A. ANALYSIS ASSUMPTIONS AND METHODS

Spatial Modeling and Bioregion Review

A.1 SPATIAL MODELING FOR THE VEGETATION TREATMENT PROGRAM (VTP) – EXECUTIVE SUMMARY

A.1.1 ABSTRACT

The proposed Vegetation Treatment Program (VTP) of the California Department of Forestry and Fire Protection (Cal Fire) will operate on a base of approximately 31 million acres of wildland vegetation throughout California, with approximately 25 million acres of those acres being within treatable vegetation types. Over 90% of the base area is on private, non-federal jurisdictions lands, where land use ranges from wildland-urban interface (WUI) areas, to commercial timber production, to sparsely populated ranches or non-commercial private lands.

Not all eligible wildland acres are in equal need of, or would equally benefit from, vegetation treatment under the program. Under this PEIR three treatable vegetation types (Tree, Shrub, Grass) were identified, along with three treatments (WUI, Fuel Breaks, and Ecological Restoration).

In support of the PEIR, three separate Geographic Information System (GIS) based analyses were preformed to map areas of eligible acres for VTP projects under the three treatments and within the three treatable vegetation types. The first analysis provided possible project areas that fell within the State Responsibility Area (SRA) and identified wildland urban interface (WUI) areas. The second analysis provided possible project areas that created fuel breaks along ridgelines and identified potential fuel breaks along roadways in the State Responsibility Areas and Local Responsibility Areas (LRA). The third analysis provided possible project areas within Ecological Areas, which were identified by selecting all State Responsibility, excluding any area identified as wildland urban interface (WUI), and identifying area where the condition class identified by FRAP was a two or a three. All three analyses where overlaid with the three treatable vegetation types to produce the approximate treatable acres under the VTP, approximately 24.9 million acres.

Two additional Geographic Information System (GIS) based analyses were also preformed to map the alternative VTP projects. The first analysis consisted of including all wildland urban interface (WUI) areas within the SRA and joining it with Fuel Breaks exclusively within the WUI in both the State Responsibility Areas (SRA) and Local Responsibility Areas (LRA). The second analysis identified areas that were Very High Fire Danger Severity Zones (VHFDSZ) with in the State Responsibility Area (SRA). These two analyses where also overlaid with the three treatable vegetation types to

produce the approximate treatable acres under the VTP. The produced maps, tables, charts, and graphs depict all available treatable acreages at a statewide level within the VTP.

A.1.2 STATE OF CALIFORNIA RESPONSIBILITY AREAS

The State of California is divided into three different types of responsibility areas: Federal Responsibility Areas (FRA), State Responsibility Areas (SRA), and Local Responsibility Areas (LRA). The definition of State Responsibility Area (SRA) is defined by Public Resources Code (PRC) 4126, while lands that shall not be included in the SRA are defined is PRC 4127. The methodology for determining FRA, SRA, and LRA within California is described in Cal Fire's State Responsibility Area Classification System[1], which more clearly describes the process for excluding and including lands in the SRA. SRA reviews occur every five years; this EIR used the most recent review information that was completed in 2015. This EIR primarily focuses on SRA lands and only includes LRA lands when discussing Fuel Break, Alternative B, and Alternative C treatment areas. FRA lands are excluded in their entirety.

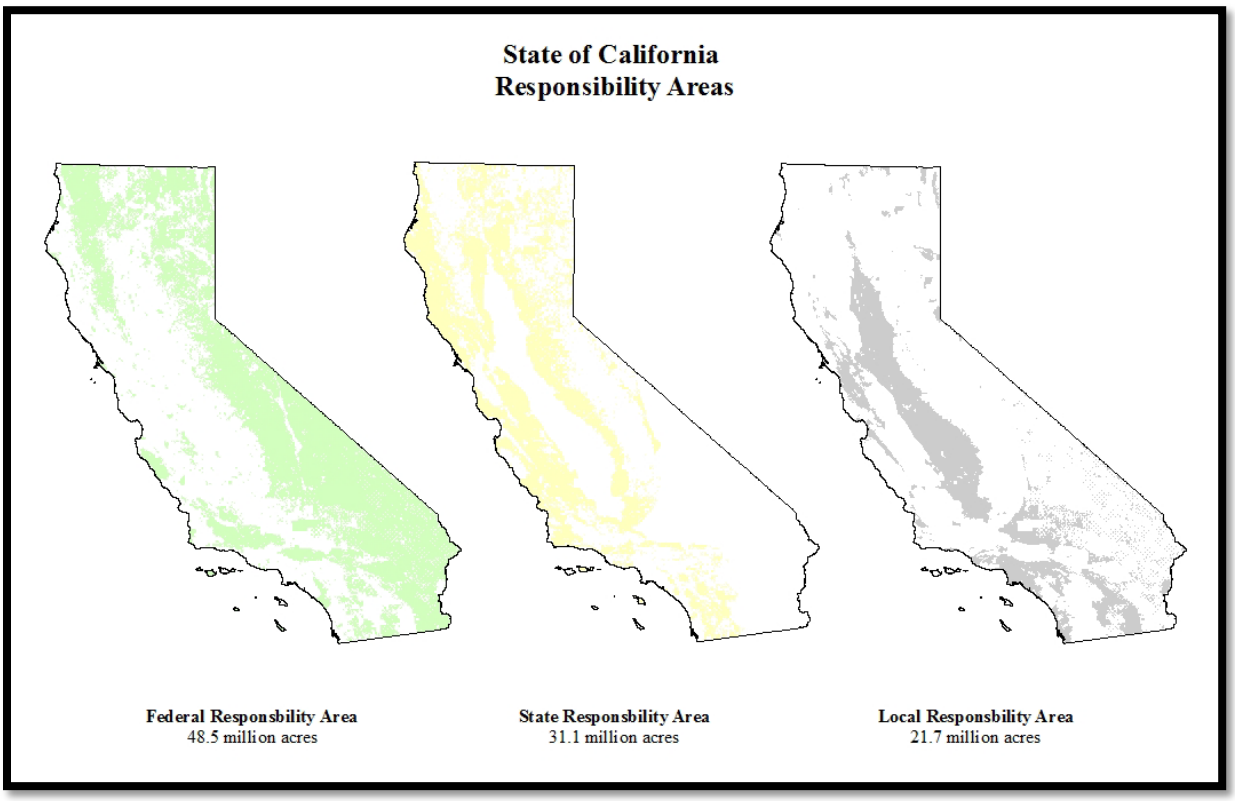


Figure A.1-1 Responsibility areas within the State of California.

[1] Available at http://frap.fire.ca.gov/projects/sra_review/downloads/SRA%20Review/2013%20SRA%20Review/SRA_Classification_System_Update.pdf

A.1.3 VEGETATION FORMATIONS

Within the State and Local Responsibility Areas the VTP identified Treatable Vegetation Formations. These are identified and grouped throughout the document by tree, shrub, and grass. These groups are assembled by their respective WHR name and extracted out of the FVEG15_1[2] database to create the VTP vegetation layer (Figure A.1-2). These formations were then intersected with the Treatments and Alternative Treatments to create *Treatable Acres within the Treatments*.

FVEG15_1 was initially created by CAL FIRE FRAP to compile the "best available" land cover data into a single data layer to support the legislatively mandated Forest and Rangeland Assessment. CAL FIRE in cooperation with California Department of Fish and Wildlife VegCamp program and extensive use of the USDA Forest Region 5 Remote Sensing Laboratory (RSL) Data compiled the "best available" land cover data available for California into single comprehensive statewide data set. The data spans a period from approximately 1990 to 2014. Typically the most current, detailed and consistent data were collected for various regions of the state. Decision rules were developed that controlled which layers were given priority in areas of overlap. Cross-walks were used to compile the various sources into the common classification scheme, the California Wildlife Habitat Relationships (CWHR) system. Approximately 57% of the state was mapped from USDA USFS CALVEG data, and 29% was mapped from VegCamp Manual of California Vegetation Classification system (MCV) data using crosswalks supplied by VegCamp staff. The remaining 14% comes from mostly federal sources that were used to identify urban areas (NLCD), Agriculture (NASS) and LANDFIRE to fill in desert lands that had not been mapped by any California efforts. Both the CALVEG and MCV are more detailed classifications then the CWHR data, so specific CALVEG or MCV types often get lumped into CWHR types. For example CALVEG types Coastal Live Oak (QA), California Bay (QB), madrone (QH), Engleman Oak (QN), California Walnut (QV), and Interior Live Oak (QW) calveg types all crosswalk into the CWHR type Coastal Oak Woodland (COW). Crosswalks would be similar for the MCV to CWHR also.

[2] Available at http://frap.fire.ca.gov/data/frapgisdata-sw-fveg_download.php.

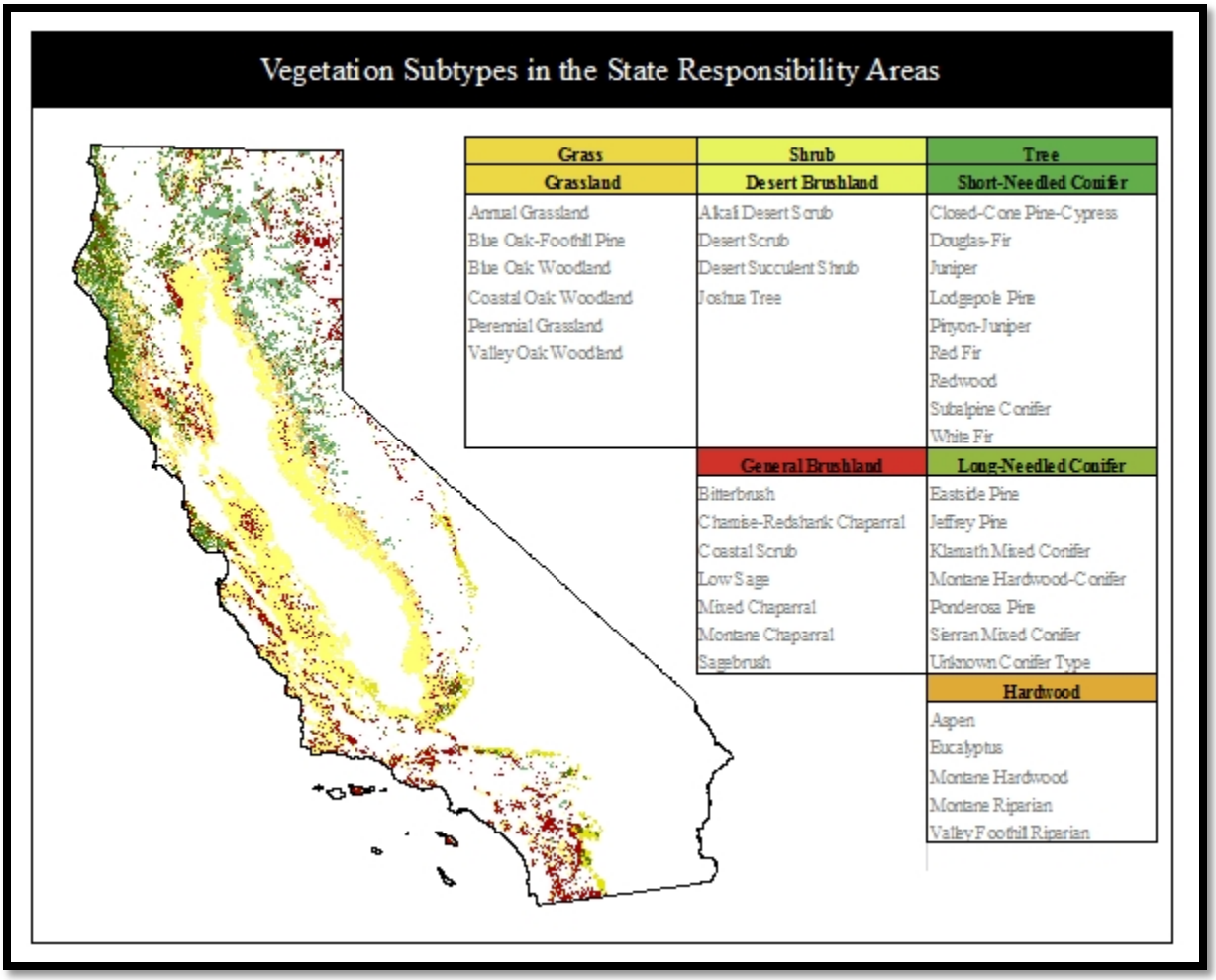


Figure A.1-2 Vegetation Subtypes in the State Responsibility Areas.

A.1.4 TREATMENTS

Three treatments types were identified within the VTP: Wildland Urban Interface (WUI), Fuel Breaks, and Ecological Restoration. Each requiring a different level and type of analysis to derive total acreage within a treatment area, see table A.1-1.

Table A.1-1 VTP Treatment Analysis Table

VTP Treatment Areas				
	WUI	Fuel Breaks		Ecological Restoration
Base Layer	WUI Zones	Ridgelines	Roads	SRA
Overlays	SRA	SRA & LRA	SRA & LRA Condition Class 2 & 3 WUI	Condition Class 2 & 3
Exclusions	Non-WUI			WUI
Proximity		150ft Buffer	150ft Buffer	

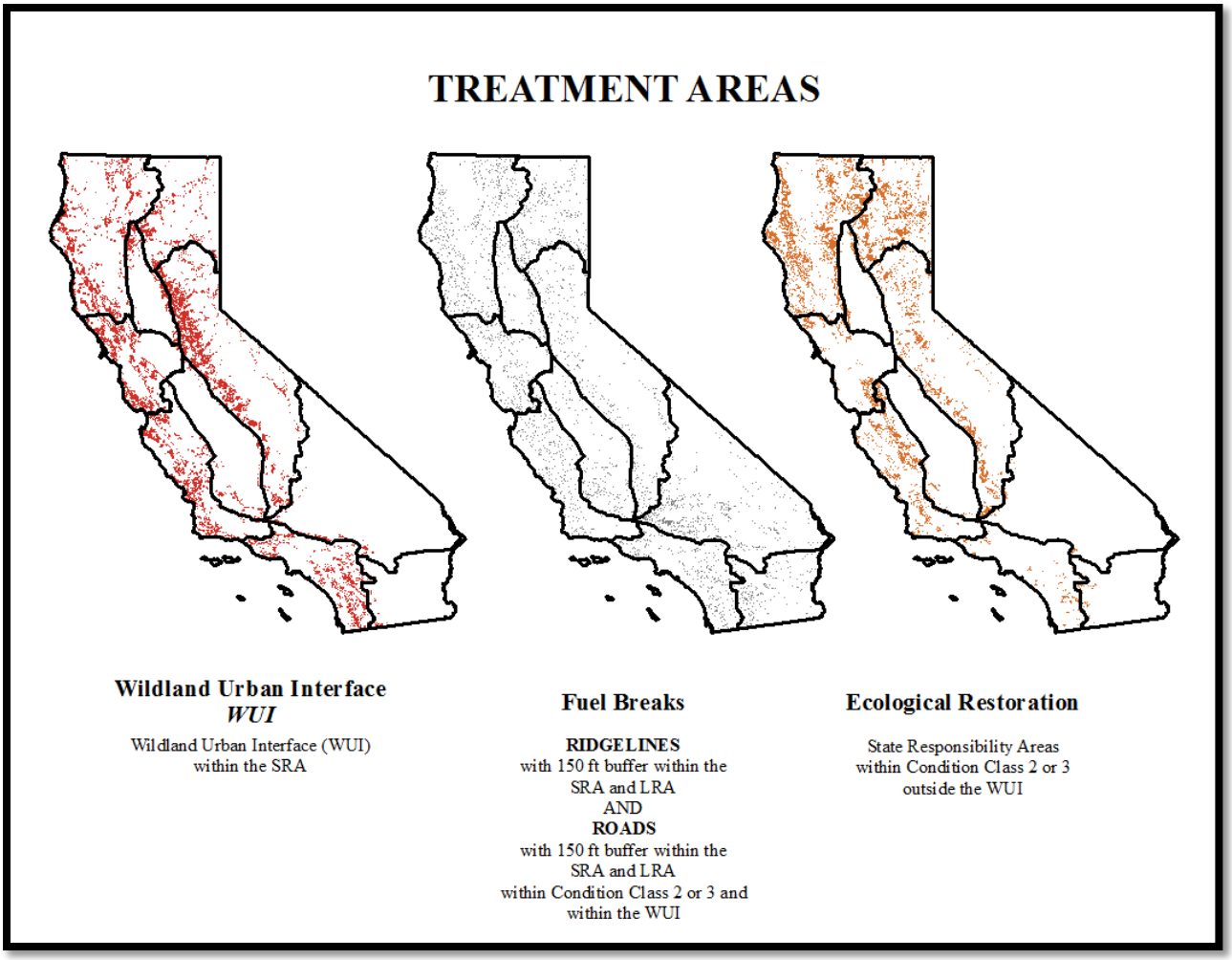


Figure A.1-3 Treatment Areas identified within the VTP.

A.1.4.1 Treatment: Wildland Urban Interface (WUI)

The Wildland Urban Interface (WUI) Treatment Area was derived from WUI03_1[3] and SRA15_1[4]. WUI was identified and extracted from WUI03_1. State Responsibility Areas were identified and extracted from SRA15_1. WUI and SRA were then overlaid and overlapping areas were identified to create the WUI Treatment Area for analysis within the VTP. The methodology for creating WUI03_1 is found in the Characterizing the Fire Threat to Wildland-Urban Interface Areas in California, attached to end of this appendix. There is also a summary discussion of Characterizing the Fire Threat to Wildland-Urban Interface Areas in California in Chapter 4.1.

A.1.4.2 Treatment: Fuel Breaks

The Fuel Break Treatment Area was derived through analysis of ridgelines and roadways. There is no standard dataset for California which identifies ridgelines within

[3] Available at http://frap.cdf.ca.gov/data/frapgisdata-sw-wui.php
[4] Available at http://frap.cdf.ca.gov/projects/sra_mapping/sra_2015php

the state; therefore a ridgeline model was created from the USGS Digital Elevation Model of California reversing the hydrological toolset within ESRI's ArcMap to acquire ridgelines instead of steams. More information about that process can be found at ESRI's website.[5] While the ridgelines created an accurate model for a large majority of the state, we do acknowledge that the modeling had trouble with mesa areas in southern California and Modoc, therefore some areas within the southern California bioregions and the Modoc bioregions may have slightly higher available treated acres than what is truly available within the Fuel Break Treatment Areas. The identified ridgelines were given a 150ft rounded buffer and then overlaid with State Responsibility (SRA) and Local Responsibility (LRA) lands. Areas where extracted where the two layers intersected to create the ridgeline features of the Fuel Break Treatment Area. Cal Fire does not maintain a statewide roads layer; therefore the ESRI Streets layer was utilized as a standard road layer for this analysis. Roads were given the same 150ft rounded buffer that the ridgelines received, but were instead overlaid with not only with State Responsibility (SRA) and Local Responsibility (LRA) lands, but also WUI and Conditional Class 2 or 3 from CAFRCC03_2[6]. Roads and Ridgelines were then merged together, to create the Fuel Break Treatment Area for analysis within the VTP.

A.1.4.3 Treatment: Ecological Restoration

The Ecological Restoration Treatment Area was derived from SRA15_1, CAFRCC03_2, and WUI03_1. State Responsibility Areas, Condition Class 2 or 3, and Non-WUI were overlaid and overlapping areas were identified to create the Ecological Restoration Treatment Area for analysis within the VTP.

A.1.5 ALTERNATIVES

Four Alternatives were identified within the VTP, alternative A, B, C, D. Similar to the treatments, each required a different level and type of analysis to derive total acreage within an alternative treatment area with the exception of Alternative D which utilized the previous VTP footprint, see table A.1-2.

[5] Available at http://support.esri.com/cn/knowledgebase/techarticles/detail/39093
[6] Available at http://frap.fire.ca.gov/data/frapgisdata-ffrcc-statewide.php

Table A.1-2. Alternative Analysis Table

Alternatives				
	Alternative A	Alternative B		Alternative C
Base Layer	WUI*	WUI*	Fuel Breaks*	Fire Hazard Severity Zones (LRA &SRA)
Overlays				VHFDSZ
Exclusions				
Proximity				

* Derived from the VTP Analysis.

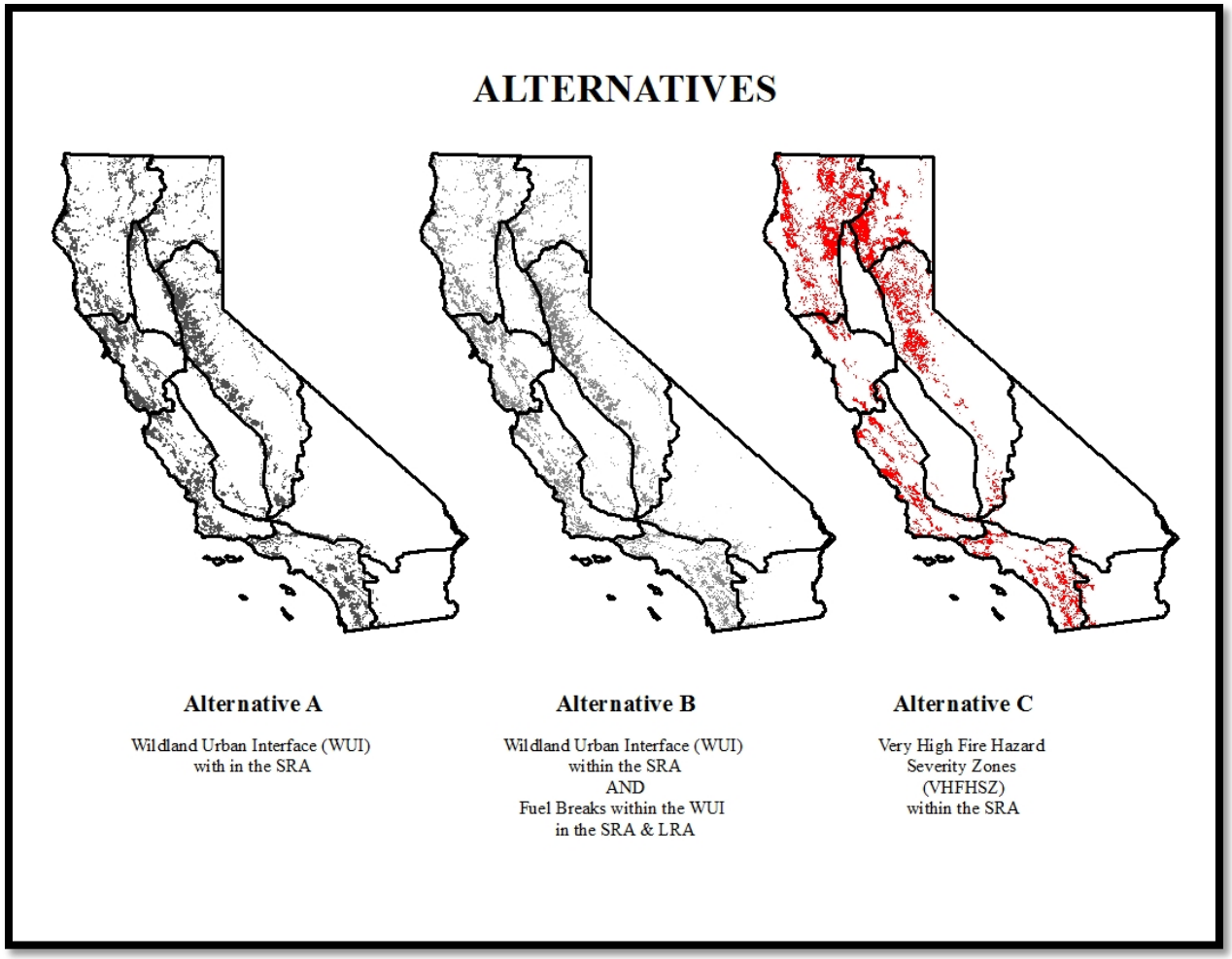


Figure A.1-4 Alternative Treatment Areas identified within the VTP.

A.1.5.1 Alternative A: Wildland Urban Interface (WUI)

Alternative A utilized the previously described WUI treatment area with no alterations.

A.1.5.2 Alternative B: Wildland Urban Interface & Fuel Breaks

Alternative B also utilized the previously described WUI treatment areas with no alterations. The previously described Fuel Breaks were overlaid with WUI areas in both the SRA and LRA. Overlapping areas between Fuel Breaks and WUI were identified to create an Alternative B Fuel Break. The WUI treatment areas were then combined with Alternative B Fuel Breaks to create the Alternative B Treatment Area for the alternative analysis within the VTP.

A.1.5.3 Alternative C: Very High Fire Danger Severity Zones (VHFDSZ)

Alternative C Treatment Areas were derived from FHSZS06_3[7]. Areas identified within the data set as Very High Fire Danger Severity Zones (VHFDSZ) were extracted to create the Alternative C Treatment for alternative analysis within the VTP.

A.1.5.4 Alternative D: Air Quality

Alternative D Treatment Areas were placed in the same footprint as the VTP treatment area with only a reduction in acres treated applied. No additional spatial analysis was conducted.

[7] http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_zones_maps.php

A.2 BIOREGION OVERVIEW

A.2.1 KLAMATH/ NORTH COAST BIOREGION

Description: Bounded on the west by the Pacific coastline and on the north by the Oregon border. The bioregion extends eastwards to include all of Klamath National Forest and Shasta-Trinity National Forest and the entire North Coast Range (down to the Sacramento Valley floor) The southern boundary reaches the southern limits of Lake and Mendocino counties.

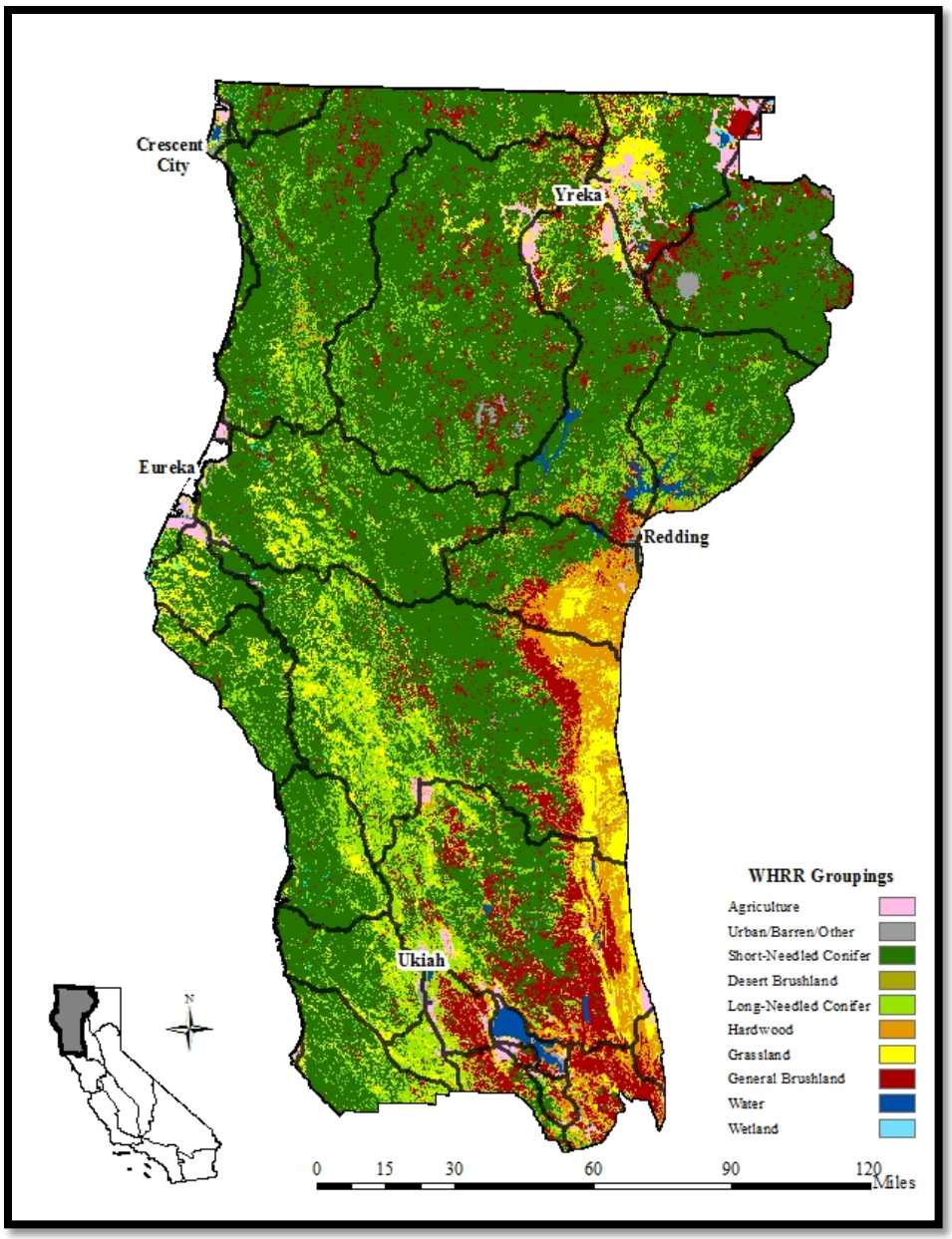


Figure A.2-1Klamath/ North Coast Bioregion

A.2.2 MODOC BIOREGION

Description: Bounded on north by the Oregon border and on the east by the Nevada border. The bioregion extends west to include all of Modoc National Forest and Lassen National Forest, plus additional lands extending down to the Sacramento Valley floor. The southern boundary reaches the southern limits of Lassen National Forest and Lassen County.

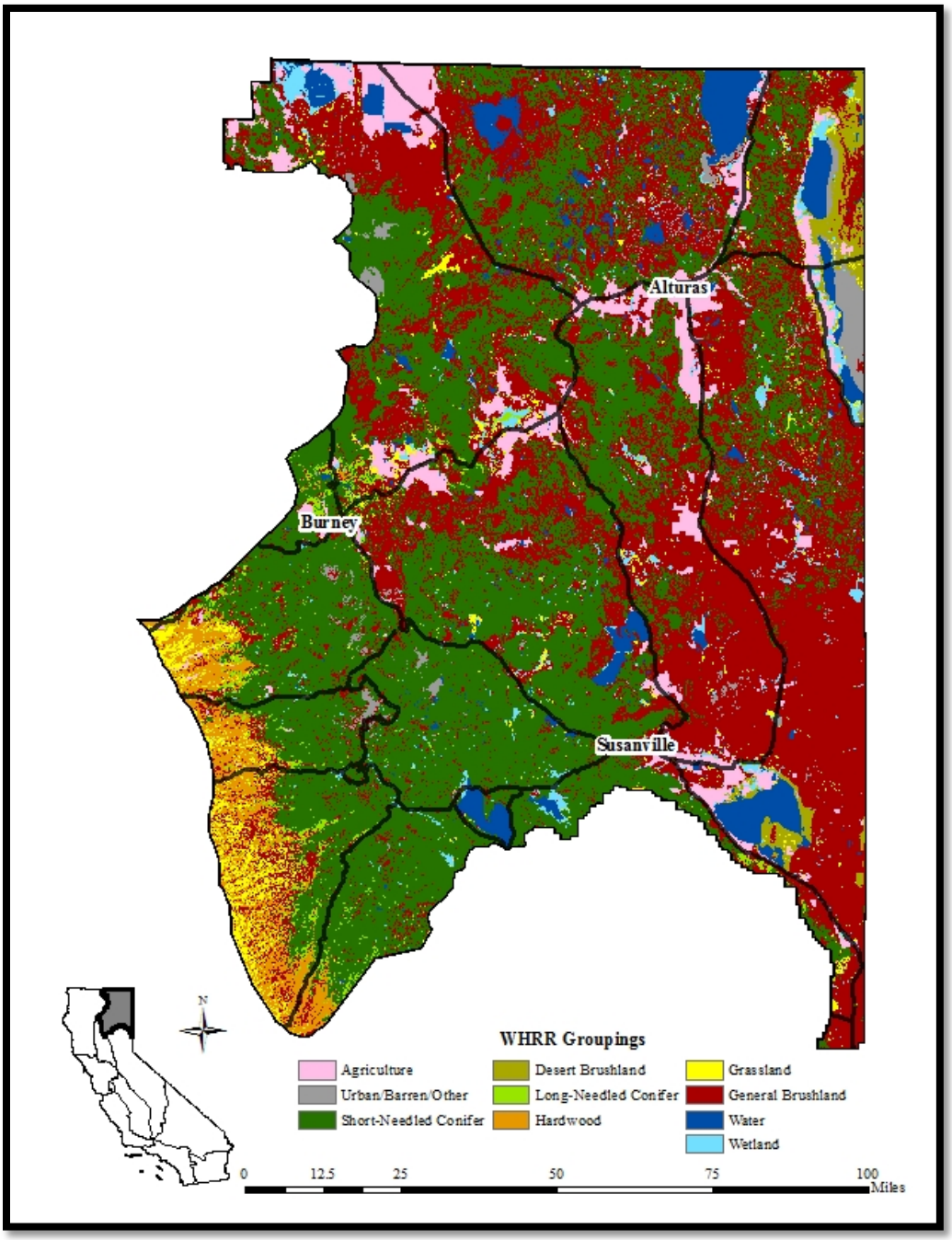


Figure A.2-2 Modoc Bioregion

A.2.3 SACRAMENTO VALLEY BIOREGION

Description: The western, northern and eastern limits are the edges of the valley floor (essentially where the blue oak woodland starts). The southern limit is the northern edge of the Sacramento-San Joaquin Delta.

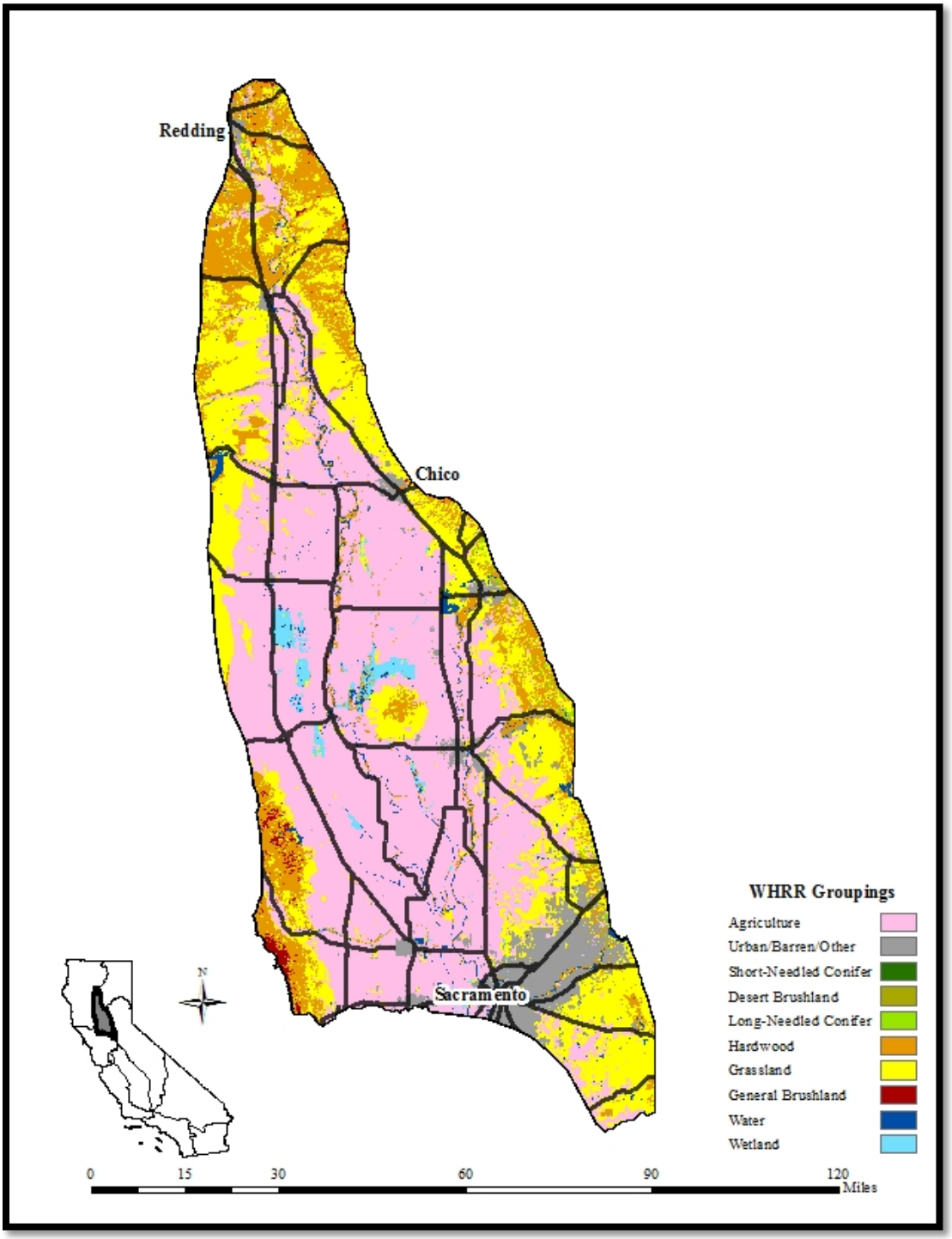


Figure A.2-3 Sacramento Valley Bioregion

A.2.4 BAY AREA/ DELTA BIOREGION

Description: The boundary is essentially the immediate watershed of the Bay Area and the Delta, not including the major rivers that flow into the Delta. Bounded on the north by northern edge of Sonoma and Napa counties and the Delta and extending east to the edge of the Sacramento valley floor. The bioregion is bounded on the south by the southern edge of San Joaquin County, the eastern edge of the Diablo Range, the southern edge of Santa Clara and San Mateo counties.

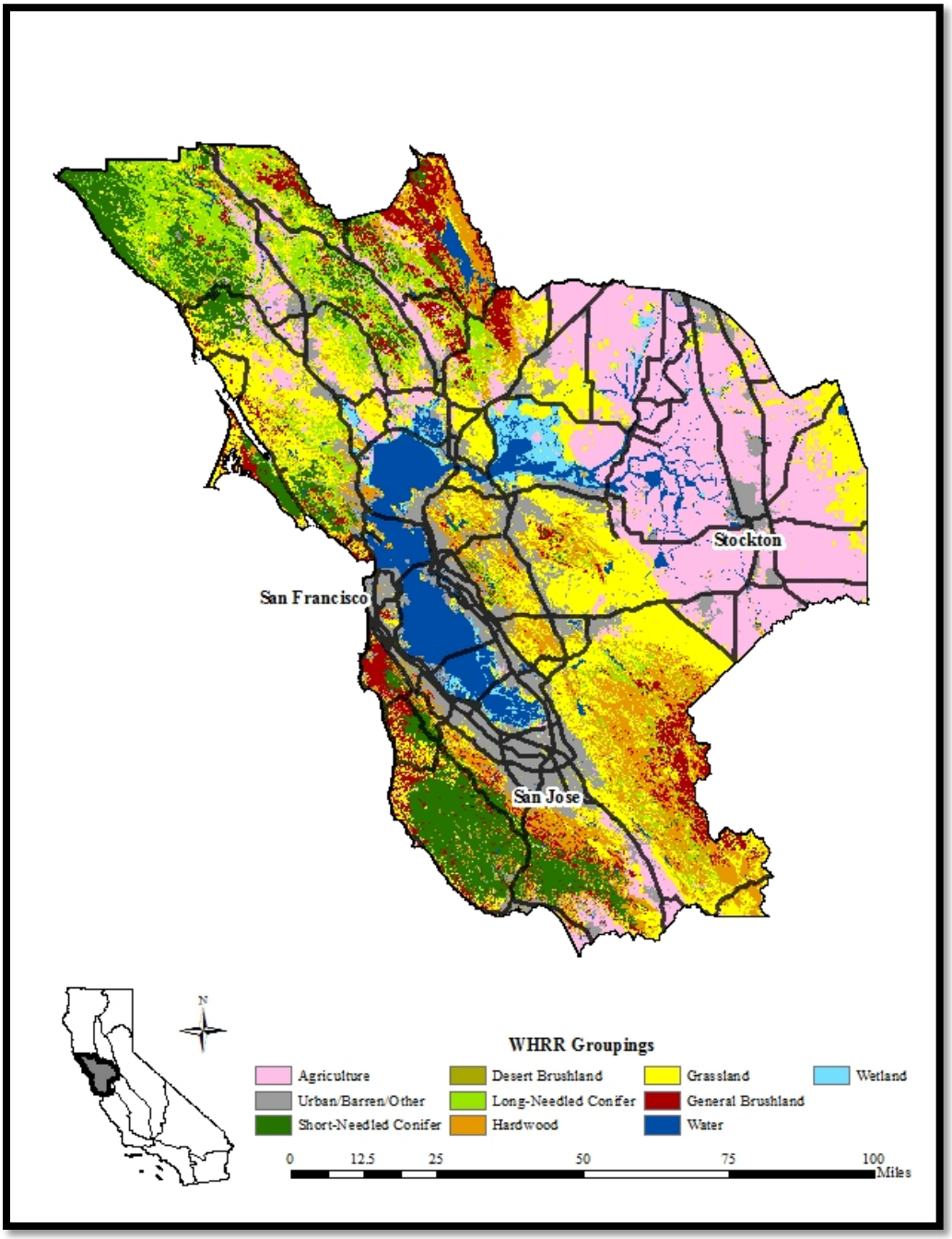


Figure A.2-4 Bay Area/ Delta Bioregion

A.2.5 SIERRA BIOREGION

Description: Bounded on the north by the northern edge of Plumas National Forest. The western edge is the Sacramento Valley floor. Bounded on the east by the Nevada state line and the western edge of BLM's California Desert Conservation Area and bounded on the west by the Sacramento and San Joaquin Valley floors, and south to the Tejon Pass in the Tehachapi Mountains.

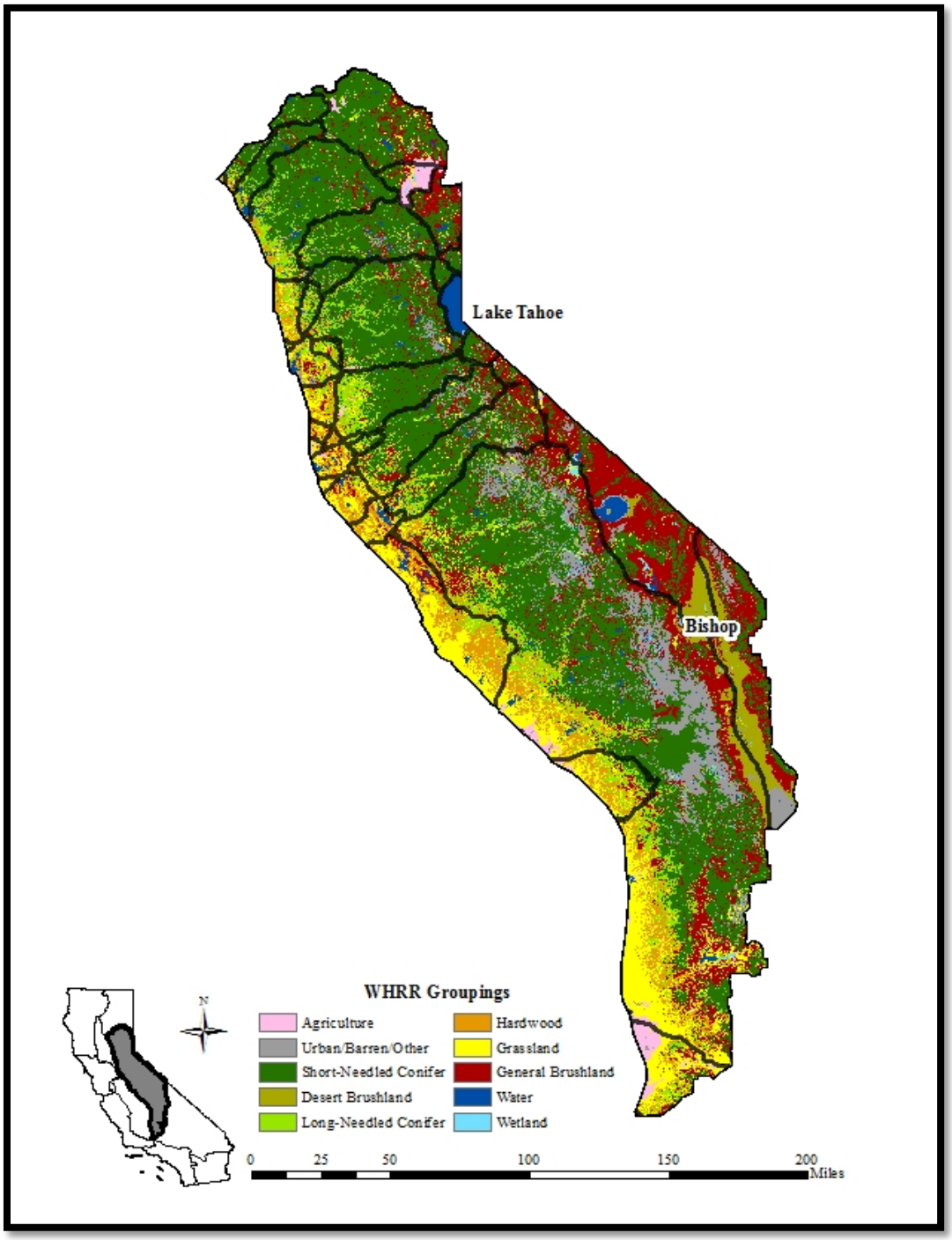


Figure A.2-5 Sierra Bioregion

A.2.6 SAN JOAQUIN BIOREGION

Description: Bounded on north by the southern edge of the Delta, and on all other sides (west, south, east) by the San Joaquin Valley floor. The one major exception to this is the southwestern extension to include the Carrizo Plain and BLM-managed lands in the Caliente Resource Area (eastern San Luis Obispo County).

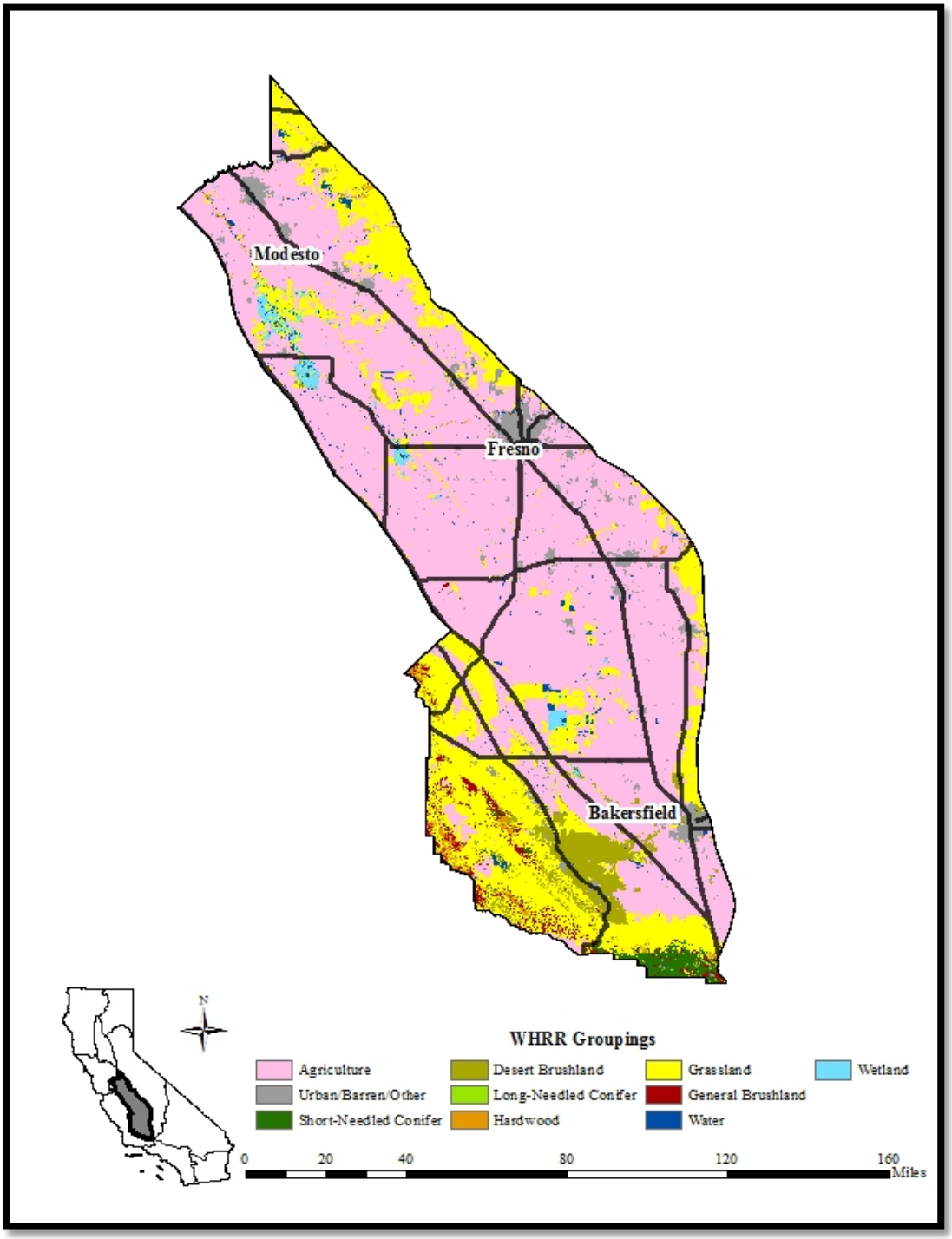


Figure A.2-6 San Joaquin Bioregion

A.2.7 CENTRAL COAST BIOREGION

Description: Bounded on north by the northern limits of Santa Cruz and San Benito counties, and on the east by the San Joaquin Valley floor and the Carrizo Plain. The southeastern limit is the eastern and southern edges of the Los Padres National Forest. The western edge is the coastline.

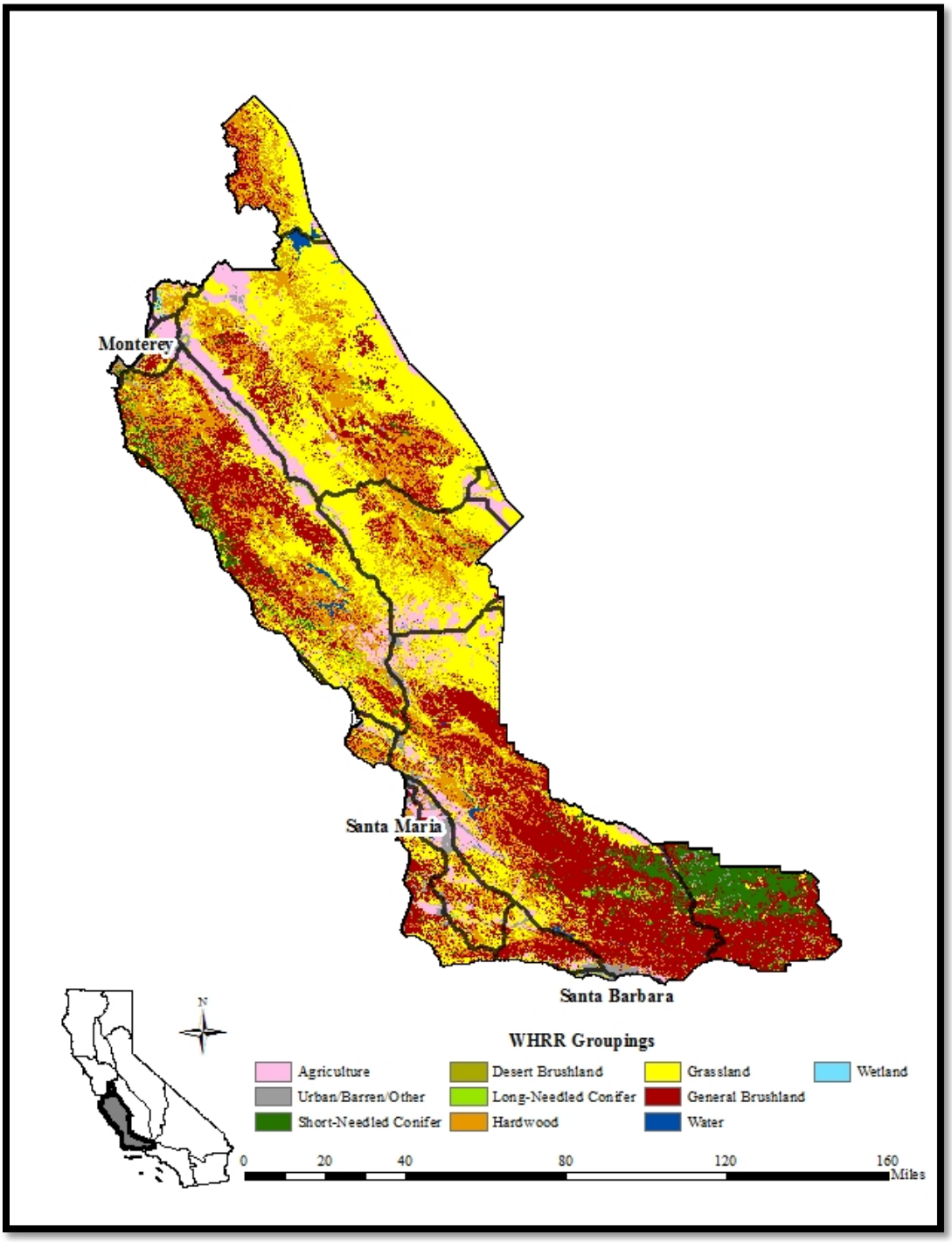


Figure A.2-7 Central Coast Bioregion

A.2.8 MOJAVE BIOREGION

Description: Bounded on west by western edge of BLM California Desert Conservation Area and on east by Nevada state line. Bounded on south by the northern base of the San Gabriel and San Bernardino Mountains, the southern edge of Joshua Tree National Monument, and the southern edge of San Bernardino County (between Joshua Tree and Nevada state line).

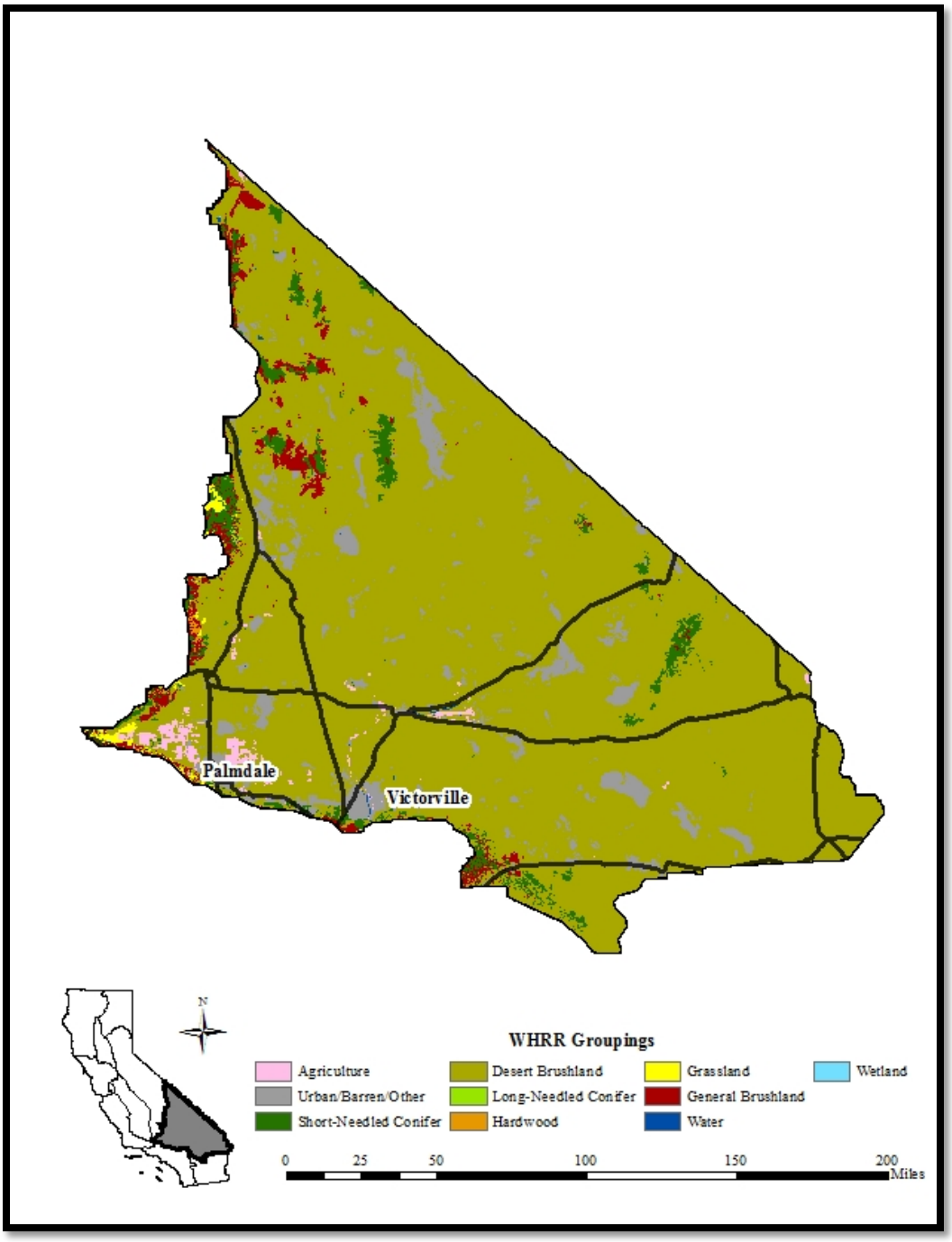


Figure A.2-8 Mojave Bioregion

A.2.9 SOUTH COAST BIOREGION

Description: Bounded on the north by the southern edge of Los Padres National Forest and the northern base of the San Gabriel and San Bernardino Mountains and bounded on the east by the western edge of the BLM California Desert Conservation Area and on south by Mexican border.

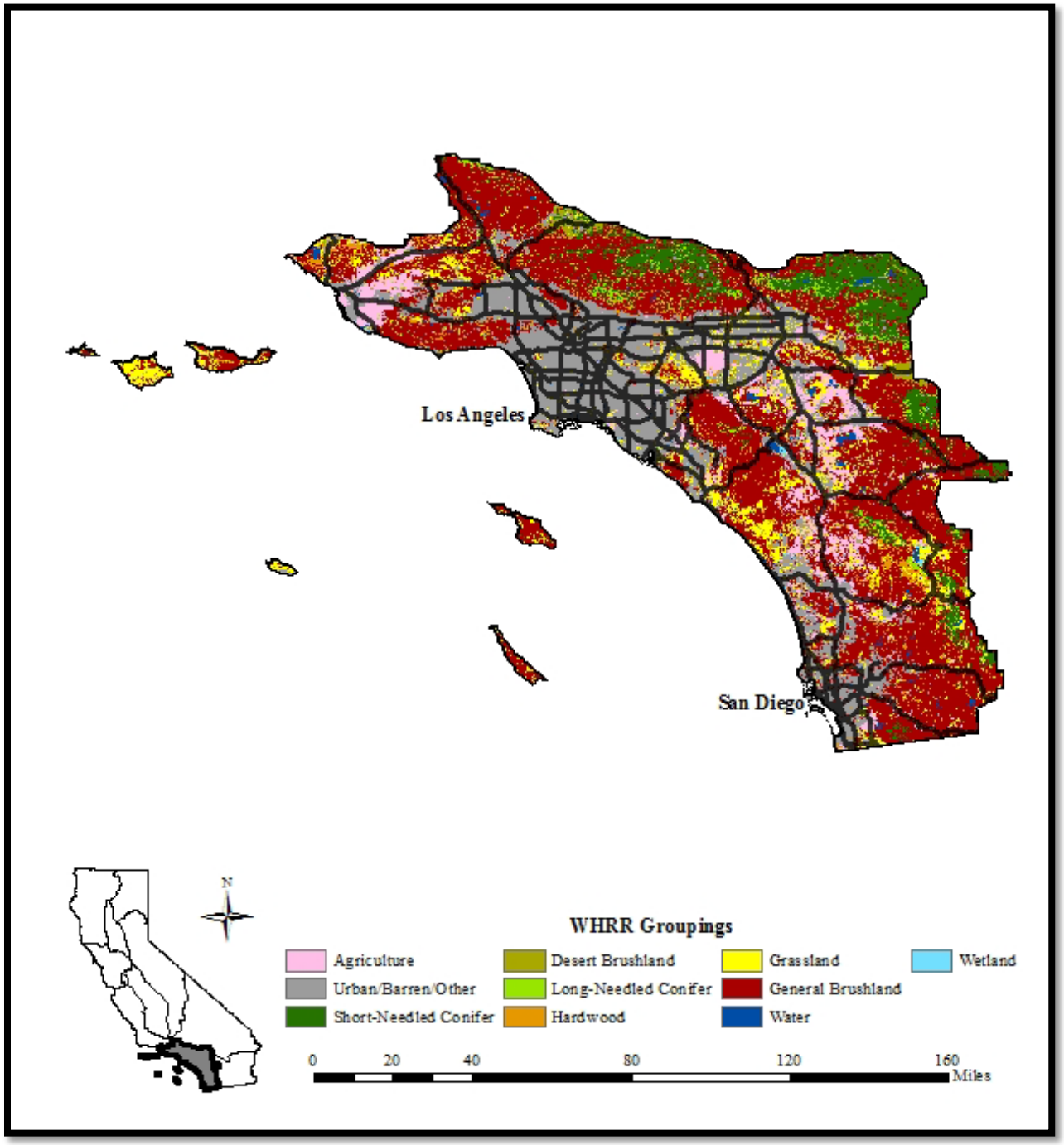


Figure A.2-9 South Coast Bioregion

A.2.10 COLORADO DESERT BIOREGION

Description: Bounded on the west by the western edge of the BLM Desert Conservation Area and on the north by the southern edge of Joshua Tree National Monument and the southern edge of San Bernardino County and the east by Arizona state line and on south by Mexican border.

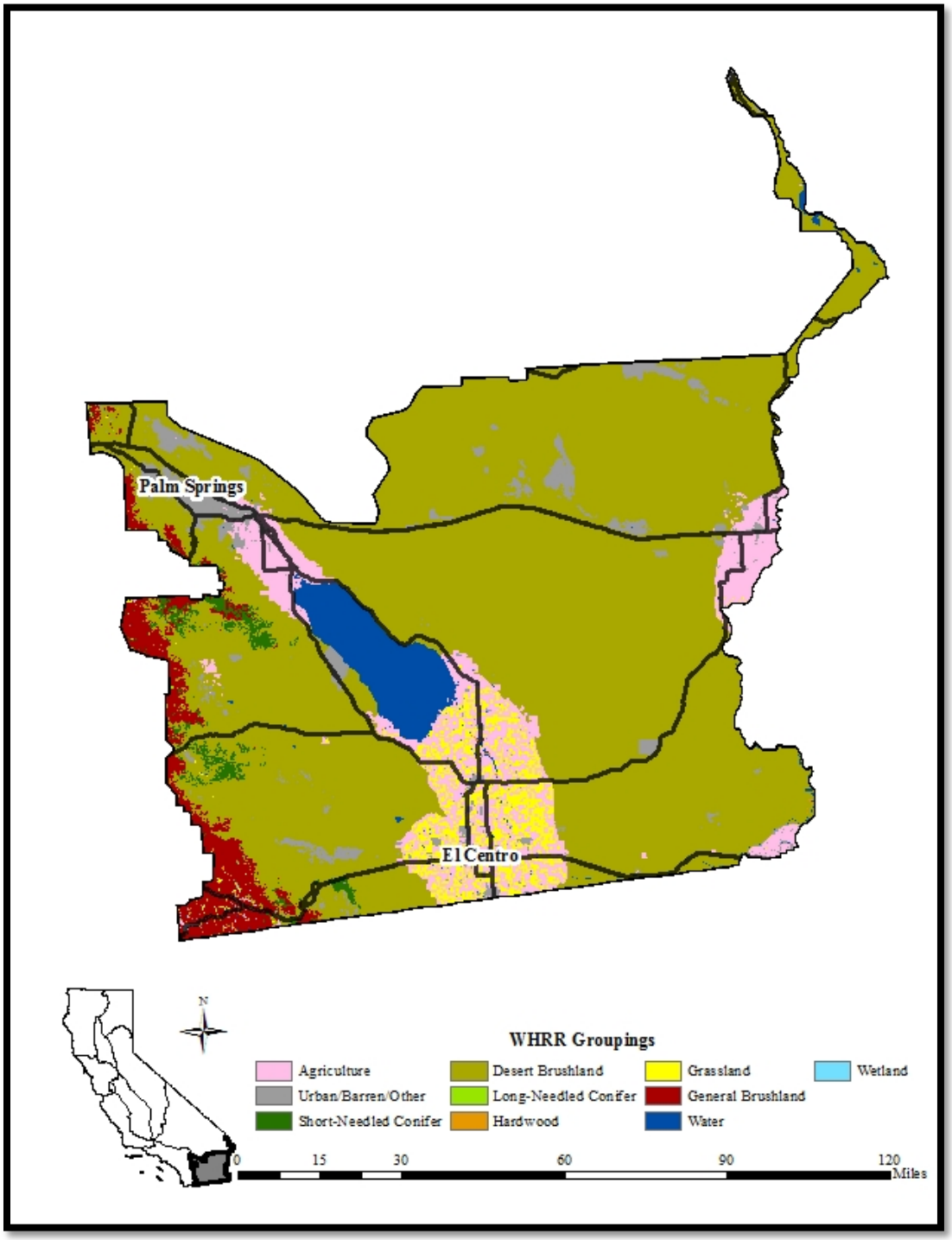


Figure A.2-10 Colorado Desert Bioregion

Characterizing the Fire Threat to Wildland–Urban Interface Areas in California

Introduction

This document outlines the procedures used to identify areas in California that pose significant threats from wildfire to the people of California. It was prepared under the auspices of the California Fire Alliance -- a coalition of representatives from State and Federal Fire Agencies, originally formed in 1996, who have collaborated on integrating fire management and planning across jurisdictional boundaries. While much of the basic premise and data for the development of this analysis has a beginning in the California Department of Forestry and Fire Protection's California Fire Plan, this work represents new and original work that is sanctioned by the USDA Forest Service, the USDI Bureau of Land Management and National Park Service, in addition to CDF. The Fire Alliance views the issue of the wildland interface as a natural area for collaboration, and is optimistic that the following analysis can be a model for other areas. The analysis was prepared in response to a mandate from Congress in the 2000-2001 Interior Appropriations bill establishing the National Fire Plan.

Utilizing a Geographic Information System (GIS) approach that is at the heart of the California Fire Plan, the three main components in the assessment of threat from wildland fire to Wildland-Urban Interface areas of California are:

- Ranking fuel hazard
- Assessing the probability of wildland fire
- Defining areas of suitable housing density that lead to Wildland-Urban Interface fire protection strategy situations

These three independent components were then combined using GIS capabilities to identify wildland interface areas threatened by wildfire. In addition to mapping these areas, a list of communities was developed that summarized a non-spatial assessment of key areas within the vicinity of significant threat from wildland fire. A subset of that list was made that includes those communities that have a significant fire threat from nearby Federal lands. A buffer distance of 1.5 miles was used in the analysis to define "nearby" federal lands.

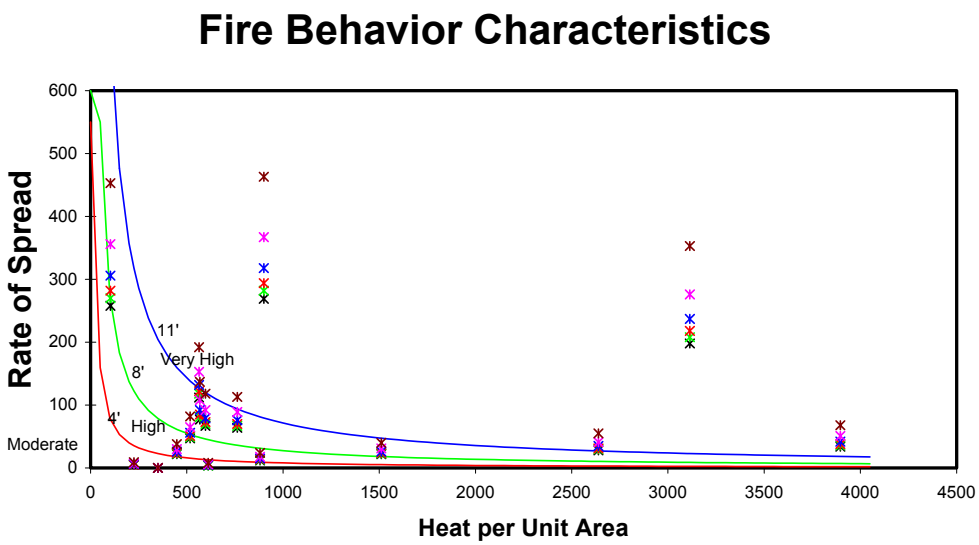
Methods

1. Defining Fuel Hazard

The California Department of Forestry and Fire Protection's Fire and Resource Assessment Program staff built a methodology of assigning fire hazard across diverse landscapes of California as part of California's Fire Plan. The first step in the hazard assessment process is development of a vegetation map based on the best available, most recent and detailed vegetation composition and structure information. These vegetation maps were then translated (using a crosswalk process similar to that used in the Sierra Nevada Ecosystem Project but specific to each local area) to Fire Behavior Prediction System (FBPS) fuel models. Recent large fires are mapped and used to change the base map to better reflect current wildland fuel conditions. A forest growth model is included to account for new vegetation growth since the last wildfire. The California Interagency Fuel Mapping Group guided this assessment and resolved mapping differences at jurisdictional boundaries, producing a seamless map of fuel characteristics across all ownerships and protection jurisdictions. That is, local representatives of Federal, State and local fire agencies have contributed to the development of the statewide fuels data.

The next step in this assessment is to convert the fuels map to a fire hazard map. Potential fire behavior drives the hazard ranking with fire hazard defined as the fire behavior potential of the wildland fuel, given average bad fire weather conditions. Fire behavior is calculated using the Fire Behavior Prediction System equations and then summarized into moderate, high, or very high classes. The method first calculates the expected fire behavior for unique combinations of slope and fuels under average bad fire weather conditions. Figure 1 portrays the rate of spread and heat flux of the fuel-by-slope-class combinations on top of three fireline intensity iso-curves that divide the space into hazard rank subspaces. Thus, each fuel-by-slope-class combination receives a surface hazard rank according to its location within Figure 1.

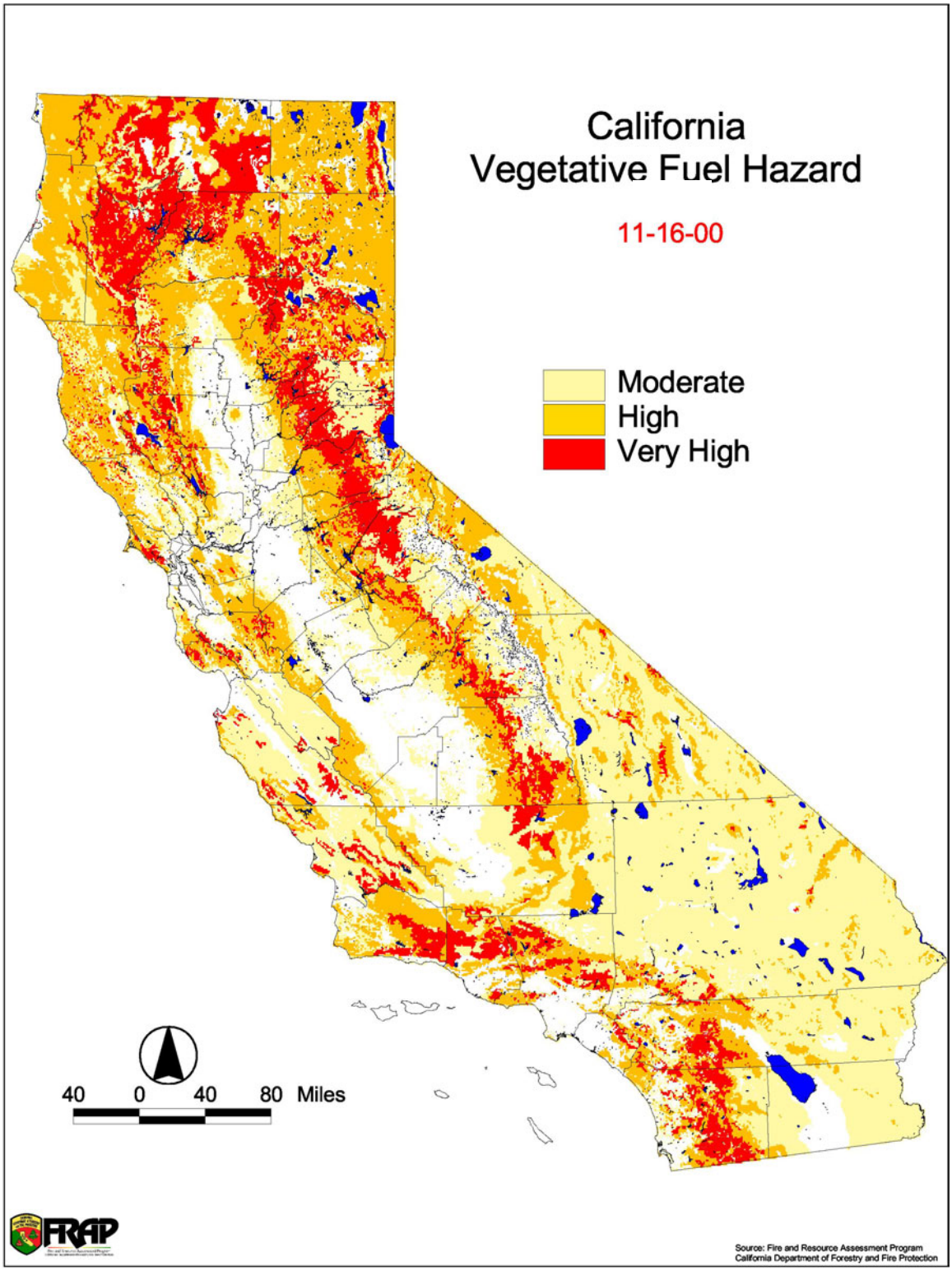
Figure 1. Fire behavior characteristics chart of fuel models by NFDRS slope classes.



In this graph, each column of "x" s represents the fire behavior characteristics of a fuel type burning on increasingly steep slopes. The area above and to the right of the blue line indicates fire behavior with flame lengths greater than 11 feet in the surface fuels. The area between the green line and the blue line indicates fire behavior with flame length potential between 8 feet and 11 feet. The red line is the 4-foot flame length line. Surface hazard is moderate for fuel types in the 0 – 4 foot flame length area, high for the 4 – 8 foot flame length area and very high for fuels with greater than 8 foot flame length potential.

The Fire Plan process uses a grid system for data analysis. Staff formed the grid by partitioning each 7.5" USGS quadrangle sheet into 81 (9-by-9) mini-quads. Each grid cell is approximately 450 acres. This method allows more complex data to be summarized and presented in a consistent mapping process. A surface fire hazard map is made by assigning a hazard ranking to each grid cell based on its slope class and fuel model. The final fire hazard includes an assessment of 2 additional factors that lead to severe fire behavior (ladder and crown fuels). Figure 2 shows the spatial allocation of fuel hazards across California as developed through this methodology.

Figure 2 shows the spatial allocation of fuel hazards across California



2. Probability of Burning

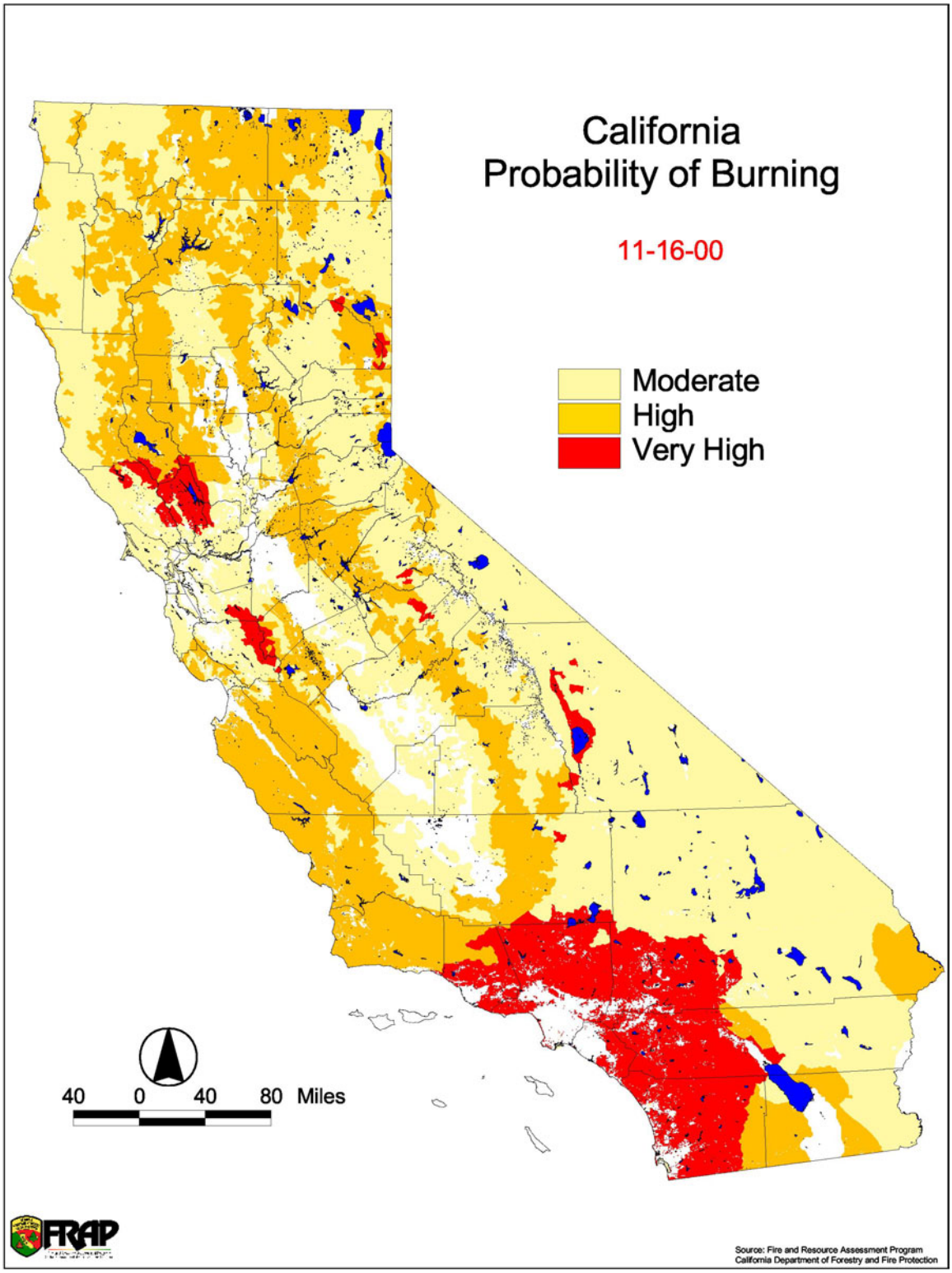
The probability of a fire burning in a given location is based on a milieu of factors including vegetative fuel condition, weather, ignition source, fire suppression response, and more. The Fire and Resource Assessment Program staff has analyzed 47 years of fire history from 1950 – 1997 with respect to vegetation type, bio-region, and owner class to produce a 3 class ranking of the probability of a costly damaging fire (PFIRE). The method used to determine PFIRE was similar to the calculation of fire rotation used in analyzing fire regimes. Fire perimeter data (from all of the wildland fire protection agencies) was overlaid on the vegetation type map to determine how many acres burned in each vegetation type during the entire period of record. These values were then divided by the total area in that particular vegetation type multiplied by the number of years of fire perimeter data in the record. The calculated probability values are then grouped into the following three classes:

- Very High (probability of a fire is 1% per year or greater)
- High (probability of a fire is 0.33% - 1% per year)
- Moderate (probability of a fire is less than 0.33% per year)

These values are equivalent to fire frequencies of less than 100 years, 100-300 years, and greater than 300 years, respectively.

The resultant figure represents the annual likelihood that a large damaging wildfire would occur in that particular vegetation type. The analysis is summarized by watershed and ranked based on the highest PFIRE identified through this analysis. Figure 3 shows the distribution of PFIRE within California.

Figure 3 identifies the probability of a given piece of ground burning



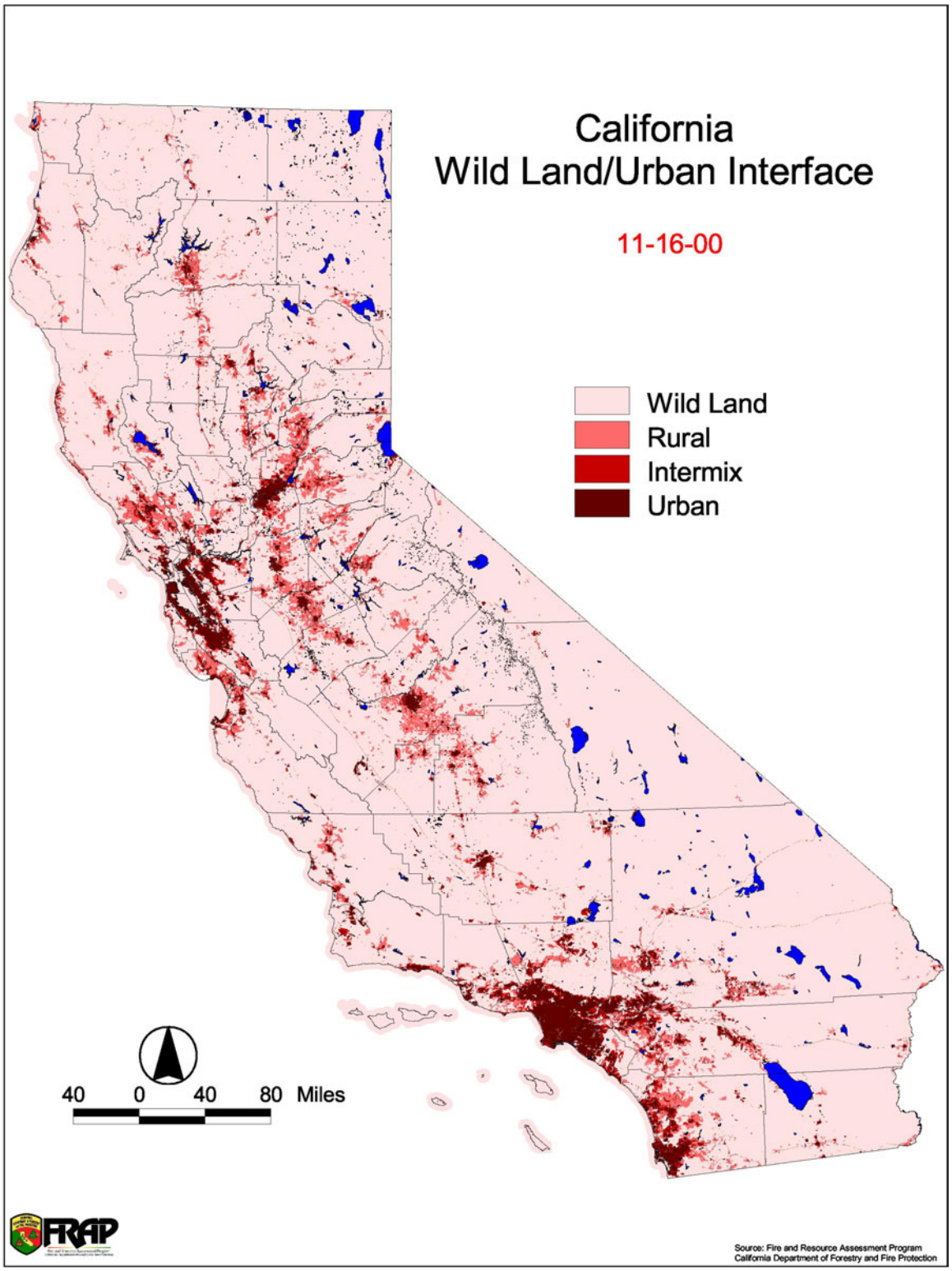
3. Defining the Urban-Interface

Areas of concern regarding housing and public safety were defined as those areas that have a structure density of 1 house per 40 acres, or denser, as calculated from the 1990 census block data. The census data is resolved into polygons called “blocks”, designed to hold roughly 400 people, and consequently vary widely in size and shape depending on the nature of development in a given area. Often, census blocks include many areas that are not typically developed, so the density of housing is not accurately represented by dividing the number of houses by the acres in the census block. To resolve this problem, staff “migrated” the density from areas of restricted development to areas of non-restricted development. Federal land is considered restricted development land in this analysis (houses in the wildland are on private ownership rather than federal ownership, generally). The migrated census data is categorized based on density and grouped into the following classes:

- Urban (more than one house per 0.5 acres)
- Intermix (from one house per 0.5 acres to one house per 5 acres)
- Rural (from one house per 5 acres to one house per 40 acres)
- Wildland (less than one house per 40 acres).

Figure 4 shows the breakdown of these areas for the entire State.

Figure 4 characterizes the extent and density of the Wildland-Urban Interface.



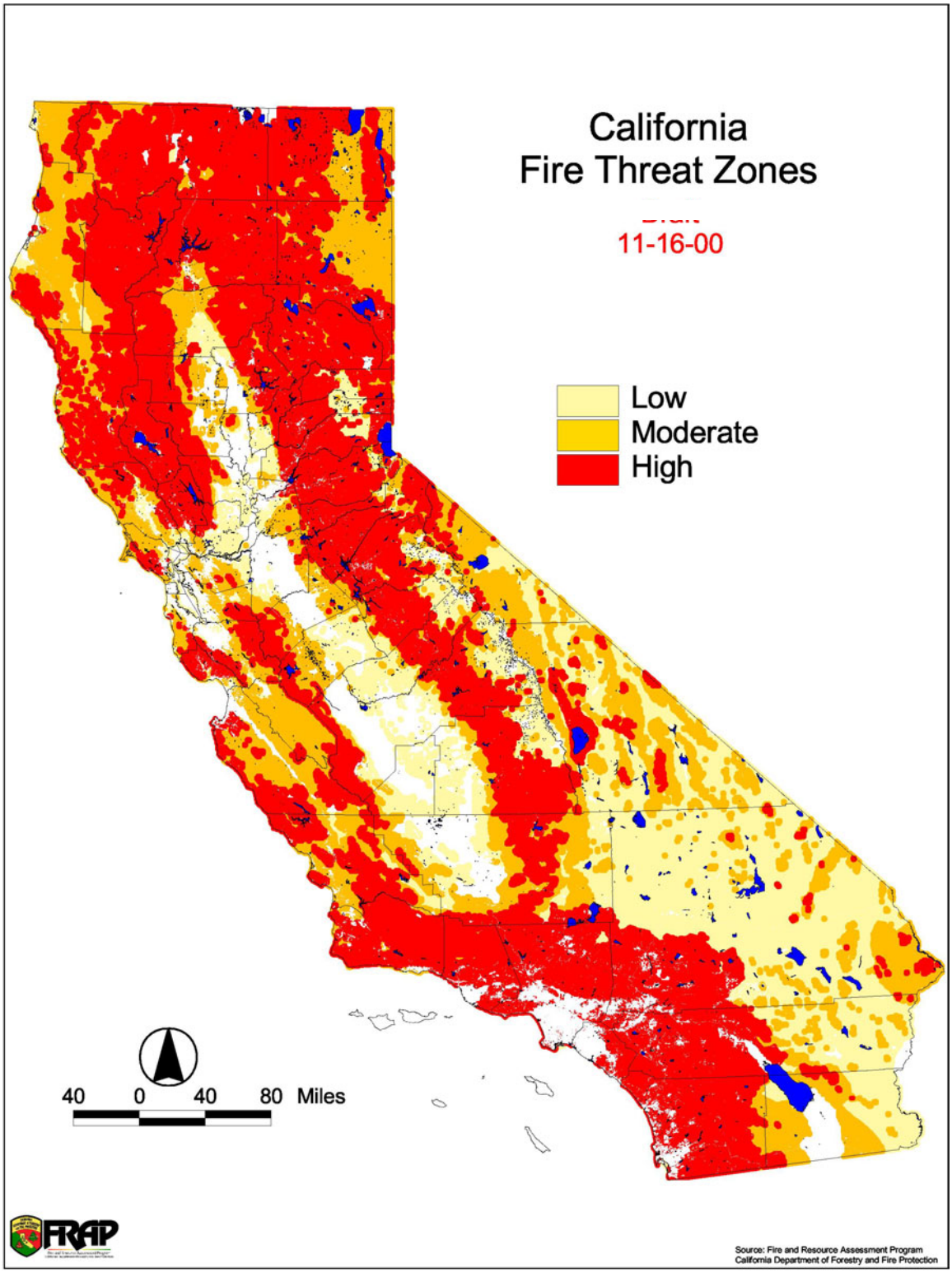
4. Assessing Fire Threat

Staff calculated a numerical index of fire threat based on the combination of hazard rank and fire probability. A 1 – 3 ranking from PFIRE (probability of a damaging fire occurring) was summed with the 1 – 3 ranking from the fuel hazard component to develop a threat index ranging from 2 to 6. This threat index is then grouped into three threat classes. Scores from four to six received a high threat rank; a score of three received a moderate threat rank; and a score of two received a low threat rank (Table 1). Areas that did not support wildland fuels (e.g., open water, agriculture lands, etc.,) were omitted from the calculation of fire threat (Figure 5). Additionally, areas of very large urban centers (i.e., "concrete jungles") were also removed from the final analysis by combining the fire threat coverage with the urban-interface coverage.

Table 1. Fire threat matrix based on hazard rank and fire probability.

	Hazard Rank		
PFIRE	**1 (Moderate)**	**2 (High)**	**3 (Very High)**
1 (Moderate)	2 (Low)	3 (Moderate)	4 (High)
2 (High)	3 (Moderate)	4 (High)	5 (High)
3 (Very High)	4 (High)	5 (High)	6 (High)

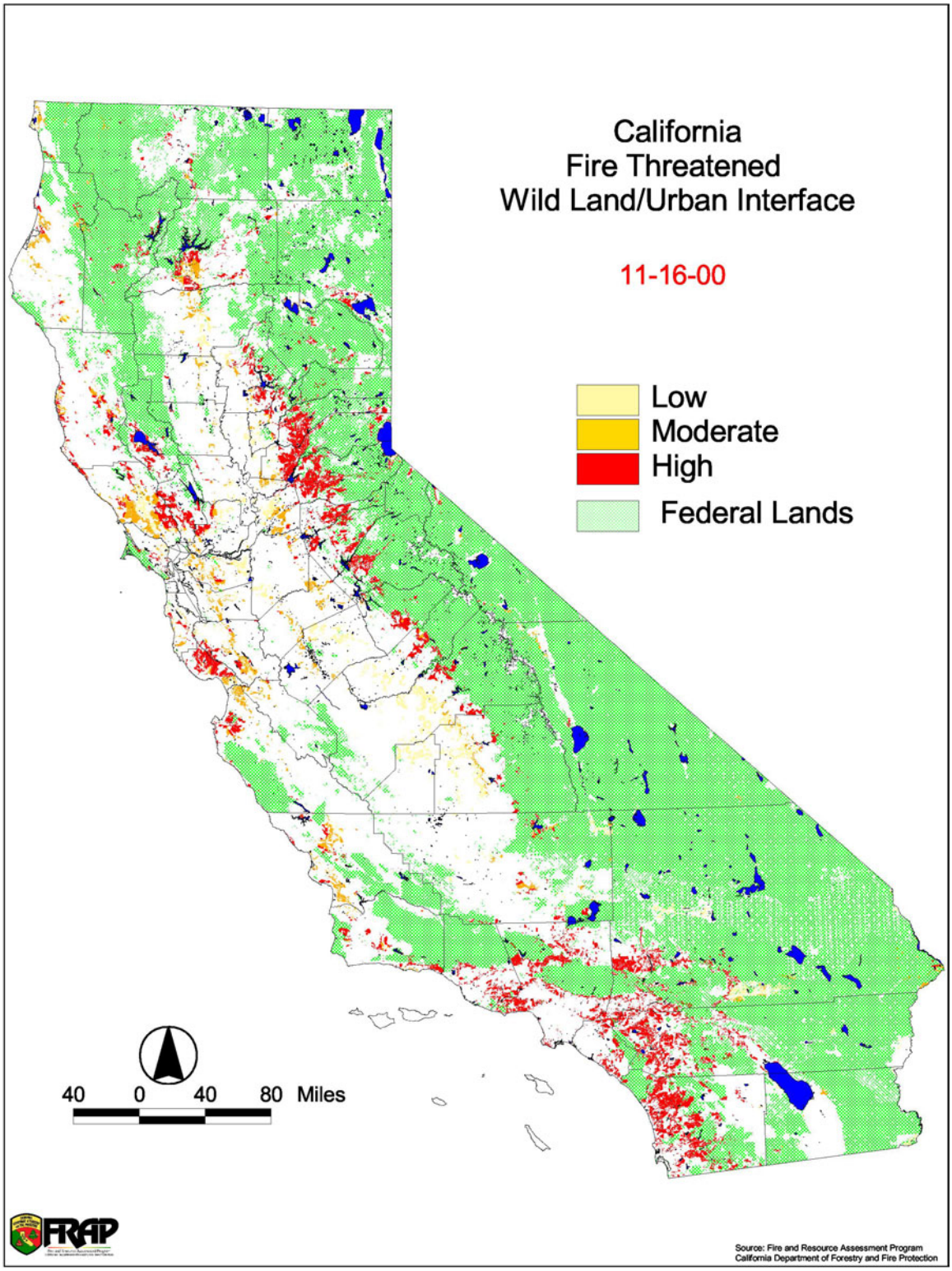
1) Figure 5 shows California's Fire Threat Zones



5. Identifying Fire Threatened Wildland-Interface Areas

The final step in the analysis was to search for all areas identified in the urban- interface layer that were in the vicinity of fire threats. Staff defined vicinity as all areas within 1.5 miles of a fire threat. Consequently, all areas with WUI values from 1 to 3 (i.e., densities greater than one house per 40 acres except those not supporting wildland fuels or in large urban centers) were labeled with the highest threat rank within a 1.5 mile radius. A 0.25 mile high density buffer for the urbanized density class (i.e., greater than 1 house per 0.5 acre) was included to account for the peripheral areas of urban centers abutting wildlands. Hence, high density areas lying immediately adjacent to wildlands would be included, but not those urbanized areas in the central parts of cities. The resultant map of threatened Wildland- Interface areas shows not only the aerial extent of affected areas, but also the relative fire threat to those areas (Figure 6).

Figure 6 shows fire threatened areas in the Wildland-Urban interface



6. Threatened communities

As a final product, the data in Figure 6 was overlaid on a map of place names to derive a list of communities threatened by wildfire. Place names (from the U.S. Census Bureau) can be selected based on the level of threat posed to them. A similar subset list can be made to find those threatened communities that are within the vicinity of federal ownership. For mapping purposes, a 1.5 mile buffer distance or other appropriate buffer distance can be used to define "vicinity". To accomplish this, a mask of the fire threat data can be created to highlight only those areas on Federal lands, and then run the same calculations performed statewide. The list of these place names, and corresponding fire threat level is given in Appendix A, " List of Fire Threatened Communities in California". The list separates those communities having some or all of their fire threat coming from federal lands from those where none of their fire threat comes from federal lands.

Discussion

While we believe the analysis presented accurately defines WUI areas potentially under threat from wildland fire, a number of caveats to the analysis are warranted. First, we have based our assessment based on the proximity of houses and fire threat as defined by hazard and fire probability. Additional data, such as fire weather frequency, may improve the development of the "fire threat" construct. However, in as much as solutions to the WUI issue largely focus on mitigating hazard and improving structure and surroundings characteristics to avoid house ignition, we feel that this scheme of density of housing and assessments of wildland fire threats should form the key components of an effective analytical framework for addressing the problem.

One key element that has emerged in other assessments directed at this and similar land management issues, is the use of other resource data that might be combined into the framework. As an example, if watersheds providing municipal water supplies were viewed as important in selecting wildland areas for mitigation of fire threats, where both watershed and community protection objectives might be realized, GIS-based data on watersheds could be brought into the analysis. In fact, this is the very foundation of the California Fire Plan. Managing for wildfire is a complex business, and there is no reason to believe that we should arbitrarily limit the complexity of our planning tools.

However, we are also obliged to note that constraints and caveats to the underlying data classifications, resolution, and accuracy could call into question the derived assessment when looked at under a microscope. If additional data is included, it simply also brings to bear these same issues as they relate to these new data. For the purposed of broadly defining these areas at the Statewide scale, we are confident that the data used here are sufficient to the task. We further believe that errors in our assessment would be selected out during the

project level planning process where refinement of project planning required to mitigate fire threats to people is undertaken. As the Fire Alliance has supported refinement of existing data, and the development of new data, we think that this assessment approach can easily incorporate new information as it becomes available. We also believe it is sufficiently flexible such that the framework can change to take advantage of new ideas in characterizing and classifying the Wildland-Urban Interface issue.

Disclaimers

This mapping analysis will need field review to validate the basic assessments and conclusions. The California Fire Plan process calls for using the best available data for analysis and having field fire managers and community stakeholders validate the underlying data. Tactical project decisions are then made on the best combination of strategic assessments and local knowledge. Most of the data sets used in this analysis have gone through this field validation process. However, several data sets are taken “as is” and may not reflect actual current conditions.

The urban-wildland interface assessment and the community names list are based on 1990 Census Bureau information. There is a good likelihood that communities have been omitted that should be included and there are probably communities included that should be omitted. California is experiencing rapid growth, especially in rural areas removed from the urban centers. Validating and updating the basic 1990 census data is beyond the capability of field managers and stakeholders so existing data is used ‘as is” with the intent of updating the analysis when the 2000 census data is available.

One basic assumption in the Wildland-Urban Interface housing density mapping is that the houses in a census block are on the private land portion of the block and not on the federal land. There may be local exceptions to this assumption, for example: concentrations of summer cabins on national forest leases. Also, we assumed housing is evenly distributed over the private land portion of the census block. Field validation may find concentrations of housing that could alter the housing density mapping.

The hazard assessment is based on the best available vegetation maps. In some parts of California this data is very good. However, in other areas the vegetation mapping is old and otherwise less than desirable. Field validation has corrected many mapping errors but probably not all.

The fire probability assessment includes fire perimeter maps for all agencies dating back to 1950. Older fire perimeters were digitized from paper map archives. The maps have been field validated to the extent that this history is available. It is possible that some fires are not in the database. This mapping is a cooperative effort between local and state wildland fire agencies and federal

land management agencies with wildland fire protection responsibilities. The possibility exists that some fires from other land managers have not yet been included. For example, fires on military bases and prescribed fires on private ownerships may be missing from this analysis.

Field validation efforts are focused on areas of greatest concern, areas where their efforts will have the greatest impact. In other words, community stakeholders and fire managers are not spending a lot of time fine-tuning data in areas where they know fires are not a problem. The benefit to this approach is that projects are being proposed and developed in the most important areas. The caution is for those making decisions removed from this local knowledge base; the base data may not be perfect.