

CHAPTER 3

California Department of Forestry and Fire Protection

MENDOCINO UNIT

WILDFIRE MANAGEMENT PLAN 2005



PART ONE: THE OVERALL PICTURE

MENDOCINO UNIT EXECUTIVE SUMMARY

The California Department of Forestry and Fire Protection's Mendocino Unit consists of 2,361,560 acres, and CDF provides direct protection for 2,244,450 acres, 28,145 of which are in southern Trinity County. With the exception of the four incorporated cities of Ukiah, Fort Bragg, Willits, and Point Arena, and small areas of Local Responsibility Area (LRA) lands within Mendocino County, CDF maintains statutory responsibility for all wildland fires. Of the total county population, about 59,000 or 67% live on State Responsibility Area (SRA) lands. Population growth will impact SRA lands because of the build-out character of LRA lands.

The Unit's Administrative Headquarters are located at Howard Forest, a complex of buildings on Highway 101 south of Willits. The complex is home to Resource Protection, a Logistics Service Center, Training Center, two automotive fleet maintenance shops, and a breathing apparatus maintenance facility. It also houses the Emergency Command Center, which provides fire, rescue, and medical dispatching services on a contractual basis for most of the County. The Unit's Prevention Bureau includes a Pre-Fire Engineer, arson investigation team, and Fire Prevention Specialist, who also serves as Public Information Officer. The Battalion 2 fire station and Howard Forest Helitack Base at this location support various Howard Forest functions.

WILDFIRE SUPPRESSION RESOURCES

The Unit is geographically divided into six battalions whose boundaries are similar to the Mutual Aid Zones described in Chapter 2. Suppression resources during fire season include 128 career personnel and another 100 seasonal personnel, on duty around the clock, staffing 10 fire stations, 16 engines, 4 bulldozers, and other equipment. A typical engine company consists of one Captain or Fire Apparatus Engineer and two or three firefighters. In addition, ten 15-man California Department of Corrections crews, housed at the Chamberlain Creek and Parlin Fork Camps in Jackson Demonstration State Forest, provide hand line construction, mop-up, and post-fire patrols.

A 10-person Helitack Base located at Howard Forest is the home of Copter 101, a Bell UH-1H "Super Huey" which serves multiple purposes, the primary of which is initial attack on wildfires. Copter 101 carries a pilot, two captains, 5-6 firefighters -- and a 324-gallon collapsible Bambi bucket. Full deployment of the helicopter involves dropping off one captain and the firefighters at the fire scene, attaching the bucket for dipping from the nearest accessible water supply and, obviously, applying water to the fire.

The Unit also boasts the Ukiah Air Attack Base which provides 7-day coverage during the daylight hours of fire season. Tankers 90 and 91 are Grumman S2T turboprop aircraft, each with a capacity of 1,200 gallons of fire retardant. Air Attack 110, the Unit's North American Rockwell turboprop OV-10 command plane, carries its pilot and the Air Attack battalion chief or captain who coordinates aerial suppression activities from an orbit above the fire. The base, located inland in the hot and dry Ukiah Valley, has the advantage of rarely being impacted by fog, unlike its neighboring bases in Rohnerville and Santa Rosa, which are quite subject to coastal weather influences.

All Unit aircraft provide rapid initial attack and are especially valuable in the county's remote areas where steep terrain and narrow, winding roads greatly increase ground response times. In such situations, aircraft are often at scene and applying water or retardant before engines and dozers arrive, cooling the fire and giving ground resources a great boost. Aircraft also provide "eyes in the sky" for those on the ground, noting spot fires and giving other direction from their vantage point. Additional eyes are provided by the Mendocino County Cooperative Aerial Fire Patrol, which for 55 years has supplied a small aircraft to fly over the county and look for "smokes" during late summer and early fall afternoons. CDF works very closely with the Patrol and provides direction to its pilot. A description of the Patrol's work is given in Appendix E.

CDF dispatch levels during fire season are affected primarily by weather conditions. During a period of high dispatch, any fire in or threatening wildland vegetation causes immediate dispatch of the command aircraft, both air tankers, one helicopter, five engines, two dozers, and two hand crews. Local fire department resources, as detailed in Chapter 2, respond according to their locations, frequently assisting each other across district boundaries.

WILDFIRE PREVENTION EFFORTS

The Wildland-Urban Interface presents major concerns for fire prevention. Many homes are located in hazardous locations either in ignorance of, or in disregard for, fire prevention practices. Strict enforcement of California Public Resources Codes 4290 and 4291 will be necessary to correct the errors of past residential and commercial developments. Fire loss reductions must be gained through better fire safe planning, with participation by all political bodies and stakeholders.

The Fire Prevention Program of the CDF Mendocino Unit, including the Fire Prevention Bureau, Vegetation Management Program, and Pre-Fire Engineering, attempts to address the actual problems encountered and to plan for anticipated changes. Certain areas of the Unit have been designated, including existing and new wildland subdivisions, where wildland fires cannot be afforded. Those areas receive targeted efforts commensurate with the need; details on these projects are in the Battalion reports.

Unit prevention efforts include fair exhibits, permit procedures, fire patrols, news media releases, a yearly wildfire newspaper supplement, public service announcements, structure and dooryard

premise inspections, and membership in both the County Fire Prevention Officers' Association and the Mendocino County Fire Safe Council. Fire prevention programs are coordinated to the greatest extent possible with local fire departments. In the past year CDF and the Fire Safe Council have begun joint educational and project efforts as well. All these efforts are increasing residents' awareness of potential wildfire problems and resulting in positive changes.

Each area of the Mendocino Unit, to a greater or lesser extent, will need to adapt to the ever-increasing population moving into and recreating in the wildland areas of the County, posing greater risks of fires and even greater expectations for all CDF response services. Through development, implementation, and ongoing reassessment of this Plan's priorities, the Mendocino Unit will be ready and steadfast in its ability to provide leadership in pre-fire management planning and in protecting the citizens of Mendocino County from destructive wildfires.

Loyde Johnson
Chief, Mendocino Unit

CDF FIRE MANAGEMENT PLANNING PROCESS OVERVIEW

The California Department of Forestry & Fire Protection has initiated a state-wide pre-fire management initiative to reduce wildland fires and the costs of suppressing them. This initiative includes a systematic application of risk assessment, fire safety, fire prevention, and fire hazard reduction techniques. The goal of the initiative is to identify -- for state, federal, and local officials, and the public -- those areas within the State Responsibility Areas that are high priorities in terms of assets at risk and have a high probability of large wildfires, with associated costs and losses. Identifying these will allow public and government decision-makers to focus on what can be done to develop wildfire protection zones and reduce costs and losses in these areas. The end product of this CDF initiative is the California Fire Plan, completed in 1995 and currently being revised. The Mendocino Unit Wildfire Management Plan uses the same processes that the state Fire Plan uses to develop a working plan. These processes include the following GIS overlays:

- Ignition Workload Assessment: identifies areas with the potential of experiencing unacceptable loss and high suppression cost fires.
- Assets at Risk: identifies public and private assets that the wildland fire protection system is created and funded to protect.
- Fire History: identifies areas with the potential for severe fires, by vegetation type and geographical area.
- Severe Fire Weather: identifies higher risk areas in terms of probability of fires occurring during periods of severe fire weather.

This information is used to produce a Unit map that identifies high-risk / high-value areas where wildfires are most likely to become high-cost and high-loss conflagrations. Once the GIS information is validated by field personnel, the process of identifying pre-fire management projects is accomplished through input from the field Battalion Chiefs, Fire Prevention Battalion Chief, Pre-Fire Engineer, Vegetation Management Coordinator, Unit management staff, plus local fire departments, Fire Safe Councils, and the public.

The assumption used in developing this Pre-Fire Management Unit Plan is that a proposed pre-fire project will reduce costs and losses during periods of severe fire weather, which is when most of California's wildfire costs and losses occur. Once a pre-fire management project is accomplished, a large fire burning in that specific high-risk /high-value area would be contained at a smaller size, burn with lower temperatures and severity, incur significantly reduced suppression costs, and result in substantially lower levels of losses.

Before and during implementation of the Unit fire plan, stakeholders' input is sought in order to:

- Acquaint stakeholders with the process
- Bring their expertise and knowledge to bear on assets-at-risk maps, which identify areas of high, medium, and low risk
- Review the levels of service in these locations
- Identify areas where the stakeholders consider levels of risk unacceptable

This has been done. The CDF Battalion Reports in this chapter list Mendocino County stakeholders' concerns, ideas, values, and perceptions of assets at risk, as gained through the Fire Safe Council's community meetings. Chapter 2's description of local fire departments and this chapter's battalion reports describe the levels of fire suppression service throughout the county.

CALIFORNIA FIRE PLAN GOALS AND OBJECTIVES

The overall goal of the California Fire Plan is to reduce total costs and losses from wildland fires in California by protecting assets at risk through focused pre-fire management prescriptions and increased initial attack success. The California Fire Plan has five strategic objectives:

- To create wildfire protection zones that reduce the risks to citizens and firefighters
- To assess all wildlands, not just State Responsibility Areas. Analysis will include all wildland fire service providers: federal, state, local, and private. The analysis will identify high-risk / high-value areas, and determine who is responsible, who is responding, and who is paying for fire emergencies.

- To identify and analyze key policy issues and develop recommendations for changes in public policy. Analyses will include alternatives which will reduce total costs and losses by increasing fire protection system effectiveness.
- To have a strong fiscal policy, to focus and monitor the wildland fire protection system in fiscal terms. This will include all public and private expenditures and economic losses.
- To translate the analyses into public policies.

CALIFORNIA FIRE PLAN FRAMEWORK

Five major components form the basis of an ongoing CDF fire planning process to monitor and assess California's wildland fire environment.

- Creation of wildfire protection zones that reduce risks to citizens and firefighters.
- Initial attack success. The California Fire Plan defines an assessment protection system for wildland fire. This measure can be used to assess CDF's ability to provide an equal level of protection to lands of similar type, as required by California Public Resources Code Section 4130. This measurement is the percentage of fires that are successfully controlled before unacceptable costs are incurred.
- Assets protected. The California Fire Plan establishes a methodology for defining assets protected and their degree of risk from wildfire. The assets addressed in the Plan are citizen and firefighter safety, watersheds and water, timber, wildlife and habitat (including rare and endangered species), unique areas (scenic, cultural, and historic), recreation, range, structures, and air quality. Stakeholders (national, state, local, and private agencies, interest groups, etc.) will be identified for each asset at risk. The assessment will define the areas where assets are at risk, enabling fire service managers and stakeholders to set priorities for pre-fire management project work.
- Pre-fire management. This aspect focuses on system analysis methods that assess alternatives used to protect assets from unacceptable risk of wildland fire damage. Projects include a combination of fuels reduction, ignition management, fire safe engineering activities, and improved forest health. The priorities for projects will be based on the input and support of asset owners and other stakeholders. Pre-fire management prescriptions designed to protect these assets will also identify who benefits and who should share in the project costs.
- Fiscal framework. The California Board of Forestry and CDF are developing a fiscal framework for assessing and monitoring annual and long term changes in California's wildland fire protection systems. Local, state, and federal wildland fire protection agencies, along with the private sector, have evolved into an interdependent system of pre-fire management and suppression forces. As a result, changes to budgeted levels of service of any of the entities directly affect the other entities and the services delivered to the public.

Monitoring system changes through this fiscal framework will allow the Board and CDF to address public policy issues that maximize the efficiency of local, state, and federal firefighting resources.

These are the California Fire Plan framework applications:

- Identify for federal, state, and local officials, and for the public, those areas of concentrated assets and high risk.
- Allow CDF to create a more efficient fire protection system focused on meaningful solutions for identified problem areas.
- Give citizens an opportunity to identify public and private assets and to help design and carry out projects to protect those assets.
- Identify, before fires start, where cost-effective pre-fire management investments can be made to reduce taxpayer costs and citizen losses from wildfire.
- Encourage an integrated inter-governmental approach to reducing costs and losses.
- Enable policy makers and the public to focus on how to reduce future costs and losses.

FUELS, WEATHER, TOPOGRAPHY, AND OTHER FACTORS

This part of the Unit Plan identifies and analyzes fuels ranking (including topographic considerations), severe fire weather, assets at risk, large fire history, causes of ignitions, and initial attack success rates, the latter being an indication of the level of service the Unit has provided to the public. Analysis is accomplished by considering the data depicted on the attached maps along with the input of Stakeholders who often have detailed personal knowledge of local hazardous situations. Further information about assets at risk is contained later in this Plan.

Much of the data depicted on the maps is assembled by a land area unit dubbed a “quad 81st.” Each U.S. Geological Survey 7.5-minute quad map was divided into a 9 x 9 grid, forming 81 equal area blocks of land. Each block or quad 81st contains approximately 450 acres. On such maps, fires and other data are notated as being in the center of the quad 81st in which they occurred, rather than in their precise location.

FUELS RANKING: TYPE AND TOPOGRAPHY

The fuels assessment layer explains much of the local situation and can help focus attention on solutions. Wildland vegetative fuels are the basic catalysts that support the combustion process in wildfires. The various fuels in the Mendocino Unit have been categorized into models, each of which has specific burning characteristics.

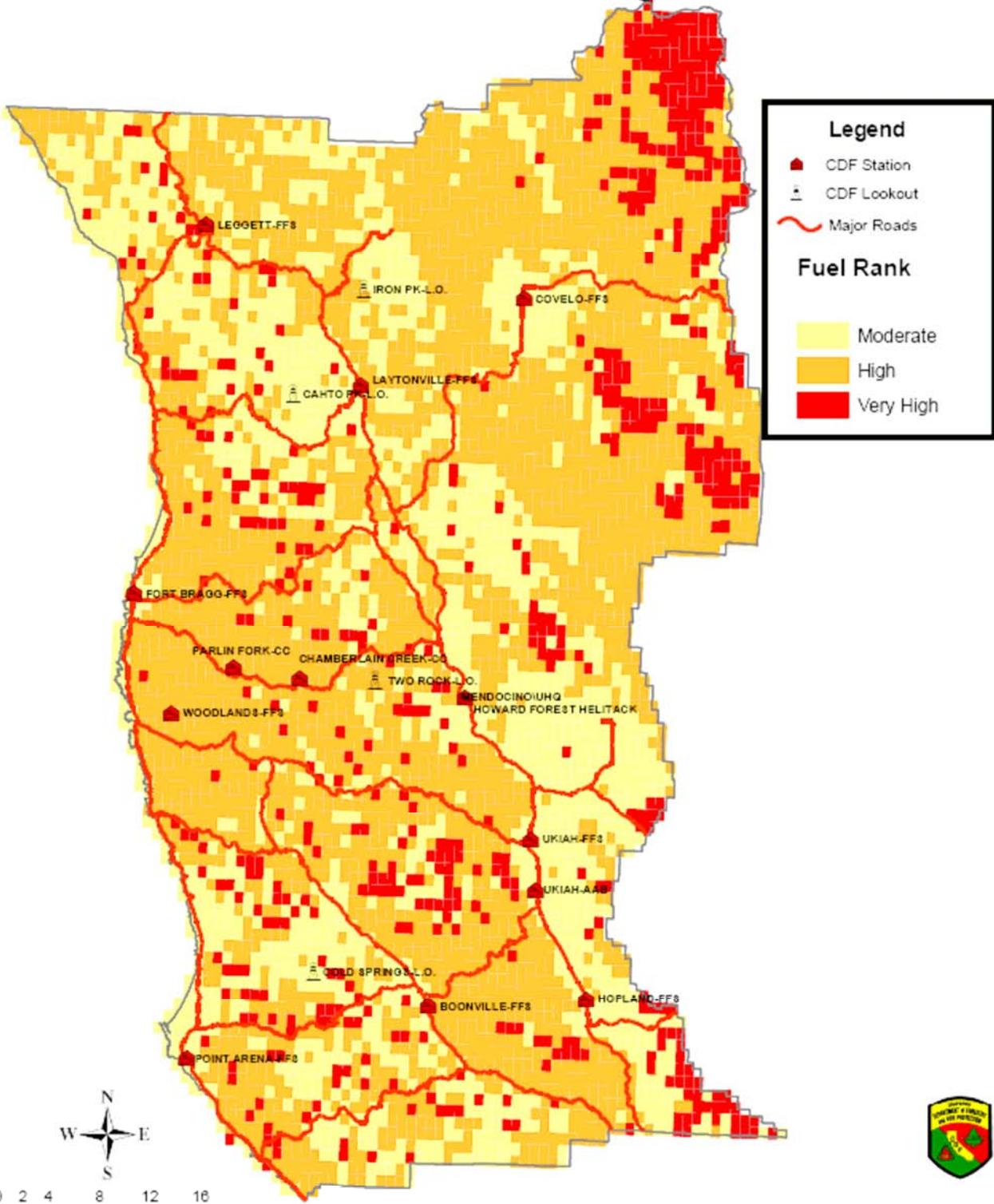
The initial fuel rank assessment is based on the fuel model and slope. Slope is divided into six classes using the National Fire Danger System slope classes. The ranking is then raised

based on the amount of ladder and/or crown fuel. This is called surface rank. By combining surface rank with the ladder index and crown index, a total score for fuel ranking is derived and classified as Moderate, High, or Very High.



Topography is an important element in this ranking, and plays a critical role in mountainous Mendocino County, where canyons, chimneys, draws, saddles, and other terrain features add to erratic winds and fire behavior. Gaps in mountain ranges funnel winds into valleys, especially in the mid to late afternoon, when fire danger is already at its highest due to high temperatures and low humidity. Experienced local firefighters know these patterns and areas and have learned to respond accordingly. Unfortunately, new residents are largely ignorant of them and continue to build homes at the tops of chimneys and along narrow canyons.

Mendocino Unit Fuel Ranking



SEVERE WEATHER ASSESSMENT

Fire behavior is dramatically influenced by weather conditions. Large costly fires are frequently, though not always, associated with severe fire weather conditions. Severe fire weather is typified by high temperatures, low humidity, and strong surface winds.

The California Fire Plan's weather assessment considers different climates of California, from fog-shrouded coastal plains to hot and dry interior valleys to cooler windy mountains. Each of these local climates experiences a different frequency of weather events that lead to severe fire behavior. The Plan's weather assessment uses a Fire Weather Index (FWI) developed by U.S. Forest Service researchers at the Riverside Fire Lab. This index combines air temperature, relative humidity, and wind speed into a single value index. This index can be calculated from hourly weather readings such as those collected in the California Remote Automatic Weather Station (RAWS) data collection system. The FWI does not include fuel moistures or fuel models, and it includes topography only to the extent that the RAWS weather readings are influenced by local topography.

The Mendocino Unit added a RAWS in the Laytonville area in October 2002. Once enough historical weather information has been collected, the Laytonville RAWS data will be added to the Unit's severe weather assessment.

Severe fire weather is defined using the Fire Weather Index developed by the Riverside Fire Lab. The FWI combines air temperature, relative humidity, and wind speed into a one number score. This gives wildland fire managers an index that indicates relative changes in fire behavior due to the weather; fuel and topography conditions are not included in the calculation. Severe fire weather occurs when the FWI, calculated from the hourly weather measurement, exceeds a predetermined threshold. The threshold FWI is derived from average bad fire weather of (approximately) 95° F, 20% relative humidity, and a 7 mph eye-level wind speed. Frequency of Severe Fire Weather is defined as the percent of time during the budgeted fire season that the weather station records severe fire weather. Individual weather stations are ranked as low, medium, or high frequency of severe fire weather. This ranking can then be applied to the area on the ground represented by the weather station.

The following chart contains Fire Weather Index information for each Remote Automated Weather Station used in the Mendocino Unit's Severe Fire Weather Assessment. The Laytonville RAWS is included in the chart for reference, but is not yet used in the assessment.

*Remote Automated Weather Station
Catalog Information*

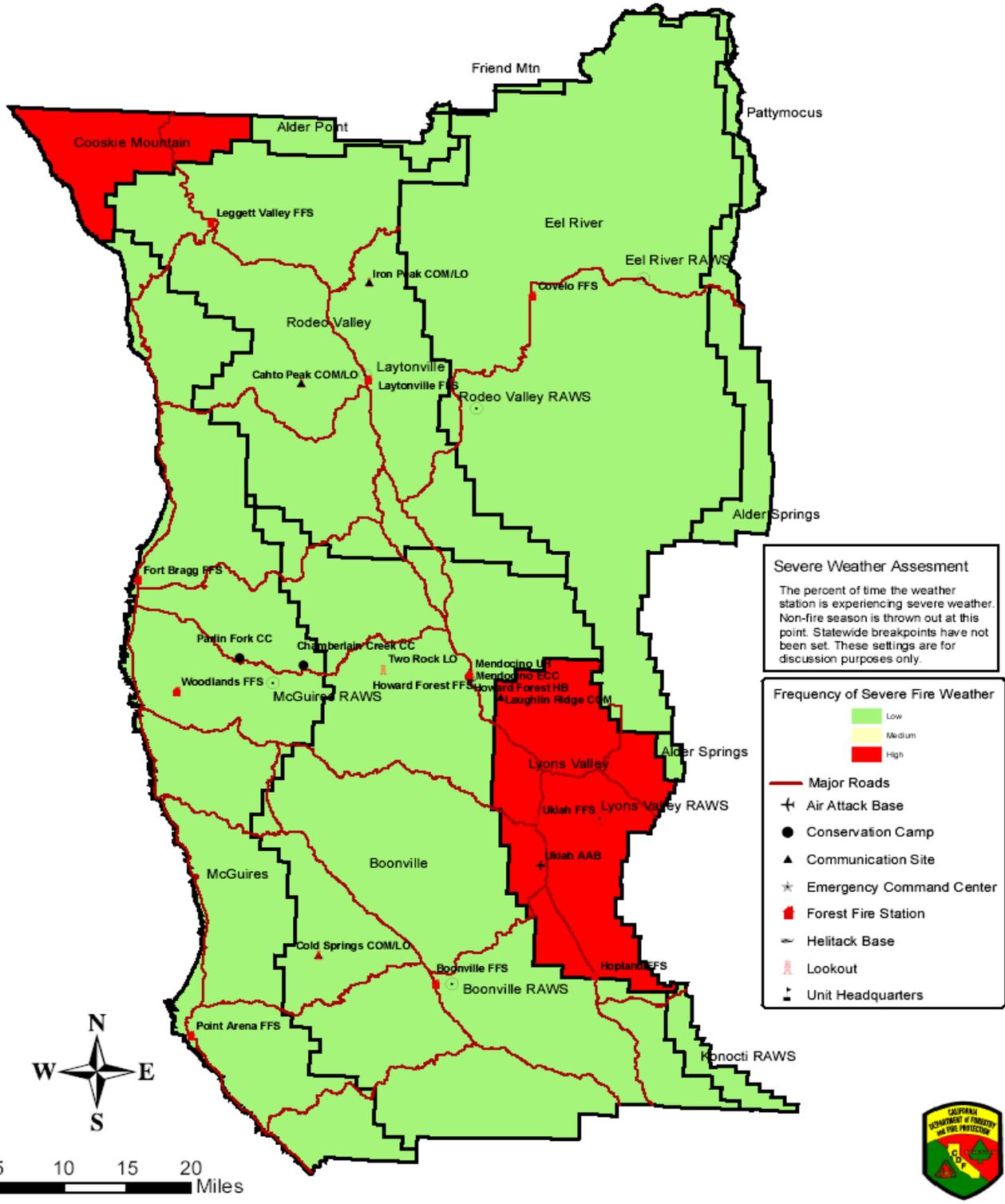
FWI CUTOFF	START LOW RANK	START MEDIUM RANK	START HIGH RANK
29.7250	0	5	20

RAWS_ID	R_DPA_ID	NAME	OWNER	ELEVATION	COUNTWX	WXINSEAS	SEVEREWX	WXSCORE	WXRANK
ALD	HUU	Alder Point	CDF	923	66581	29106	64	.22	L
BNV	MEU	Boonville	CDF	840	71843	30726	297	.97	L
CSM	HUU	Cooskie Mountain	BLM	2950	58711	25182	5437	21.59	H
EEL	MEU	Eel River	USFS	1500	94924	40337	478	1.19	L
KNC	LNU	Konocti	CDF	2100	74096	42584	1784	4.19	L
LAY	MEU	Laytonville	CDF	1838	22470	8759	0	.00	L
LYO	LNU	Lyons Valley	BLM	3200	71852	31533	6866	21.77	H
RDO	MEU	Rodeo Valley	CDF	2425	86746	40473	476	1.18	L
PMC	TGU	Pattymocus	USFS	3889	62537	28014	69	.25	L

(see map on next page)

Mendocino Unit

Severe Fire Weather

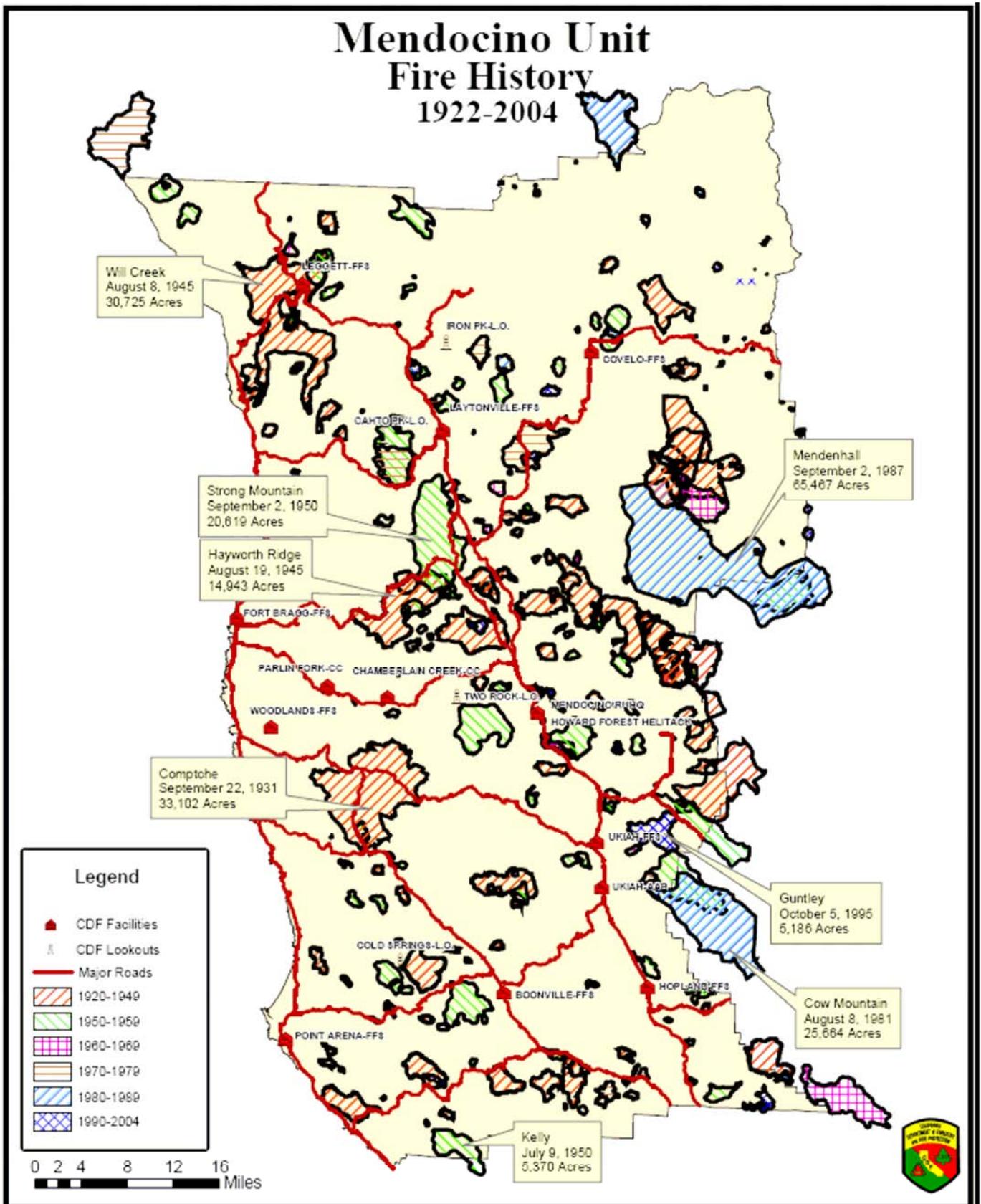


HISTORY OF LARGE FIRES

The following page contains a map of most of the large fires in the Mendocino Unit since 1922. This information can aid in understanding the potential for a large fire at any particular location and also help in determining areas where pre-fire management plans can be put to the best use. One thing this fire history makes clear is that, although the County has been spared large fires in the recent past, this Unit can and will sustain large, devastating wildfires. *Indeed, the lack of large fires for many years points to the likelihood of one or more happening in the near future.* To prepare and lower the risks now will benefit all stakeholders concerned.

(see map on next page)

Mendocino Unit Fire History 1922-2004



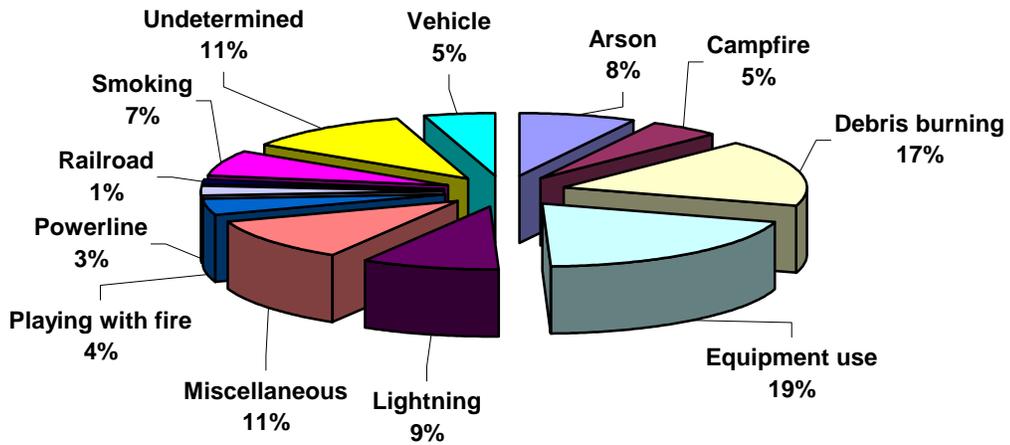
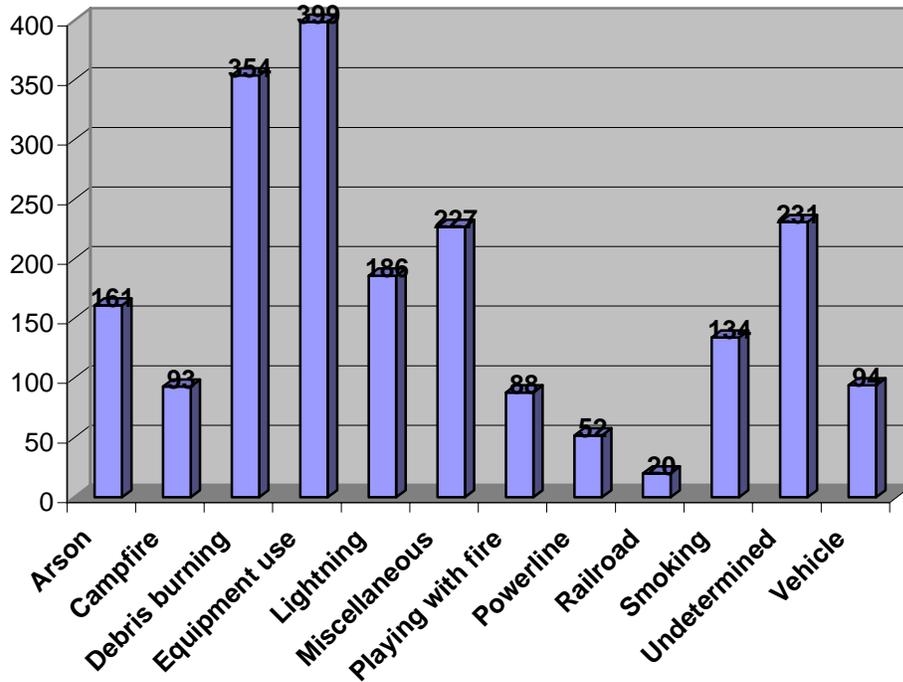
IGNITIONS AND INITIAL ATTACK SUCCESSES

The largest single ignition cause in the Mendocino Unit during the last ten years has been the use of equipment, at 19% of all ignitions. Debris burning comes in next at 17%. The following charts show the number and causes of wildfires for 2004 and the previous ten years. Most ignitions are associated with roads and areas of population density. Identifying ignition causes is an ongoing challenge, including determining if roadside ignitions were accidental due to cigarette butts negligently tossed from vehicles or were acts of arson. Unit personnel are committed to meeting this challenge, because the need for accurate data to perform good analyses is crucial.

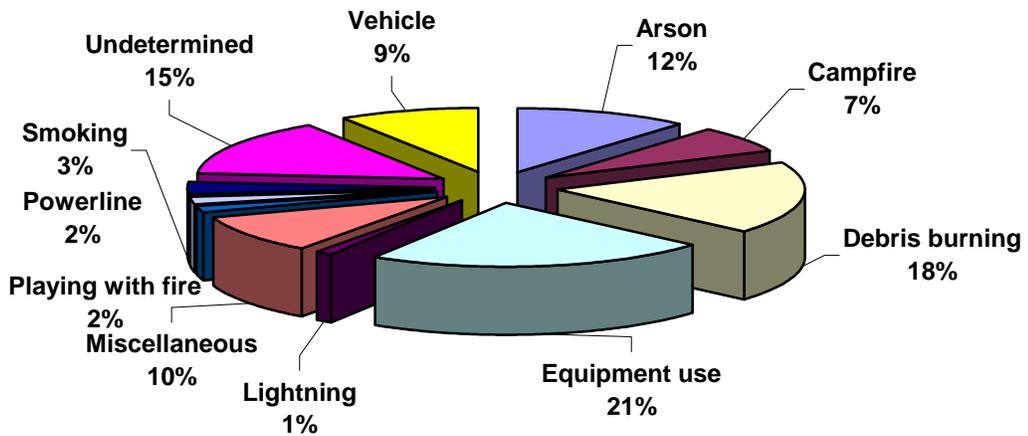
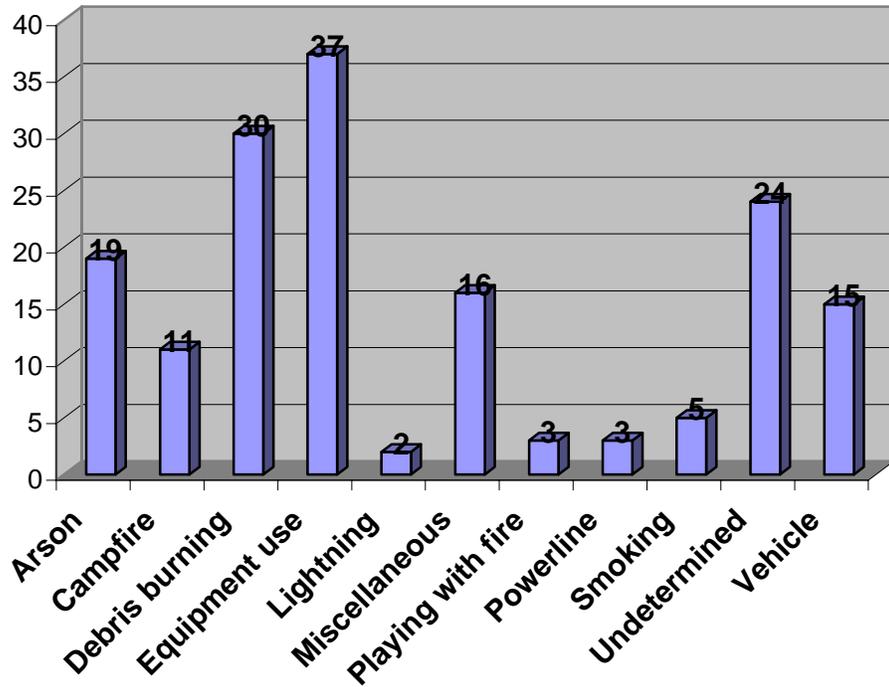
CDF Unit suppression forces, working side-by-side with local fire departments, have been quite successful in meeting the CDF goal of containing 95% of all wildfires at 10 acres or less. Every fire season, Mendocino County fire personnel, both paid and volunteer, receive numerous compliments and expressions of gratitude about their hard-hitting and effective initial attack and related successes – from persons whose homes were saved from destruction, community members who observe suppression efforts in progress, and many others. The coordinated effort of ground and air suppression resources has proven a winning combination for many years, and CDF and local fire personnel will work hard to maintain their good record and superb mutual aid relationships.

Wildfire successes are shown on the map entitled “Initial Attack Success.” Success or failure determination is generally based on both fire size and intensity, but if no information on intensity is available, only size is used.

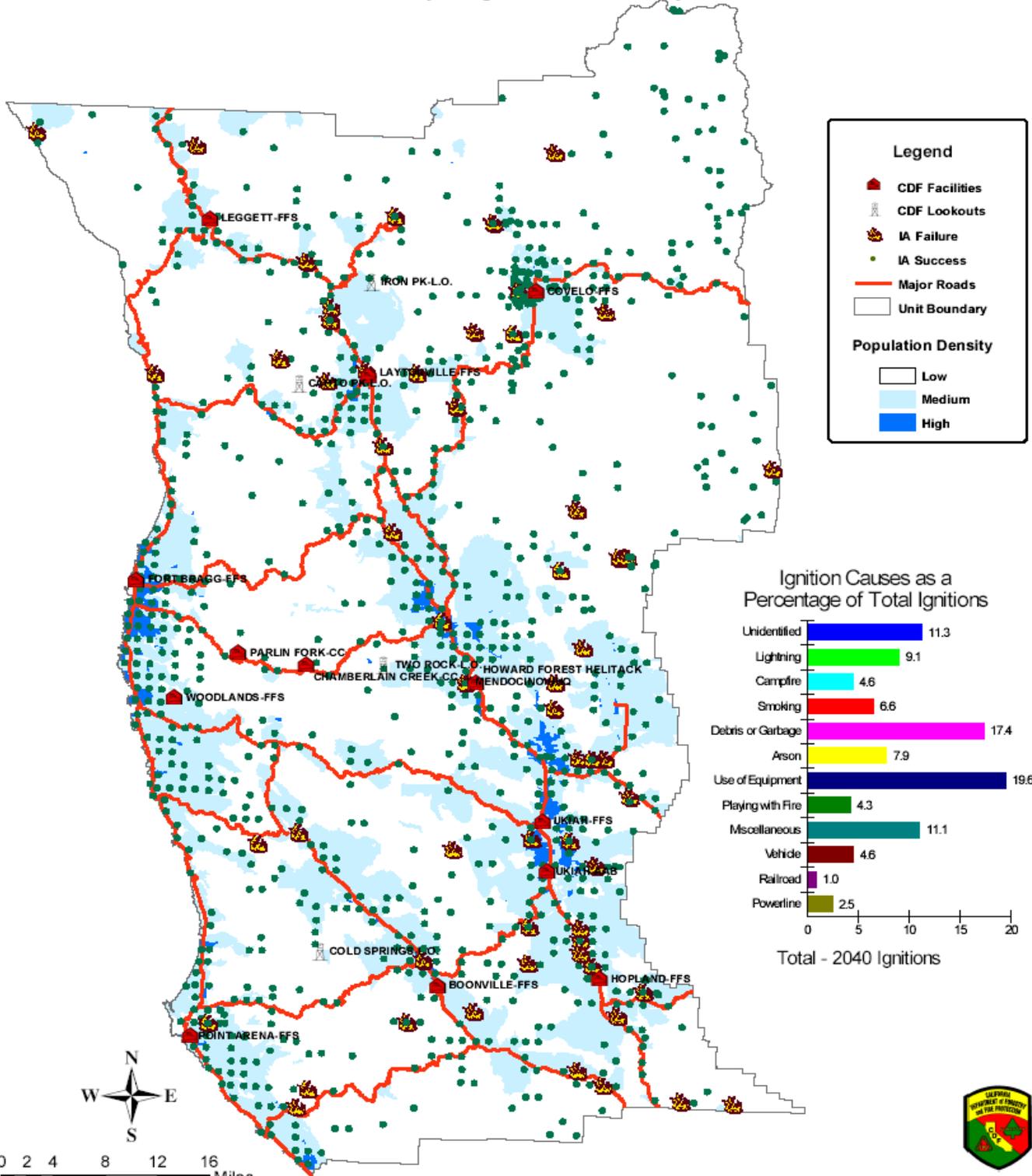
Mendocino Unit Fire Cause 1995-2004 Total Fires: 2040



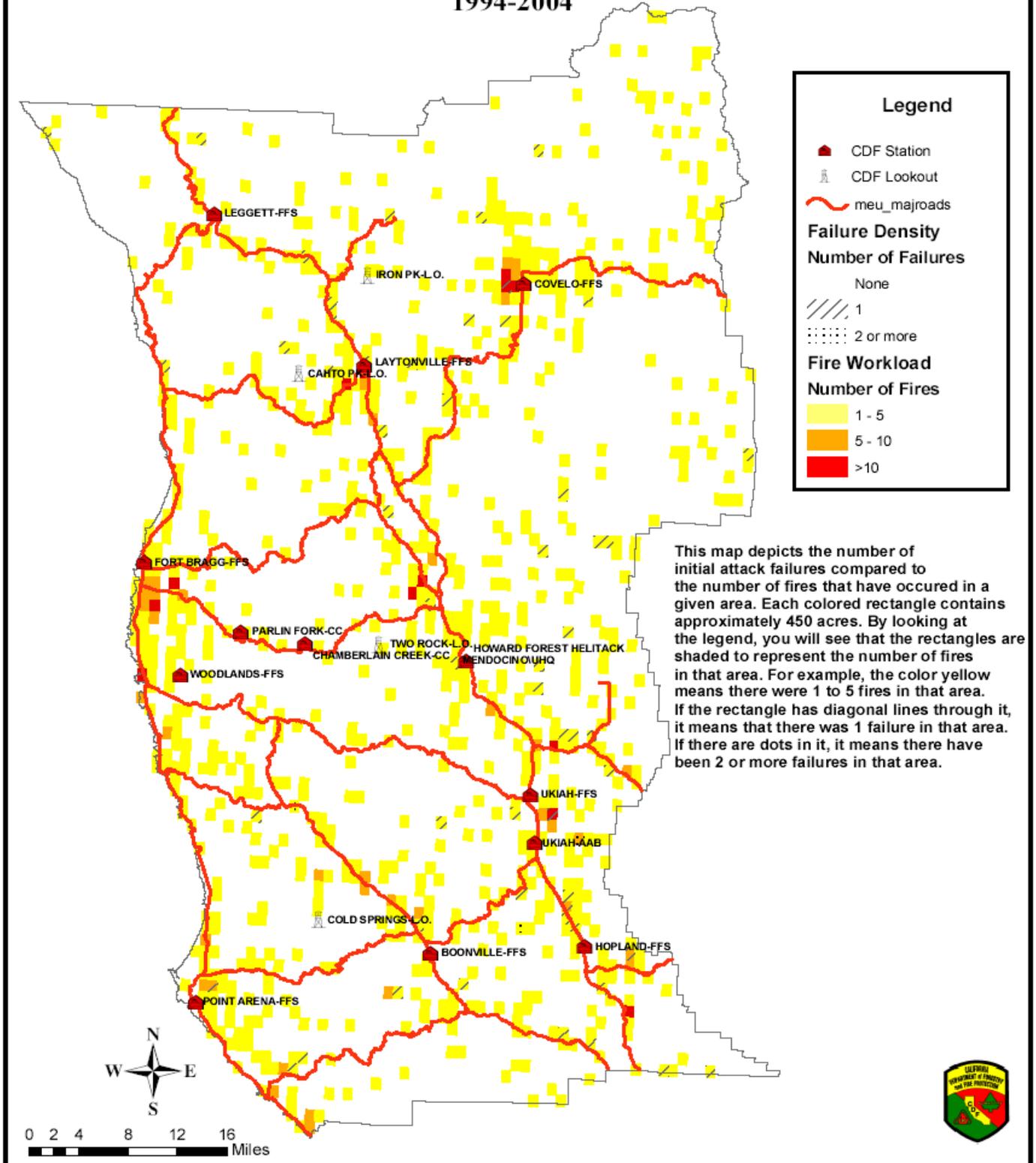
Mendocino Unit Fire Cause 2004 Total Fires: 165



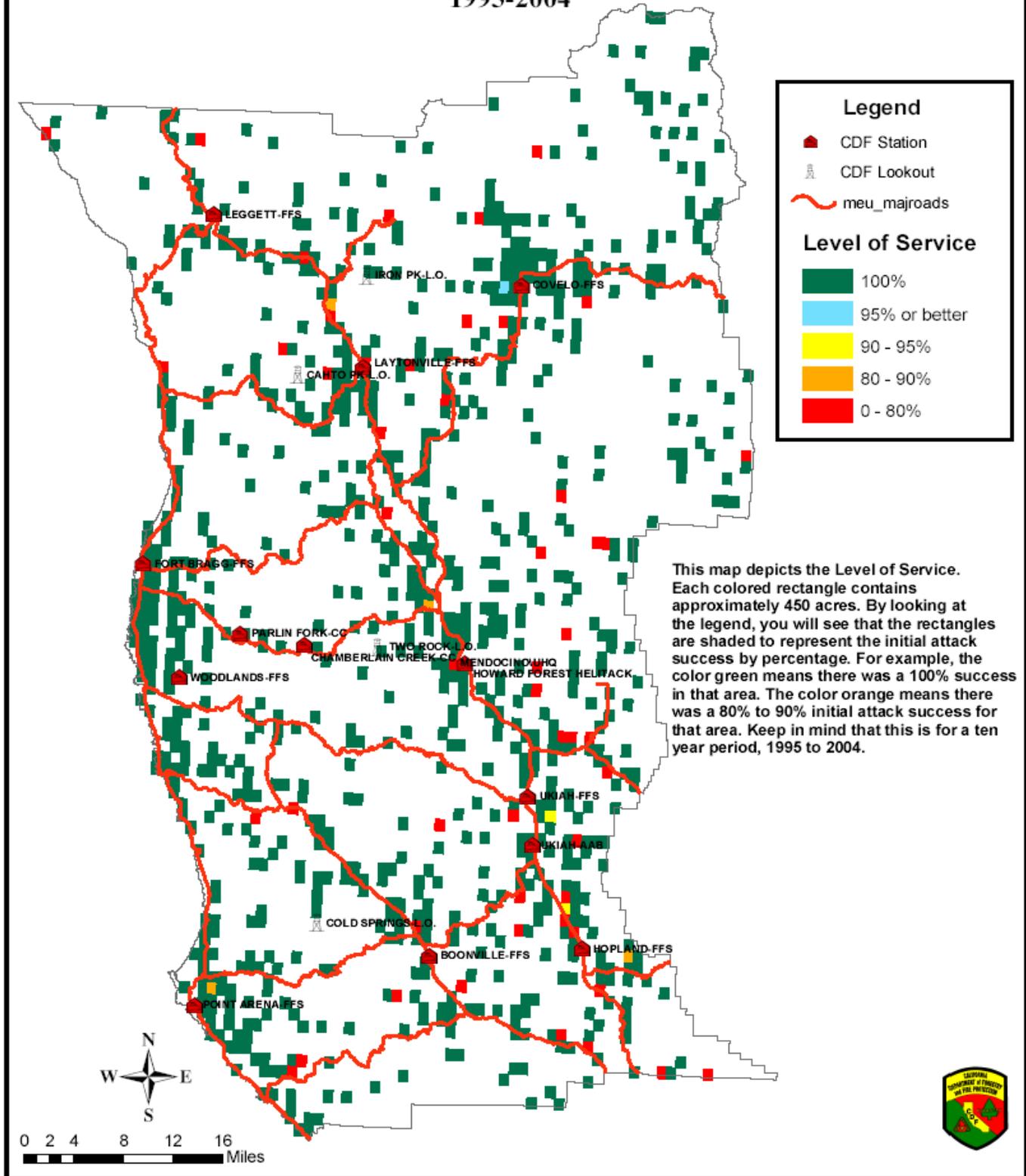
Mendocino Unit Initial Attack Success-Failure 1994-2004 By Population Density



Mendocino Unit Fire Workload and Failure Density 1994-2004



Mendocino Unit Level of Service 1995-2004



ASSETS AT RISK

Mendocino Unit has a wide range of both natural and man-made assets at risk to wildfires. Fires threaten the natural environment as well as commercial and residential property. It is difficult to prioritize or rank these assets, but homes, infrastructure including water and power supply, rivers and watersheds, wildlife habit, recreation areas including tourist attractions, scenic beauty, timber, and rangeland all rank high in this Unit. The table below, from the California Fire Plan, describes categories of assets evaluated. The following maps show some of these assets. Further input from county residents is provided in Chapter 4.

Asset at Risk	Location and Ranking Methodology
Hydroelectric power	1) Watersheds that feed run of the river power plants, ranked based on plant capacity; 2) cells adjacent to reservoir based plants; and 3) cells containing canals and flumes
Fire-flood watersheds	Watersheds with a history of problems or proper conditions for future problems (South Coastal Plain, field/stakeholder input), ranked based on affected downstream population
Soil erosion	Watersheds ranked based on erosion potential
Water storage	Watershed area up to 20 miles upstream from water storage facility, ranked based on water value and dead storage capacity of facility
Water supply	1) Watershed area up to 20 miles upstream from water supply facility; 2) grid cells containing domestic water diversions, ranked based on number of connections; and 3) cells containing ditches that contribute to the water supply system
Scenic views	Four mile viewshed around Scenic Highways and 1/4 mile viewshed around Wild and Scenic Rivers; ranked based on potential impacts to vegetation types (tree versus non-tree types)
Timber	Timberlands ranked based on value and susceptibility to damage
Range	Rangelands ranked based on potential replacement feed cost by region/owner/vegetation type
Air quality	Potential damage to health, materials, vegetation, and visibility; ranking based on vegetation type and air basin
Historic buildings	Historic buildings ranked based on fire susceptibility
Recreation	Unique recreation areas or areas with potential damage to facilities, ranked based on fire susceptibility
Structures	Ranking based on housing density and fire susceptibility
Non-game wildlife	Critical habitats and species locations based on input from California Department of Fish & Game and other stakeholders
Game wildlife	Critical habitats and species locations based on input from CA DF&G and other stakeholders
Infrastructure	Infrastructure for delivery of emergency and other critical services (e.g. repeater sites, power transmission lines)
Ecosystem Health	Ranked based on vegetation type/fuel characteristics

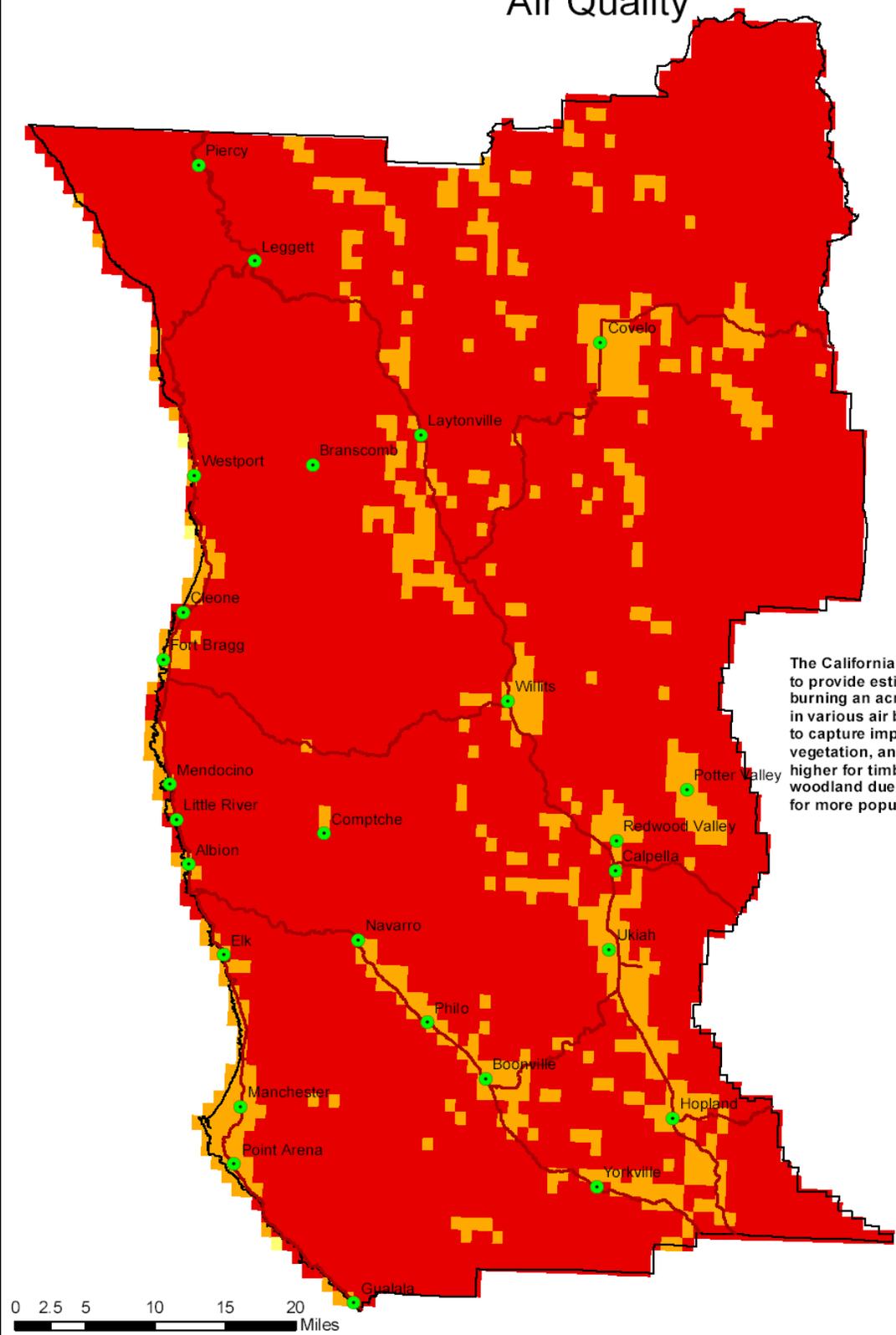
Assets At Risk Air Quality

Legend

- Towns
- State Highways

Air Quality

- Low
- Medium
- High



The California Fire Plan draws on past research to provide estimates of the per acre impact of burning an acre of different vegetation types in various air basins. The estimates attempt to capture impacts on health, materials, vegetation, and visibility. Impacts are much higher for timber and brush than for grass and woodland due to higher emission rates, and for more populous air basins.

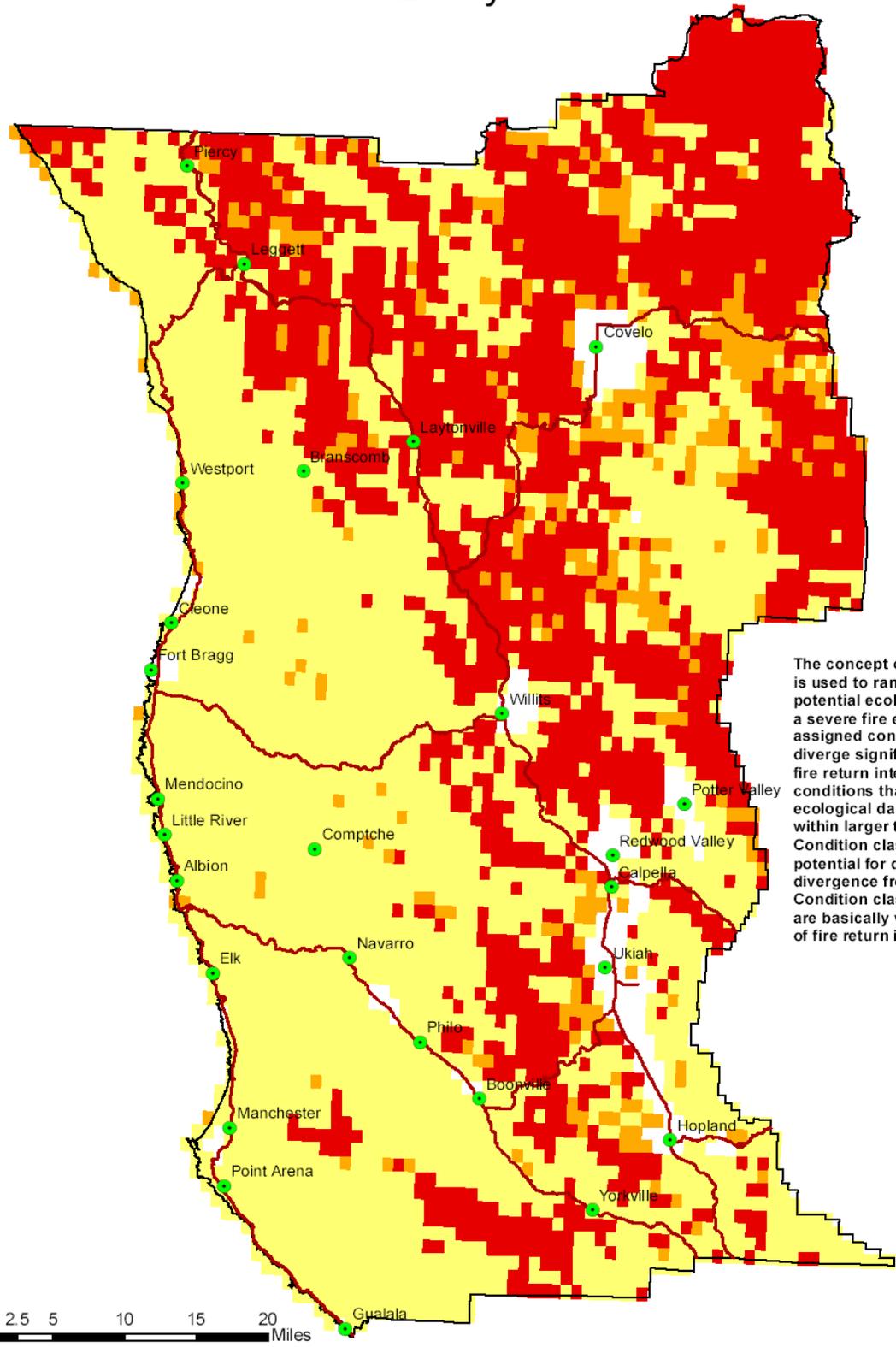
Assets At Risk Ecosystem Health

Legend

- Towns
- ~ State Highways

Ecosystem Health

- Low
- Medium
- High



The concept of "condition class" is used to rank cells based on potential ecological damage from a severe fire event. Cells that are assigned condition class 3 typically diverge significantly from the historic fire return interval, resulting in fuel conditions that could promote ecological damage (e.g. mortality within larger tree sizes, soil impacts). Condition class 2 areas have the potential for damage due to moderate divergence from historic return intervals. Condition class 1 refers to areas that are basically within the historic range of fire return interval.



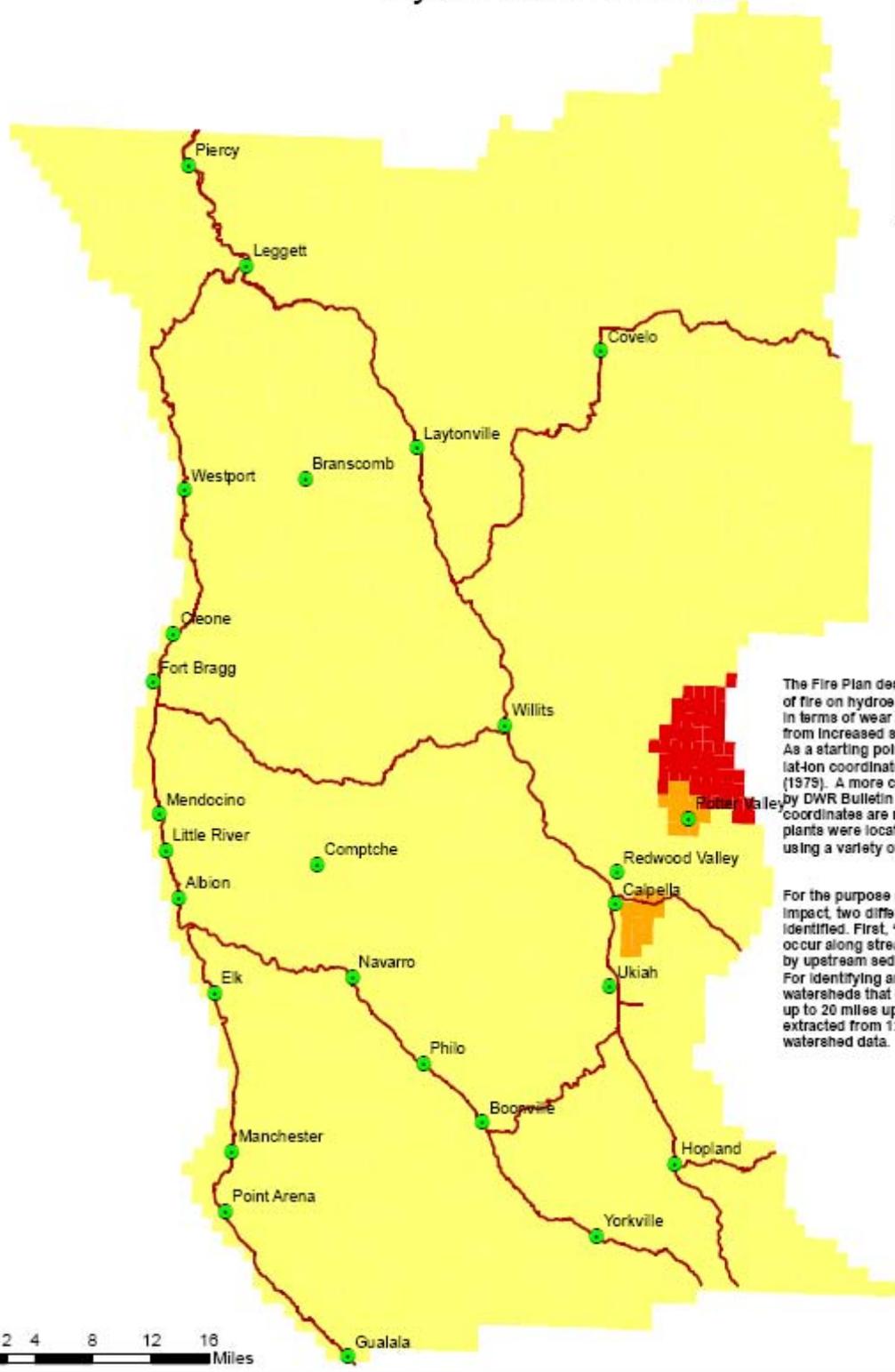
Assets At Risk Hydroelectric Power

Legend

- Towns
- State Highways

Hydroelectric Power

- Not Ranked
- Low
- Medium



The Fire Plan describes the economic impact of fire on hydroelectric power generation facilities, in terms of wear and tear on equipment resulting from increased suspended sediment loads. As a starting point, plants were located using lat-lon coordinates from the Army Corps of Engineers (1979). A more complete listing of plants is provided by DWR Bulletin 160-93 volume 2 (1989). Since coordinates are not provided, the post-1979 plants were located spatially (wherever possible) using a variety of map sources.

For the purpose of locating areas of potential impact, two different types of plants are identified. First, "run of the river" plants that occur along stream channels are directly affected by upstream sedimentation after large fire events. For identifying areas of impact, the area within watersheds that drain into the stream channel up to 20 miles upstream from the plant were extracted from 1:24,000 CALWATER planning watershed data.



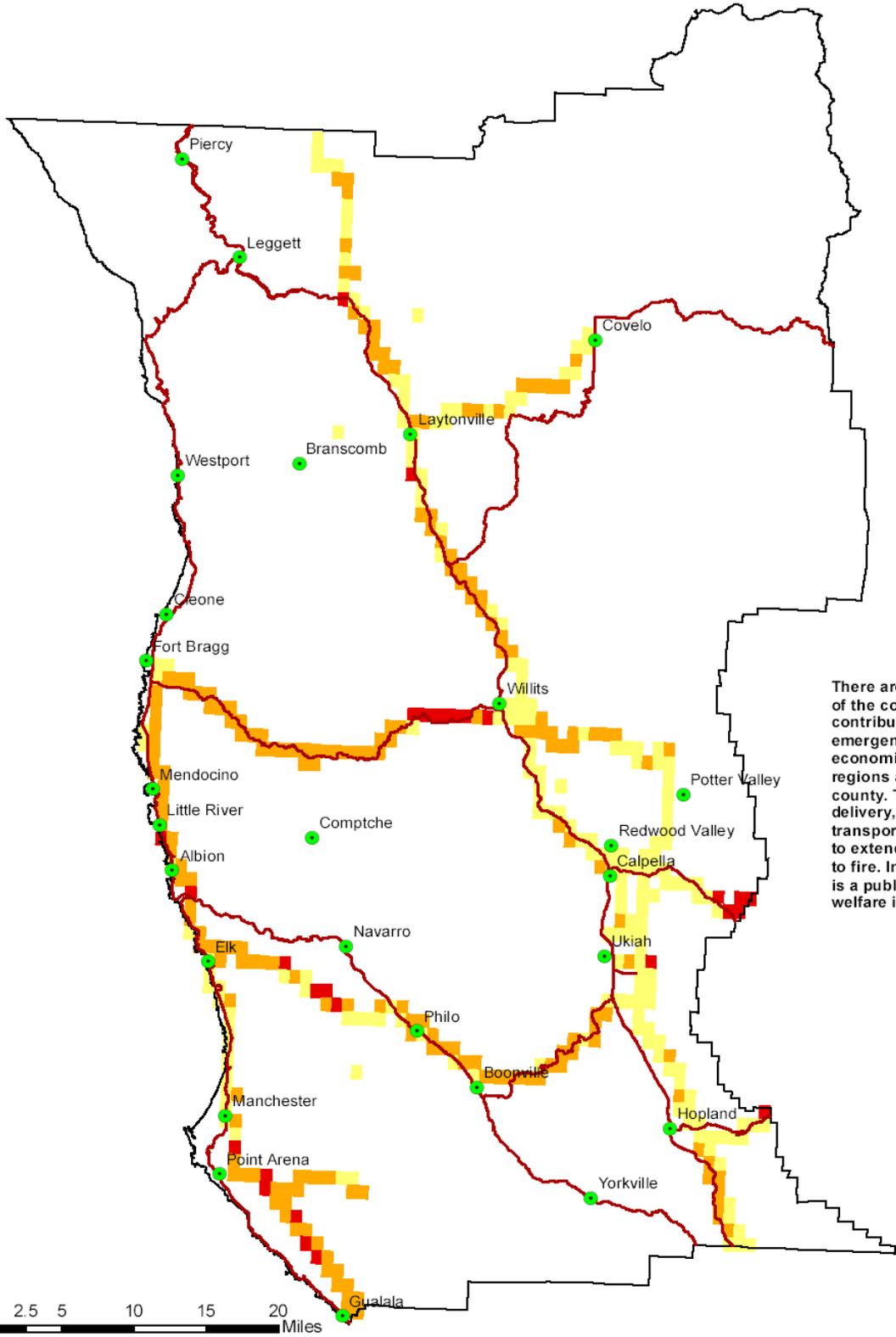
Assets At Risk Infrastructure

Legend

- Towns
- ~ State Highways

Infrastructure

- Low
- Medium
- High



There are numerous components of the county's infrastructure that contribute to the delivery of emergency services and the economic well-being of different regions and localities within the county. This includes power delivery, communications, and transportation corridors susceptible to extended loss of service due to fire. Interruption of these services is a public safety as well as a public welfare issue.

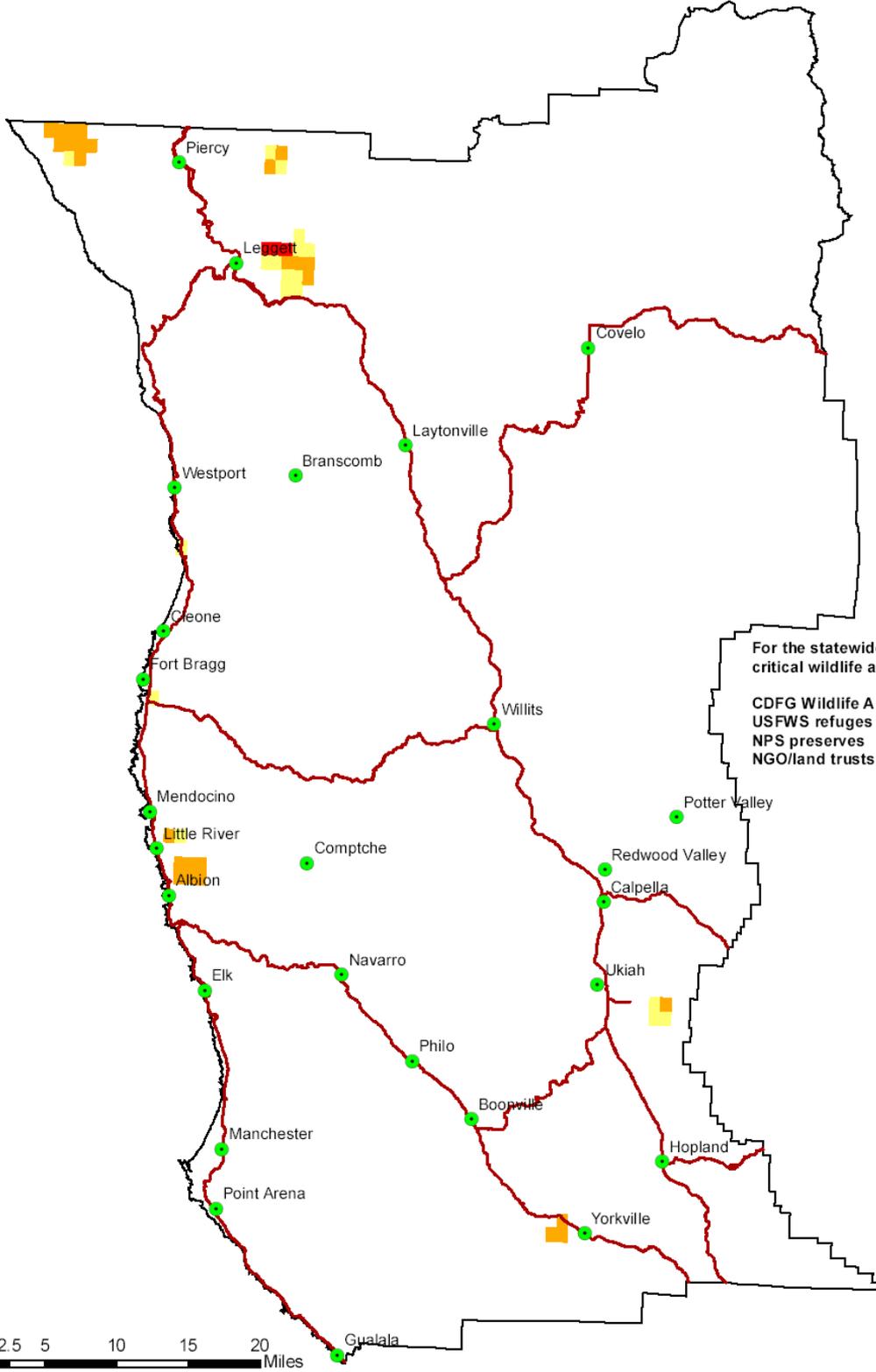
Assets At Risk Non-Game Wildlife

Legend

- Towns
- ~ State Highways

Non-Game Wildlife

- Low
- Medium
- High



For the statewide analysis, specially designated critical wildlife areas are identified, which include;

- CDFG Wildlife Areas and Ecological Reserves
- USFWS refuges
- NPS preserves
- NGO/land trusts (e.g. The Nature Conservancy)



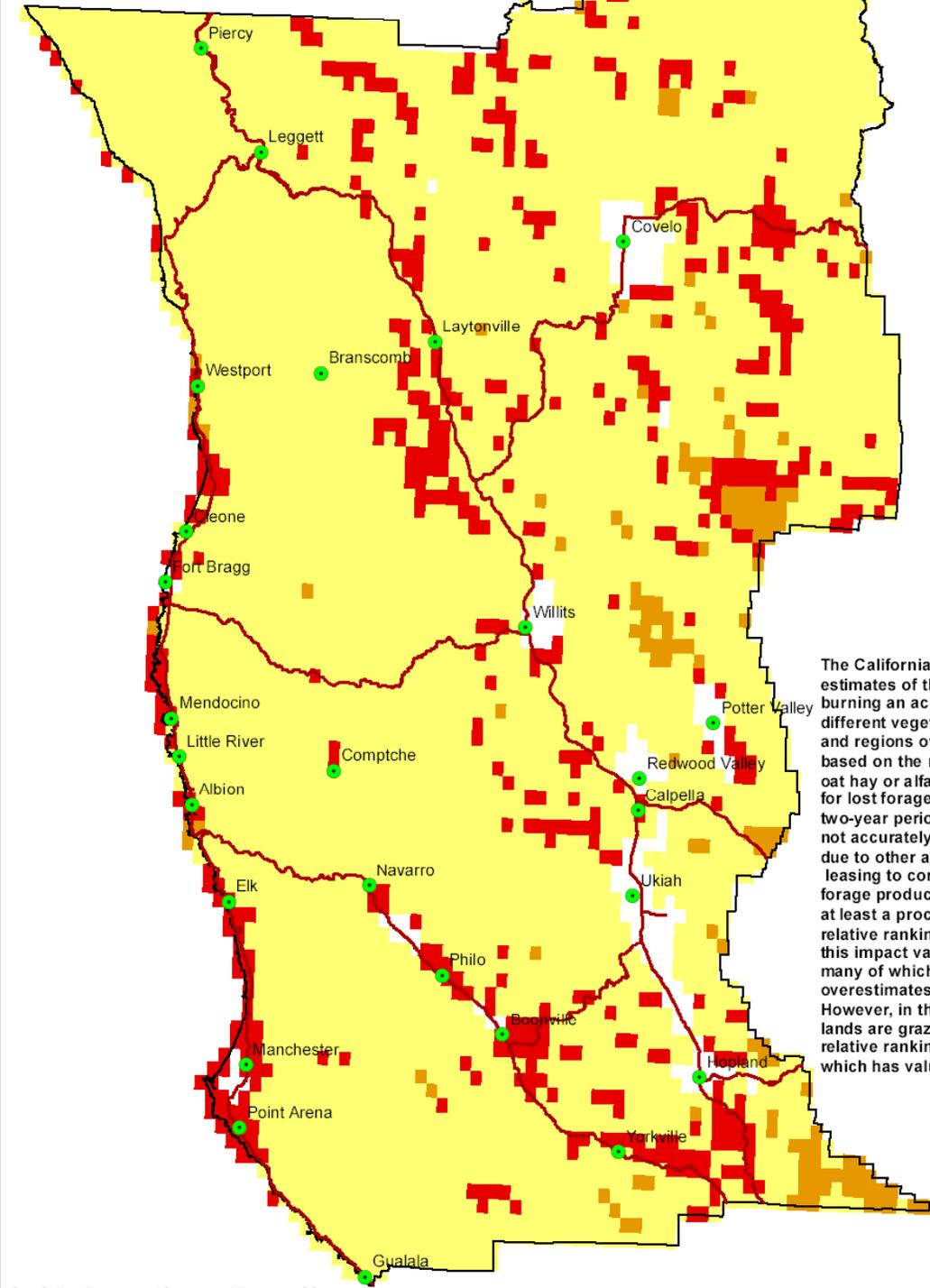
Assets At Risk Range

Legend

- Towns
- ~ State Highways

Range

- Low
- Medium
- High



The California Fire Plan provides estimates of the cost impact of burning an acre of rangeland for different vegetation types, ownerships, and regions of the state. The impact is based on the replacement cost of oat hay or alfalfa to compensate for lost forage production over a two-year period. While this may not accurately reflect actual losses due to other alternatives such as leasing to compensate for lost forage production, it does provide at least a process for determining the relative rankings of different areas. Using this impact value over all rangelands, many of which are not grazed by livestock, overestimates the actual economic impact. However, in the absence of data for which lands are grazed, it at least provides a relative ranking based on forage production, which has value for wildlife as well as livestock.



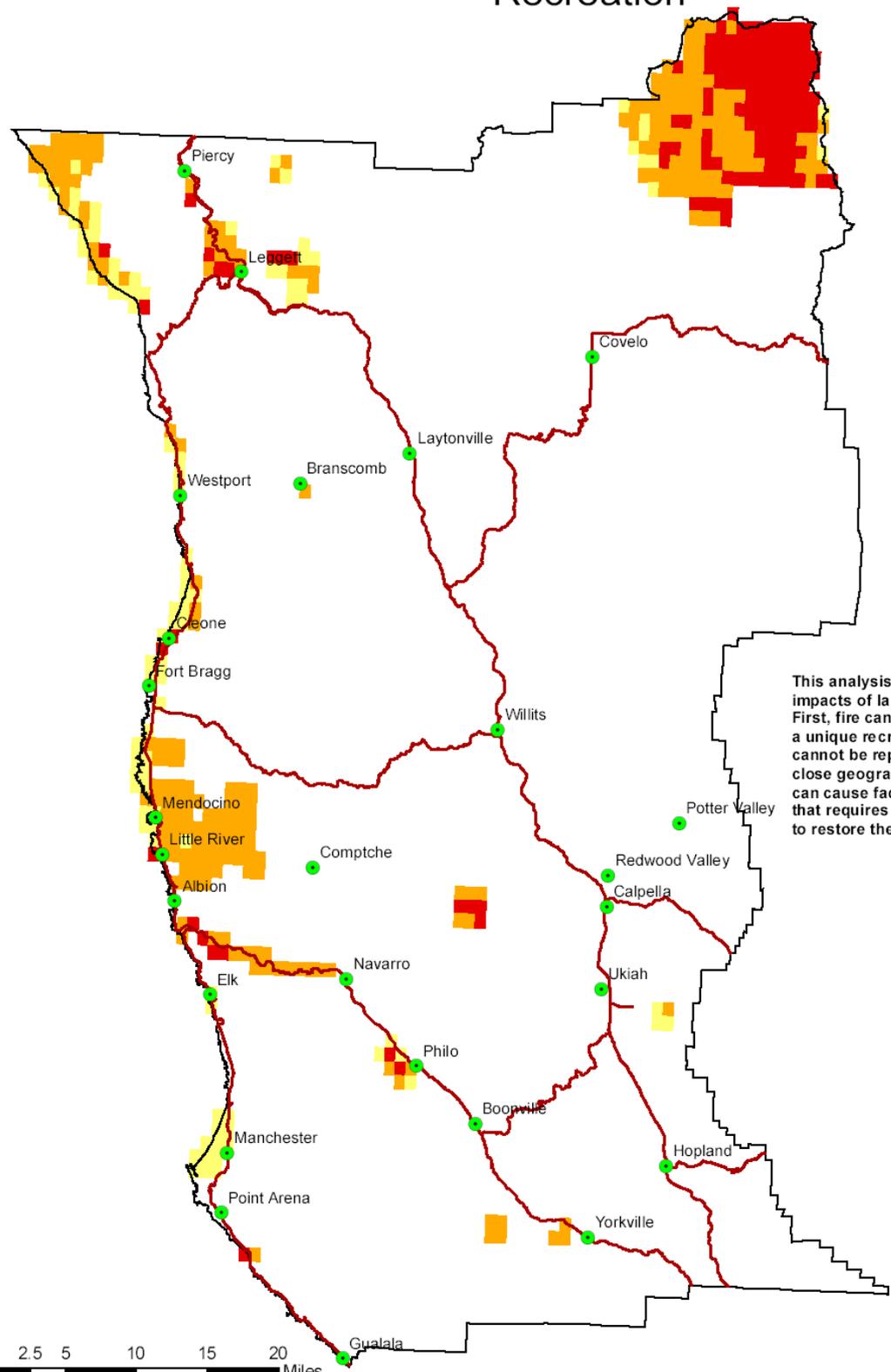
Assets At Risk Recreation

Legend

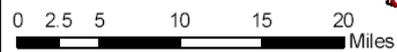
- Towns
- ~ State Highways

Recreation

- Low
- Medium
- High



This analysis focuses on two main impacts of large fire events on recreation. First, fire can cause severe damage to a unique recreation opportunity that cannot be replaced within a reasonably close geographic area. Secondly, impacts can cause facility or infrastructure damage that requires major public or private outlays to restore the recreation opportunity.



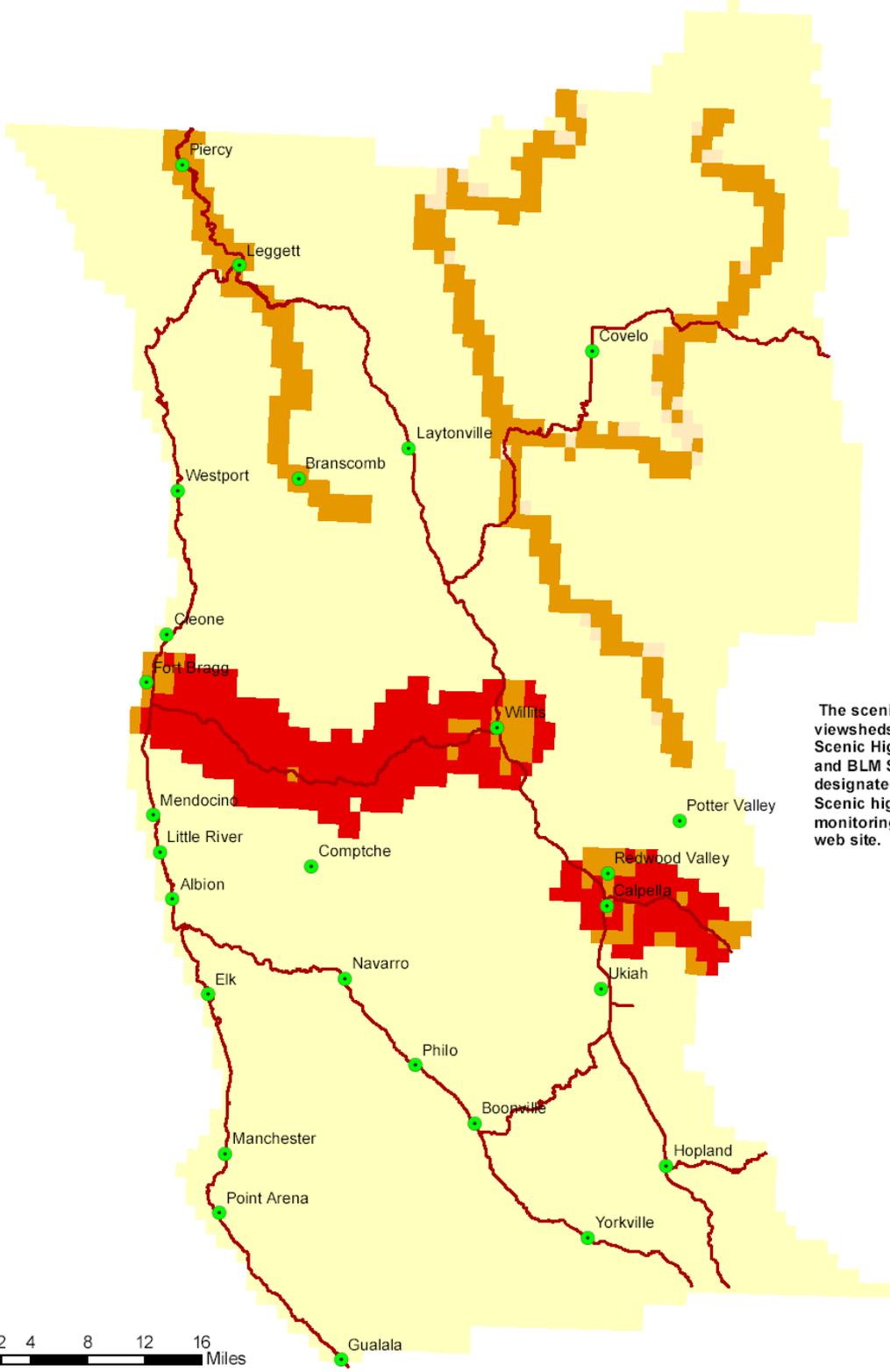
Assets At Risk Scenic

Legend

- Towns
- ~ State Highways

Scenic

- Not present
- Low
- Medium
- High



The scenic asset includes the viewsheds around state designated Scenic Highways, Forest Service and BLM Scenic Byways, and designated Wild and Scenic Rivers. Scenic highway designations are monitoring based on the CALTRANS web site.



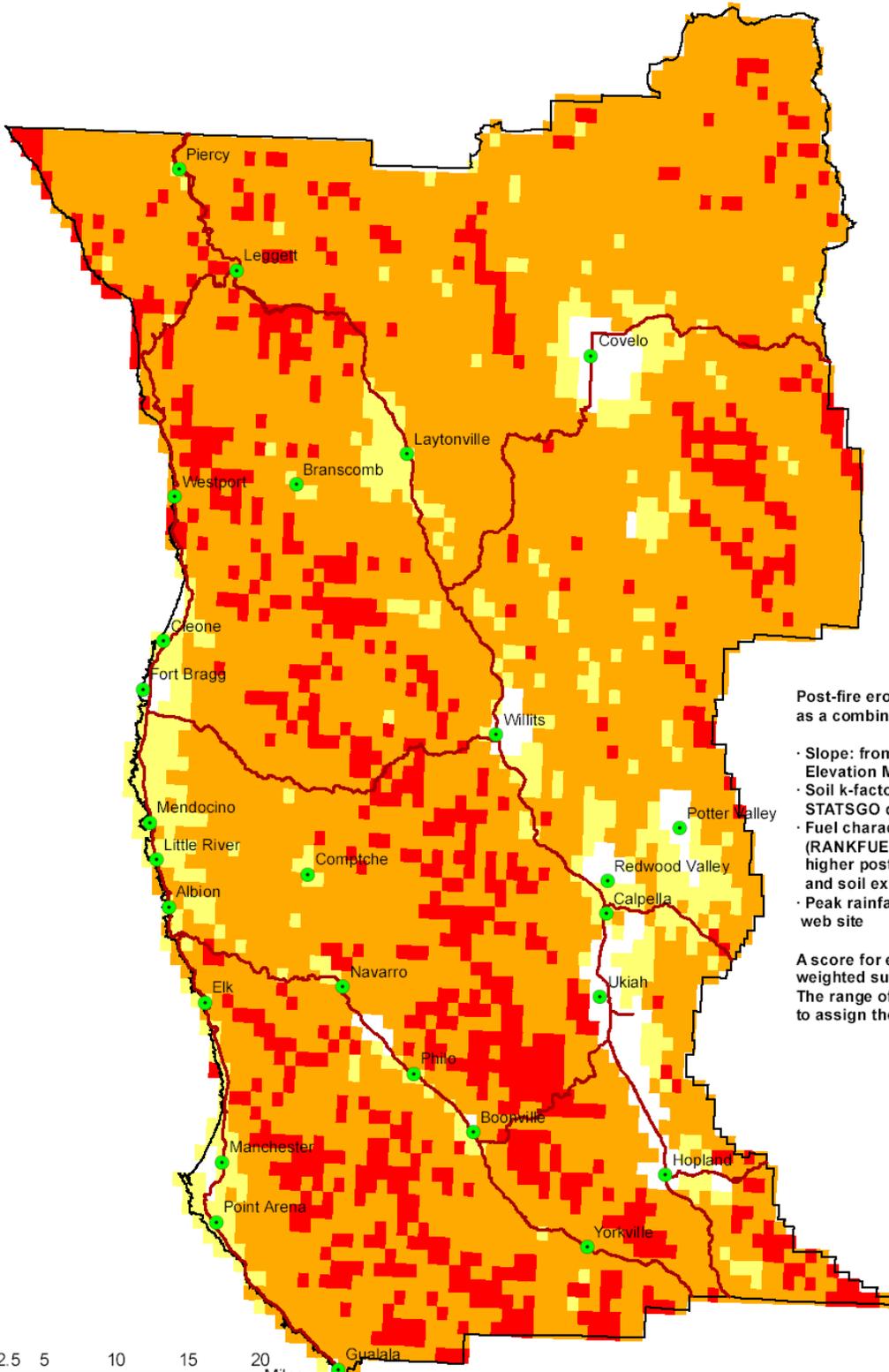
Assets At Risk Soil Erosion

Legend

- Towns
- ~ State Highways

Soil Erosion

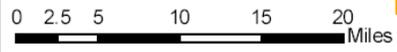
- 1
- 2
- 3



Post-fire erosion potential is calculated as a combination of;

- Slope: from 1:24,000 USGS Digital Elevation Models
- Soil k-factor: from NRCS 1:100,000 STATSGO data
- Fuel characteristics: higher fuel rankings (RANKFUEL from Q81_DET) suggest higher post-fire loss of vegetation cover and soil exposure
- Peak rainfall: NOAA data available through web site

A score for each cell is derived as a weighted summation of these factors. The range of scores was then analyzed to assign the three ranks.



Assets At Risk Structures

Legend

- Towns
- ~ State Highways

Structures

- Low
- Medium
- High

DENSITY CLASS	HOUSING DENSITY
Very High	Over 1 unit/5 acres
High	1 unit/20 acres to 1 unit/5 acres
Medium	1 unit/160 acres to 1 unit/20 acres
Low	Less than 1 unit/160 acres, but non-zero
Not ranked	Not populated (e.g. wilderness areas)

HOUSING DENSITY	EXPOSURE			
	0	Low	Med	High
Very High	0	M	H	H
High	0	L	M	H
Medium	0	0	L	M
Low	0	0	0	L
Not ranked	0	0	0	0

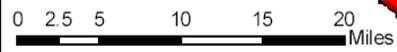
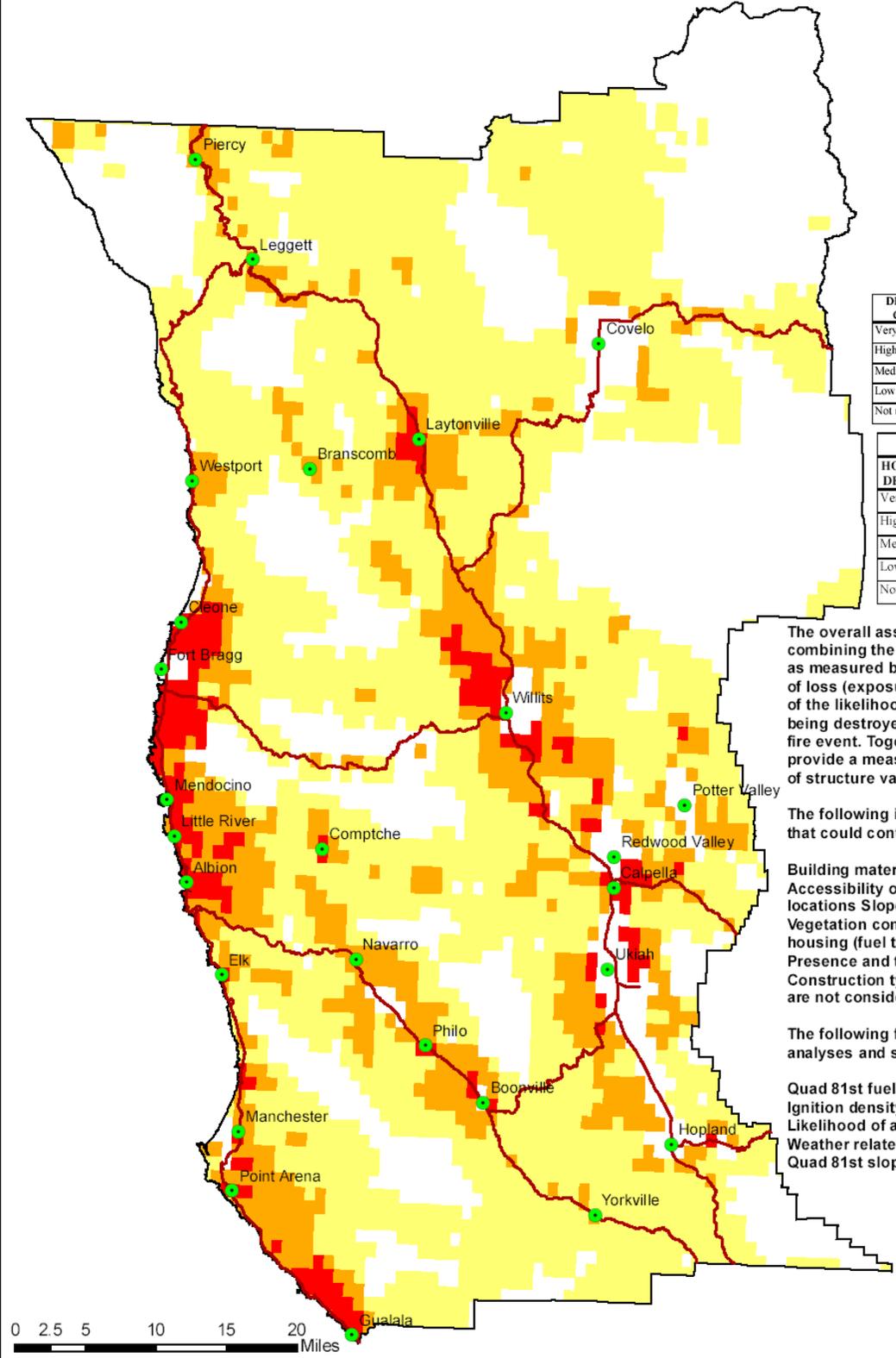
The overall asset ranking is created by combining the value of housing, as measured by density, with susceptibility of loss (exposure). Exposure is a measure of the likelihood of structures actually being destroyed or damaged in a large fire event. Together, density and exposure provide a measure of overall potential loss of structure values if a large fire event occurs.

The following is a suggested list of factors that could contribute to exposure;

- Building materials/roof type
- Accessibility of fire control equipment to housing locations
- Slope conditions affecting housing
- Vegetation conditions immediately surrounding housing (fuel type, clearance, etc.)
- Presence and timing of past pre-fire projects.
- Construction types of existing homes are not considered in this assessment.

The following factors are part of other analyses and should not be considered;

- Quad 81st fuels
- Ignition density
- Likelihood of a large fire event
- Weather related factors
- Quad 81st slope



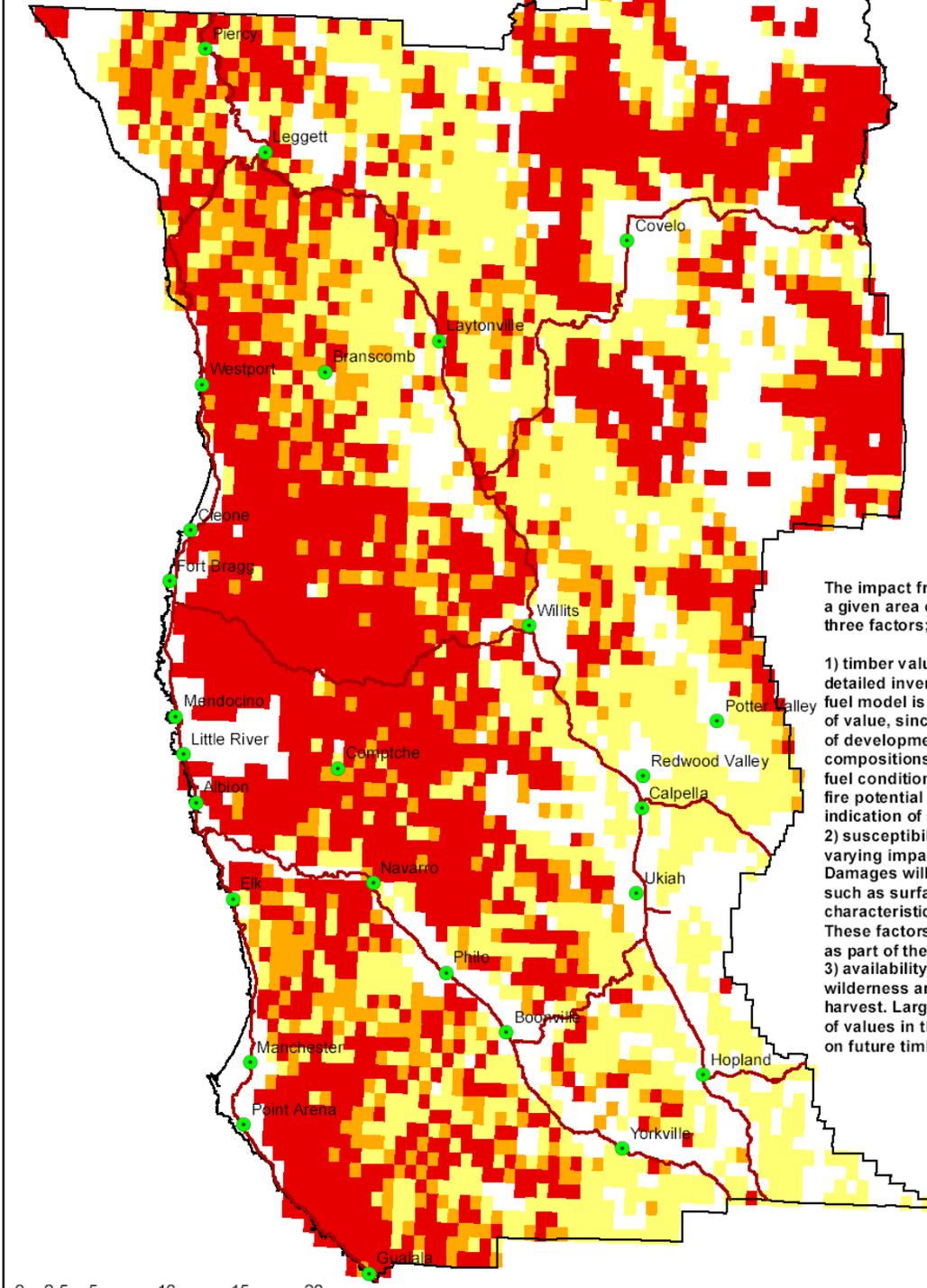
Assets At Risk Timber

Legend

- Towns
- ~ State Highways

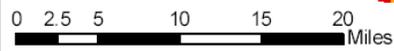
Timber

- Low
- Medium
- High



The impact from a large fire event in a given area on timber will depend on three factors;

- 1) timber value: in the absence of detailed inventory data, the surface fuel model is used as a gross indicator of value, since stands at different stages of development and with different species compositions produce different surface fuel conditions. In addition, the crown fire potential score also gives some indication of stocking levels.
- 2) susceptibility: large fire events can have varying impacts on timber in different areas. Damages will be a factor of fuels characteristics such as surface fuel model, ladder fuel characteristics, and crown fire potential. These factors are all tracked and field validated as part of the Fire Plan process.
- 3) availability: certain areas such as parks and wilderness areas are not available for timber harvest. Large fire events can damage a variety of values in these areas, but have no impact on future timber harvests.



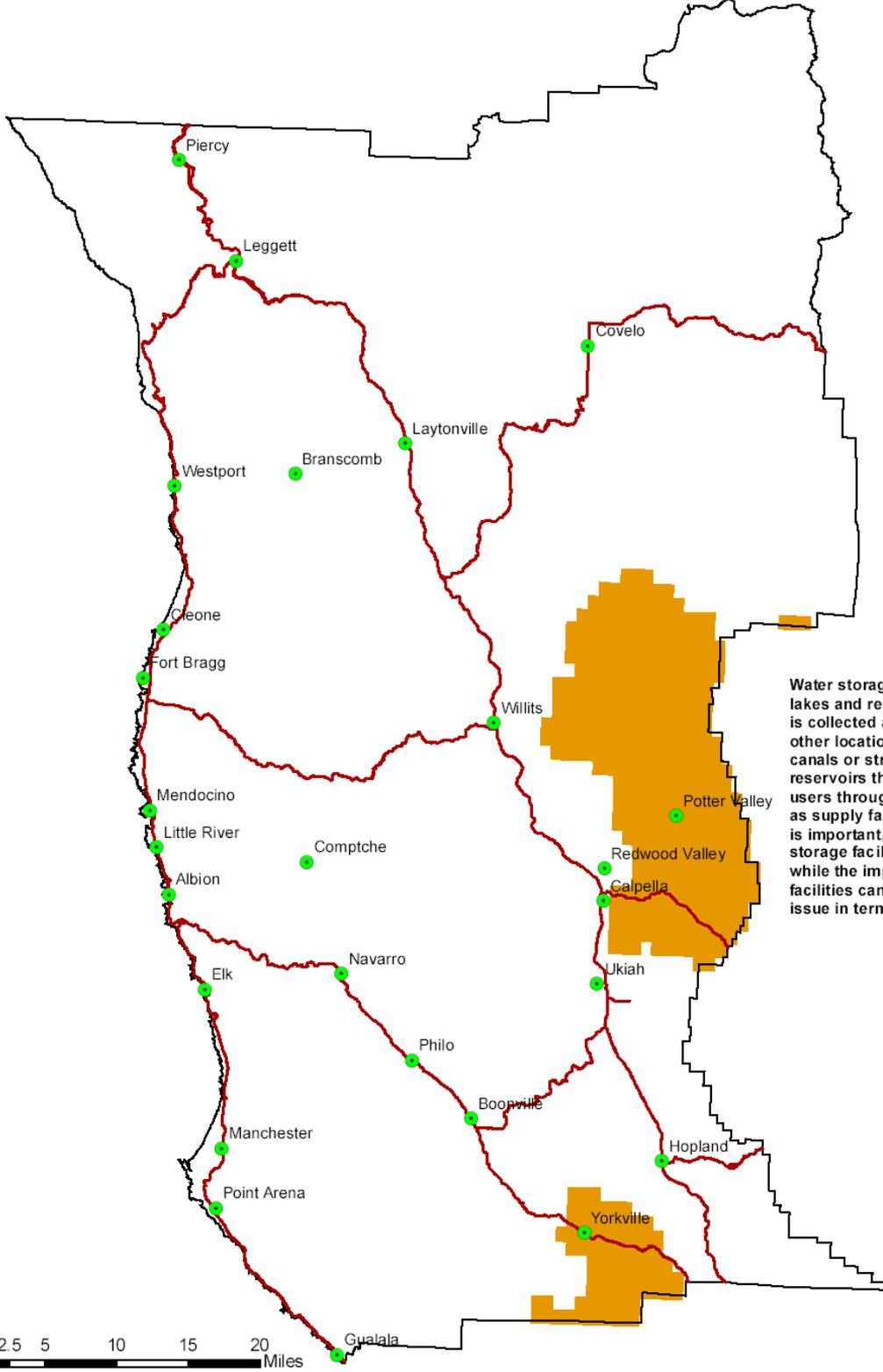
Assets At Risk Water Storage

Legend

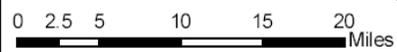
- Towns
- ~ State Highways

Water Storage

- Medium



Water storage facilities include lakes and reservoirs where water is collected and transported to other locations through open canals or streams. Lakes and reservoirs that directly feed water users through pipes are characterized as supply facilities. The distinction is important, since fire impacts on storage facilities are primarily economic, while the impact on water supply facilities can also be a public health issue in terms of water quality.



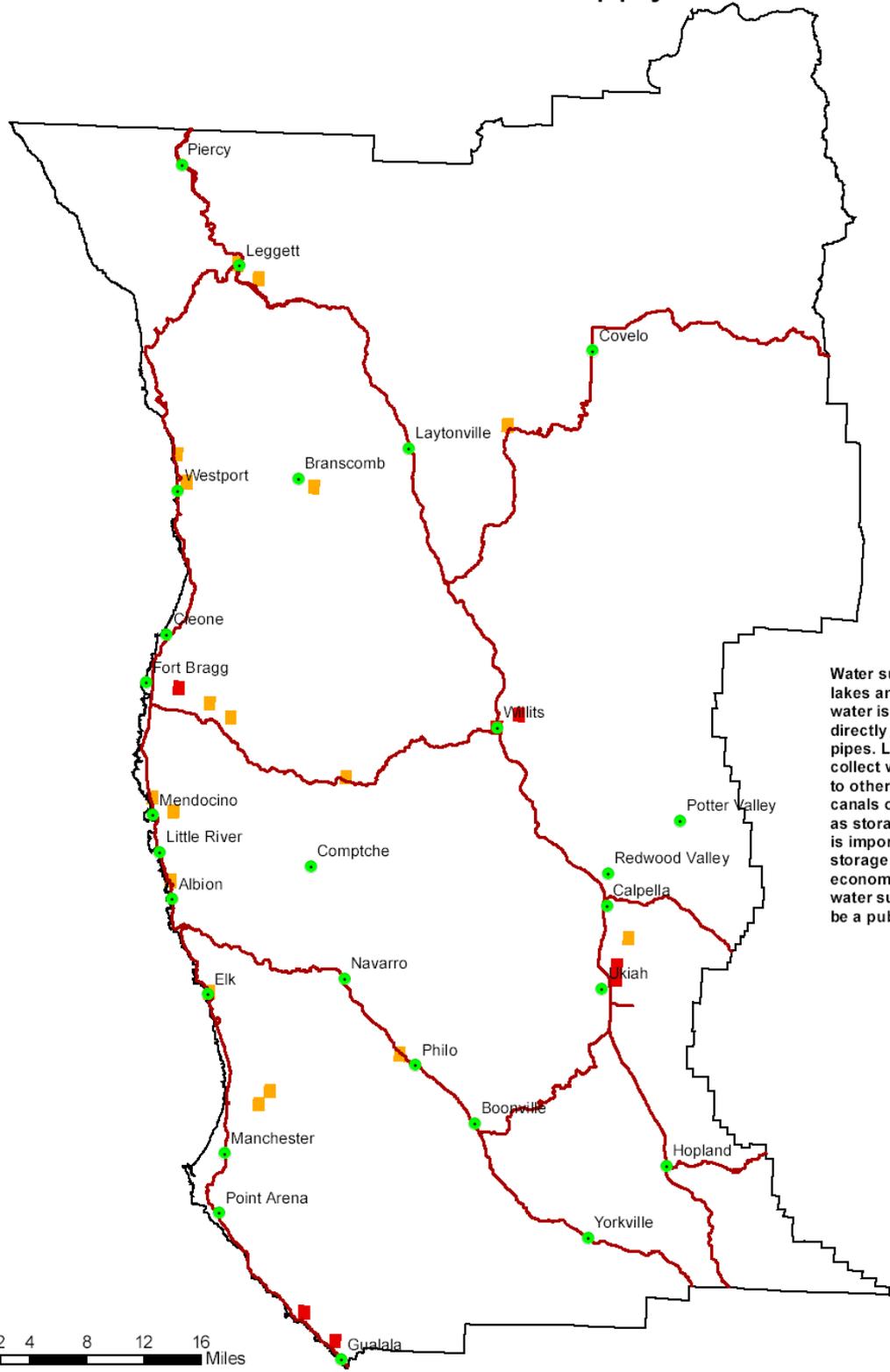
Assets At Risk Water Supply

Legend

- Towns
- ~ State Highways

Water Supply

- Medium
- High



Water supply facilities include lakes and reservoirs where water is collected and used to directly supply users through pipes. Lakes and reservoirs that collect water which is transported to other locations through open canals or streams are characterized as storage facilities. The distinction is important, since fire impacts on storage facilities are primarily economic, while the impact on water supply facilities can also be a public health issue.



MENDOCINO UNIT STAKEHOLDERS

The California Fire Plan defines a Stakeholder as “any person, agency, or organization with a particular interest – a stake – in fire safety and protection of assets from wildland fires.” Current Mendocino County stakeholders include all county residents, landowners, businesses, and governmental agencies, particularly these, most of whom have in some way been involved with creation of this CWPP:

- City of Fort Bragg
- City of Point Arena
- City of Ukiah
- City of Willits
- Anderson Valley Community Services District
- Brooktrails Township Community Services District

- Mendocino County Fire Safe Council
- Brooktrails, Sylvandale & Spring Creek Fire Safe Council
- Pine Mountain Fire Safe Council
- Rancho Navarro Safety Committee
- McNab Ranch Road Association
- Robinson Creek Road Association
- Williams Ranch Road Association
- Numerous local groups in Anderson Valley
- Other Fire Safe Councils currently in formation

- Mendocino Emergency Services Authority (County OES)
- Mendocino County Air Quality Management District
- Mendocino County Sheriff’s Office
- Mendocino County Planning Department
- Mendocino County Resource Conservation District
- North Coast Resource Conservation & Development Council
- Mendocino Coast Weed Management Area
- Round Valley Indian Tribes
- Hopland Band of Pomo Indians
- Sherwood Valley Rancheria
- Numerous other Indian Tribes

- Mendocino County Fire Chiefs Association
- Mendocino County Fire Prevention Officers’ Association
- Mendocino County Coop Aerial Fire Patrol

- Albion/Little River Volunteer Fire Department
 - Anderson Valley Fire Department
 - Brooktrails Township Fire Department
 - Comptche Volunteer Fire Department
 - Covelo Volunteer Fire Department
 - Elk Volunteer Fire Department
 - Fort Bragg Fire Department
 - Greenwood Ridge Fire Department
 - Hopland Volunteer Fire Department
 - Leggett Valley Fire Protection District
 - Little Lake Fire Protection District
 - Long Valley Fire Protection District
 - Mendocino Volunteer Fire Department
 - Piercy Fire Protection District
 - Potter Valley Fire Department
 - Redwood Coast Fire Department
 - Redwood Valley/Calpella Fire District
 - South Coast Fire Protection District
 - Ukiah Valley Fire District
 - Ukiah City Fire Department
 - Westport Volunteer Fire Department
-
- California Department of Transportation (CalTrans)
 - California Department of Fish and Game
 - California State Parks and Beaches
 - California Conservation Corps
 - California Department of Corrections
 - California Highway Patrol
 - University of California Hopland Field Station
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- Bureau of Land Management (U.S. Department of the Interior)
 - U.S. Forest Service (U.S. Department of Agriculture)
 - Natural Resources Conservation Service (USDA)
 - U.S. Fish and Wildlife Service
 - U.S. Army Corps of Engineers at Lake Mendocino
-
- Pacific Gas and Electric Company
 - California Western Railroad (Skunk Train)
 - Numerous large landowners