the owner thereof, files with the department, in a form as the director shall prescribe, a written consent to the inspection of the interior and contents of the structure to ascertain whether this section and the regulations adopted under this section are complied with at all times.

(i) The director may authorize the removal of vegetation that is not consistent with the standards of this section. The director may prescribe a procedure for the removal of that vegetation and make the expense a lien upon the building, structure, or grounds, in the same manner that is applicable to a legislative body under Section 51186 of the Government Code.

(j) As used in this section, "person" means a private individual, organization, partnership, limited liability company, or corporation.

B.5. Fire Safe Your Neighborhood

FIRE SAFE YOUR NEIGHBORHOOD!

A few simple things you can do NOW.

√*AROUND THE HOUSE*

- Move firewood, lumber, and debris at least 30 feet away from your home, fences, outbuildings or other combustible materials.
- Prevent burning embers from getting in, or under, your buildings. Screen vents (with 1/2 inch screen), seal eaves, enclose areas under houses, and decks.
- Mow or weed-eat any grass up to at least from 30 feet from your home. Remove any leaves and branches up to ten feet from directly against exterior walls and roof.
- Thin out any thick brush close to a structure. Remove smaller diameter materials (branches, shrubs, etc.) and leave the bigger trees for shade! Pay special attention to "ladder fuel" (vegetation that provides an easy avenue for fire to travel from the ground level through bushes and small trees into the tree canopy, and eventually your home)!

√*AROUND THE NEIGHBORHOOD*

- Let your local firefighters know:
  - The exact location of your **home**, and house or parcel number if possible**.**
  - The name of your **road**.
  - Where the **water sources** are on your property.
  - Any specific **road hazards** (such as rickety bridges, steep grade, etc.).
  - Information about **locked gates**, including combinations.
- Look carefully at your road.

1. Could a fire engine (minimum 12 feet wide by 12 feet high) get up and down it without much difficulty, especially at the same time you are trying to get out?
2. Could thinning/brushing work be done to reduce fire intensity along the road?
3. Would you be comfortable using that road as your escape route?

- Identify safe zones! A safe zone is an area where you can survive the passing of a fire front, without the aid of special equipment. A home with adequate defensible space may be a safe zone. Keep in mind, with thicker brush or more people, safe zones must be larger. Work with neighbors to locate and create additional safe zones for yourselves and fire-fighting equipment.

TALK WITH YOUR NEIGHBORS, TALK WITH YOUR FIREFIGHTERS!

Let's work together to reduce the risk of wildfires in our neighborhoods.

For more information, contact the Del Norte Fire Safe Council at 707-951-5437.

(This poster courtesy of Mattole Restoration Council, *www.mattole.org*.)

B.6. CDF Evacuation

EVACUATION

California Department of Forestry and Fire Protection

Evacuations are done to save lives,
and to allow responding personnel to focus on the emergency at hand.
PLEASE EVACUATE PROMPTLY WHEN REQUESTED!

Evacuation Orders

You will often hear the terms Voluntary and Mandatory to describe evacuation orders, however, local jurisdictions may use other terminology such as Precautionary and Immediate Threat. These terms are used to alert you to the significance of the danger and ALL evacuation instructions provided by officials should be followed immediately for your safety.

The Law

Whenever a menace to the public health or safety is created by a calamity such as flood, storm, fire, earthquake, explosion, accident, or other disaster, officers of the law may close the area where the menace exists. [Penal Code 409.5 (a)]

Any unauthorized person who willfully and knowingly enters an area that has been closed and who willfully remains within the area after receiving notice to evacuate or leave shall be guilty of a misdemeanor. [Penal Code 409.5 (c)]

Long Before A Fire Threatens

Create and Maintain:
- A Defensible Space around your home and other structures on your property.
- Be involved in fire safe planning in your community.

Prepare an *Evacuation Checklist* and Organize:
- Critical medications.
- Important personal papers, photos, etc.
- Essential valuables.
- Pet and livestock transport, limited amount of pet food.
- Change of clothing, toiletries, etc.
- Cell phone.
- Critical papers and effects in a fire proof safe.
- An Evacuation Route Map with at least two routes.*
- Drive your planned route of escape before an actual emergency.*

During an evacuation law enforcement/ emergency personnel may determine your route.

If Evacuation Is A Possibility

- Locate your ***Evacuation Checklist*** and assemble the items on it. PLACE THEM IN YOUR VEHICLE.
- Park your vehicle facing outward and carry your car keys with you.
- Locate your pets and keep nearby.
- Prepare farm animals for transport.
- Place a ladder outside for roof access.
- Place connected garden hoses and buckets full of water around the house.
- Assemble fire fighting tools near an outside door (shovel, rake, hoe, etc.).
- Move propane BBQ appliances away from structures.
- Cover up. Wear long pants, long sleeve shirt, heavy shoes/boots, cap, dry bandanna for face cover, goggles or glasses. 100% cotton clothing preferable.
- Leave lights on in the house - door unlocked.
- Leave windows closed - air conditioning off.

The Evacuation Process

* Officials will determine the areas to be evacuated and the routes to use depending upon the fire's location, behavior, wind, terrain, etc.

* Law enforcement agencies are typically responsible for enforcing an evacuation order. Follow their directions promptly!

* You will be advised of potential evacuations as early as possible. **You must take the initiative to stay informed and aware. Listen to your radio/TV and for announcements from law enforcement/ emergency personnel.**

* You may be directed to temporary assembly areas to await transfer to a safe location.

* When heavy smoke reduces visibility, movement may be restricted only to escorted convoys.

Returning Home

Fire officials will determine when it is safe for you to return to your home. This will be done as soon as possible considering safety and accessibility.

When you do return home:
- Be alert for downed power lines and other hazards.
- Check propane tanks, regulators, and lines before turning gas on.
- Check your residence carefully for hidden embers or smoldering fires.

If You Become Trapped

While in your vehicle:
- Stay Calm.
- Park your vehicle in an area clear of vegetation.
- Close all vehicle windows and vents.
- Cover yourself with wool blanket or jacket.
- Lie on vehicle floor.
- Use your cell phone to advise officials – 911.

While on foot:
- Stay Calm.
- Go to an area clear of vegetation, a ditch or depression if possible.
- Lie face down, cover up.
- Use your cell phone to advise officials - 911.

While in your home:
- Stay calm, keep your family together.
- Call 911 and inform authorities of your location.
- Fill sinks and tubs with cold water.
- Keep doors and windows closed, but UNLOCKED.
- Stay inside your house.
- Stay away from outside walls and windows.
- Note – it will get hot in the house, but it is much hotter, and more dangerous outside.

After the fire passes, and if it is safe, check the following areas for fire:
- The roof and house exterior.
- Under decks and inside your attic.
- Your yard for burning trees, woodpiles, etc.
- Extinguish embers and sparks.

www.fire.ca.gov
April 2004

B.7. CBC Draft Urban-Wildland Interface Building Standards

CBC DRAFT
UWI BUILDING STANDARDS

Chapter 7A [For SFM]
URBAN WILDLAND INTERFACE BUILDING STANDARDS

SECTION 701A FIRE-RESISTANT MATERIALS AND CONSTRUCTION METHODS USED WITHIN WILDLAND AREAS

701A.1 SCOPE
This chapter applies to building materials and systems used in the exterior design for newly constructed buildings and structures subject to California Building Standards Code located within:

1. State Responsibility Areas designated as Very High Fire Hazard Severity Zones by the Director of Forestry and Fire Protection pursuant to Article 9 (commencing with Section 4201) of Chapter 1 of Part 2 of Division 4 of the Public Resources Code.

2. Very High Fire Hazard Severity Zones designated by a local agency pursuant to Chapter 6.8 (commencing with Section 51175) of Part 1 of Division 1 of Title 5 of the Government Code.

3. Urban Wildland Interface Communities and other areas designated by a local agency pursuant to Health & Safety Code 13108.5.

701A.2 PURPOSE
The purpose of this code is to provide minimum standards to increase the ability of a building or structure to resist the intrusion of flame or burning embers through the use of performance and prescriptive requirements in accordance with the authority provided in Government Code §51189 A.

SECTION 702A RESERVED

SECTION 703A FIRE RESISTANT MATERIALS AND SYSTEMS

703A.1 General.
Materials and systems used for fire-resistant purposes shall be in accordance with this Chapter.

703A.2 Qualification By Testing
Material and material assemblies tested in accordance with the requirements set forth in 704A.3 shall be accepted for use in accordance with the results and conditions of such

CBC DRAFT
UWI BUILDING STANDARDS

tests. Testing shall be performed by a testing agency approved by the Authority Having Jurisdiction.

703A.3 Standards of Quality.
The State Fire Marshal (SFM) standards listed below are also listed in Chapter 35, Part III and are part of this code. The Authority Having Jurisdiction may use other standards that are equal to or exceed standards listed in this chapter.

The standards listed below are adopted by the State Fire Marshal:

SFM-1 EXTERIOR WALL TEST STANDARD
SFM-2 EXTERIOR WINDOW TEST STANDARD
SFM-3 UNDER EAVE TEST STANDARD
SFM-4 ROOF ASSEMBLY TEST STANDARD
SFM-5 DECK TEST STANDARD

SECTION 704A -- ROOFS

704A.1 General.
Roof assemblies shall provide protection in accordance with SFM-4 "Roof Assembly Test Standard," or have a Class A roof covering or Class A roof assembly.

704A.2 Roof Spaces and Openings
For roof coverings where the profile allows a space between the roof covering and roof decking, the spaces shall be constructed to prevent the intrusion of flames and embers, or one layer of Type 72 ASTM cap sheet shall be installed.

704A.3 Roof Valleys
Roof valleys shall be protected with (not less than 0.016-inch (0.41 mm) (No. 28 galvanized sheet gage) corrosion-resistant) metal flashing over a minimum 36 inch (914 mm) wide underlayment consisting of one layer of Type 72 ASTM cap sheet running the length of the valley.

704A.4 Roof Vents
Roof and attic vents shall resist the intrusion of flame and embers into the attic-area of the structure, or shall be protected by corrosion resistant, non-combustible wire mesh with ¼ inch (6 mm) openings or its equivalent.

704A.5 Eave Protection
Eaves and soffits shall meet the requirements of SFM-3 "Under Eave Test Standard" or shall be protected by materials approved for one-hour fire resistive construction on the exposed underside as approved by the Authority Having Jurisdiction.

CBC DRAFT
UWI BUILDING STANDARDS

704A.6 Skylights
Skylights shall be constructed of tempered glass, multi-layered glazed panels, or those materials approved by the Authority Having Jurisdiction unless the structure is protected throughout by an approved automatic sprinkler system.

704A.7 Roof Gutters and Downspouts
Roof gutters and downspouts shall be constructed of non-combustible materials.

SECTION 705A – EXTERIOR WALLS

705A.1 General.
All wall assemblies shall provide protection from the intrusion of flames and embers in accordance with SFM-1 "Exterior Wall Test Standard."

EXCEPTIONS:

A. Exterior wall surface material shall have an underlayment of ½ inch (12.7 mm) Type X gypsum sheathing installed as specified in Section 2511.3 with edges tightly butted, or taped and mudded, under ⅜ inch (9.5 mm) plywood or ¾ inch (19 mm) drop siding or an approved alternate. Exterior wall coverings shall extend from the top of the foundation to the underside of the roof sheathing, terminate at 2 inch (50.8 mm) nominal solid wood blocking between rafters at all roof overhangs, or in the case of enclosed eaves, terminate at the enclosure.

B. Non-combustible material, heavy timber or log wall construction

705A.2 Exterior Wall Openings.
Exterior wall openings shall be in accordance with this section.

705A.2.1 Exterior Glazing
Exterior windows, window walls, glazed doors, and windows within exterior doors shall conform to the performance requirements of SFM-2 "Exterior Window Test Standard," or be tempered glass, multilayered glazed panels, glass block or other window assemblies having a fire protection rating of not less than 20 minutes.

705A.2.2 Doors
Exterior door assemblies shall conform to the performance requirements of SFM-1 "Exterior Wall Test Standard," or shall be of approved non-combustible construction, solid core wood not less than 1 ¾ inches (44 mm) thick, or shall have a fire protection rating of not less than 20 minutes.

EXCEPTION: Noncombustible vehicle access doors.

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UWI BUILDING STANDARDS

705A.2.3 Glazing in Doors
Glazed openings in doors or glazed doors shall be in accordance with Section 705A.2.1.

705A.2.4 Wall Vents
Unless otherwise prohibited by other provisions of this code, vent openings in exterior walls shall resist the intrusion of flame and embers into the structure or vents shall be screened with a corrosion-resistant, non-combustible wire mesh with ~~a~~ ¼ inch (6 mm) opening and be a minimum of 10 feet (3048 mm) from the property line. Underfloor ventilation openings shall be located as close to grade as practical.

705A.3 Appendages and Floor Projections
The underside of cantilevered and overhanging floor projections shall maintain the fire resistive integrity of exterior walls, or the projection shall be enclosed to the grade. Exterior walls shall be in accordance with Section 705A.2.

705A.4 Unenclosed Underfloor Protection
Buildings or structures shall have all underfloor areas enclosed to the grade with exterior walls in accordance with Section 705A.1.

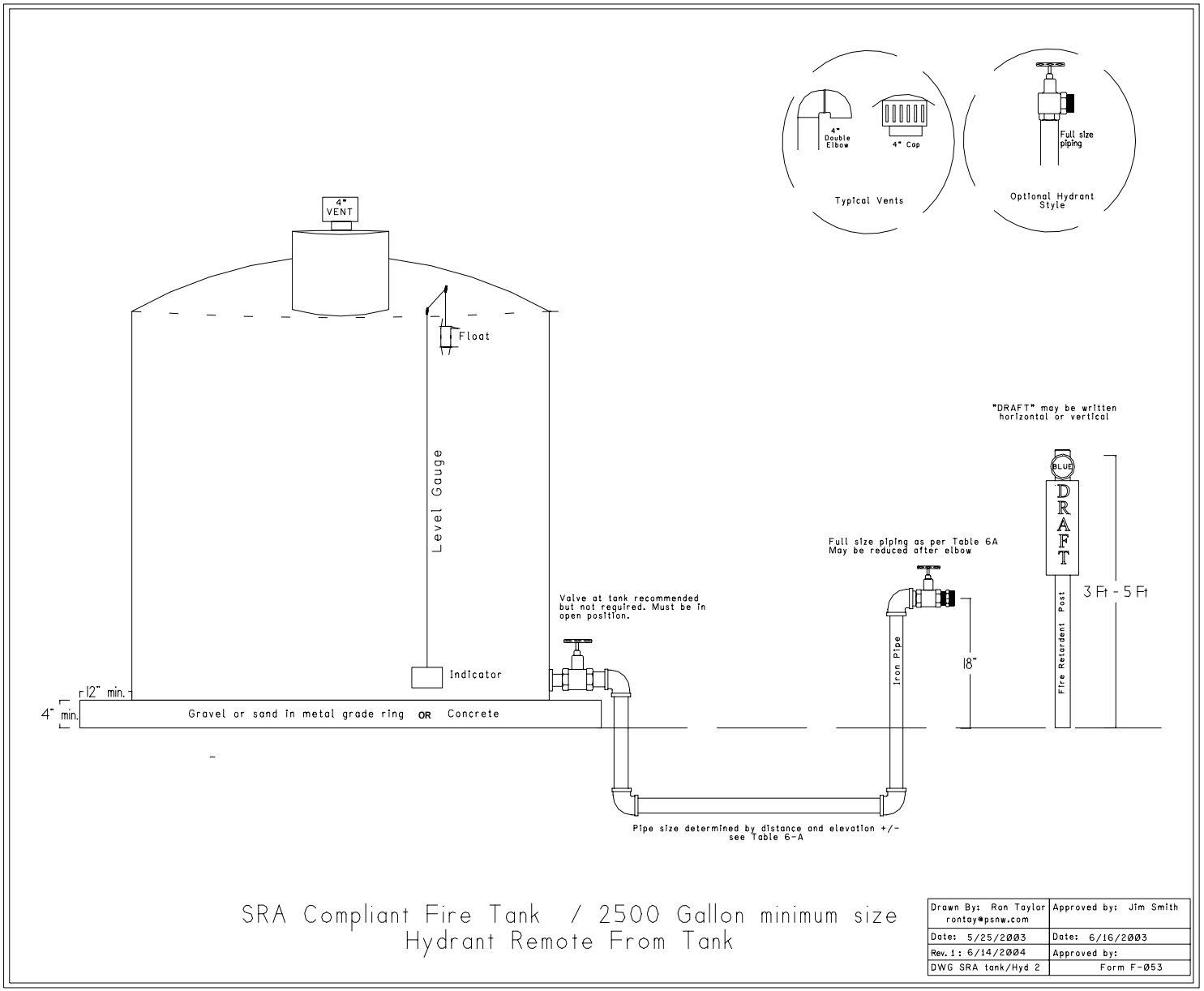
EXCEPTION: The complete enclosure of under floor areas may be omitted where the underside of all exposed floors, exposed structural columns, beams and supporting walls are protected as required on the exterior with material approved for one-hour fire resistive construction or be heavy timber, fire retardant treated wood or non-combustible materials.

706A ANCILLARY STRUCTURES

706A.1 Decking
Decks and similarly constructed horizontal structures within 10 feet of the habitable structure shall comply with the performance requirements of SFM-5 "Deck Test Standard," or decking of heavy timber, fire retardant treated wood or non-combustible materials.

706A.2 Ancillary Structures
When required by the Authority Having Jurisdiction ancillary and detached accessory structures shall comply with the provisions of this Chapter.

B.8. Drawing of SRA Compliant Fire Tank



B.9. Table of Pipe Sizing for Hydrants Located Away from Tank

FIRE PROTECTION SYSTEMS
PIPE SIZING FOR HYDRANTS LOCATED AWAY FROM TANK

Maximum Distance From tank to Hydrant (feet)	DIAMETER REQUIRED FOR FIRE PROTECTION PIPING (inches)										
	ELEVATION OF HYDRANT ABOVE / BELOW WATER TANK VALVE (feet)										
	HYDRANT ABOVE TANK				LEVEL	HYDRANT BELOW TANK					
	20	15	10	5	0	5	10	15	20	25	30
20	N/A	4	3	3	3	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2
50	N/A	6	4	4	4	3	3	3	3	3	3
70	N/A	6	4	4	4	4	4	3	3	3	3
100	N/A	6	6	4	4	4	4	4	4	4	3
150	N/A	6	6	6	4	4	4	4	4	4	4
200	N/A	6	6	6	6	4	4	4	4	4	4
250	N/A	N/A	6	6	6	6	6	4	4	4	4
300	N/A	N/A	6	6	6	6	6	6	4	4	4
350	N/A	N/A	6	6	6	6	6	6	6	6	4
400	N/A	N/A	6	6	6	6	6	6	6	6	6

N/A Not Allowed
Note: Hydrants cannot be located more than 15' above the point of connection at tank

B.10. Del Norte County Residential Open Burning Guidelines

Del Norte County
Residential Open Burning Guidelines

GENERAL REQUIREMENTS

1. **Air Quality Management District (AQMD) Burn Permits are required** for all open outdoor burning, except for small recreational campfires. Permits may be obtained through the AQMD or participating Fire Agencies. Updated AQMD Permit validation stickers are required, which are valid from January 1st to December 31st each year. The validation sticker fee is $12.00 per year. A Hardship fee exemption is available.
2. **The use of Residential Burn Barrels** is prohibited in two areas within Del Norte County: the area West of the Six Rivers National Forest Boundary, and in the Klamath Zip Code (95548). In these areas, vegetative burning only is allowed – limited to 4' by 4' piles, with a validated AQMD Burn Permit, and subject to Fire Agency restrictions. Burn Barrel Exemptions are available by permit for the remaining areas within Del Norte County, including Gasquet and Patrick Creek.
3. **Burn days are determined separately for three different zones**. These Zones are specified on each Burn Permit, (Zone 1, Zone 2, or Zone 3). The most populated region within Del Norte County is included within the Coastal Zone (Zone 1). Gasquet and Patrick Creek are included within Zone 2. The Map below shows the Burn Zones.

ALTERNATIVES TO BURNING

Several alternatives are available to the practice of burning paper, cardboard, and vegetation. These include: Source reduction, recycling, composting/chipping, commercial pickup, and self-hauling. Further information is available through the Del Norte Solid Waste Management Authority, at : 707-465-1100.

WHERE TO OBTAIN A PERMIT APPLICATION:

Participating Local Fire Agencies/AQMD: Local Agencies are working with the AQMD to improve the convenience of obtaining the required permits. You may also wish to check the District Web Site for available Permit Applications.

WHERE TO SEND THE COMPLETED APPLICATION:

Send the Completeed Burn Permit Application Form, with the $12.00 permit fee, using the envelope provided, to:

AQMD, Burn Permit
2300 Myrtle Avenue
Eureka, CA 95501

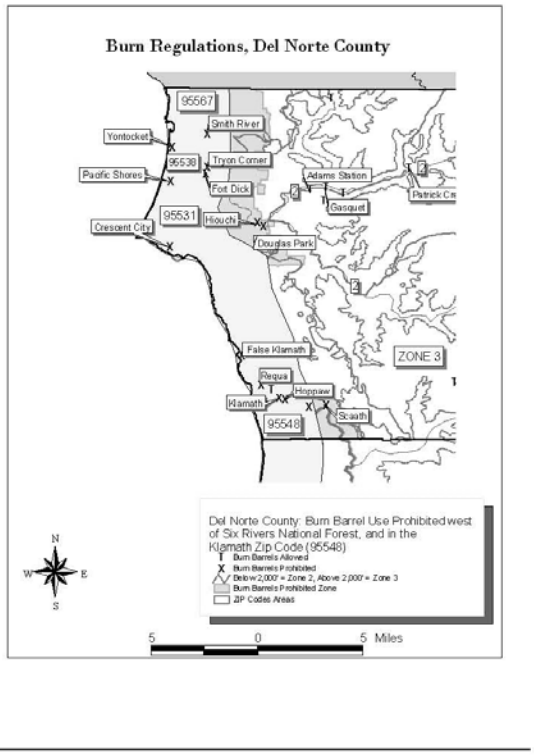
WHEN YOU RECEIVE THE VALIDATION STICKER, DO THE FOLLOWING:

1. **Validate the Permit**, by placing the sticker on the Permit.
2. **Review the Permit requirements**.
3. **Burn only on authorized "burn days"** for the Zone in which you reside. The zones include the Coastal Zone 1, Inland Zone 2 below 2,000' elevation, and Inland Zone 3 above 2,000' elevation.
4. **For Burn Day Status and Burn Permit Information**, call **Toll Free**:
5. **1-866-Burn-Day ~ or ~ 1-866-287-6329**

IF YOU HAVE FURTHER QUESTIONS…

Please call the District Office at (707) 443-3093, or visit our website at: www.ncuaqmd.org. Permit Applications can also be obtained by calling, or writing the AQMD Office.

North Coast Unified AQMD
2300 Myrtle Avenue
Eureka, CA 95501
Phone (707) 443-3093 ~ Fax (707) 443-3099



B.11. Biomass

Biomass

"Currently 4 to 6% of US electrical supply comes from biomass."[44] Biomass can even be used to replace our dependence on fossil fuels. "It is estimated that if just six percent of the continental United States were utilized for biomass production we could eliminate entirely our use of fossil fuels."[45] It is significantly better for the environment as well. "Biomass utilization is considered carbon dioxide neutral and therefore will not significantly contribute to global warming."[46]

> "Work in the woods in Seely Creek [southern Humboldt County] has shown that for every acre thinned there are approximately 60 cubic-yards of material generated (assuming the same silvicultural prescription is followed). If the thinning takes place within 50-feet of the roadway (on both sides), 12 acres of forest are thinned for every mile of road. We can project that the initial yield of biomass would be approximately 720 cubic yards per mile of roadway thinned (60 cubic yards / acre, x 12 acres / mile). In the Seely Creek watershed there are approximately 15 miles of roads suitable for a thinning project…we could expect that the entire watershed would yield in the vicinity of 10,800 cubic yards of biomass. Expressed in net weight the yield is 4.5 million pounds or 2268 tons…Alternatively, the 15 miles of roads in Seely Creek could produce roughly 300 tons of chips annually through establishment and ongoing maintenance of the fuel break...four pounds of dried chips will generate 1 kwh of usable electricity. Therefore 11.7 tons of dried chips, the amount a 'typical' mile of road would yield annually, would potentially yield 6 Mw of electricity if thinned to 50-foot width on either side of the road. The industry break-even price for delivered woody biomass is estimated to be in the range of $30 per ton. This delivered price could be reduced if some of the costs of biomass removal associated with fuel reduction projects are shouldered by government agencies (or landowners) as an incentive to reduce fire hazards while producing a public benefit and reducing future fire suppression costs."[47]

There are constraints associated with biomass as a source of energy, namely in regards to transport costs.

> "First the material must be cut and transported from the forest floor to the roadside where it is cut to size for loading or immediately chipped and fed into a dump truck for transport to the generation site. For economic feasibility the distance for the biomass to travel should not exceed 25-50 miles (based upon the cost of fossil fuels). In remote private forestlands, access to biomass is further complicated by inadequate infrastructure such as poorly constructed roads and undersized bridges which create impediments for larger dump trucks to haul large loads."[48]

There are a host of creative possibilities for using biomass. "One possible biogas scenario combining community fire-hazard reduction and community electricity generation uses a mobile generator of 15 to 50 kilowatt capacity. This generator can be located in the vicinity of the fire hazard reduction projects where the material can be gathered and accumulated near the existing utility grid. The generator could have the

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

[45] Ibid.

[46] Ibid.

[47] Ibid, p. 24.

[48] Ibid, p. 24.

ability to interface with the grid and generate electricity that the municipality (or other owner) could use in its energy distribution. This would reduce the costs associated with transport of the materials to the generator and help to offset the cost of thinning forests in the high-risk urban / wildland interface zone…The closer the biomass source is to the generator, the more efficient and cost effective the operation."[49]

The University of Washington has invented a process that converts small trees to methanol. Even the smallest trees and branches can be utilized as a power source for fuel cell technology. The new technology (patent pending) converts wood into liquid (wood alcohol-methanol) in minutes, leaving behind only mineral-laden ash, which can be used to fertilize the forest. Methanol is then used to power fuel cells.

> "One ton of biomass – anything from tree trunks to pine needles – can be converted into 186 gallons of methanol…with 190 million acres of the West needing thinning, the amount of potential fuel is in the 'billions of gallons.' Extensive research is under way in Europe on transforming forest biomass into fuels…Sweden recently determined it could power thirty percent of its transportation system with bio-fuels…This can keep people working in the woods and rural economies viable."[50]

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

[50] *The Spokesman-Review*, "University of Washington invents process to convert small trees to methanol," 12 October 2004, http://www.fuelcellsworks.com/Supppage1289.html.

Appendix B. FIRE SAFETY INFORMATION

B.12. Cameron Park Fire Safe Council Chipper Program

Cameron Park Fire Safe Council, 2961 Alhambra Drive, Cameron Park, CA 95682
(530) 672-7358 http://www.cameronpark.org/FireSafeCouncil.htm

FREE CHIPPER PROGRAM CONTINUES IN 2004

Once your lot is cleared, you can take advantage of our Curbside Chipper Program. Call the Fire Safe Bureau at (530) 672-7358 to get the information and sign up for an appointment.

Clearance Requirements (Improved Lots)

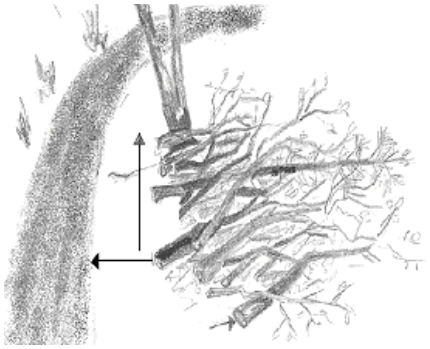
- Maintain a "defensible" space around your home by clearing all flammable vegetation 30 to 100 feet from the structure or from the property line whichever is nearer depending on specific circumstances such as type of vegetation, steepness of terrain and the type of building construction.
- Clean dead leaves and branches to leave widely spaced ornamental shrubbery and trees.
- Clean all needles and leaves from the roof eaves and rain gutters.
- Trim tree limbs within ten feet of your chimney and trim all dead limbs hanging over your house or garage.
- Cover chimney outlet or flue with a 1/2" spark arresting mesh screen.
- Make sure your address is clearly visible for easy identification in an emergency.
- Stack wood piles at least 30 feet from buildings, fences or other combustible materials.
- Clear all vegetation and other flammable materials from beneath your deck. Enclose undersides of elevated decks with fire-resistive material.

Clearance Requirements (Vacant Lots)

- Create "Defensible Space" by clearing brush and grass 30 to 100 feet (Clearance Zone) from improvements. The area of the clearance zone may vary due to the types of vegetation and the steepness of the terrain. We would be happy to assist you in determining the requirements for your property if you give us a call.
- Dry grass should be removed to a height of 2" and must be repeated each time growth exceeds 6".
- Brush within the Clearance Zone must be removed or thinned. All debris should be chipped and spread on property or removed from the premises. No piles of debris are to be left.
- Trees within the Clearance Zone must be limbed up to a height of 6' above the ground level. Debris should be chipped or removed from the premises. No piles are to be left.
- Maintain 15 feet clearance from all roadways.

Your piles must look like the picture on the right.

- Cut ends must face the same direction with the butt ends facing the road that the chipper contractor will use to access the piles.



Appendix C. DEL NORTE FIRE SAFE PLANNING PROCESS

C.1 Meeting Notes

DEL NORTE FIRE SAFE PLAN
Meeting of February 26, 2004
Crescent Fire Protection District
255 Washington Boulevard
Crescent City, CA 95531

Present: Don Brooks, Battalion Chief, CDF
Martha McClure, Del Norte County Supervisor
Tracy Katelman, DNFSC Consultant / Coordinator
Karen Phillips, DNFSC Local Project Coordinator / *PS Secretarial Services
Jay and Rachel Sarina, DNFSC and Del Norte County Planning
Karen Haban, DNFSC
Dan and Sharol Leavitt, DNFSC
Clarke Moore, Del Norte Healthcare District
Mary Kay Vandiver, District Ranger, Smith River National Recreation Area
Sheila Schulze, SRNF – Smith River National Recreation Area
Dave Webb, SRNF – Smith River National Recreation Area
Steve Wakefield, Crescent City Fire Chief
Glenn Hill, Smith River Fire Protection District
John McFarland, Chief, Crescent Fire Protection District
Linda and Dave McGath, DNFSC
Kris Moss, DNFSC Administrative Assistant
Hugh Scanlon, CDF Fortuna
Doug Plack, Crescent City Police Chief
Rick Young, Redwood National and State Parks
Herb Kolodner, City Council Member
Jocelyn Robinson, *The Daily Triplicate*

Introduction: Tracy Katelman, Del Norte Fire Safe Plan Consultant / Coordinator, opened the meeting at 7:13 p.m. and gave a brief overview of the agenda for the evening. The meeting agenda allowed for public comments and questions after each speaker.

Martha McClure, Board of Supervisors

Supervisor Martha McClure welcomed those attending the meeting and discussed the importance of fire safety in our area and the connection between the Fire Safe Council and the Resource Advisory Committee (RAC). Martha thanked the folks who provide fire protection services in the community and encouraged the continued "forging ahead" with education and wildfire prevention measures.

Dan Leavitt, Del Norte Fire Safe Council

Dan Leavitt, project manager of the Del Norte Fire Safe Council, thanked Ms. McClure, Steve Wakefield, John McFarland, Dave Webb, Rick Young, Sheila Schulze, Glenn Hill, and those attending the meeting.

Mr. Leavitt stated that one goal of the Fire Safe Council is to address, identify, and take action to decrease risks on private and public lands. He briefly discussed the California Department of Forestry and Fire Protection and the United States Forest Service efforts to plan fire safety. Other goals of the Council include reducing catastrophic fire loss, engaging in long-term planning, providing shorter and better-planned emergency responses, coordination of GIS and risk assessment, working cooperatively for fuel reduction, prescribed burning, and public education, and working with land owners to take the appropriate measures for reductions in fire loss.

The first project of the Council is the Fire Safe Plan, which has taken one year to get to this point (first public input meetings). To date the Council has purchased a chipper that has been used on the South Fork, started a fuel reduction project south of town (with the goal of taking that project from South Beach to the fairgrounds), and a water tank placement project on the North Fork Loop. The tanks blend in very well with the neighborhood and are intended for use by all residents. Most tanks are placed on private property to alleviate problems with vandalism. Forty tanks are purchased, and placement will be completed shortly. Mr. Leavitt stated that the Fire Chiefs Association has been very supportive and helpful with this project. They helped place tanks in the required adjacent Forest Service property. Defensible space has long been a concern for some people (those who have jumped on it). At this point, Mr. Leavitt introduced Mr. McFarland and Mr. Wakefield, local Fire Chiefs.

John McFarland, Crescent Fire Protection District/Steve Wakefield, Crescent City Fire

A Power Point presentation was given by Steve Wakefield and John McFarland highlighting the following points of interest in common projects and assistance between the City of Crescent City Fire Department and the Crescent Fire Protection District:

Command support, fire safety, automatic safety officer on scene, support office to assist in critical capacities

Joint training: most important component, equipment familiarity, personnel, team building, standard operating procedures, risk management

Firefighter certification: first responder certification, EMT, Firefighter 1, hazardous materials, class B driver's license, face-fit SCBA tests, medical exams, blue dot probationary recruits, National Fire Academy

Incident command training: officers and chiefs went to the Phoenix Command School, command training for company officers

Del Norte Training Consortium: first responder, EMT refresher, defibrillator certification, combi-tube certification, medical equipment training

Firefighter I Program: partnership with College of the Redwoods, fully accredited program, certified firefighters, common training for all firefighters, joint training tower

Dispatcher training: bridging the gap and getting local emergency dispatchers to work with firefighters to give important information

Volunteer incentives: family picnic, joint business meeting with dinner, family cosmic bowling, firefighter Christmas dinner and recognition gift, 4th of July fireworks picnic

Joint responses: structure fires, extrications, multiple casualty, mixed crew on apparatus, simultaneous alarm coverage

Medical responses: immediate response of closest training personnel, best possible service to the citizens, cancellation of unnecessary emergency response, lift assists

Office of Emergency Services grant programs: 17 defibrillators to fire agencies and Del Norte Ambulance, radiation detection equipment, thermal cameras, command radios, and other equipment purchase through grants

Emergency Operations Center assignments: local fire chief responsible for their jurisdiction, planning section chief, disaster planning council members, back-up Emergency Operations Center (EOC) at Washington Station

Automatic aid: helps to provide support of concepts, faster response time, saves money, exceeds OSHA, more experiences, better coverage, and safer working conditions

What is next: target hazard program, cross-coverage, accountability, joint purchasing, Kids Fire Club, joint inspection and re-fire planes, joint contract negotiation with forest agencies?

These issues are all County issues and not just City and County.

Hugh Scanlon, California Department of Forestry and Fire Protection

Hugh Scanlon, representing the California Department of Forestry and Fire Protection in Fortuna, discussed defensible space. He stated that volunteer firefighters are the first line of defense and that response times to forested areas require that homeowners educate themselves about defensible space. Mr. Scanlon stated that Public Resource Code 4291 requires any person owning, leasing, or controlling a building or structure in, upon, or adjoining any mountainous or vegetation-covered lands to take certain steps to protect the land from wildfires. Mr. Scanlon offered copies of the "Danger Spots Around Your Home" and the "Homeowner's Checklist" to those present. Other members of the public will receive copies at the community meetings later this month and next. Law requires that each homeowner have 30 feet of clearance of combustible fuel around their home. Homeowners need to help make their homes defensible by participating in landscaping, construction, brush and fuel clearance and other measures to assist in fire prevention. Maintaining this space is important as well to ensure access to the property for emergency vehicles and a safe space to operate; also need well-listed address. Water supply is a critical element to defensible space, and the Del Norte Fire Safe Council has done well in this area. Improving fire safety inside homes includes operating smoke detector and other measures. Fire planning measures begin locally with what the local folks know. What kind of resources are out in the community will assist in fire safety as well as values of each community, which helps focus prevention. Native Americans historically burnt areas frequently. We have a large fuel situation and a greater risk of wildfire. Historical information regarding past fires, fuel load areas, firebreaks and infrastructure, areas covered by fire safety personnel will drive the Fire Safe Plan. Local knowledge will give the best bang for the buck in fire safety measures.

Tracy Katelman, Del Norte Fire Safe Plan Consultant

Del Norte Fire Safe Council Consultant / Coordinator Tracy Katelman stated that the Del Norte Fire Safe Council is a citizen volunteer effort to provide a strategic county-wide plan to reduce the risks from wildfires in Del Norte County. The National Fire Plan helps to fund fire safe plans in the country. This is the first of many community meetings. It will begin the process of community input and provide information for emergency personnel, safe zones, etc., to combine with existing agency information and data to come up with the best possible Del Norte Fire Safe Plan. Ms. Katelman listed the dates and logistics for the six community meetings and gave an overview of the matters that would be discussed at the following public meetings:

Gasquet, March 10, 2004
Smith River, March 17, 2004
Hiouchi, March 18, 2004
Klamath, March 23, 2004
Big Flat / Rock Creek, March 25, 2004
Fort Dick, April 7, 2004

Ms. Katelman further stated that remote areas especially need to defend themselves against all emergencies. The community meetings and Fire Safe Plan are intended to help give neighbors the tools to prevent loss. Instilling the sense of responsibility in citizens of each community is important to get them thinking about fires, preventative measures, and making them aware of problems. Safe zones will be identified as well as evacuation routes, marking them on maps and locating homes in forested areas for emergency personnel and potential development of a firefighters' atlas using geographic information system (GIS), which will be given back to emergency agencies and governmental agencies for use in disaster preparedness and emergencies. Priorities of each community will govern the list of projects for the Del Norte Fire Safe Council for short- and long-term projects. Each community meeting will help identify representatives for the Fire Safe Council in each community / neighborhood. Those projects would then be implemented for a safer community. A long-term goal of the plan is to increase public awareness and education to lessen the threat and panic level. With the coordination and assistance of the community, the draft Del Norte Fire Safe Plan will be out this fall, with the final community comment on the plan scheduled for a month or so after the release of the draft. The final plan will be printed shortly after that time.

The next Del Norte Fire Safe Council meeting will be on Monday, March 2, 2004, and the next community meeting with regard to the Fire Safe Plan will be on Wednesday, March 10, 2004, at Mountain School in Gasquet.

There being no further comments or business, the meeting was adjourned at 8:24 p.m.

Respectfully submitted,

Karen L. Phillips, Local Coordinator, Del Norte Fire Safe Plan
*PS Secretarial Services

C.2 Public Notice

The Fire Safe Council

We all know that when it rains it pours and that …
April showers bring May flowers, and
August briars bring forest fires!

Join your neighbors in Fort Dick for a community meeting on the

Del Norte Fire Safe Plan

Learn about fire safety, defensible space and how to be better prepared for inevitable forest fires.

The Del Norte Fire Safe Council respectfully invites you to join us

Tuesday, April 6, 2004, from 6:30 to 9 p.m.

At the Fort Dick Fire Protection District Fire Hall
6543 Kings Valley Road, Fort Dick, California

Please join us!
Refreshments will be served

Sponsored by the Del Norte Fire Safe Council
For more information please call Tracy Katelman at 707-443-2400 or Karen Phillips at 707-464-9651

Funded by the USFS Economic Action Program

C.3 Outreach Mailing – Sample Letter

May 5, 2004

Dear Neighbors,

We are writing to you today on behalf of the Del Norte Fire Safe Council in regards to a current opportunity we have as Del Norte residents to improve our chances of surviving wildfires. Through a grant from the National Fire Plan, the Fire Safe Council is developing a Fire Safe Plan for Del Norte County. In that plan, we are identifying what we as community members want to do to reduce our risks from wildfire and in turn increase our fire safety here.

Our reason for writing you is two fold. First, we want to share with you information to help you prepare for and survive a wildfire. The enclosed "Homeowners Checklist" is a great first step towards making your home fire safe and creating your "defensible space" — the space (usually 30 to 100 feet) around your home to allow firefighters to safely and effectively defend your home in case of wildfire. Please spend a few hours this weekend reviewing your home and property with this checklist. Identify where you are safe and what other steps you need to take to protect your home and family. If you would like more help with identifying fire safety and defensible space issues around your home, you can contact your local **Fire Protection District, 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.

Second, we want to hear from you what you think is most important to do here to prepare our community for eventual wildfires. The plan that we are developing will identify community priorities for wildfire protection. That means we want and need to hear from you! You know the area where you live better than most anyone else. **Please use the enclosed survey and map to let us know by June 1st: 1) What areas you think are most important to protect if there is a wildfire (e.g. schools, historical sites, etc.). 2) Where you think a fire might start in your neighborhood and why. 3) Where if a fire started in your neighborhood it would be difficult to control. and 4) Where you think any fuel reduction or other projects should be undertaken in your neighborhood to reduce fire risks and hazards there.** Examples of fuel reduction projects include putting in "shaded fuelbreaks" (where the highest tree canopy is left intact, but most of the lower vegetation is removed to help slow down a fire), removing brush and dead vegetation along roads, and educational projects such as signs, school projects, etc. Please take about 1/2 hour to fill out the survey and map and return it to us by June 1st in the enclosed envelope. If you want another copy of the map to keep, let us know and we'll send you another.

Finally, we welcome you to get involved in the Del Norte Fire Safe Council. The DNFSC is a volunteer organization that meets monthly to make this county a more fire-safe place to live. Meetings are held the first Monday night of each month at 6pm at the CDF office, 1025 Highway 101 North, Crescent City. For more information on the Fire Safe Council, please contact us at 951-5437 or dnfsc@charterinternet.com.

If you have any questions regarding the Fire Safe Plan, please contact Karen Phillips at 464-9651. Thank you for taking the time to make your home and our community fire safe. We look forward to seeing your ideas on June 1st.

Sincerely,

Sharol Leavitt	Jim Karanopoulos	Karen Phillips
Director, DNFSC	Gasquet Fire Protection District	DNFSC Local Organizer
	Chair, DNFSC Fire Planning Committee	

Enclosures: Homeowners Checklist, Map & Survey, Return Envelope

C.4 Outreach Mailing – Sample Survey

Your Name:

Your Address:

Your Phone Number:

Your Email Address:

Date you filled out this survey:

1. **What do you consider the most important areas in your neighborhood (other than homes) to protect in the case of a wildfire?** (For example, schools, cultural or historical sites, ecologically significant areas, businesses, power stations, etc.) Please list those areas here. Please also mark these on the map with XXXX, and if possible, in green.

2. **Which places do you think a fire would start in your neighborhood? Why do you think it would start there?** Please describe those places here. Please also mark these on the map with ////////, and if possible, in red.

3. **Which places do you think in your neighborhood would be most difficult to control if a fire stared there? Why those places?** Please describe those places here. Please also mark these on the map with ^^^^^^^^^^, and if possible, in orange.

4. **What steps do you think need to be taken to protect you and your neighbors from a wildfire?** Please describe those steps in as much detail is possible here.

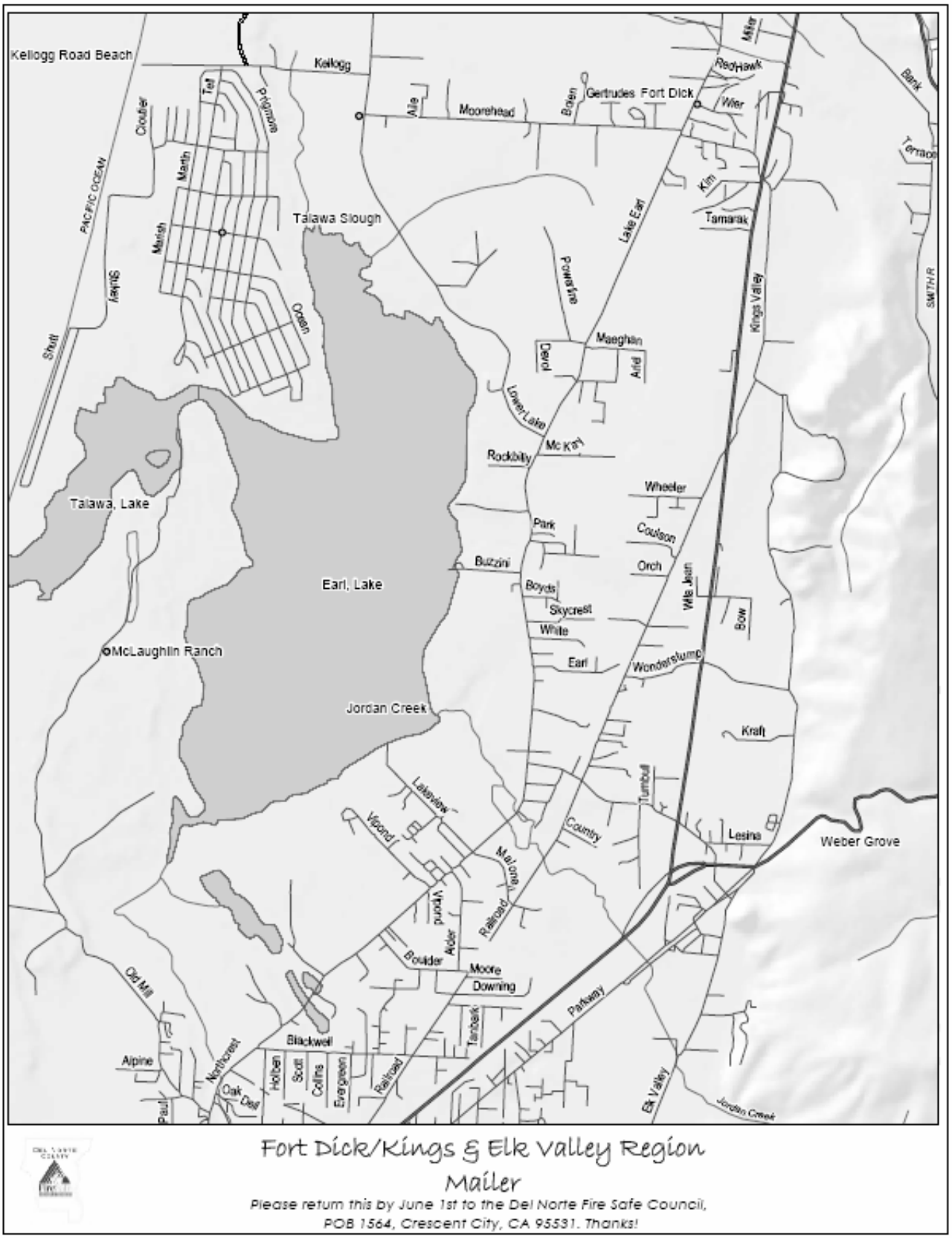
5. **What projects would you like to see done in your neighborhood to improve fire safety?** Please describe those places here. Please also mark these on the map with \\\\\\\\, and if possible, in yellow.

6. **Where are there sources of water in your neighborhood that can be used for fire-fighting (such as water tanks, pools, or ponds)?** Please list those here with the approximate capacity in 1,000 gallons (for example, 5,000 gallons would be listed as 5). Please identify those spots on the map with a dot • (if possible in blue), and write the capacity next to the dots.

Use any additional sheets if necessary

Appendix C. DEL NORTE FIRE SAFE PLANNING PROCESS

Outreach Mailing – Sample Map



C6. Public Draft Distribution List

Del Norte Fire Safe Plan
Public Draft – Distribution List

What	How Many	Who	Contact Name
print	5	Del Norte County Board of Supervisors	Donna Walsh
print	1	DN County Administrative Officer	Jeanine Galatioto
print	1	DN Co Director of Community Development	Ernest Perry
print	1	DN Co Sheriff	Dean Wilson
print	1	DN Co Assessor	Gerald Cochran
print	1	DN Co Community Development	Public Review
print	5	Crescent City Council Members	Diane Nickerson
print	1	City Manger - Crescent City	Dave Wells
print	1	City Police Chief	Doug Plack
print	1	City Fire Chief	Steve Wakefield
cd / print	2	City Planning Department	Mr. Barnes
cd		Del Norte Fire Safe Council Members	various
print	2	Del Norte Library District - Public Copy	Patti Hector
cd	1	Smith River Fire Protection District	Myron Williamson
print / cd	2	Crescent Fire Protection District	John McFarland
cd	1	Fort Dick Fire Protection District	Randy Crawford
cd	1	Gasquet Fire Protection District	Jim Karanopoulas
cd	1	Klamath Fire Protection District	Lonnie Levi
print / cd	2	Redwood National & State Parks	Kirk Shea
cd	1	California Department of Forestry	Jim Smith
cd	1	USFS - Smith River National Recreation Area	Marilyn Murphy
print	1	USFS - Smith River National Recreation Area	Public Review
print	1	Yurok Tribe Watershed Restoration Program	Bob Rhode
print	1	Yurok Tribe Fisheries Mgmt Dept.	Dave Hellemeier
print	1	Yurok Tribe Environmental Program	Shaina Meiners
print	1	Elk Valley Rancheria	Tribal Chair / CEO
print	1	Smith River Rancheria	Tribal Chair / CEO
print	1	Local Transportation Commission	Susan Morrison
print	1	Local Agency Formation Commission	Darren McElfresh
print	1	Green Diamond Resource	John Pricer
print	1	Hambro Forest Products	Dwayne Reichlin
print	1	Daily Triplicate	Theresa Tsalaky
print	1	Yurok Tribal Offices - Public review copy	Front Desk
print	1	State Farm Insurance	Barbara Carr
print	1	Farmer's Insurance	Craig Dauber
print	1	Del Norte Insurance	FY&Y
print	1	Northwest Insurance	Bill Cochran
print	1	Niblack Insurance	Norma Niblack
print	1	Western Valley Insurance	Steve
print	1	John Wier Insurance Agency	John Wier
print	1	Pelican Bay State Prison Public Info Off	Lt. Steve Perez
print	1	Rural Human Services	Dennis Conger
cd	1	DN / CC Chamber of Commerce	Earl Hanson

What	How Many	Who	Contact Name
cd	1	California Highway Patrol - CC Office	Lyle Radtke
cd	1	Friends of Del Norte	Joe Gillespie
cd	1	Bertsch Ocean View CSD	Eunice Zeck
cd	1	Big Rock CSD	Renna Nelson
cd	1	Church Tree CSD	Harold Washmuth
cd	1	Gasquet CSD	Catherine Seils
cd	1	HRC CSD	Carol Leuthold
cd	1	Hunter Valley CSD	Patrick A. Harlow
cd	1	Redwood Park CSD	Gordon Karnes
cd	1	Smith River CSD	Miriam Carole
cd	1	Klamath CSD	Sandra Benson
cd	1	Pacific Shores Water District	James O'Connell, III
cd	1	Peter Tittmann	
print	1	Bob Blanchard and Kenny Peugh	
cd	1	Smith River Alliance	Patty McCleary
cd	1	Del Norte Ambulance	Ron Sandler
cd	1	CAL-ORE Life Flights	Dan Brattain
print	1	G.H. Smith Emergency Mgmt Planners	Mr. Smith
print	1	Del Norte InfoCenter	Clarke Moore
cd	1	Assemblywoman Patty Berg	
cd	1	Congressman Mike Thompson	
Total	**75**		
CDs	30		
copies	44	B / W =33 and Color = 11	

APPENDIX D. COMMUNITY MEETING INPUT

Table of Contents:

1. **Community-Identified Risks and Hazards**
2. **Community-Identified Potential Projects**

APPENDIX D. COMMUNITY MEETING INPUT

D.1. Community-Identified Risks and Hazards

The following lists are perceived risks and hazards identified by residents at the specified community meeting. These features are not necessarily accepted by the Del Norte Fire Safe Council or any Plan collaborators.

Klamath Community-Identified Risks and Hazards[51] [52]

- Resighini Rancheria – ignition sources and spread, surrounded by private timber
- Requa, entire hill is a hazard
- Around any homes
- Klamath Glen: Airport, Starwein Flat, Trobitz, Fizer, Debacker, and Blake streets. Several are one way in and out, windy, and/or full of heavy fuel.
- Road below look-out (cigarettes, etc., from tourists)
- Trailer park (high concentration of people)
- Klamath Glen where Starwein and Blake Roads meet: There is a house under tall redwood trees and children often play there (house was condemned 20 years ago). Redwood Rest campground is across the road from the house and has tall redwood trees that could catch fire.
- Along roads
- Along Highway 101
- Behind CCC (no access)
- Hunter Creek is a valley surrounded by brush

Crescent City Community-Identified Risks and Hazards

- Field between Elk Valley Road and National Park Way (had previous fire ignited by tractor mowing grass).
- Mary Peacock School was identified as a high-risk area since kids play with matches in the woods; there are four-wheel-drive roads and other unsupervised activities happening there.
- In the area behind Wal-Mart a disaster scenario was played out, which indicated that the homes between Wal-Mart and Pine Grove School would be threatened in a wildfire. This includes Carole Lane, Pine Grove, Cummins, Lynch Drive, Blackwell Extension, Summer.
- The mill pond area off Lake Earl Drive (near Standard Veneer Road) is a high-risk area due to transients and other activities. The CAN food bank is also located on this property, which adds to the transients living close by.
- The Addie Meedom Assisted Living Home would be hard-pressed to get residents relocated in a timely manner in the event of an emergency.
- The development on Embarcadero and Carole Lane is at high risk due to brush piles, abandoned trash such as appliances and tires, and transients. However, the brush piles are being cleared up at this time as development begins.
- A property off Michigan and Maiden Lane is considered an ignition source. The owners are well known to law enforcement, emergency personnel, and abatement officers in the area. This has been

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

[52] These, and those identified for the other community planning areas, are comments made by meeting participants.

identified as a community-wide problem area due to the junked vehicles, metal, trash and other substances dumped there.

- The fields (dry grass) on either side of Church Tree from Elk Valley Road are a hazard.
- If a fire were to start in the meadow below Church Tree (or in the National Park) it would easily move onto Church Tree Road. Problems are on downhill side (Church Tree looking down to Sandman). Old ranches, blend of old / new houses, big houses, many shake roofs. Turnaround at end of road can be tight. There are three hydrants on Church Tree, so water supply is "fairly reasonable" (not enough water to cover everyone, but short distances to get water).
- National Park Way (off Church Tree), the first hydrant on Church Tree is located at this intersection at the bottom of a hill. This area had a fire from construction. Windy gravel driveways with very dense vegetation. Road dead-ends. Fire in this area will require air support from CDF Kneeland or air tanker from Rohnerville. If that support was not immediately available, stopping a wildfire here would be very difficult, if at all possible.
- Elk Creek area is heavily wooded even though it is wet (owned partly by Fish and Game). Many transients live in the Elk Creek Park area behind Safeway, causing a substantial fire danger from Elk Creek to Maiden Lane.
- Lots of traffic through Howland Hill and Stout Grove adds to fire danger along with narrow roadways.
- Union and Michigan spurs (off Elk Valley Road) are narrow.
- Private roads in the Parkway Drive area are narrow and need brushing. They are dangerous for fire truck and emergency vehicle access, and evacuation.
- Parkway Drive is an interface area with dense vegetation. It is a one-lane road, and spur roads off Parkway are not marked, nor are house numbers. There are about a half-dozen spur roads with no access or turn-arounds for fire engines, nor secondary emergency access routes.
- Sandman (off Parkway Drive) is a one-lane road (but legal width of 25 feet) with minimal turnaround space. Nearby meadow was prescribe-burned three years ago. All houses are on wells, no water near end of road. Potential for large loss here, many expensive homes with shake roofs, power lines (have arced), wood stacked against houses. Some houses with defensible space, some not. Lots of spur roads off Sandman are not legal width, no turnarounds, no separations, and expensive homes.
- Sleepy Hollow (off Sandman) has expensive homes and is narrow, twisty, and maze-like with no street signs. Turns to gravel at end.
- Old Mill Road (off Northcrest Drive) had a power line go down in July 2004 in the Lake Earl Wildlife Area which started a fire. Five acres burned and it stopped at the gravel road. Has a couple of spur roads.
- Harbor View and Pine View Courts are good examples of fire safe development.
- Norris Avenue (off Elk Valley Road) is the location of the Elk Valley Rancheria, a six-block area with a community center and casino. The Rancheria is home to 100 families. Fire enforcement issues here, many ignitions. Rancheria is great community member and DNFSC partner.
- Maiden Lane (off Elk Valley Road) has problems with transient camps. Maiden Lane at Nelson Lane is a junk yard / dump site with hundreds of cars and trailers. This site has had fires. Lots of illegal dumping going on in this area. There are transient camps in the Elk Creek Wildlife Area.
- East side of 2nd Street (behind Renner) has an old motel, a transient camp, and people burned bridges and tables here in the past. The Mill Creek headwaters are located here. Elk Creek Nature Area is also here (used to be cattle ranch). What used to be pastureland is now dense shrubs. The county fairgrounds are just north of here. Also Elk Creek nature trails are located here (managed by California Department of Fish and Game). Used to be big mill here – Hobbs-Wall Co., McNamara Peepe Lumber Company. This whole area abuts downtown.

- Steep hill between National Park Way and top of Church Tree Road.

Fort Dick Community-Identified Risks and Hazards

- Pacific Shores – into timber
- East of Lake Earl Drive, under the right wind conditions up to the Kings Valley Road area along Highway 101
- Roadways including Highway 101 and Highway 199
- Jedediah Smith State Park
- Logging company lands
- Older electrical transmitters (most were replaced two years ago)
- Compost piles
- Fireplace use during fire season (people are using fireplaces instead of burn barrels because of new laws)
- Field beside Kings Valley Mobile Estates off Lesina Road
- People still burning trash
- Lot between 36165 Cedar Lane and Wonder Stump
- Along Park Road
- Open fields and junk piles on Elk Valley Crossroad
- Mobile home parks
- Between Lower Lake Road and Lake Earl
- Forest on hillside east of Kings Valley Road

Smith River Community-Identified Risks and Hazards

- The entire Oceanview Drive area and the ridge along the east side against forest is a high hazard area
- Developments off Oceanview Drive, and below the Oregon border, including Spyglass and Nautical Heights subdivisions
- The east side of the Knutsen Lane / Rossini Lane / Rose Lane area east of 101 just north of Dr. Fine Bridge, interface with forest
- Rowdy Creek Road, gravel pit and campground
- High Divide Road
- Wooded hills behind and across from South Bank Road — these hills also have brush piles from previous logging activities
- Wooded areas on east side of Hwy. 101
- Nautical Inn (site of previous kitchen fire)
- White Rock Resort (many people coming and going and smokers)
- Beach area in front of Clifford Kamph Memorial Park (fires are started and abandoned by campers); the area also has a large build-up of driftwood
- Oceanview Drive (especially north side) and Surfsound Drive are heavily forested with excess undergrowth
- Old motel at north end of Hwy. 101 near inspection station
- Smith River Rancheria
- End of Sun River Road (poor access and thick vegetation)
- Stephanie Lane (inaccessible and lots of people live down that road)

APPENDIX D. COMMUNITY MEETING INPUT

Big Flat/Rock Creek Community-Identified Risks and Hazards

- Big Flat Campground all the way to Dry Lake
- Gasquet Orleans (GO) Road
- Hurdy Gurdy Creek area
- Past Stevens Ranch on Jones Ridge Road, especially near Jones Creek
- Ship Mountain Road / Lookout
- Anything west / northwest of Big Flat or Rock Creek due to prevailing winds
- Rellim Redwood / Mill Creek brush patch
- South Kelsey Trail
- Shooting Range on Goose Creek Turnout
- Rattlesnake Lake
- Goose Saddle off the GO Road firing range, garbage dumping area
- Sand Flat Campground
- Unoccupied lots with brush
- South Fork Road where it is one lane

Hiouchi Community-Identified Risks and Hazards

- Unauthorized campground at Myrtle Creek, fire hazard, access issue
- Woods behind Madrone Mobile Home Park, possible fuelbreak
- Vacant home on property behind Hamlet, fire hazard / attractive nuisance
- Jed Smith and Stout Grove are hazards because of difficult access and they are overgrown
- Highways 197 and 199 are difficult access and there are many trees overhanging the roadways
- Myrtle Creek area (used by transient campers)
- Wooded area west of Hiouchi (SRFPD) fire hall (used by transient campers)
- Meadows on North Bank Road that are not mowed
- State Parks on both sides of Hiouchi bridge (careless campers, fishermen, tourists, lightning)
- Club Drive Road
- North and east of Blackberry Lane is parkland with heavy growth
- Blackberry Lane
- Ashford Road area due to steep terrain

Gasquet Community-Identified Risks and Hazards

- Panther Creek campground (at least three fires have started across the river from this area, two from power lines)
- Highway 199
- Mountain School
- The Airport
- North Fork Loop (Madame Gasquet), especially during Fourth of July
- Azalea Court
- Madame Gasquet Trail, under the power lines at the end of North Fork Loop (Power substation)
- Patrick Creek Road
- Gasquet Toll Road
- Gasquet Mountain Road
- Pioneer Road / Village

- Gasquet Mobile Home Park (brush piles will be cleared by next fall)

Sun Star Community-Identified Risks and Hazards

- Hogue's Meadow / White Bridge – camping and fire starts here
- Waldo Road between O'Brien and Takilma
- Down-canyon areas, primarily Takilma
- Improve main evacuation road to Takilma by brushing and improving the road surface for easier evacuation

APPENDIX D. COMMUNITY MEETING INPUT

D.2. Community-Identified Potential Projects

The following lists are potential projects identified by residents at the specified community meeting. These projects are not necessarily endorsed by the Del Norte Fire Safe Council or any Plan collaborators. Please see the Mitigation Strategy Priority Projects for each community in Chapter 6 for a list of proposed projects by community.

Klamath Community-Identified Potential Projects[53]

- Brushing back of roads in residential areas for safety and fire/emergency vehicle access.
- Addressing (visible signs) of residences and roads is a major issue in Klamath
- Protect Trees of Mystery as a major local economic resource, with a fuelbreak and/or water tank.
- Need fire hydrant on Trobitz Road in Klamath Glen.
- Improve Requa Road bridge over Salt Creek. It is not safe for larger trucks.
- Prescribed burn from mouth to Klamath Overlook lookout every five years.
- Clear/brush back Van Duzen, Gensaw, and Fizer Roads on Requa Hill.
- Prescribed burns in Redwood National Park on north side of Wilson Creek.
- Need water tanks at: Margaret Keating School (some recently purchased and installed by KFPD), Hunter Creek Fire Station (10,000 gal.), above Klamath town site (Hatzis Flat).
- Check on and maintain the Resighini Rancheria hydrants at casino site to see if they are operational and available for use.
- Brush back homes and provide defensible space education to Terwer Valley Road residents.
- Burn or brush back old town site roads.
- Brush back Starwein and Blake Roads in Klamath Glen.
- Shaded fuelbreaks on Simpson/Green Diamond property – Tepo Ridge, Pou-oup Ridge to Minot Creek Ridge and Hoppaw Ridge, Ted's Ridge around F.R. Wern Ridge back to Highway 101, and connect these fuelbreaks between Hunter and West Creeks.
- Community water supply with access for emergencies, quick response.
- Clean up after logging.
- Clearing on mountains surrounding homes and along all roads.
- KFPD and CDF Alder Fire Crew burn back (river) side of dike.

Crescent City Community-Identified Potential Projects

- Work with fire districts to get road signs and addresses through fundraisers, grants, or homeland security funding. Addresses need to be identified in this area. Most homes are not marked, and street signs are not posted or posted incorrectly in some instances. Educate community regarding posting addresses for medical reasons. Addresses need to be correct on county records and posted on each street and driveway. Addressing needs to be the number-one priority on county maps.
- Install water tanks on Parkway Drive off Sandman and Dundas.
- Brush back East Jefferson and Heacock Lane to widen these roads.

[53] These, and those identified for the other community planning areas, are suggestions made by meeting participants. By listing them here we do not take a position on the statement. They are listed for informational purposes only.

- Purchase a dump truck for DNFSC use in the chipping program. Perhaps this could be purchased or donated for use through Green Diamond.
- Brush back roads for easier evacuation, access, and identification of residential areas.
- Shaded fuelbreaks behind Church Tree and Bertsch Tract areas and parks.
- Shaded fuelbreak between Elk Valley / Parkway Drive through the Elk Creek drainage.

Fort Dick Community-Identified Potential Projects

- Fuelbreak on Simpson Timber (Green Diamond) Ridge (between South Bank and Wonder Stump)
- Fuelbreak along Wonder Stump Road
- Water tanks at schools, South Bank Road is a number-one priority
- Signs posted along Highway 101" "Be fire safe" "Have defensible space"
- Children's programs at schools – fire safety and defensible space
- Posting addresses for medical reasons. Could the fire district provide and post address signs? Have volunteer groups or classes available to post signs. Addresses need to be correct in county records. Addressing needs to be the number-one priority on county maps.
- Big red truck program – fire truck access to driveways, with green, yellow, and red rocks at the end of driveways to indicate defensible homes (green), non-defensible homes (red), and marginally defensible homes (yellow).
- Return use of burn barrels
- Education regarding burn piles, including clearing areas of flammable debris
- Having water / shovel / rake on-site, supervising fire, and making sure fire is completely out (when fire is reduced to minimal embers, douse with water and rake)
- Clear dead wood, brush, and weeds, especially near roadways and homes
- Put more water hydrants along the road closer to homes
- Continue fireworks ordinances
- Keep fields mowed
- Don't have unnecessary items lying around, don't have flammable liquids lying around
- Periodically check fire hydrants in neighborhood
- At north end of Wonder Stump Road remove islands in the middle of the road[54]
- Remove all trees within five feet of driving surface or hanging over the edges of ditches
- Ditches should have pipes installed for water drainage, then paved.
- Fire safe inspections of homes and mobile homes
- Clear and mark areas around fire hydrants to make them more visible

Smith River Community-Identified Potential Projects

- Controlled burn of 400-plus acres from Lopez Creek to Ritmer Creek (privately owned, with owner's consent)
- Create a shaded fuelbreak and alternate emergency access route on the first ridge south of the Oregon border (Lopez Creek to Spyglass or Ritmer Creek Ridge to Nautical Heights)
- Brush back place on South Indian Road and Prince Island Road

[54] A comment was received regarding this comment being a project proposed in this Plan. Like all items listed under the heading of "Community-Identified," it reflects a comment made at the Fort Dick community meeting It is listed here for information only. By being listed here, it in no way implies a recommendation one way or the other by the DNFSC and the Del Norte Fire Safe Plan.

- Create a shaded fuelbreak along the ridge on the east side of 101, north of Dr. Fine Bridge (Knutsen Lane, Rossini Lane, Rose Lane area) and tie into North Bank Road
- Shaded fuelbreaks south of Smith River from Dr. Fine Bridge to Morrison Creek
- Create defensible space around the Rowdy Creek gravel pit
- Install fire hydrants using water tank or pump from river
- Remove brush piles on the hillside behind South Bank Road
- Educate visitors to Clifford Kamph Memorial Park beach with signs and flyers describing proper methods of building/extinguishing fires on the beach, and designate fire pits there
- Strict limitations on burning trash, yard clippings, tree stumps, etc.
- Education: remind people not to burn in dry grassy areas during fire season
- Install a water system, perhaps using money from a water bond
- Fireworks should be banned and heavy fines imposed; also ban beach fires and use large notices to enforce bans on fireworks and beach fires.
- Have owners of abandoned homes and lots clean them
- Have a fire station closer (as far north as possible on Hwy. 101) to cover the northern end of the county
- Have ability to pump water from ocean or river

Big Flat/Rock Creek Community-Identified Potential Projects

- Get RAC funding to create fuelbreaks along all roads here.
- Addressing of residences and roads is a major issue in Big Flat/Rock Creek. Residences also need to be GPSed[55] and put into the GIS[56] for emergency dispatch response and identification.
- Brushing back of roads in residential areas for safety and fire/emergency vehicle access. A suggestion was made of doing a weekend brush-back party in Rock Creek, visiting all of the streets.
- Emergency communication systems for both Rock Creek/Boulder Creek (Moore's) and Big Flat (Blackburn's). A phone tree and air horn seem plausible, as well as CB radio's. A repeater for cell service on Ship Mountain would be very helpful.
- A fire truck from the Calistoga Rotary Club has been obtained. It will be located on a private residence and maintained by local, unaffiliated volunteers.
- Emergency/medical training for residents. There is one nurse in Rock Creek and one EMT in Big Flat.
- Road on back of flat near Porteous needs brush clearing.
- Create shaded fuelbreak and clear horseshoe turns for emergency access along French Hill, Jaw Bone, Ship Mountain (Muslatt Lake), and Fox Ridge.
- Create a website with emergency information regarding current fires in the County/region. Perhaps put this on DNFSC or SRNF websites?
- Shaded fuelbreak between Big Flat and Rock Creek communities at Rattlesnake Slide, on Fox Ridge, and another surrounding Big Flat between the private and public land.
- Need to talk to other neighbors regarding concerns across the river from the Flat.
- Hold a BBQ at the Rock Creek Ranch later to continue the community education effort regarding fire safety.
- Coordinated fire drill/test evacuation at neighborhood-level.

[55]Global Positioning System, identifies a place in terms of Universal Transverse Mercator (UTM) coordinates.

[56]Geographic Information System (GIS) is a digital map-making program.

- Need pumps from river to refill and pressurize water system.
- Fire safe inspections of homes.
- Parcels with absentee owners need brush and trees cleared.

Hiouchi Community-Identified Potential Projects

- Create shaded (where possible) fuelbreak along Hiouchi Mountain / Ashford Road / Hyatt Heights ridge above the bluff over the forks. Access from Hiouchi Mountain Road and Ashford Road.
- Existing shaded fuelbreak along the edge of Jedediah Smith Redwoods State Park on Redwood National Park lands on both sides of Highway 199 to Hiouchi Mountain property needs maintenance.
- Addresses need to be clearly marked for residences / properties throughout this area.
- Rock Creek has no alternate access, create fuelbreak on 17N23B and tie into State Park land or along (4x4 only) USFS Road 17N23 from Low Divide to private property above Hiouchi Mountain Road.
- Fuelbreak around Jed Smith Lane on Highway 197 to Low Divide Road (using Simpson road off Low Divide Road).
- 54 new homes proposed on Jed Smith Lane. This will need a fuelbreak.
- Fuelbreak up on top of Rattlesnake Ridge above Douglas Park or Pacamo, at a minimum a break between private residences and public lands. Do interagency burn on forested lands above Douglas Park on Forest Service and Park lands.
- Create a shaded fuelbreak on Low Divide Road, also as an evacuation route.
- Shaded fuelbreak on Little Bald Hills to Little Bald Hills Ridge.
- Fuelbreak behind Madrone Mobile Home Park.
- Install more water tanks.
- Maintain shaded fuelbreaks on Redwood National Park lands.
- More fire hydrants.
- River water pumping stations along Douglas Park Road.
- Fire truck station near river access road.

Gasquet Community-Identified Potential Projects

- Brush, create defensible space around homes, and turnaround; create shaded fuelbreak around subdivision for Pioneer Village.
- Madame Gasquet and Gasquet Mobile Home Park brush piles need to be burned.
- Undeveloped area of Valley View between Gasquet Village and SRNF (prescribed burn is an option).
- Ongoing maintenance of Gasquet shaded fuelbreak off the Gasquet Toll Road.
- Widen Highway 199 to allow better ingress and egress to the area by firefighters and allow residents to get out of the area.
- Roads needing to be brushed back were identified as follows:
    - Brush / shaded fuelbreak, North Fork Loop.
    - Brush / shaded fuelbreak, French Hill.
    - Brush / shaded fuelbreak, French Hill ridge (prioritize).
    - Brush / shaded fuelbreak, driveway on Stoney Creek Trail (beginning of road).
    - Brush back Toad Road.
    - Brush Darlingtonia.
    - Brush / shaded fuelbreak, Gasquet Mountain Road.

  - Brush Valley View undeveloped and above (subdivision between French Hill Road and SRNF).
  - Brush Gasquet Flat Road.
  - Brush Patrick Creek Road (behind lodge).
  - Brush / shaded fuelbreak, Siskiyou Fork Road.
  - Shaded fuelbreak, Monkey Ridge.
  - Shaded fuelbreak, Gasquet Toll Road.
  - Brush / shaded fuelbreak, Knopki Creek Road.
  - Brush / shaded fuelbreak, Little Jones Creek Road.
  - Shaded fuelbreak to connect Little Jones Road to 17N04 to French Hill Road.
  - Brush / shaded fuelbreak, Washington Flat.
  - Shaded fuelbreak, Jawbone and Packsaddle.
  - Shaded fuelbreak, Lower Siskiyou.
  - Shaded fuelbreak, Shelly Ridge Road.
- Develop secondary / emergency access for Bar-O Boys Ranch.
- Extend hydrant systems to outlying areas.
- Improve draw sites for drafting water on both public and private property.
- Need more wildfire-fighting gear for GFPD.
- Community groups go to high school (fire safety teams) to educate students. SRNF is already targeting pre-school through second grade with Smokey Bear.

Sun Star Community-Identified Potential Projects

- Water tanks placed throughout property
- Assess old "Cat" fuelbreaks from previous fires to prioritize for future fuelbreaks
- Cement water tank in Hogue's Meadow
- Create a "real" campground at Hogue's Meadow with fire pits and other facilities
- Fuel reduction projects in Longwood Fire area
- Fuel reduction in Hogue's Meadow
- Fuel reduction in 1978 clearcut on south border of Sun Star
- Water exploration for horizontal wells
- Shaded fuelbreak between Long Gulch and Cedar Gulch
- Shaded fuelbreak on FS Road 4905, between Sun Star and the White Bridge

APPENDIX E. GIS DATA LAYERS

Del Norte Community Fire Plan				
GIS Data Layers				
Data Description	File Name	Source	Online Linkage	Contact
Roads	dntroad	California Spatial Information Library (CaSIL)	CaSIL Vector Data	
hydrology (lines)	hydrarc	California Spatial Information Library (CaSIL)	CaSIL Vector Data	
hydrology (polygons)	hydpoly	California Spatial Information Library (CaSIL)	CaSIL Vector Data	
hill shade	ned_ca_hs50	California Office of Emergency Services	n/a	OES Regions
elevation	dem_ca	California Coastal Commission	n/a	CCC Regions
topography (USGS Digital Raster Graphics)		Azucena GIS	www.geocomm.com	Azucena GIS
water sources	dn_water_sources2	Azucena GIS	n/a	Azucena GIS
fire stations	dn_fireresp	Azucena GIS	n/a	Azucena GIS
law enforcement	dn_lawenfcmt	Azucena GIS	n/a	Azucena GIS
health care facilities	Licensed_Healthcare_Facilities	California Spatial Information Library (CaSIL)	CaSIL Vector Data	
Six Rivers National Forest WUI	wui_srf_hoopa_uk	Six Rivers National Forest	n/a	Six Rivers Fire and Aviation
CA Dept. of Forestry WUI	wuithrt03_1	CDF Fire and Resource Protection	FRAP Data	
population density	cen00bl	CDF Fire and Resource Protection	FRAP Data	
ecosystem type	cveg	CDF Fire and Resource Protection	FRAP Data	
housing density	wuithrt03_1	CDF Fire and Resource Protection	FRAP Data	
fire threat	fthrt	CDF Fire and Resource Protection	FRAP Data	

fire regime	cafrcc	CDF Fire and Resource Protection	FRAP Data	
condition class	cafrcc	CDF Fire and Resource Protection	FRAP Data	
ownership	govtowna	California Spatial Information Library (CaSIL)	CaSIL Vector Data	
fire protection districts	dn_fpd	Azucena GIS		Azucena GIS
first response	sra	CDF Fire and Resource Protection	FRAP Data	
watersheds	CALWATER 2.2.1	California Spatial Information Library (CaSIL)	CaSIL Vector Data	
precipitation	precipa	California Spatial Information Library (CaSIL)	CaSIL Vector Data	
DNFSC planning areas	dn_planning_areas	Azucena GIS		Azucena GIS
Smith River National Recreation Area Fuel Reduction Projects	snrafuel2002	Six Rivers National Forest		Six Rivers Fire and Aviation
fire weather	wxscore	California Fire Alliance Fire Planning and Mapping Tool	CA Fire Alliance Fire Tool	
zoning	dn_gp_lu	Del Norte County Planning Department		Del Norte County Planning Department
parcels		Spacegraph / Azucena	n/a	
fire history	firep	CDF Fire and Resource Protection	FRAP Data	
geographic place names	GEONAMEA	California Spatial Information Library (CaSIL)	CaSIL Vector Data	
California counties	co100a	California Spatial Information Library (CaSIL)	CaSIL Vector Data	

APPENDIX F. DEL NORTE FIRE HISTORY

Table b. Del Norte Fire History (from Azucena GIS), CDF FRAP Fire Perimeters

YEAR	MONTH	DAY	NAME	ACRES	AGENCY	CAUSE
1909	5	3	N/A	59	USF	Unknown/Unidentified
1909	7	19	N/A	4	USF	Unknown/Unidentified
1910	7	24	BLUFF CREEK	298	USF	Campfire
1911	8	22	N/A	258	USF	Unknown/Unidentified
1913	1	31	N/A	4	USF	Unknown/Unidentified
1913	2	1	N/A	4	USF	Unknown/Unidentified
1913	8	20	N/A	19	USF	Unknown/Unidentified
1914	3	20	N/A	29	USF	Campfire
1914	7	4	N/A	4	USF	Campfire
1915	9	7	N/A	1642	USF	Debris
1916	4	12	N/A	19	USF	Debris
1916	6	10	N/A	9	USF	Debris
1916	6	23	N/A	4	USF	Debris
1916	10	19	N/A	2	USF	Unknown/Unidentified
1916	10	24	N/A	50	USF	Unknown/Unidentified
1917	1	19	N/A	99	USF	Debris
1917	6	17	N/A	29	USF	Debris
1917	8	24	N/A	199	USF	Debris
1917	9	6	N/A	29	USF	Debris
1917	9	29	N/A	2969	USF	Debris
1917	9	3	SERPENTINE CAMP	996	USF	Debris
1918	6	12	CAMP CREEK	3565	USF	Lightning
1918	6	18	STONE CREEK	119	USF	Debris
1918	6	26	MYRTLE CREEK	1050	USF	Debris
1918	0	0		5469	USF	Unknown/Unidentified
1919	5	6	21 MILE POST	29	USF	Debris
1919	6	29	MONKEY CREEK	44	USF	Debris
1919	7	28	SHELLY CREEK	11	USF	Debris
1920	8	18	HARDSCABBLE	199	USF	Debris
1922	9	8	DOCTOR ROCK	558	USF	Debris
1924	8	22	HIGGINS COPPER	7	USF	Lightning
1924	9	1	SUMMIT VALLEY	149	USF	Lightning
1924	9	5	BLUFF CREEK #1	261	USF	Lightning
1924	8	15	C&O LBR. CO.	119	USF	Equipment Use
1924	9	12	BLUFF CREEK #2	1227	USF	Debris
1926	9	8	HAWKINS BAR	2	USF	Smoking
1927	8	15	BOUNDARY	2	USF	Lightning
1927	7	24	NICKOWITZ	1004	USF	Lightning
1927	7	29	BLUFF CREEK	5656	USF	Lightning
1928	10	1	BALD HILLS	3	USF	Lightning
1928	8	31	STONE CORRAL	4	USF	Smoking
1929	8	22	OREGON MTN.	3	USF	Smoking
1929	8	1	RATTLESNAKE	63	USF	Campfire
1929	9	1	FRENCH HILL	228	USF	Debris
1929	11	25	BLUE CREEK #4	3769	USF	Debris
1929	9	15	BLUE CREEK #2	6112	USF	Debris

APPENDIX F. DEL NORTE FIRE HISTORY

YEAR	MONTH	DAY	NAME	ACRES	AGENCY	CAUSE
1929	11	24	BLUE CREEK #3	6705	USF	Debris
1930	5	19	BECKUM SAW MILL	4	USF	Equipment Use
1930	8	8	HAINES FLAT	3	USF	Debris
1932	8	1	N/A	4	USF	Lightning
1932	8	22	N/A	4	USF	Lightning
1932	10	5	VANS CAMP	27	USF	Lightning
1932	10	8	BEANS CAMP #1	6	USF	Lightning
1932	10	12	BEANS CAMP #2	3	USF	Lightning
1932	9	1	N/A	54	USF	Debris
1932	9	8	N/A	288	USF	Debris
1932	8	15	N/A	4	USF	Miscellaneous
1933	9	8	N/A	4	USF	Lightning
1933	9	15	N/A	54	USF	Lightning
1933	9	22	N/A	4	USF	Smoking
1933	9	29	N/A	4	USF	Smoking
1933	8	15	N/A	4	USF	Debris
1934	8	1	N/A	4	USF	Lightning
1934	8	8	N/A	4	USF	Smoking
1934	9	22	N/A	4	USF	Smoking
1934	9	1	N/A	54	USF	Miscellaneous
1935	8	15	N/A	4	USF	Lightning
1935	9	15	N/A	54	USF	Lightning
1935	8	1	N/A	54	USF	Smoking
1935	8	8	N/A	4	USF	Smoking
1935	9	22	N/A	54	USF	Smoking
1935	8	22	N/A	54	USF	Debris
1935	9	8	N/A	4	USF	Debris
1935	9	1	N/A	54	USF	Miscellaneous
1936	8	22	N/A	54	USF	Smoking
1936	9	8	N/A	4	USF	Smoking
1936	9	15	N/A	4	USF	Smoking
1936	8	15	N/A	54	USF	Miscellaneous
1936	8	29	N/A	4	USF	Miscellaneous
1936	9	1	N/A	4	USF	Miscellaneous
1936	10	1	N/A	4	USF	Miscellaneous
1937	8	8	N/A	4	USF	Lightning
1937	8	15	N/A	4	USF	Lightning
1937	9	8	N/A	4	USF	Lightning
1937	10	1	N/A	54	USF	Lightning
1937	9	15	N/A	4	USF	Smoking
1938	8	15	N/A	54	USF	Lightning
1938	9	1	N/A	54	USF	Lightning
1938	9	15	N/A	4	USF	Lightning
1938	9	29	N/A	4	USF	Smoking
1938	10	1	N/A	4	USF	Smoking
1938	9	8	N/A	54	USF	Debris
1938	9	22	N/A	4	USF	Debris
1939	8	15	N/A	4	USF	Lightning
1939	8	22	N/A	54	USF	Lightning
1939	8	29	N/A	54	USF	Lightning
1939	9	1	N/A	4	USF	Lightning

APPENDIX F. DEL NORTE FIRE HISTORY

YEAR	MONTH	DAY	NAME	ACRES	AGENCY	CAUSE
1939	9	29	N/A	199	USF	Lightning
1939	10	1	N/A	4	USF	Debris
1939	10	8	N/A	4	USF	Debris
1940	8	22	N/A	4	USF	Lightning
1940	8	1	HEADWATER	4	USF	Debris
1940	8	15	N/A	4	USF	Debris
1941	8	8	N/A	4	USF	Lightning
1944	8	22	N/A	4	USF	Lightning
1946	8	8	N/A	4	USF	Lightning
1948	8	15	BOUTZ	4	USF	Smoking
1948	8	28	PEINE #2	4	USF	Smoking
1950	7	3	ROCK CREEK	153	USF	Smoking
1950	7	29	PAPPAS	1034	CDF	Unknown/Unidentified
1951	9	16	MYTLE	4	USF	Lightning
1951	9	17	NOTICE CREEK	318	USF	Lightning
1951	9	17	FLINT VALLEY	325	USF	Lightning
1951	1	1	TRYON	4	USF	Equipment Use
1951	3	28	BUMMER LAKE	54	USF	Smoking
1951	4	5	HARDSCABBLE	4	USF	Smoking
1951	3	28	COPCO	21	USF	Smoking
1951	9	16	LEMS SUMMIT	3368	CDF	Unknown/Unidentified
1952	5	27	OLSON-ROSS	54	USF	Equipment Use
1952	6	1	WINDY	93	USF	Miscellaneous
1953	9	21	HURDY GURDY	4	USF	Lightning
1953	9	24	COOPER CREEK	4	USF	Lightning
1953	8	13	GOOSE CREEK	32	USF	Lightning
1953	3	7	MAXWELL	4	USF	Debris
1954	3	2	POLE # C2586	4	USF	Debris
1955	6	11	GOOSE CREEK	4	USF	Lightning
1956	8	21	FOX RIDGE	4	USF	Lightning
1956	8	21	FOX RIDGE	4	USF	Lightning
1956	8	21	COON CREEK	4	USF	Lightning
1956	7	26	DEER LICK	2	USF	Lightning
1956	8	16	EVANOW	4	USF	Equipment Use
1957	7	9	WOUNDED KNEE	4	USF	Equipment Use
1957	5	28	PERIDOTITE	43	USF	Smoking
1957	8	28	NORTH FORK	4	USF	Miscellaneous
1957	9	19	GASQUET MTN.	562	USF	Miscellaneous
1959	7	28	RATTLESNAKE	6	USF	Equipment Use
1959	6	26	BOULDER	13	USF	Equipment Use
1959	8	6	AIRPORT	4	USF	Miscellaneous
1960	7	11	KNOPKI	29	USF	Equipment Use
1960	10	22	FREEMAN	10	USF	Equipment Use
1961	8	13	GURDY	4	USF	Lightning
1962	6	13	BIGFLAT	11	USF	Vehicle
1963	7	12	MCGARVEY CREEK	97	CDF	Unknown/Unidentified
1965	7	30	HAY	35	USF	Equipment Use
1966	5	27	PEAK	7	USF	Smoking
1967	9	12	SUGAR	477	USF	Equipment Use
1969	9	8	HAINES	10	USF	Equipment Use
1969	10	4	SMOKER	2	USF	Campfire

APPENDIX F. DEL NORTE FIRE HISTORY

YEAR	MONTH	DAY	NAME	ACRES	AGENCY	CAUSE
1970	4	1	GO	2	USF	Equipment Use
1972	9	2	MARLOW	3	USF	Lightning
1972	9	2	BEAR	6	USF	Lightning
1972	9	3	PRESCOTT	9	USF	Lightning
1972	10	24	BASIN	8	USF	Equipment Use
1972	10	24	BEAR B	8	USF	Equipment Use
1972	10	24	BEAR H	3	USF	Equipment Use
1972	10	24	HICO E	2	USF	Equipment Use
1972	10	24	BLUE C	54	USF	Equipment Use
1972	10	24	BLUE P&M	22	USF	Equipment Use
1972	8	12	MOOSE	3	USF	Miscellaneous
1972	7	1	PANTHER	209	USF	Power Line
1974	7	26	PLATEAU	5	USF	Lightning
1974	8	8	TRASH	2	USF	Miscellaneous
1975	5	24	ROCK	21	USF	Equipment Use
1975	9	30	BLUE	34	USF	Debris
1977	2	15	ROCKY	29	USF	Equipment Use
1978	11	9	SOUTH	7	USF	Unknown/Unidentified
1980	9	6	FOX	29	USF	Equipment Use
1980	10	5	PATRICKS	104	USF	Debris
1980	10	6	RATTLESNAKE	9	USF	Debris
1981	8	8	WIMER	2	USF	Campfire
1984	7	14	FRENCH	5	USF	Debris
1985	8	22	RED	28	USF	Equipment Use
1985	6	16		2	USF	Unknown/Unidentified
1987	6	19	SCORPION	19	USF	Unknown/Unidentified
1987	10	7	WOODTICK	9	USF	Unknown/Unidentified
1988	9	11	KLAMATH	6158	CDF	Miscellaneous
1990	8	14	RODMAR	5	USF	Playing with Fire
1991	7	22	BRUSHY	2	USF	Smoking
1991	8	14	STONEY	9	USF	Miscellaneous
1993	8	28		2	USF	Unknown/Unidentified
1993	10	27		34	USF	Unknown/Unidentified
1994	7	21		29	USF	Unknown/Unidentified
1994	7	21		14	USF	Unknown/Unidentified
1994	7	22		13	USF	Unknown/Unidentified
1994	7	21		2	USF	Unknown/Unidentified
1994	7	21		9	USF	Unknown/Unidentified
1994	7	23		2	USF	Unknown/Unidentified
1994	7	23		3	USF	Unknown/Unidentified
1994	7	23		3	USF	Unknown/Unidentified
1994	7	21		32	USF	Unknown/Unidentified
1994	7	21		61	USF	Unknown/Unidentified
1994	7	21		16	USF	Unknown/Unidentified
1994	7	21		42	USF	Unknown/Unidentified
1994	7	21		36	USF	Unknown/Unidentified
1994	7	21		10	USF	Unknown/Unidentified
1994	7	21	KEVIN	206	USF	Unknown/Unidentified
1994	7	21		13	USF	Unknown/Unidentified
1994	9	15		2	USF	Unknown/Unidentified
1995	5	25	SHADE	74	USF	Unknown/Unidentified

APPENDIX F. DEL NORTE FIRE HISTORY

YEAR	MONTH	DAY	NAME	ACRES	AGENCY	CAUSE
1998	10	1		956	USF	Unknown/Unidentified
1998	10	1		6284	USF	Unknown/Unidentified
1998	10	1		496	USF	Unknown/Unidentified
1998	10	1		3617	USF	Unknown/Unidentified
1998	10	1		318	USF	Unknown/Unidentified
1998	10	1		441	USF	Unknown/Unidentified
1999	9	20	UPPER COON	30	USF	Equipment Use
2002	7	13	BISCUIT	501070	USF	Lightning
2002	7	28	SHELLY	843	USF	Miscellaneous
2002	4	28	KELLOGG	174	CDF	Vehicle

APPENDIX G. PUBLIC LANDS FIRE MANAGEMENT BACKGROUND INFORMATION

USDA Forest Service, Six Rivers National Forest

"Six Rivers National Forest encompasses 957,590 National Forest acres and 133,410 acres of other ownership… It forms a long, narrow land section, stretching from the Oregon border on the north to Mendocino County on the south."[57] SRNF also manages the Yurok Experimental Forest (1,000 acres), and this is managed out of the Pacific Southwest Forest and Range Experiment Station in Berkeley, California. The purpose of the experimental forest is to study old-growth redwood.

"The [Six Rivers] National Forest has been divided into 17 management areas, each with unique prescriptions, different management goals, desired conditions, resource potential and limitations."[58] These management areas include: wilderness, wild river, experimental forest, Humboldt Nursery, Research Natural Areas, Native American Contemporary Use Areas, Smith River National Recreation Area, Special Habitat, riparian areas, special interest areas, special regeneration areas, scenic river, Retention VQO[59], managed habitat areas, recreational river, Partial Retention VQO, and general forest. Because the Del Norte county portion of the Forest is mainly comprised of the SRNRA, we will focus our discussion on this area.

> The SRNRA, located in Del Norte County in northwestern California, is entirely within the Smith River watershed. It is part of the Six Rivers National Forest. It is bordered on the north by the Siskiyou National Forest; on the east by the Klamath National Forest; on the south by the Orleans Ranger District of the Six Rivers National Forest; and on the west, outside the Six Rivers National Forest boundary, by Jedediah Smith Redwoods State Park, scattered parcels of Redwood National Park, Ruby Van Deventer County Park, small residential parcels, and large industrial timber holdings. The closest city outside the NRA [National Recreation Area] is Crescent City to the west on Highway 101. Highway 199 bisects the NRA on its route between Crescent City and Grants Pass, Oregon. The segment of Highway 199 where it crosses the NRA was designated in the summer of 1989 as a National Scenic Byway.[60]

SRNRA goals are primarily concerned with emphasizing, protecting and enhancing its distinctive biological diversity, anadromous fisheries, and the wild, scenic and recreational values of SRNRA while at the same time maintaining sustainable yields of forest products.

SRNRA Fire Management

In terms of fire history in the SRNRA:

> From 1910-2000 the North Zone FMU [Fire Management Unit which includes the SRNRA and the west side of the Orleans Ranger District north of the Klamath River] had the largest number of acres burned overall (202,348) with the vast majority occurring before 1950. Stand-replacing fires only accounted for approximately 46,000 acres (9%) of the FMU during this period. Records show several large, incendiary (i.e., arson) wildfires during the early part of the 20th century (for example, three fires in 1918: 32,520 acres, 19,110 acres, and 24,347 acres; 1927 – 6,000 acres). Given the lack of organized suppression forces at the time of these wildfires, it is apparent that suppression efforts had little impact on these wildfires, and the fires were typically not stand-replacing. Since 1950 the largest human-caused wildfires were Buck (1998, 845 acres) and Panther (1996, 700 acres). The largest lightning-caused fire was Biscuit (2002, 28,772 acres)…Recent trends in human-caused

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[57] Six Rivers National Forest, About Us, http://www.fs.fed.us/r5/sixrivers/about/.

[58] Six Rivers National Forest, Land and Resource Management Plan, 1995, p. IV-8.

[59] Visual Quality Objective

[60] Ibid, Appendix A: SRNRA Management Plan Addendum, p. 3.

wildfires continue to show a clustering of fire starts along Highway 199, within the Middle Fork of the Smith River. In addition, Forest fire prevention personnel have recognized that abandoned campfires have become more commonplace in the last several years.[61]

In addition, in the SRNRA the type of fire occurrence has changed over the past century:

At lower and mid-elevations, historic fire occurrence has changed from frequent, low-intensity ground fires to infrequent, high intensity stand-replacing fires. At higher elevations, historic occurrence has changed from infrequent, low and moderate intensity ground fires to infrequent, low, moderate and high-intensity surface or stand-replacing fires.[62]

The following are the standards and guidelines regarding wildland fire direction for the entire Six Rivers National Forest including the SRNRA from the Six Rivers National Land and Resource Management Plan (1995).

All wildfires will receive a suppression response that is appropriate to meet the management area objectives. The response will be safe, timely, and cost-efficient.

When properly equipped Forest Service engines and trained personnel are available, they will take fire suppression action to protect structures within the Forest's area of responsibility for all reported fires that involve a threat to life or pose a threat to National Forest resources.

Concentration of fuel created by management activities will be reduced to acceptable levels and arrangements based on the site-specific wildfire risk and the needs of other resources. The selected treatment methods would consider resource values and environmental limitations (for example, topography, and accessibility) as well as costs.

Prescribed fire will be used in natural fuel treatments for various benefits including: a) enhancement of diversity in the structure and composition of plant communities; b) reduction of fire hazard; c) area enhancement for the production and protection of commercial timber yields; d) enhancement of the production of plants and other materials for Native American gathering; and e) enhancement of other resource outputs such as wildlife habitat, forage, and browse.

When prescriptions for timber, wildlife, and other resource management projects call for burning as a method of accomplishment, the risk of fire damage to adjacent resource and property values will be evaluated and plans developed to minimize negative impacts.

Naturally ignited fires may be managed as prescribed fires, as determined on a case-by-case basis through an assessment of hazard and risk and the direction found in the area-specific management plan.

Structural components such as snags, duff, and coarse woody debris should be protected from wildfire and suppression damage to the extent possible. Trees and snags should be felled only if they pose a threat to firefighter safety or contribute to the risk of wildfire spread.

Those suppression actions which are likely to cause more damage to critical resources (for example, threatened and endangered plant or animal species, and their habitats) than the fire itself will be carefully evaluated and alternative actions considered. Resource management experts will be involved to evaluate potential suppression damage compared to potential wildfire damage.

Appropriate resource management experts will be included in developing project-level hazard reduction plans. These plans should identify levels of coarse woody debris and snags (of adequate size and in sufficient amounts) to meet the habitat requirements of species of concern. Additionally,

[61] Six Rivers National Forest, Fire Management Plan, 2004, p. 22.

[62] Ibid, p. 29.

these plans must provide for the safety of firefighting personnel and produce a fuel profile that supports land allocation objectives.

Resource management activities should be designed and implemented so that the wildfire hazard level of the surrounding area is not increased to an unacceptable level.

For areas in the matrix that are located in the rural interface, fire management activities should be coordinated with local governments, agencies, and landowners during watershed analysis to identify additional factors which may affect hazard reduction goals. Hazard reduction may become more important in the rural interface and areas adjacent to structures, dwelling or other amenities.[63]

Table c. Hazardous Fuel Treatments, Six Rivers National Forest, Smith River National Recreation Area (SRNRA), on the following page provides a summary of completed and proposed hazardous fuel treatments in SRNRA.

SRNRA Wildland-Urban Interface

The Wildland-Urban Interface (WUI) is 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*)."[64]

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.[65]

Table d. Wildland-Urban Interface (WUI) Boundary Development – Smith River NRA, Development Notes, is a draft developed by SRNF staff in conjunction with this planning process.

[63] Six Rivers National Forest, Fire Management Plan, 2004, pp. 19 and 21.

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

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

Table c. Hazardous Fuel Treatments, Six Rivers National Forest - SRNRA

Hazardous Fuels Reduction Treatments (Six Rivers NF, SRNRA)							
COMPLETED PROJECTS							
Treatment Name	**Treatment Type**	**WUI?**	**Obligation FY**	**Actual Completion Date**	**Planned Accomplishment**	**Actual Accomplishment**	**Communities at Risk**
1973 Panther	Hand Pile	Yes	2001	6/28/2001	45	45	Gasquet, CA
1973 Panther	Hand Pile Burn	Yes	2003	10/30/2002	45	45	Patrick Creek, CA
1973 Panther Maintenance	Hand Pile	Yes	2004	4/28/2004	45	45	Gasquet, CA
1996 Panther	Hand Pile	Yes	2001	7/17/2001	181	181	Gasquet, CA
1996 Panther	Hand Pile Burn	Yes	2004	3/24/2004	104	104	Gasquet, CA
Biscuit Zone 2 (Road 13N15)	Hand Pile Burn	No	2004	3/19/2004	2	2	
Camp 7 (Gordon Mtn.)	Hand Pile Burn	No	2001	6/28/2001	35	35	
Elk Camp Ridge	Hand Pile Burn	Yes	2004	5/30/2004	12	12	Gasquet, CA
French Hill	Hand Pile Burn	Yes	2004	3/24/2004	37	37	Gasquet, CA
French Hill Fuel Break Maintenance	Hand Pile	Yes	2004	4/28/2004	37	37	Gasquet, CA
French Hill	Hand Pile	Yes	2001	7/17/2001	72	72	Gasquet, CA
French Hill Trail	Hand Pile	Yes	2003	8/7/2003	112	112	Gasquet, CA
Gasquet Dump	Hand Pile Burn	Yes	2004	5/1/2004	1	1	Gasquet, CA
Gasquet	Hand Pile	Yes	2003	8/7/2003	23	23	Gasquet, CA
Gasquet Shaded Fuel Break	Hand Pile	Yes	2003	10/2/2002	100	100	Gasquet, CA
Gasquet Shaded Fuel Break	Hand Pile Burn	Yes	2004	3/24/2004	100	100	Gasquet, CA
Gasquet Transfer Site	Hand Pile Burn	Yes	2004	5/26/2004	2	2	Gasquet, CA
North Fork Campground	Hand Pile Burn	No	2004	5/30/2004	1	1	
NF Smith	Hand Pile	Yes	2003	8/7/2003	27	27	Gasquet, CA
Pappas	Broadcast Burn	Yes	2002	10/21/2001	15	15	Gasquet, CA
Pappas Flat	Broadcast Burn	Yes	2004	11/15/2003	1	1	Gasquet, CA
Pioneer Village	Hand Pile	Yes	2003	8/7/2003	18	18	Gasquet, CA
Shelly Fire	Hand Pile Burn	Yes	2004	11/15/2003	2	2	Patrick Creek, CA
Siskiyou Project	Hand Pile	No	2001	9/28/2001	270	270	
Siskiyou Project	Hand Pile Burn	No	2002	5/15/2002	75	75	
Siskiyou Project	Hand Pile Burn	No	2003	12/6/2002	99	99	

Table c, continued

Hazardous Fuels Reduction Treatments (Six Rivers NF, SRNRA)							
COMPLETED PROJECTS							
Treatment Name	**Treatment Type**	**WUI?**	**Obligation FY**	**Actual Completion Date**	**Planned Accomplishment**	**Actual Accomplishment**	**Communities at Risk**
Siskiyou Project	Hand Pile Burn	No	2004	11/14/2003	129	129	
Toll Road	Hand Pile Burn	Yes	2004	6/1/2004	2	2	Gasquet, CA
PLANNED FUTURE PROJECTS							
Dome	Hand Pile Burn	No	undetermined		174		
French Hill Trail #1	Hand Pile Burn	Yes	undetermined		112		Gasquet, CA
French Hill Trail #2	Hand Pile Burn	Yes	undetermined		100		Gasquet, CA
French Hill Trail #2	Hand Pile	Yes	undetermined		200		Gasquet, CA
Gasquet	Hand Pile Burn	Yes	undetermined		23		Gasquet, CA
Gasquet Mtn Rd	Hand Pile	Yes	undetermined		100		Gasquet, CA
Gasquet Mtn Rd	Hand Pile Burn	Yes	undetermined		100		Gasquet, CA
Gasquet Shaded Fuel Break	Broadcast Burn	Yes	undetermined		150		Gasquet, CA
Gasquet Shaded Fuel Break	Broadcast Burn	Yes	undetermined		450		Gasquet, CA
No. Fork Smith	Hand Pile Burn	Yes	undetermined		27		Gasquet, CA
Pioneer Village	Hand Pile Burn	Yes	undetermined		18		Gasquet, CA
Wagon Wheel	Hand Pile	Yes	undetermined		61		Gasquet, CA
Wagon Wheel	Hand Pile Burn	Yes	undetermined		61		Gasquet, CA

APPENDIX G. PUBLIC LANDS FIRE MANAGEMENT BACKGROUND INFORMATION

Table d. Wildland-Urban Interface (WUI) Boundary Development – Smith River NRA, Development Notes

From the Northwest side of the NRA, heading south

Location	Improvements	Recommendation	Remarks
Major Moore Area	One private residence, FS boat launch facility with SST, FS campground with SST, County Road with bridge crossing the Smith River	Establish ½ mile defense zone.	Area was burned in 2002 by the Biscuit Fire. Rapid re-growth of brush is occurring. Massive number of snags, especially along county road.
Co. Rd. 305 (Wimer), Major Moore to Altaville	No structures. County Road.	Establish as evacuation route from the North Fork Smith / Major Moore area. Establish fire safety areas. Establish Safety adjacent to road in Sec. 6, T.18., R.2E. and near the intersection of Secs. 23,24,25,26. T.18N., R.1E.	Primary access and fire defense route.
Co. Rd. (Wimer), Altaville to Intersection with Co. Rd. 308 (Rowdy Creek)	No structures. Historic mining in area.	Establish as evacuation route from North Fork / Major Moore area and from Gasquet.	Primary access and fire defense route.
Shine Residence (SE1/4, sec. 28, T.18N., R.1E.)	Individual residence with out-buildings.	Establish ½ mile defense zone.	Structure located just outside of forest boundary. Major tractor fire line was constructed around residence and 3 miles down ridge to the north During the Biscuit Fire (2002). Extremely heavy fuel on FS lands immediately to the east of this property.
Co. Rd. 308 (Rowdy Creek), from Co. Rd. 305 (Wimer) to the town of Smith River	County Road, Gun Club and Park with structures along route.	Establish as evacuation route for Gasquet and the Low Divide areas. (Access to the coast)	Extensive logging along this route. Access to the Shine property. Primary fires access and defense route.
Co. Rd. 305 (Wimer), from Intersection with Co. Rd. 308 to Highway 197	Numerous private residences with outbuildings along route.	Establish as evacuation route for Low Divide residents. Establish Safety zones at intersection of Co. Rd. 308 and 17N21 (Sec. 9, T.17N., R.1E.) and along road near the center of Sec. 34, T.18N., R.1E.	Primary fire escape route from Low Divide area. Primary access and fire defense route.

APPENDIX G. PUBLIC LANDS FIRE MANAGEMENT BACKGROUND INFORMATION

Location	Improvements	Recommendation	Remarks
Low Divide WUI Zone	Numerous private residences and outbuildings in this area. Numerous access routes although many in poor condition. Major power transmission line passes through this area.	Establish WUI boundary as shown on map. The Low Divide WUI area overlaps the Gasquet and Hiouchi WUIs	In some locations the 1 ½ mile zone is used (especially in privately owned areas to west of Forest boundary). In most areas identifiable locations on the ground were used, such as roads, drainages, and ridges. (Using this method, boundaries are established that may be greater or less than the 1 ½ mile WUI zone.) Extremely heavy fuel loads in area. Area has been developing slowly. Other than a VFD engine, no fire protection measures are in place in this area.
17N21 (From Leavitt property where a Smith River VFD fire house is located to the intersection with Co. Rd. 305)	Several residences and outbuildings accessed by this road.	Establish as evacuation route for local residences to Co. Rd. 305	Primary fire escape route and access for fire suppression. Access to Smith River VFD Fire Station. Extremely heavy fuel loads in area. Area has been developing rapidly.
17N22 (From private property located in section 22 to intersection with 17N21)	Several residences and outbuildings accessed by this road.	Establish as evacuation route for local residences to Co. Rd. 305	Primary fire escape route and access for fire suppression. Extremely heavy fuel loads in area. Road is in moderate to poor condition.
17N49 – Gasquet Mountain Road. Entire length from Co. Rd. 305 to Hwy 199	No residence. Historic mining.	Establish as alternate evacuation route from Gasquet. Establish safety area along road near center of Sec. 7, T.17N., R.2E.	Access route to the coast. Primary fire suppression access route. Ridge system on which road is located would be a primary fire suppression location for fires threatening Gasquet, Low Divide, and Hiouchi.

Location	Improvements	Recommendation	Remarks
Gasquet WUI Zone	This is around the community of Gasquet. A community of over 400. Location of large number of residences and outbuildings. Location of the headquarters for the Smith River National Recreation Area. Ward Airfield. Major power transmission line passes through this area.	Establish WUI boundary as shown on map. This area overlaps the Low Divide and Hiouchi WUIs	In some locations the 1 ½ mile zone is used (especially east of Gasquet). In most areas identifiable locations on the ground were used, such as roads, drainages, and ridges. (Using this method, boundaries are established that may be greater or less than the 1 ½ mile WUI zone.) Development in this community is proceeding at a moderate rate with several new homes built annually. Twice during the past decade this community has been threatened by major wildfires (Panther 1996 and Biscuit 2002) with evacuations occurring in 2002. City has a developed water system, volunteer fire department, and system of hydrants and water storage tanks.

Location	Improvements	Recommendation	Remarks
Hiouchi WUI Zone	This is a small community located at the west boundary of the Forest. Population is approximately 300-400 individuals. Numerous residences and outbuildings exist. There are two campgrounds. A Smith River VFD station is located in this community. NPS visitor center. Restaurants, motels, and store. Area adjoins Redwood National & State Parks. Douglas Park and the portion of the community at the junction of Middle and South Forks Smith River have some of the most valuable residential property in Del Norte County.	Establish WUI boundary as shown on map. This area overlaps the Low Divide and Gasquet WUIs.	In some locations the 1 ½ mile zone is used (especially in privately owned areas to west of Forest boundary). In most areas identifiable locations on the ground were used, such as roads, drainages, and ridges. (Using this method, boundaries are established that may be greater or less than the 1 ½ mile WUI zone.) Development of this community is proceeding at a moderate rate with several new homes built annually. This community has been threatened twice during the past two years, by wildland fires coming from the National Forest. (Biscuit Fire 2002, lightning-caused and the Howard Fire 2003, human-caused). Both Fires were driven by east winds.
Rock Creek WUI Zone	This is a small community of perhaps 100 individuals. Along a major county road and major access into the southern portion of the Smith River NRA. The area contains residences and outbuildings.	Establish WUI boundary as shown on map.	In some locations the 1 ½ mile zone is used (especially in privately owned areas west of Forest boundary). In most areas identifiable locations on the ground were used, such as roads, drainages, and ridges. (Using this method, boundaries are established that may be greater or less than the 1 ½ mile WUI zone.) Development of this community has been proceeding at a slow rate. Community has a small hydrant system, but no other fire protection resources in place. This community is not included within a fire protection district. The Smith River VFD, Gasquet VFD, and Forest Service respond to fires in this area. Response can be 30 minutes or longer. Area adjoins, but is not accessible to, recently acquired parklands to the west.
Co. Rd. 405 (French Hill Road). Entire length from Gasquet (Hwy 199 to Big Flat (Co. Rd. 427, South Fork Road).	Several residences and outbuildings on French Hill, Camp 6 Communication Site, Gordon Mtn. (FS repeater site), Dry Lake, Bridges, Big Flat Campground.	Establish as alternate evacuation route from Big Flat and as a primary evacuation route for the residents on French Hill. Establish two safety areas, one at the Camp 6 Communication site and the other on Gordon Mountain.	Road is in good condition, mostly ridge-top. Alternate access route if the South Fork Road becomes closed.

Location	Improvements	Recommendation	Remarks
Dry Lake	Popular lake for trout fishing and camping	Establish a ½ mile defense zone around lake.	If fuel is treated around this site, it might be suitable as a travel safety area. Major water source for fire suppression. This site was included within the boundaries of the Big Flat WUI.
Big Flat WUI Zone	Large grassy valley surrounded by timber. Small community of perhaps 100 individuals. Scattered residences and numerous outbuildings. The valley should serve as a natural safety area; however, most of the safe areas are on private land. Ranch-type setting.	Establish WUI boundary as shown on map.	Compared to the population, the proposed WUI zone for this area is large. This is because of the NE to SW orientation of ridge systems and the fact that the greatest fire potential occurs during the presence of a north-northeast and southwest wind flow pattern. Strategic ridge systems are heavily vegetated. In some locations the 1 ½ mile zone is used (especially in privately owned areas to west of Forest boundary). In most areas identifiable locations on the ground were used, such as roads, drainages, and ridges. (Using this method, boundaries are established that may be greater or less than the 1 ½ mile WUI zone.) This community is not included within a fire protection district. The Smith River VFD, Gasquet VFD, and Forest Service respond to fires in this area. Response can be 40 minutes or longer. There is not public water or a hydrant system within the area. Water storage is somewhat limited. There are water draft locations, but turn-around times can be significant. During the past few decades, conifer invasion has been significant within the valley.
Co. Rd. 427 (South Fork Road) From Hwy 199 to Big Flat.	Numerous structures, mostly at Rock Creek and Big Flat. Major (main) access route to Big Flat and the southern portions of the Smith River NRA.	Establish as primary evacuation route from Big Flat and Rock Creek to Hwy 199 and the Hiouchi area. Potential safety areas extremely limited.	Road is paved, mostly two-lane and in very good condition. Road is located in river bottom, surrounded by steep, heavily vegetated slopes. Road could easily be closed by falling snags or rocks in the event of a wildfire.
Red Mountain	Major communication relay site (for example, OES communications are relayed through this site). Location of CDF fire lookout. Significant cultural resource values present.	Establish a ½ mile defense zone, mainly to protect facilities.	Much of the vegetation in this area is of an older-aged pine type, with considerable mortality. Possibility of treating fuel with prescribed fire with little other ground disturbance within most of this zone.

APPENDIX G. PUBLIC LANDS FIRE MANAGEMENT BACKGROUND INFORMATION

From the Northeast side of the NRA, heading south

Location	Improvements	Recommendation	Remarks
Collier Rest Area	Cal-Trans Rest Area located adjacent to the Collier Tunnel on Hwy 199. Buildings, parking lot, water system, picnic area.	Establish a ½ mile defense zone, mainly to protect facilities.	There was a private structure right on the Forest boundary just above the rest area and tunnel; however, it burned to the ground last fall (fortunately as the rainy season started). Area surrounding the site is heavily vegetated. Probable staging area for fire suppression efforts.
Shelly Creek Campground	Forest Service rustic campground.	Establish a ½ mile defense zone, mainly to protect surrounding area.	Common campsite. Fires often abandoned.
Patrick Creek Lodge and Patrick Creek Campground	Historic Lodge (currently operating) and Forest Service Campground (with historic value as a CCC-constructed facility.	Establish a ½ mile defense zone, mainly to protect facilities. Include with the Washington Flat WUI.	Area surrounding the lodge and campground are heavily vegetated, within a steep / narrow canyon. These sites were directly threatened by the Shelly Fire (2002) and the Patrick Fire (1990), both human-caused. Also they are adjacent to Hwy 199, which has high potential for human-caused fires.
Idlewild Cal-Trans Maintenance Yard	Vehicles, residence, barns, garages, water system, parking areas.	Establish a ½ mile defense zone, mainly to protect facilities. Include with the Washington Flat WUI.	Adjacent to Highway 199. Surrounded by heavily vegetated steep canyons. Possible staging point for fire suppression activities. Potential safety area if surrounding fuel treated.
Jawbone Private Residence	Vehicles, residence, outbuildings.	Establish a ½ mile defense zone, mainly to protect facilities and surrounding area. Include with the Washington Flat WUI.	Although ridge-top area is heavily vegetated. Most of the area was heavily logged three to four decades ago and considerable down woody material remains. Access is over a route that is heavily vegetated (canopy covers most of the road).

Location	Improvements	Recommendation	Remarks
Washington Flat WUI Zone	Private residences, Bar-O Boys Ranch (County Correctional Facility), water systems, Highway 199, numerous outbuildings.	Establish WUI boundary as shown on map.	In some locations the 1 ½ mile zone is used (especially in privately owned areas to west of Forest boundary). In most areas identifiable locations on the ground were used, such as roads, drainages, and ridges. (Using this method, boundaries are established that may be greater or less than the 1 ½ mile WUI zone.) Development of this community has remained relative stagnant because of the limited land area. Bar-O Boys Ranch is an important facility for Del Norte County and as such is of much concern. Area is under fire protection by the Gasquet VFD and the Forest Service. Response times to this area can be 20-30 minutes depending on time of year and road conditions. Heavy vegetation on steep slopes surrounds this area.
Camp 6 Communication Site	Major communications site for cell phone companies, Forest Service, local and state government (fire & law enforcement)	Establish a ½ mile defense zone, mainly to protect facilities.	Heavy fuel loading in surrounding area. Broad flat ridge. Also identified as a possible travel safety location for the French Hill Road.
McFillamy Residence	Single residence and outbuildings	Establish a ½ mile defense zone, mainly to protect facilities and surrounding area.	Landowner is very concerned with fire hazard and has conducted some fuel treatments on his property. Property is a heavily vegetated area with steep slopes that were logged 3-4 decades ago. Considerable slash was left during those logging operations. Access to this area is moderate to poor. Road is heavily canopied.
Forest Hwy 16 (Jawbone Road) from Hwy 199 to Bear Basin.	Major paved access route to Bear Basin Lookout and Cabin (FS rental) and private residence between.	Establish as evacuation route for Bear Basin and residences along road. Major fire access route. Establish potential safety area along road in Sec. 25, T.17N., R.3E. Establish a second safety area at the gravel pit in section 9, T.16N., R.4E.	Primary access for fire suppression. Major access route to the Bear Basin Area and the rental cabin/lookout. Extremely dense vegetation along this travel route. Road is heavily canopied.
17N08 (Little Jones Road) from intersection with Forest Highway 16 to 17N04	McFillamy residence access. Forest Service Road.	Establish as a primary fire access and evacuation route for the residence and as a secondary fire access and evacuation route for the Bear Basin area.	Primary access for fire suppression. Extremely dense vegetation along this travel route. Road is narrow and heavily canopied.
Bear Basin Butte Lookout and Cabin	Forest Service owned rental lookout and cabin.	Establish a ½ mile defense zone, mainly to protect facilities and surrounding area.	Important recreation site for numerous visitors from out of this region. Significant investment in this site.

APPENDIX G. PUBLIC LANDS FIRE MANAGEMENT BACKGROUND INFORMATION

SRNRA Fire Prevention Education

Every year before fire season SRNF-SRNRA sends out a packet to homeowners regarding residential clearance around homes (see the flyer at the end of Appendix F). The mailing goes out to approximately 1,200 residents who own property bordering SRNRA. California Public Resource Code 4291 requires reduction of fire hazards around buildings, and homeowners can be cited for noncompliance (*36 CFR 261.52 K*). Although CDF is responsible for enforcing PRC 4291, SRNF conducts clearance inspections in cooperation with CDF. The mailing includes a checklist that the homeowner is required to complete and return certifying that they are in compliance and that all fire hazards on the property have been abated. Paul Zerr, South Fork Fire Prevention Technician, and Sheila Schulze, North Fork Fire Prevention Technician (457-3131 x120), are available to answer questions and/or conduct clearance inspections. This year they received over a dozen phone calls regarding clearance and conducted several inspections. Anyone can request a free inspection. SRNRA also conducts inspections on randomly selected residential areas to assist property owners in complying. For questions regarding the California State law PRC 4291 and defensible space, please call CDF at 707-464-5526 or see Chapter 2.[66]

In addition, SRNF attempts to attend most local events in Del Norte County and usually has a fire prevention booth at these events where they hand out brochures and answer questions about fire prevention. Every year SRNRA also publishes a local article about fire prevention and fuel reduction.

SRNRA staff is active participants in the Del Norte FSC. They work closely to plan and implement projects in order to help protect local communities from the threat of a catastrophic wildland fire. For example, the Del Norte FSC recently received funding to implement fuel reduction projects in three neighborhoods of Gasquet that border SRNF lands. These projects are intended to tie in with SRNF fuel reduction projects that were recently completed.

Following is the SRNRA 2004 Fire Prevention Accomplishment Report.

For questions regarding campfire permits, please call SRNRA at 707-457-3131.

[66] Sheila Schulze, Fire Prevention, Smith River National Recreation Area, Six Rivers National Forest, personal communication, 8/31/04.

APPENDIX G. PUBLIC LANDS FIRE MANAGEMENT BACKGROUND INFORMATION

SMITH RIVER

NATIONAL RECREATION AREA

2004

FIRE PREVENTION

ACCOMPLISHMENT REPORT

District:
Smith River National Recreation Area

Fire Prevention Personnel:

Sheila Schulze GS-7
Paul Zerr GS-7

Priorities and Focus of Prevention Program:
Team Teaching, fire investigation, Community College basic wildland fire training, local community events, tribal events, Fire Safe Council activities, homeowner's clearance issues, fuel projects, patrol, and public contacts.

Fire Causes:

Fire causes:	Number of fires:	Acres burned:
Abandoned Campfires	16	1.6
Vehicle Fire	1	.10
Other	1	.1
Total	**18**	**1.8**

Accomplishments:

Fire Prevention Program & Smokey Bear Activities:

- **<u>January</u>:**
  - We attended the Del Norte Fire Safe Council meeting.
  - We updated our mailing list for residential homeowner's mailers and shared this database with the Fire Safe Council for the Del Norte County Fire Safe Plan that is being constructed.

- We helped with a Community Education Open House at College of the Redwoods for job outreach and advertisement for our upcoming basic wildland fire training to be put on at the College.
- We attended Del Norte County Fire Chief meeting and gave a presentation on the new Cooperative Agreement going into effect with the Volunteer Fire Departments.

❖ **February:**

- We attended the Del Norte Fire Safe Council meeting.
- We attended a workshop at Rural Human Services on the Service Learning Program that Del Norte County School District offers to students.
- Sat in on hiring panel for Del Norte Fire Safe Council to hire a secretary to facilitate future Fire Plan meetings for the Del Norte Community.
- We worked on meal agreements with local restaurants in the community.
- Finished draft for cooperative agreements between local VFDS and Smith River NRA for 2003.
- We had Alder Camp-CDF create new fire prevention signs to go along Highway 199.
- In cooperation with Redwood National Park put on a hiring/job recruitment workshop for a group of California Conservation Corps in which their center would soon be closing.

❖ **March:**

- We put on a Smokey Bear presentation for 50 children at Elk Valley Head Start.
- In cooperation with Redwood National Park Smokey went to Orick Elementary School for a Public Health and Safety Fair. We had a Fire Safety booth. Coast Guard and CHP to promote public safety.
- We attended the Del Fire Safe Council meeting.
- We helped prepare for basic wildland fire training and 80-hour fire refresher for the district.
- We updated the Smith River NRA Sign plan.
- We went door to door with Gasquet Fire Department to notify the public of the upcoming community meeting on the County Fire Plan for Del Norte.
- We attended Del Norte Fire Safe Council's first public meeting on the Del Norte County Fire Plan in Gasquet.
- We put on at the College of the Redwoods basic wildland fire training for the public. Over forty-five people attended. These people were given a full-on basic wildland fire training with numerous field exercises. Out of the people who attended, several students were later hired by the SRNF, National Park Service, BLM, and private contractors.
- We attended a meeting in Eureka about this year's "Living with Fire in California's Northwest."

❖ **April:**

- We built a PowerPoint presentation for the Del Norte Fire Safe Council to show at the regional Fire Safe Council meeting in Weaverville, CA.
- We sent out 1,200 mailers to our local residents. The mailers answer questions they may have about clearance around their homes and wildfire prevention.
- In cooperation with Redwood National Park we wrote an article for the "Living with Fire in California's Northwest" insert on our fuel reduction projects and shaded fuelbreaks being constructed throughout Del Norte County.
- Put on Level I training and I-100 training for Del Norte County Sheriff Search and Rescue Team.
- With Smokey Bear we put on a two-week Team Teaching Event with Redwood National Parks, CDF, Fort Dick VFD, Klamath VFD, Gasquet VFD, and Smith River VFD at the Del Norte

County School District. Smokey talked to about 1,600 children grades P-2nd about wildfire prevention / fire safety. We involved the volunteer departments this year so not only did we talk to the children about wildfire prevention / Smokey's Rules but we also talked to them about smoke detectors, structural fires, and "Stop, Drop, and Roll".

- We attended the Del Norte Fire Safe Council meeting.

- **May**:
  - We helped put on Level I and Level II fire training for our district.
  - We helped administer Pack test for our district.
  - *Living with Fire in the Northwest* insert for the newspaper is inserted in all newspapers in the surrounding area.
  - We attended the all-hands fire meeting.
  - We were asked to be on the Planning Committee for the construction of the Del Norte Fire Safe Plan by the Del Norte Fire Safe Council.
  - Attended a Planning Committee meeting for Fire Safe Plan.
  - We attended a Fire Safe Council meeting.
  - We attended an Air Quality meeting on new burn permits at Woodley Island.

- **June**:
  - Smokey Bear attended the Teddy Bear Parade. Smokey attends this event every year.
  - We attended the Del Norte Fire Safe Council meeting.
  - We attended Forest Protection Office Refresher in Eureka
  - We attended Fire Investigation in Sacramento.
  - Paul went on a Fire Prevention Detail for the San Isabel National Forest in Colorado.

- **July:**
  - Smokey Bear attended the Forth of July Parade.
  - We attended a Fire Safe Council meeting.
  - Smokey Bear attended and gave out souvenirs at the Gasquet Raft Races.

- **August:**
  - Smokey attended the Del Norte County Fair all four days. Fire Prevention had a booth inside and outside. Inside we had the National Fire Plan display with lots of informational handouts on our District and Forest. We had several handouts on fire prevention and we played a fire jeopardy game with the kids for prizes. Outside we played the beanbag toss for Smokey Bear posters.
  - We attended the Del Norte Fire Safe Council meeting.

- **September:**
  - Smokey Bear attended Jammin at Jed. This is a jazz music festival that the Child Care Council puts on every year. We have a wildfire prevention and fire safety both for the children where we played the beanbag toss for Smokey souvenirs and the children played the fire jeopardy.
  - Smokey visited Crescent City Head Start. We presented *The True Story of Smokey Bear* on a felt board with characters for about 40 children.

- We were invited to Bar-O Boys ranch to promote job opportunities within the federal government. While there we conducted a residential home clearance inspection on the structures and gave advice on a shaded fuelbreak project being conducted by the Ranch.

❖ **October:**

- We are planning to help Gasquet Volunteer Fire Department have their annual fire safety BBQ for Mountain School.
- Smokey Bear will be attending October Fest at the Fair grounds in Crescent City. This is a children's activity day put on by St Josephs School.
- Smokey is planning to attend Joe Hamilton Schools Walk to School Day.
- Smokey is planning on attending College of The Redwoods pre-school. He will be talking with about 45 pre-school children and handing out goodies.

Fire causes we target with Smokey Bear Program:

❖ At our Team Teaching event we put on every year we target campfire safety. We teach the children to show their parents how to use the 'Drown, Stir, and Feel' method when preparing to leave the forest after camping. We teach the children that you should never leave your campfire unattended. We go over Smokey's rules, which teach them not to play with matches or lighters and what they should do if they see a fire burning while they are playing in the woods. The volunteer fire departments teach the children about EDITH and 'Stop, Drop, and Roll'. They also go over smoke detectors in the homes.

❖ At the fair at our inside booth we play a fire jeopardy game with the children which targets these different fire safety categories:

1. Outdoor fire safety
2. Home fire safety
3. Good fire or bad fire
4. Fire roll in our ecosystem
5. Smokey says

Forest fire prevention issues and concerns:

This year 16 out of 18 fires on our District were abandoned campfires. We realized very early into fire season that we had a problem with careless campers leaving abandoned campfires in the forest. We targeted these areas by setting up extra patrols. We also put out a public announcement on the radio and in the newspapers, warning people about the fines involved in such careless behavior. All of these abandoned campfires had potential to be devastating wildland fires. We are very lucky the weather in our area this summer was milder than previous years.

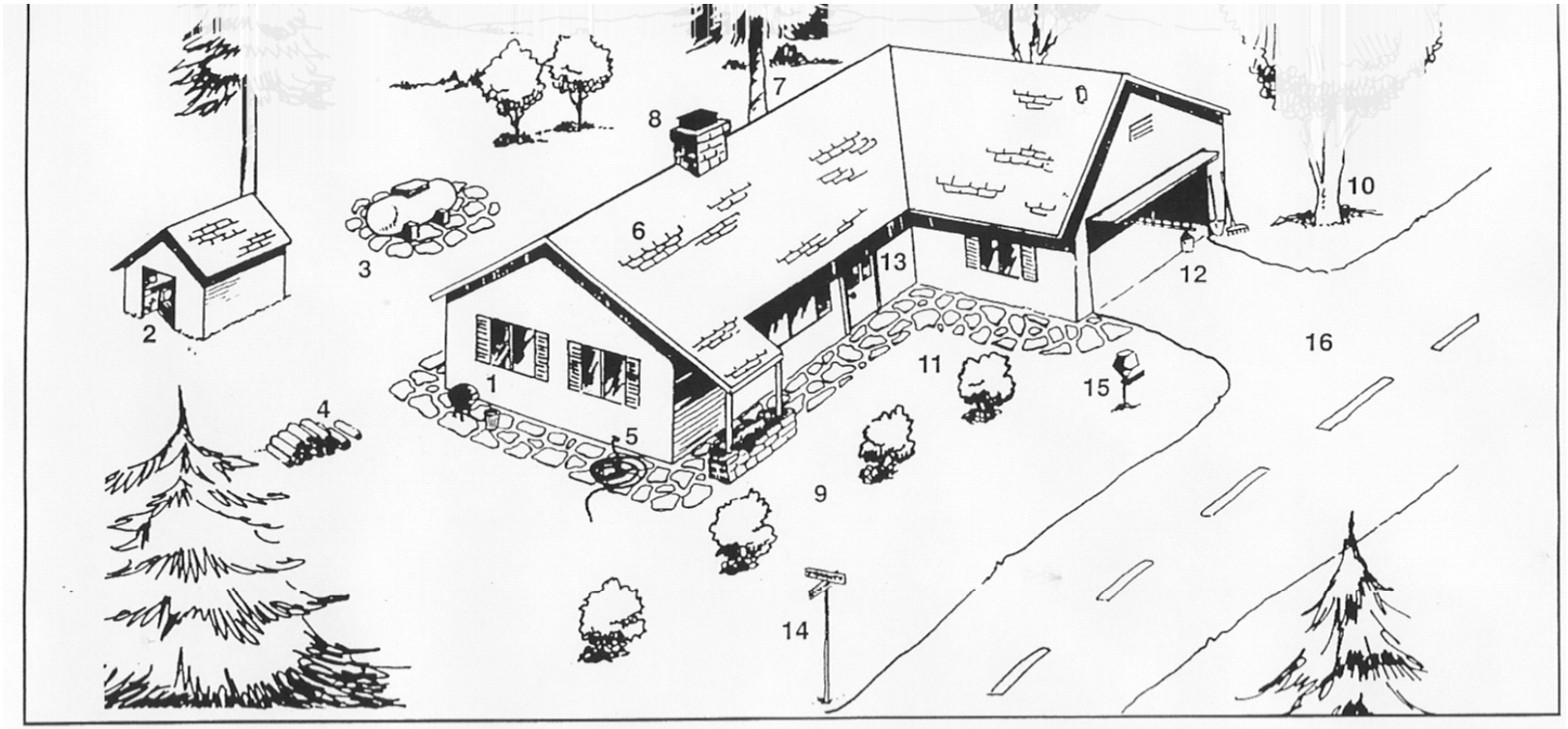
How did you integrate fire prevention into fire management and other resource areas?

This year we focused a lot of attention on the Del Norte Fire Safe Council and Del Norte Fire Safe Plan, residential homeowners' clearance, and becoming qualified in fire investigation procedures. In April we helped the Fire Safe Council build a PowerPoint presentation. This presentation went into detail about fire prevention on all proposed projects and completed projects by the Council. This presentation would be shown later in the year at a regional Fire Safe Council meeting in Weaverville, CA. In April we mailed out residential letters to homeowners about clearance around there homes. This year we received lots of responses. We were invited by several homeowners to do clearance inspections (LE-62) to the property and

homes. Fire prevention was invited to do a clearance inspection on Bar O Boys ranch and to give advice to the ranch on their shaded fuelbreak under construction. The fair was a great place to talk to families about fire prevention and hand out the insert *Living with Fire on the Northwest Coast*. We also spent a lot of time with job recruiting and hiring. We put on a college-level wildland fire school at local College of the Redwoods and helped put on Module 80 Refresher training for our District. We spent a lot of time organizing EERA's and preparing the new VFD's cooperative agreements and AOP's. During the staging of crew on the District this year we helped with filling out equipment - use invoices, vehicle inspections, and became their logistical support. We also attended lots of training; we spent a lot of time patrolling and made lots of public contacts in the field.

What are some fire prevention issues and concerns you would like to see worked on in 2005?

Extra Patrol was needed due to lack of coverage on the District and our abandoned campfire problem. Prevention was very mobile this fire season on off-district fire assignments and training. Our big concern for next fire season is to keep the human-caused fire below our normal trends. With this in mind, one of our goals is to do fuelbreaks around campgrounds, designated fire use areas, and (which is our biggest concern) areas that the local people know of and they use quite regularly. A detailer in fire prevention during the summer months would make a big difference next year in making sure our abandoned campfire problem from this year doesn't become a problem again next season.



1. Dispose of stove or fireplace ashes and charcoal briquets only after soaking them in a metal pail of water for 24 hours.
2. Store gasoline in an approved safety can away from occupied buildings.
3. LPG tanks should be far enough away from buildings for valves to be shut off in case of fire. Keep area clear of flammable vegetation.
4. All combustibles such as firewood, picnic tables, boats, etc. should be kept away from structures.
5. Garden hose should be connected to outlet.
6. Clean roof surfaces and gutters regularly to avoid accumulation of flammable materials.
7. Remove portions of any tree extending within 10 feet of the flue opening of any stove or chimney.
8. Maintain a screen constructed of non-flammable material over the flue opening of every chimney or stovepipe. Mesh openings of the screen should not exceed 1/2 inch.
9. Shrubs should be spaced at least 15 feet apart.
10. Remove branches from trees to a height of 15 feet.
11. A fuel break should be maintained around all structures.
12. Have fire tools handy such as: ladder long enough to reach the roof, shovel, rake, and bucket for water.
13. Each home should have at least 2 different entrance and exit routes.
14. Names of roads should be indicated at all intersections.
15. Names and addresses of occupants should be posted at driveway entrance.
16. All roads and driveways should be at least 16 feet in width.

SRNRA Fire Prevention Education: Residential Clearance Flyer

APPENDIX G. PUBLIC LANDS FIRE MANAGEMENT BACKGROUND INFORMATION

National Park Service, Redwood National and State Parks

Within the parks the Yurok Reservation includes approximately 1,200 acres of land and waters that are federal lands and are administered by the NPS. NPS also has a memorandum of understanding with the Yurok Tribe.

RNSP headquarters are located in Crescent City. RNSP contains the largest remaining contiguous section of ancient coast redwood forest. United Nations World Heritage and International Biosphere Reserve status was granted to RNSP in the 1980's. RNSP also contains sites listed on the National Register of Historic Places. U.S. Highway 101 is the main road through the parks. Three miles northeast of Crescent City, U.S. Highway 199 joins Highway 101 and provides an east-west route through Jedediah Smith Redwoods State Park. Three rivers and many coastal streams pass through the parks. These include parts of Redwood Creek and the Smith and Klamath Rivers. Redwood Creek has been defined as an impaired waterway by the Environmental Protection Agency under Section 303(d) of the Clean Water Act because of sediment originating both within and outside of RNSP.

In 1978 when RNSP was expanded, a separate park protection zone was created that consists of 33,000 acres of private land immediately upstream and upslope from the park boundary. In this zone, RNSP personnel have authority to protect the park from damaging effects of erosion due to timber harvests and other land use practices.

> "According to the legislation, Redwood National and State Parks were established to preserve significant examples of the primeval coastal redwood forests and the prairies, streams, seashores, and woodlands with which they are associated in a condition of unimpaired ecological integrity, for the purposes of public inspiration, enjoyment, and scientific study, and to preserve all related scenic, historic, and recreational values. The national park was expanded 'with particular attention to minimizing siltation of the streams'…and 'in order to protect existing irreplaceable Redwood National Park resources from damaging upslope and upstream land uses.'"[67]

With these overarching mandates in mind, RNSP goals are threefold: to "preserve and protect the park's resources, provide for the public enjoyment and visitor experience of the parks, and ensure organizational effectiveness. The management zones are the developed zone, frontcountry zone, mechanized backcountry zone, nonmechanized backcountry zone, primitive zone, Little Lost Man Creek subzone, transportation zone, Bald Hills zone, and cultural resource zone."[68]

> "A fire management program would be established to support resource management objectives, including the restoration of fire in old-growth forests, prairies, oak woodlands, and coastal shrub communities as a natural process…The program would allow for wildland fire suppression, wildland fire use (allowing natural ignitions to achieve resource objectives), and prescribed fire. Techniques other than fire might also be used to reduce fuel hazards in second-growth and old-growth forests and around developments and structures to reduce the risks of damage from wildland fires. All prescribed fire and wildland fire use would be conducted under the approved Fire Management Plan…Prescribed fire plans would be prepared for individual burns that would provide burn objectives, prescriptions, and contingency plans in case the prescription is exceeded or suppression action is needed. An

[67]Redwood National and State Parks, General Management Plan / General Plan Environmental Impact Statement / Environmental Impact Report, p. 8.

[68]Ibid, p. iii.

interpretive program would be established to explain the benefits of the fire management program."[69]

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

Tolowa Dunes State Park is a rich delta and wetland habitat that includes ocean beach, the Lake Earl Project, ponds, marshes, open and vegetated sand dunes, and wooded ridges. The Smith River ends at the Pacific Ocean after passing through Tolowa Dunes State Park. The Tolowa people were the most recent Native Americans to occupy the area. The natural resources of the area were a very important aspect of the Tolowa's economic and political way of life.

The Mill Creek Property is bordered on the north by Jedediah Smith Redwoods State Park, on the south by private industrial timber lands, on the west by Del Norte Coast Redwoods State Park, and on the east by Six Rivers National Forest. Mill Creek, a tributary of the Wild and Scenic South Fork Smith River, flows through the Mill Creek property as do Rock Creek, and small portions of the headwaters of Terwar, Hunter, and Wilson Creeks. The Property has a long history of timber harvesting by private companies such as Hobbs, Wall, and Company, Jones Timber Company, Miller-Rellim Redwood Company, and Stimson Lumber Company.

> The Mill Creek property was acquired by the State of California to (1) protect and restore the property's ecological values, (2) enhance regional ecological values by improving habitat connectivity between state and federal conservation areas, and (3) provide opportunities for compatible public use.[70]

The property includes the following tree species: redwood, red alder, western white pine, knobcone pine, sitka spruce, and Jeffrey pine. Herbaceous plants found on the property include bullrush, bullrush-cattail, California annual grassland, introduced perennial grass, and pampas grass. Shrubs include blue blossom and huckleberry oak series. Other vegetation present includes Darlingtonia and fen. Upland forests along the coast include coast redwood along with some Douglas fir, Sitka spruce, grand fir, western hemlock, western red cedar, Port Orford cedar, red alder, and tan oak. Douglas fir becomes more commonplace further inland. Sixty-nine percent of the property contains stands of pole-size trees eleven inches diameter at breast height or less, and stands of twenty-four inches or greater encompass 6%. Species that make up riparian areas vary depending on whether they border confined stream banks, or whether they border less confined stream banks. Along confined stream banks, most stands consist of young, sapling, or multi-layered second-growth trees less than twenty-four inches in diameter. These trees account for less than 25% of the canopy cover along confined stream banks. Along less confined stream banks, hardwoods, particularly red alder and maple can be found. Forty-nine percent of the canopy cover here consists of young hardwoods less than eleven inches in diameter. Along larger, less confined stream banks, larger redwoods can be found scattered in the overstory. "The California Conservation Corps (CCC) had an agreement with Stimson Lumber Company to conduct riparian restoration. Over the past 5 years, the CCC has underplanted conifers in alder-dominated riparian areas adjacent to Mill Creek."[71] Very little old-growth redwood forest remains on the property due to past timber harvesting practices. The largest

[69]Redwood National and State Parks, General Management Plan / General Plan Environmental Impact Statement / Environmental Impact Report, p. 51.

[70]Mill Creek Property Interim Management Recommendations, August 2002, p. xi.

[71]Ibid, p. 29.

remaining stand (Paragon) is 90 acres and is located in the central portion of the property. Another 14 acres (Hamilton Buffer) is located south of the company offices, and 29 acres (George's Saddle) are located in the southern part of the property.

> The natural fire regime strongly influenced the structure, composition, and distribution of vegetation; as well as the accumulation of fuel and the fuel ladder on the Mill Creek property. Fire suppression during the last century has dramatically increased the risk of catastrophic wildfire by allowing fuel to accumulate and continuous crown conditions to develop. Redwood National and State Parks and other federal forest land managers are using restorative silvicultural treatments and prescribed burning as tools for fuel management and forest restoration (Thornburgh et al. 2000). Three objectives are established for fuel reduction programs in the Wildfire Management Planning Guidelines and Policy for California State Parks (Bakken 2002): (1) reduce the probability that a fire will ignite, (2) reduce the chances that a fire will spread, and (3) facilitate fire fighting.72

California Department of Fish and Game

The Lake Earl Wildlife Area located five miles north of Crescent City begins at the Pacific Ocean with sand dunes, encompasses two connected lakes (Lake Earl and Lake Tolowa), nearly 5,000 acres of wetlands, and ends in upland fields and forest. Lakes Earl and Tolowa are connected lagoons with more than 2,300 acres of subtidal estuarine waters, bordered by salt and fresh water marshes. Lake Earl is California's largest coastal lagoon.[73]

The ecosystem is particularly rich in fish, wildlife and plant resources. The lagoon and streams contain the tidewater goby (federally endangered) and federally threatened Coho salmon, steelhead, and coastal cutthroat trout. "Lake Earl provides foraging and nesting habitat for more than 250 species of birds, and is an important area for waterfowl, shorebirds, and neotropical migrant birds."[74] The areas near Lake Earl are key fall and spring staging areas for migrating Aleutian Canada geese (formerly federally endangered, de-listed in March 2001). In addition, several endangered and rare species occur here including the Oregon silverspot butterfly (federally threatened), the rare sand dune plant phacelia (a candidate for state listing in Oregon), western snowy plover (federally threatened), and the western lily (federally endangered).

Lake Earl Wildlife Area also contains large meadows that currently have tall grass and brush. DFG regularly mows the area for wildlife management purposes (Aleutian geese prefer short grass) and to reduce fuel loads. DFG is considering plans to allow for grazing as a means of managing the grass and has conducted a test project using goats in an area behind the wildlife area manager's residence at the east corner of the lake.

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[72] Mill Creek Property Interim Management Recommendations, August 2002, p. 100.

[73] Save-the-Redwoods League, Protecting Redwoods, Master Plan, North Coastal California Stewardship Report, Lake Earl & the Coastal Plain, http://www.savetheredwoods.org/protecting/masterplan.shtml, p. A1.

[74] Ibid, p. A2.

APPENDIX H. ACRONYMS USED

AB — Assembly Bill
BLM — Bureau of Land Management
CB—Citizens Band
CBC — California Building Code
CCC — California Conservation Corps.
CDF— California Department of Forestry and Fire Protection
CERES —California Environmental Resources Evaluation System
CFPD—Crescent Fire Protection District
CCVFD- Crescent City Volunteer Fire Department
CWPP – Community Wildfire Protection Plan
DBH — Diameter at Breast Height
DFG—Department of Fish and Game
DN — Del Norte
DNFSC—Del Norte Fire Safe Council
DOI — Department of Interior
FDFPD—Fort Dick Fire Protection District
FRAP—California Fire and Resource Assessment Program
FPD—Fire Protection District
FRA — Federal Responsibility Area
FRCC — Fire Regime Condition Class
FS — Forest Service
FSC—Fire Safe Council
FY — Fiscal Year
GFPD—Gasquet Fire Protection District
GIS—Geographic Information System
GO — Gasquet Orleans
GPS—Global Positioning System
HFRA – Healthy Forests Restoration Act of 2003
IACC — Interagency Command Center
IT — Information Technology
KFPD—Klamath Fire Protection District
LEWA — Lake Earl Wildlife Area
LRA — Local Responsibility Area
NCUAQMD — No. Coast Unified Air Quality Mgmt District
NEPA — National Environmental Protection Act
NPS—National Park Service
PRC—Public Resource Code
PSA — Public Service Announcement
RAC — Resource Advisory Committee
RPF—Registered Professional Forester
RNP—Redwood National Park
RNSP—Redwood National & State Parks
SB — Senate Bill
SCBA — Self-Contained Breathing Apparatus
SFM — State Fire Marshal
SRA — State Responsibility Area
SRL—Save-the-Redwoods League
SRFPD—Smith River Fire Protection District
SRNF—Six Rivers National Forest
SRNRA —Smith River National Recreation Area
SRNF—US Forest Service
THP — Timber Harvest Plan
USGS — United States Geological Survey
UWI — Urban-Wildland Interface
VQO — Visual Quality Objective
WUI—Wildland-Urban Interface

APPENDIX I. USEFUL LINKS

Applegate Valley Fire Plan home page — http://www.grayback.com/applegate-valley/fireplan/.
Bureau of Land Management home page — http://www.blm.gov/nhp/.
CDF's Fire and Resource Assessment Program — http://frap.cdf.ca.gov/.
California Fire Alliance home page — http://www.cafirealliance.org/.
California Fire Safe Council— http://www.firesafecouncil.org.
California Forest Stewardship Council, Forestland Steward newsletter site. Lots of great information in past newsletter issues— http://ceres.ca.gov/foreststeward/html/newsletter.html.
California Interagency Fuels Group — http://frap.cdf.ca.gov/projects/interagency_fuels/caifg_update.html.
Cost-share funding directory produced by UC Cooperative Extension — http://ceres.ca.gov/foreststeward/html/financial.htm.
Del Norte Fire Safe Council — http://www.delnortefiresafe.org
Deschutes County, Oregon site with fire safe information for landowners and others — http://www.firefree.org/.
Firewise, National Wildland-Urban Interface Fire Program — http://www.firewise.org/.
Greywater. Information about what it is, how to treat it, and how to use it — http://www.greywater.com/.
Josephine County Integrated Fire Plan — http://cwch.uoregon.edu/CCWP/JCIFP/.
Mattole Restoration Council — http://www.mattole.org.
Mendocino County listing of CDF How to Apply for Fire Safe Regulations Clearances — http://www.co.mendocino.ca.us/planning/PermitPlace/PermitPlace75.htm.
Mendocino County listing of CDF requirements regarding Fire Safe Standards — http://www.co.mendocino.ca.us/planning/PermitPlace/PermitPlace77.htm.
National Database of State and Local Wildfire Hazard Mitigation Plans, http://www.wildfireprograms.usda.gov.
National Interagency Fire Center — http://www.nifc.gov/.
National Wildfire Coordinating Group — http://www.nwcg.gov/.
Oasis Design, Grey Water Central. Lots of information about grey water: how to choose, build, use, regulations, studies, examples — http://www.oasisdesign.net/greywater/.
Office of State Fire Marshal, Urban-Wildland Building Standards Development — http://osfm.fire.ca.gov.UWIBS.html.
Society of American Forester's publication, "Preparing a Community Wildfire Protection Plan." — http://www.safnet.org/policyandpress/cwpphandbook.pdf.
South Lake Fire Safe Council, emergency preparedness information — http://www.southlakefiresafecouncil.org.
State of California official legislative information website, to get background and/or updates on any relevant legislation — http://www.leginfo.ca.gov/.
Trinity County Fire Plan — www.tcrcd.net/pdf/ValuesAtRiskFromFire.pdf.
US Forest Service State and Private Forestry page, where information is available about cost-share programs and other programs to support private forestland owners — http://www.fs.usda.gov/spf/.

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