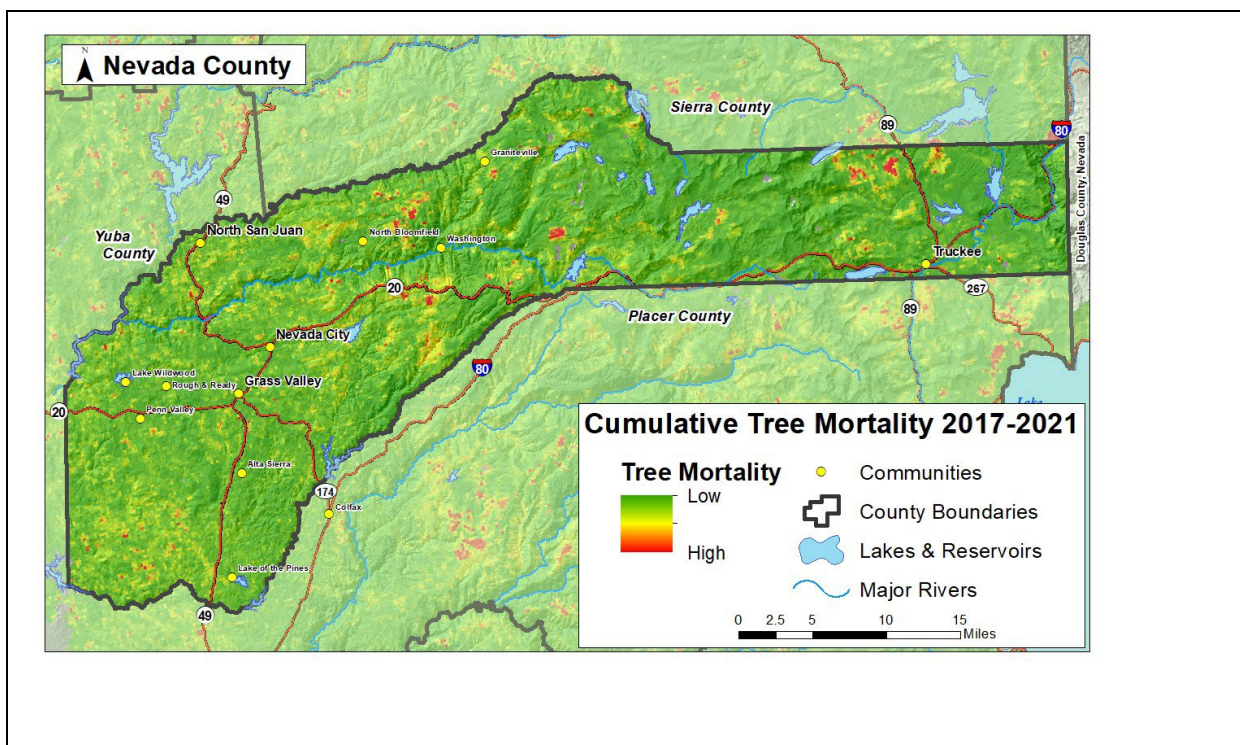


**Situation in Nevada County:** (In the map below the red patches are the larger patches of dead trees)

- Nevada county has some areas of elevated or higher levels and/or larger patches of mortality than typical background conditions. (*\*The rate and locations of tree mortality are steadily increasing*).
- Some of these occur in WUI, and along major county or state roads and primary evacuation routes, such as Tyler Foote Road, north of the South Yuba River on the San Juan Ridge, Highway 20 above Nevada City, and along Highway 89 north of Truckee.
- Some patches of tree mortality within the Tahoe National Forest have made fuel hazard reduction treatments in the WUI more expensive, time consuming, and difficult.
- It is expensive to remove dead trees around homes and in areas where they are a hazard.
- There are few places to take dead trees to utilize or dispose of them.

Cumulative tree mortality, from 2017 to 2021. (Source, CA Wildfire and Forest Resilience Taskforce)



**What it means**

- Evacuations during wildfires may be less safe or even hindered by dead trees that are more likely to be blown over in high winds associated with wildfires.
- Dead trees are a growing problem around homes and other developed areas, where they are especially expensive to remove.
- Conditions for fire control will be more difficult, slow, and dangerous in areas with higher tree mortality.

## **Flammable, Non-Native, Invasive Plants:**

There are many invasive (non-native) plants that especially add to the fire hazard and risk in Nevada County. Of greatest concern are the most flammable species covering the largest areas, which are the most difficult to control and maintain. This leads to large areas with highly flammable vegetation that is difficult to get rid of. This includes many roadside areas.

These invasive plants spread easily on vehicles and equipment used to clear along roads such as mowers and tractors. Many of them sprout, so that mowing them or cutting the tops just makes them grow back faster and bushier. Others don't come up until later in the spring or summer when mowing has already happened, like star thistle.

Many of them are not good livestock forage and can even cause harm, like barbed goat grass. This makes it difficult to control by grazing and tends to invade areas that are grazed in the foothills, keeping fuel levels lower before they invaded.

### **Largest challenges:**

- Scotch broom
- Start thistle
- Annual grasses (especially medusa head and barbed goat grass).

## **Fire Weather**

The weather is an important influence on the intensity and speed of wildfires.

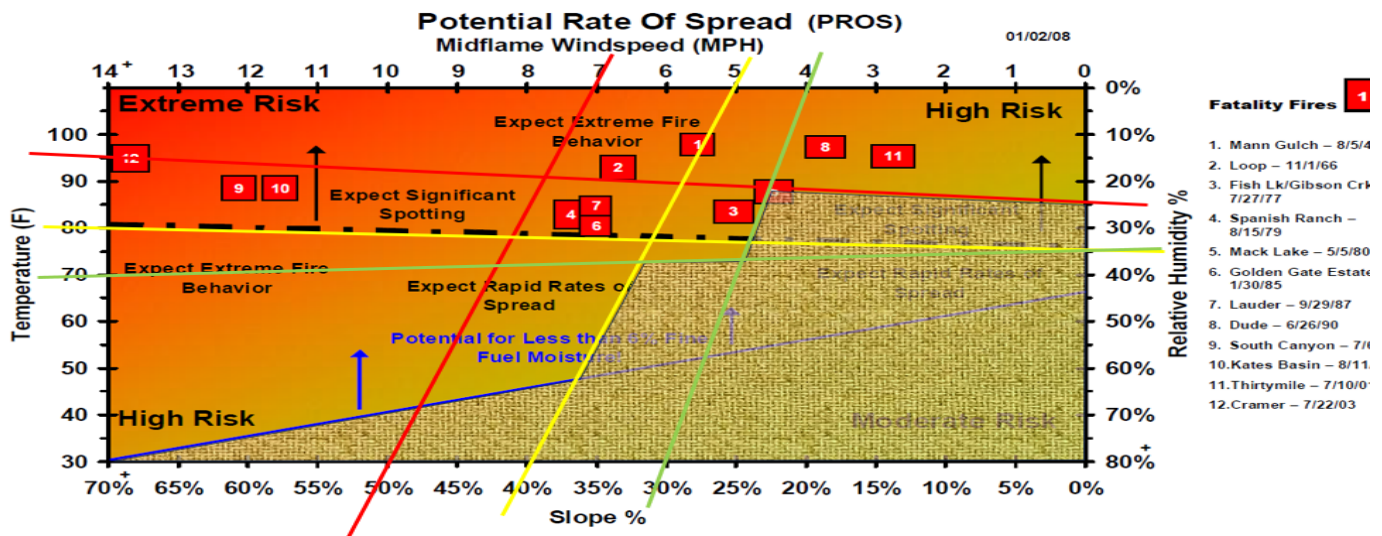
Hotter, drier, and windier weather together or separately, can increase wildfire potential.

These are often combined into fire danger ratings. It is useful to look at seasonal trends in the fire danger ratings and look at what the ratings were for large wildfires in the area.

- A Burning Index is one that combines wind speed, relative humidity, and fuel moisture to rate fire danger
- Hot dry and windy index

The chart below is a visual representation of the effect weather has on dangerous fires.

Rate of spread, temperature, % slope, and relative humidity are all connected to fatality fire conditions.



**INSTRUCTIONS:**

1. Draw a line from the temperature value to the Relative Humidity value.
2. Draw a line from the Midflame Windspeed value to the Slope % value.
3. Where the lines intersect is the assessment value.

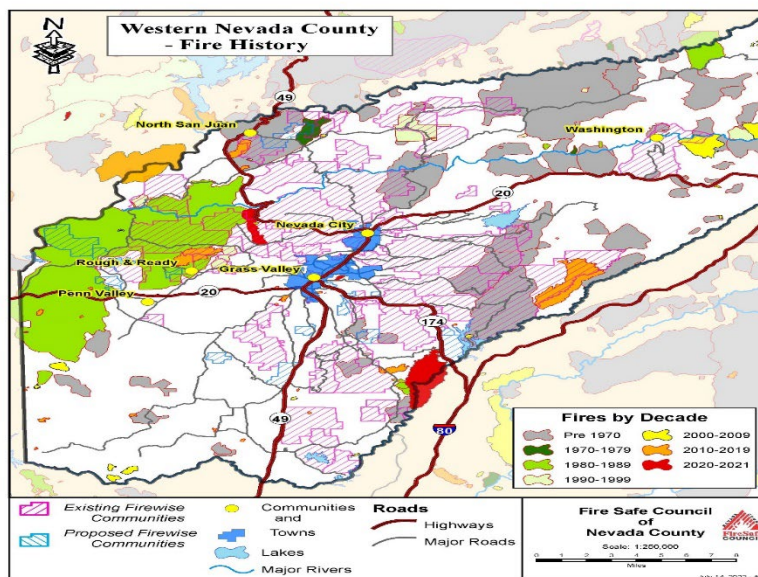
When conditions above the "Expect Significant Spotting" line are reached firefighters can expect rapid fire spread to occur with little warning. Re-assess your situation by using "Risk Management Process" of the Incident Response Pocket Guide NFES #1077. Keep one foot in the black, there is no room for error under these conditions!

**Fire History**

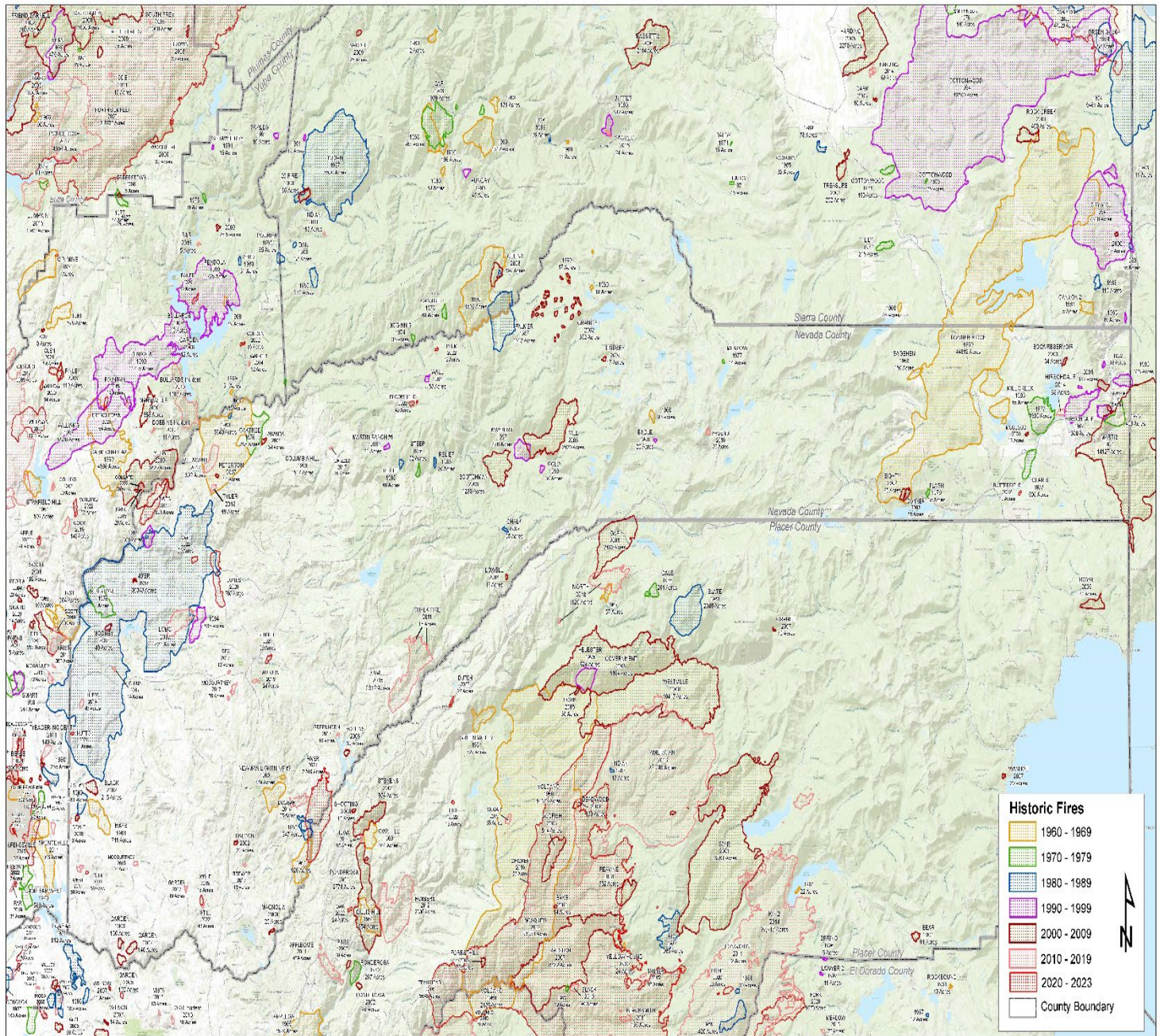
Fire history provides information on where fires have burned in the past and under what conditions. State and federal agencies map wildfires and can be used to look at the history of fires. CAL FIRE and the US Forest Service have had maps available in digital form since 1960. These agencies also track fire cause. Understanding the types and frequency of different fire causes is useful in developing the best ways to reduce unwanted fire starts.

**Locations and Size:**

There have been numerous fires in Nevada County since 1960. Most of the fires have been less than 10-acres as is consistent with CAL FIRE's goal to keep 95% of fires contained at 10-acres or less. The 49er Fire in western Nevada County, and the Donner Ridge Fire in eastern Nevada County were larger, 36,343 acres and almost 45,000 acres.



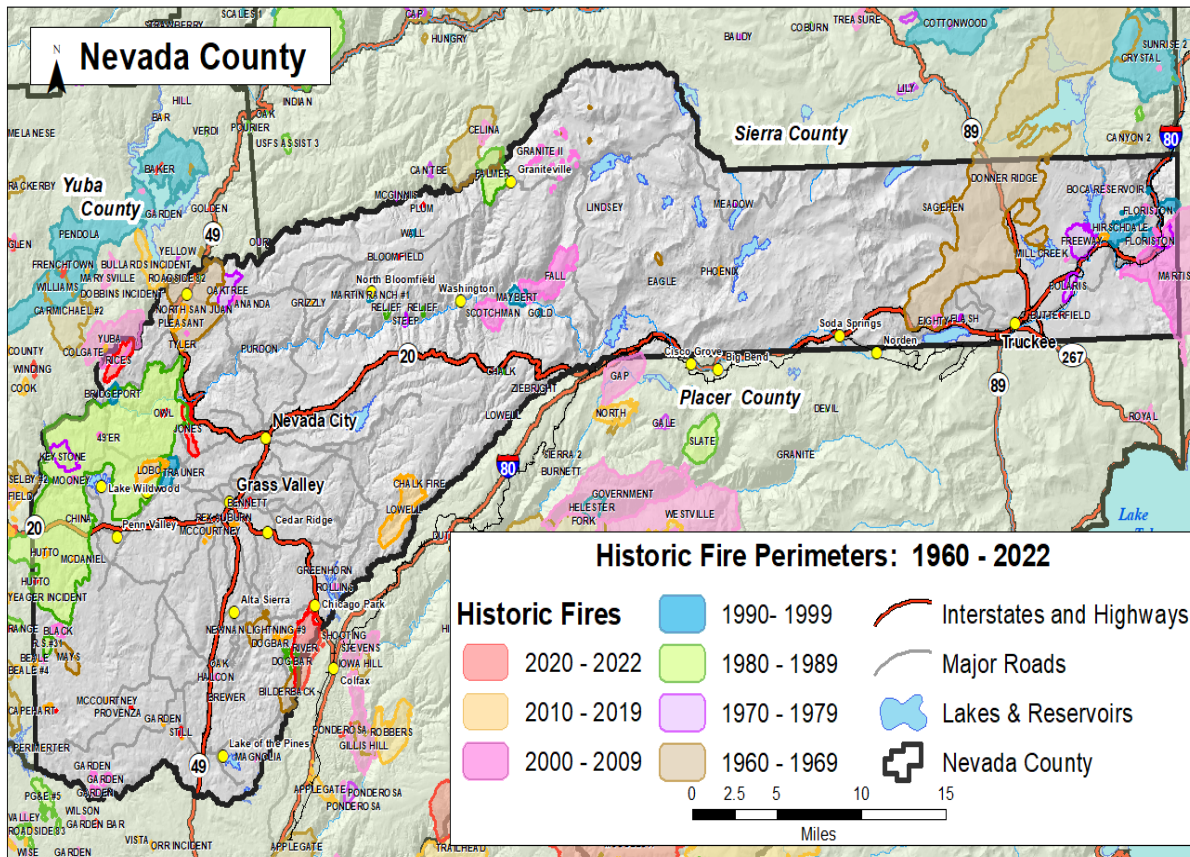
# Fire Perimeter Zones:



## Nevada County Historic Fire Perimeters 1960 - 2023



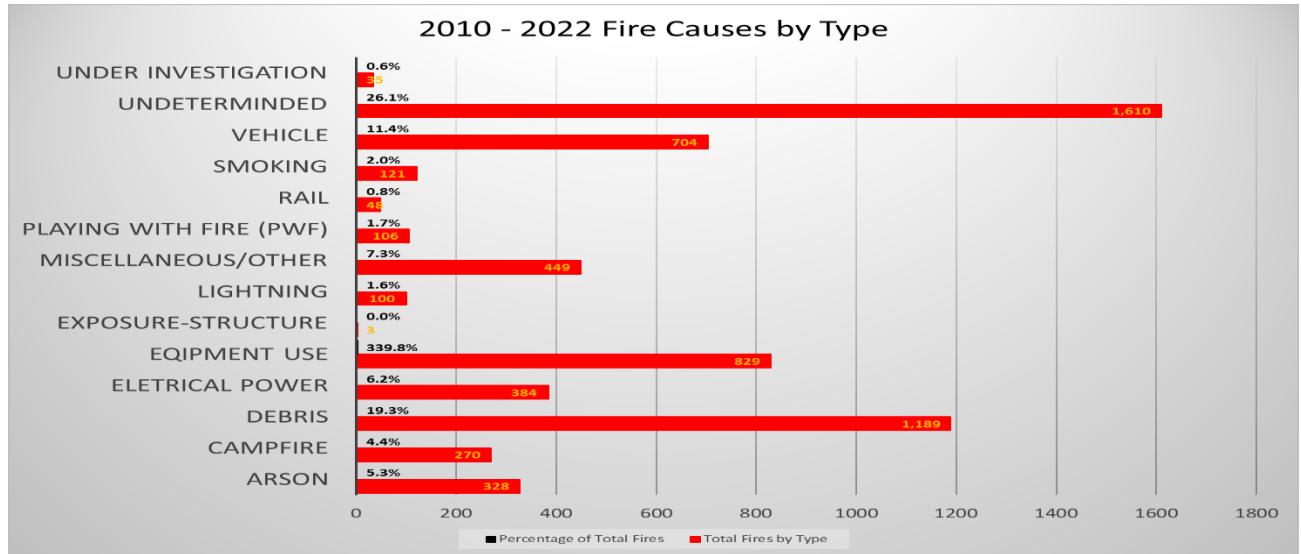
## Location and Fire Size Class of Wildfires in Nevada County, 1960-2022



### Fire Causation:

CAL FIRE Reported the following fire causes for the entire Nevada Yuba Placer Unit between 2017 and 2021

	2017	2018	2019	2020	2021
Undetermined	114 (24%)	114 (27%)	45 (15%)	80 (18%)	162 (35%)
Lightning	10 (2%)	1 (.22%)	3 (1%)	13 (3%)	6 (1%)
Campfire	42 (9%)	18 (4%)	17 (6%)	14 (3%)	10 (2%)
Smoking	7 (1%)	10 (2%)	4 (1%)	2 (1%)	9 (2%)
Equipment	47 (10%)	41 (10%)	46 (15%)	40 (9%)	61 (13%)
Vehicle	35 (8%)	26 (6%)	24 (8%)	33 (8%)	41 (9%)
Debris	113 (24%)	119 (28%)	52 (17%)	119 (27%)	71 (15%)
Arson	12 (3%)	19 (4%)	14 (5%)	18 (4%)	26 (6%)
Electrical	40 (9%)	39 (9%)	27 (9%)	47 (11%)	32 (7%)
Power					
Railroad	0	0	1 (0%)	4 (1%)	4 (1%)
Playing with Fire	3 (1%)	5 (1%)	6 (2%)	11 (3%)	9 (2%)
Miscellaneous	45 (10%)	32 (8%)	27 (9%)	54 (12%)	29 (6%)
Exposure – Structure *	0	0	3 (1%)	0	0
Under Investigation *	0	0	35 (2%)	0	0
<b>Total</b>	<b>468</b>	<b>424</b>	<b>304</b>	<b>435</b>	<b>460</b>



## Local Environment Summary

The environment and high-volume levels of natural vegetation in Nevada County make it extremely susceptible to high intensity Wildfire events. Every Nevada County community is exposed and extremely vulnerable to the long-term impacts of catastrophic Wildfire events. Additionally, the surrounding overgrown Tahoe National Forest presents a highly volatile threat of a magnitude not seen in most communities due to the high percentage of WUI regions.

## Communities and Residents

There are many communities surrounded by wildland vegetation, leading to extensive areas of urban wildland interface (WUI). These include many large parcels, with homes intermixed with large patches of often dense vegetation, leading to large expanses of wildland urban intermix (WUI). The combination of the fire environment and all the communities in the county WUI results in Nevada County experiencing a potential catastrophic wildfire under the right conditions. There are many residents that are especially vulnerable to wildfire for various reasons. They may lack the resources to harden their homes, create defensible space or evacuate readily. This includes seniors, disadvantaged/lower income residents, and individuals with limited mobility. There are also recreational visitors and people that move into the county from less fire-prone areas who are unprepared. They may lack detailed information on fire hazard, risk and safe evacuations.

## Fire Environment

Vegetation and fuels change over time and are continuous and denser than when fires were frequent and less intense. Litter, dead surface fuel and live understory vegetation accumulate and are deeper and denser, fueling higher intensity fires with taller flames. Small trees, tall shrubs, and low ladder fuels carry taller flames more readily into the crowns creating crown fire fuel spreading from tree to tree. Individual trees, shrubs and plants have less water as they compete for soil moisture. There are multiple large canyons, aligned with prevailing wind directions from the southwest and small drainages running down slope. Canyons and drainage cause funneling of increased winds which accelerate fire behavior. Acceleration is greater when the direction of the canyons matches prevailing winds. Most of the county is steep and has slopes increasing fire intensity, meaning much of the county is prone to higher intensity fire from slope alone. Mountainous terrain and overall weather patterns in California result in high-risk fire weather, especially in the fall. Dry and windy north and east winds are associated with some of the largest and most intense fires in California.

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## **Part-III / Treatment Strategies and Partnership Approach**

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## Part-II / Risk Assessment

### Overview:

Wildfire risk is a measure of the likelihood and potential consequences of wildfires. For any location, this depends on the chance of fire there, the likely intensity of the fire, and the vulnerability of something of value there. That may be homes, water sources, and/or forests. These three aspects of risk can be summarized with a **Triangle** where the sides are likelihood, intensity, and susceptibility.

Wildfire risk **Triangle** model:



Describing information currently available to assess risk provides a means to determine where and what different approaches will be most effective at minimizing the risk.

### Mapping Wildfire Hazard, Intensity, Likelihood

There are key sources of wildfire risk that are readily available. The California Wildfire Taskforce, a state and federal partnership of fire and natural resource agencies, have compiled data layers on the different factors. These include ratings of risk levels and computer modeling of potential wildfires. These approaches use state-of-the-art technology and science.

The model runs, or simulations of potential wildfires can tell us what fire intensities could be expected under typical fire weather or worst-case fire weather conditions during fire season. What kind of wildfire to expect in worst-case fire weather is important. Even if these conditions may be less common, like north wind events, these can be when wildfires have the greatest impact. An example is the Camp Fire in Butte County to the north, which burned the entire town of Paradise, killed 86 people, was a very dangerous and scary evacuation for thousands, and killed most of the larger trees in the surrounding forest that made the location “paradise”. These are the fires that are hardest to prepare for but very important to prepare for. Fire resilient and prepared communities, resilient forests and watersheds need to be able to face and withstand the more intense wildfires to survive them.

*Details on the individual layers and modeling approaches are described in Appendix II.*



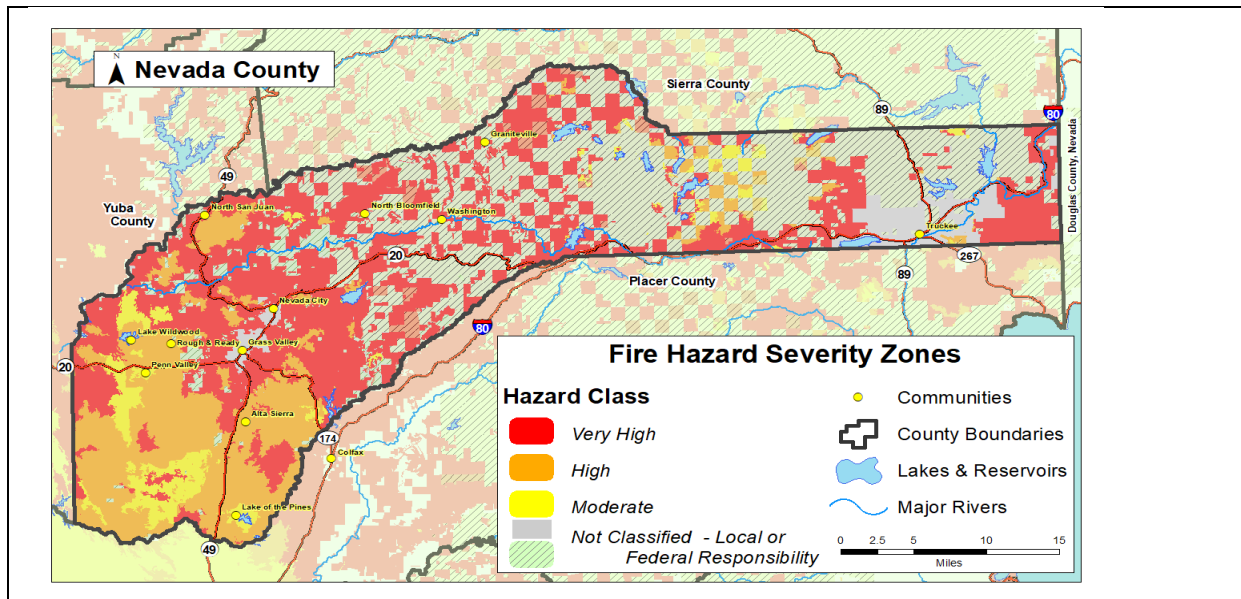
## Wildfire Hazard

Wildfire hazard zones are mapped in California by the CAL FIRE in areas the state is responsible for, private lands. The fire hazard categories are based on conditions that are a major cause of wildfire spread and intensity. This includes fuel loading or amount, slope steepness, fire weather and other key factors (like frequent winds). Federal lands, managed by government agencies like the US Forest Service and BLM have their own wildfire hazard maps. These hazard maps are designed like most CAL FIRE maps.

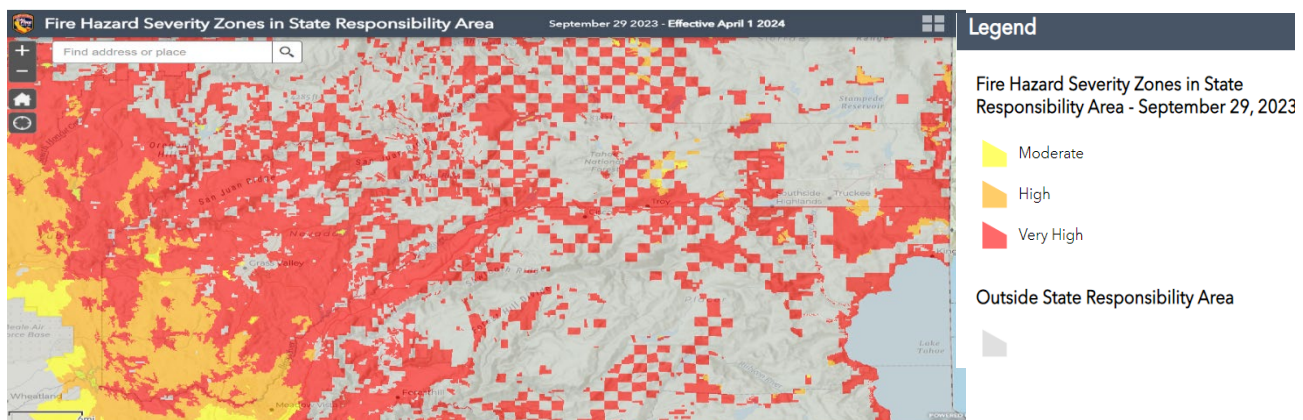
### Situation

- Almost all private and state lands in Nevada County fall into High and Very High Wildfire Hazard Zones.
- There is no similar map for federal lands or local fire protection lands (i.e. Truckee Fire Protection District). In general, the fire hazard is very high and high on many federal lands. The exceptions include recently treated areas. These tend to be localized, in small patches, mostly near community areas.

Wildfire Hazard Severity Zones in Nevada County, on CA Wildfire Responsibility lands.



### 2024 Update from CAL FIRE



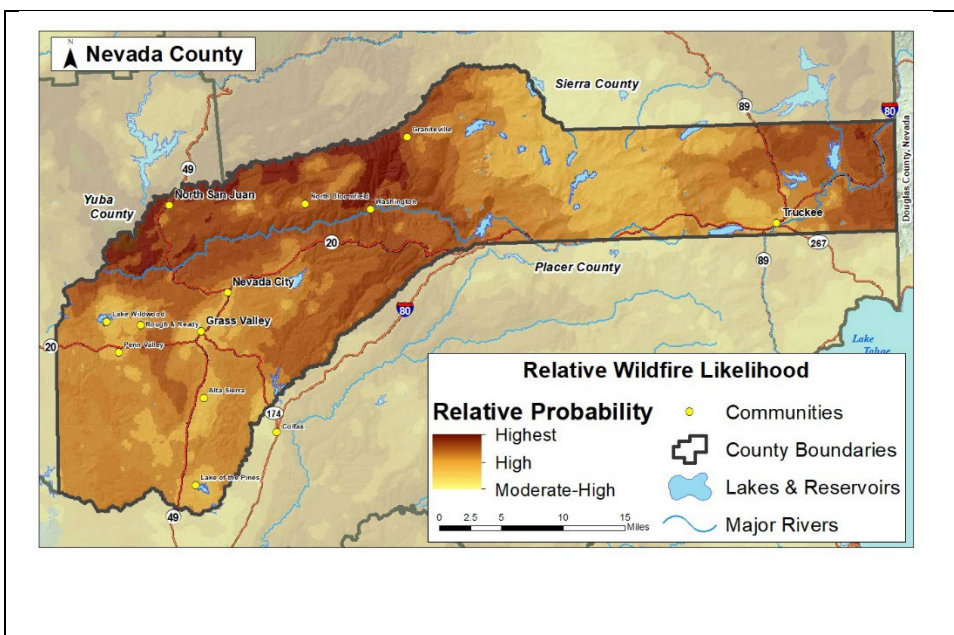
## Likelihood / Chances of a wildfire occurring in any specific location?

The likelihood of a wildfire chart was produced for the Wildfire Taskforce based on the annual burn probability of various regions. The annual burn probability represents the likelihood of a wildfire of any intensity occurring in each given location during both fringe and/or peak fire season.

### Situation

- Nevada County is flammable, with fire season duration extending every year. Over the centuries, all regions of Nevada County have experienced wildfire events.
- Currently, most of the county is in the moderate to high range of burn probability. The average burn probability for is high compared to many other areas of the country.
- The highest likelihood of wildfire is in the central West and Eastern-most parts of the county. These are in the pine and mixed conifer dominated areas and/or near large river canyons.

**Relative wildfire likelihood in Nevada County.** (CA Wildfire and Forest Resilience Taskforce. <https://rrk.sdsc.edu/sierra.html>).



### Implications: What it means:

- Compared to other areas in the country, and higher elevation or wetter portions of California, there is a high likelihood of fire in all parts of Nevada County.
- Within the county, wildfire likelihood is highest at mid and lower elevations in western Nevada County and around the town of Truckee and to the north on the eastside.
- These are both areas where there is a combination of high potential of fire-starts with flashy, drier fuels, such as grass or dry shrubs and forests. North of Truckee, there are large spans of grassy areas and other dry vegetation, but it also experiences more lightning events.

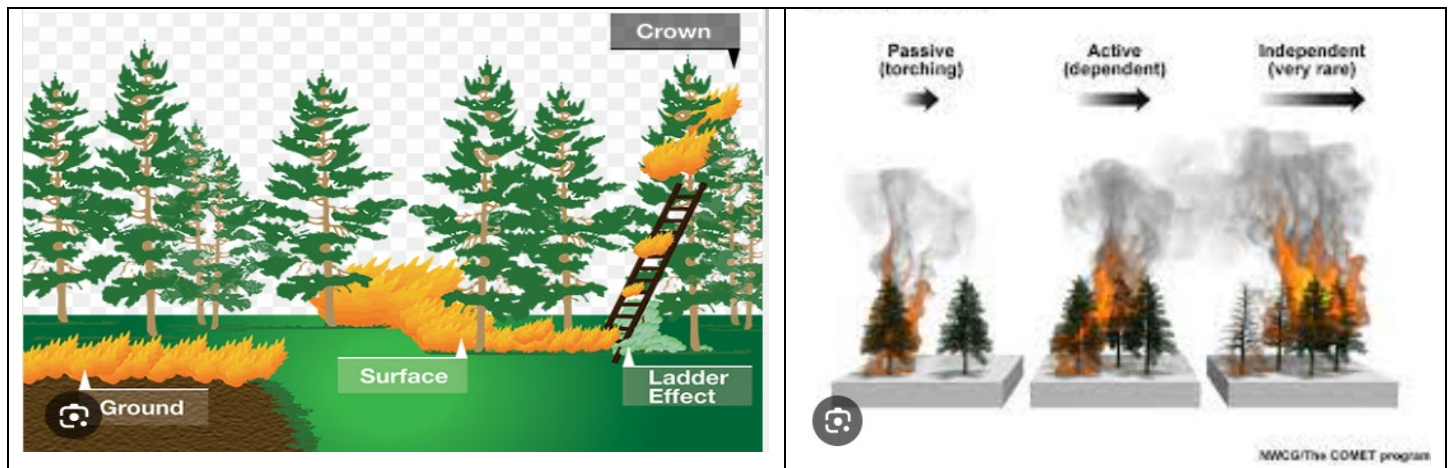
## Fire Intensity and Fire Type:







Fire intensity is how hot a fire burns. The hotter a fire burns, the more difficult it is to control and the more harmful or potentially damaging it is. Flame lengths, or how long flames are, are the most common ways to show and model fire intensity. Firefighters use flame lengths as one way to assess what fire suppression tools are safe and needed to control a wildfire (see section on Fire Severity and Fire Control below).

Surface, crown and a combination of surface and individual and groups of trees burning in the crowns, or “torching” are different varieties of fire behavior.

- **Surface fires**, burn below the upper tree canopies and generally have lower flame length. Fires that are very low to the surface are generally called ground fires.
- **Torching or crown fires** can occur when flame lengths are high, and reach up into the crowns of trees, or when there are “ladder fuels”. Ladder fuels are low tree branches, small trees or tall shrubs that grow up to the tree branches and spread fire from the surface up into the crowns. When there is more fuel and vegetation is drier, flame lengths reach higher, and tree crowns are more likely to burn.
- **Active crown fires** are when the entire top of trees or chaparral (tall shrub fields) are ignited.

Diagram of fire types:



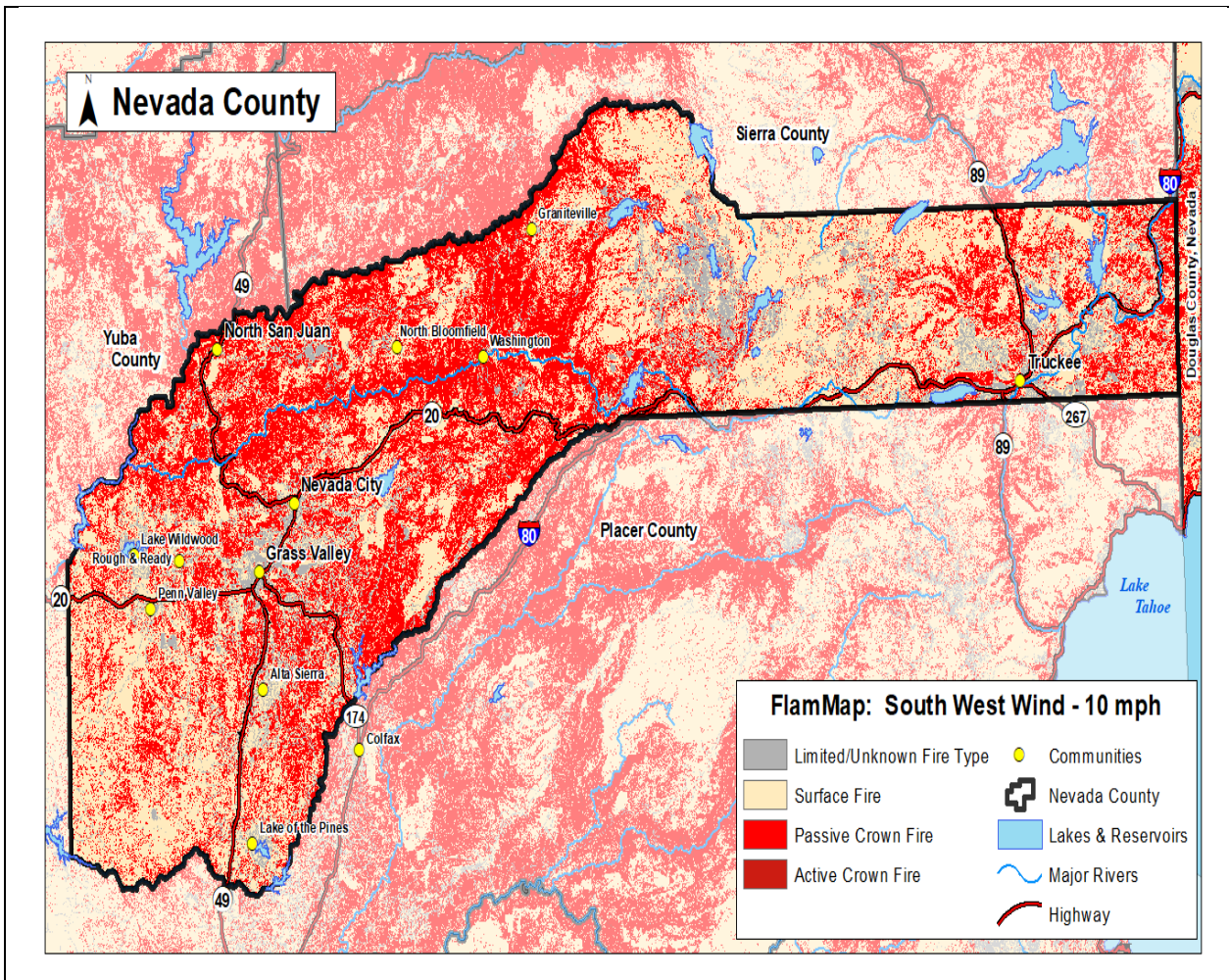
Smoldering	Creeping and Spreading	Running	Torching and Spotting	Crowning	Erratic and Extreme
					
<b>Little fire spread</b>	<b>Intermittent surface fire</b>	<b>Vigorous surface fire</b>	<b>Single tree to group tree torching</b>	<b>Crown fire front at head</b>	<b>Extreme fire environment</b>
<ul style="list-style-type: none"> <li>• Minimal flaming, less than 1'</li> <li>• White smoke</li> <li>• Combustion of ground fuels</li> </ul>	<ul style="list-style-type: none"> <li>• Slow spread</li> <li>• Visible open flames 1' - 4'</li> <li>• Little torching</li> <li>• Generally white smoke</li> </ul>	<ul style="list-style-type: none"> <li>• Flames 4' - 8'</li> <li>• Flammable canopy can ignite</li> <li>• Moderate to fast (grasses) spread</li> </ul>	<ul style="list-style-type: none"> <li>• Surface flames 8' - 12'</li> <li>• Moderate to fast spread</li> <li>• Gray to black smoke</li> </ul>	<ul style="list-style-type: none"> <li>• Fast spread rates</li> <li>• Black to copper smoke</li> <li>• Long-range spotting</li> </ul>	<ul style="list-style-type: none"> <li>• Extreme intensity</li> <li>• Turbulent fire</li> <li>• Chaotic spread</li> <li>• Interface fuel involvement</li> </ul>

**Situation:**

- **Most of Nevada County can burn at a high intensity during peak fire season.**
  - During peak wildfire weather, flames greater than 4’ to 8’ feet are typically experienced.
  - With higher winds (gusts or sustained winds more than 25 mph) and dry conditions, many areas have the potential to burn at high intensity. Because fuel loading is high, forests and other vegetation are dense and continuous, resulting in a high potential for crown fire.

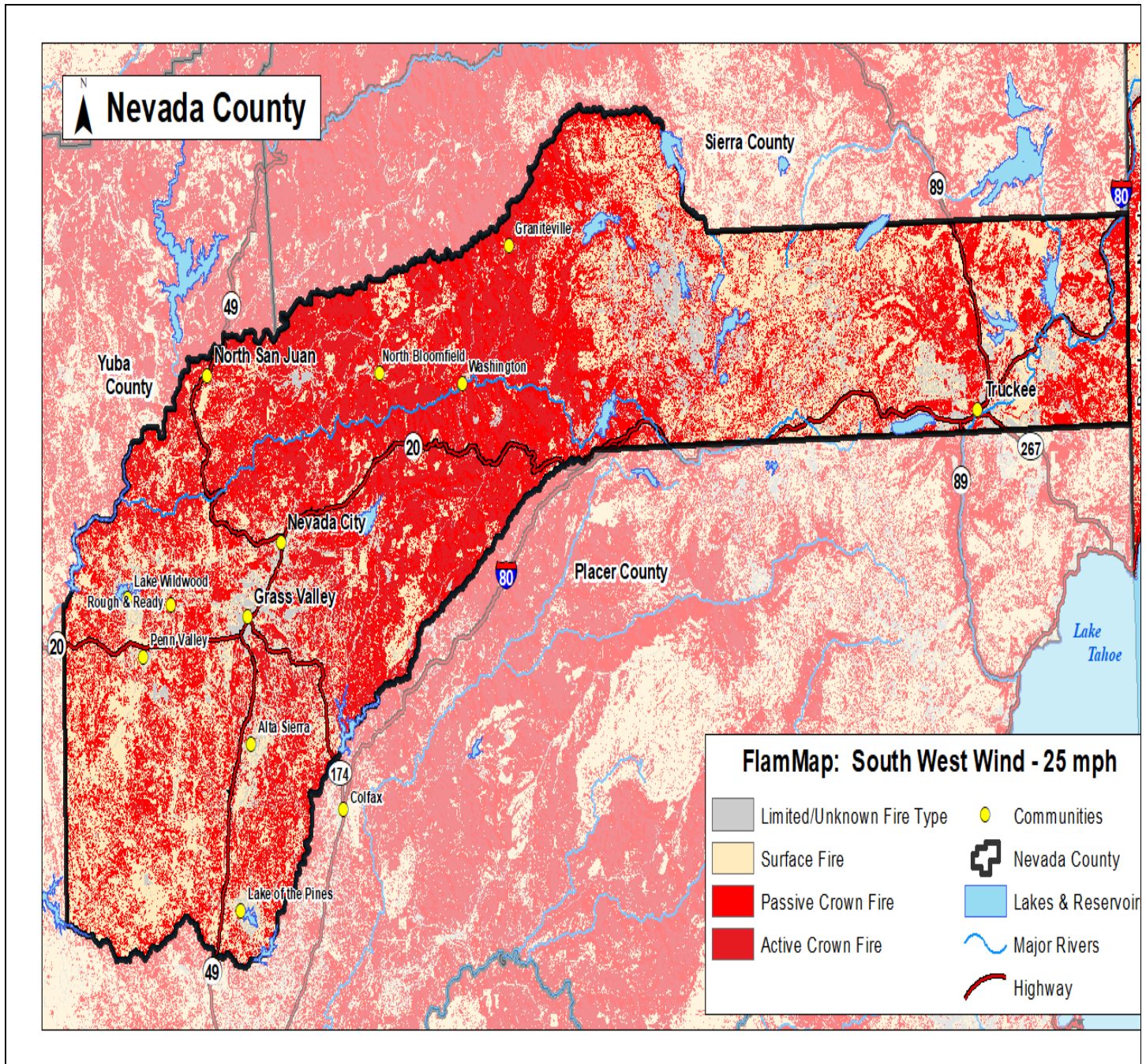
Potential fire behavior was modeled for different weather and fuel moisture conditions, representative of different times in fire season (early, mid or late) and ranges of fire weather conditions. In assessing and planning for Community Wildfire Preparedness and Response, it is important to understand not only what the typical fire behavior might be like, but also what the potential fire behavior could be under the worst fire weather and fuel moisture conditions.

**Potential Fire Type for a typical day in fire season. Modeled using FLAMMAP with winds of 10 mph from the SW and dry fuel moisture. Details on the model used, inputs and other outputs are in Appendix II.**

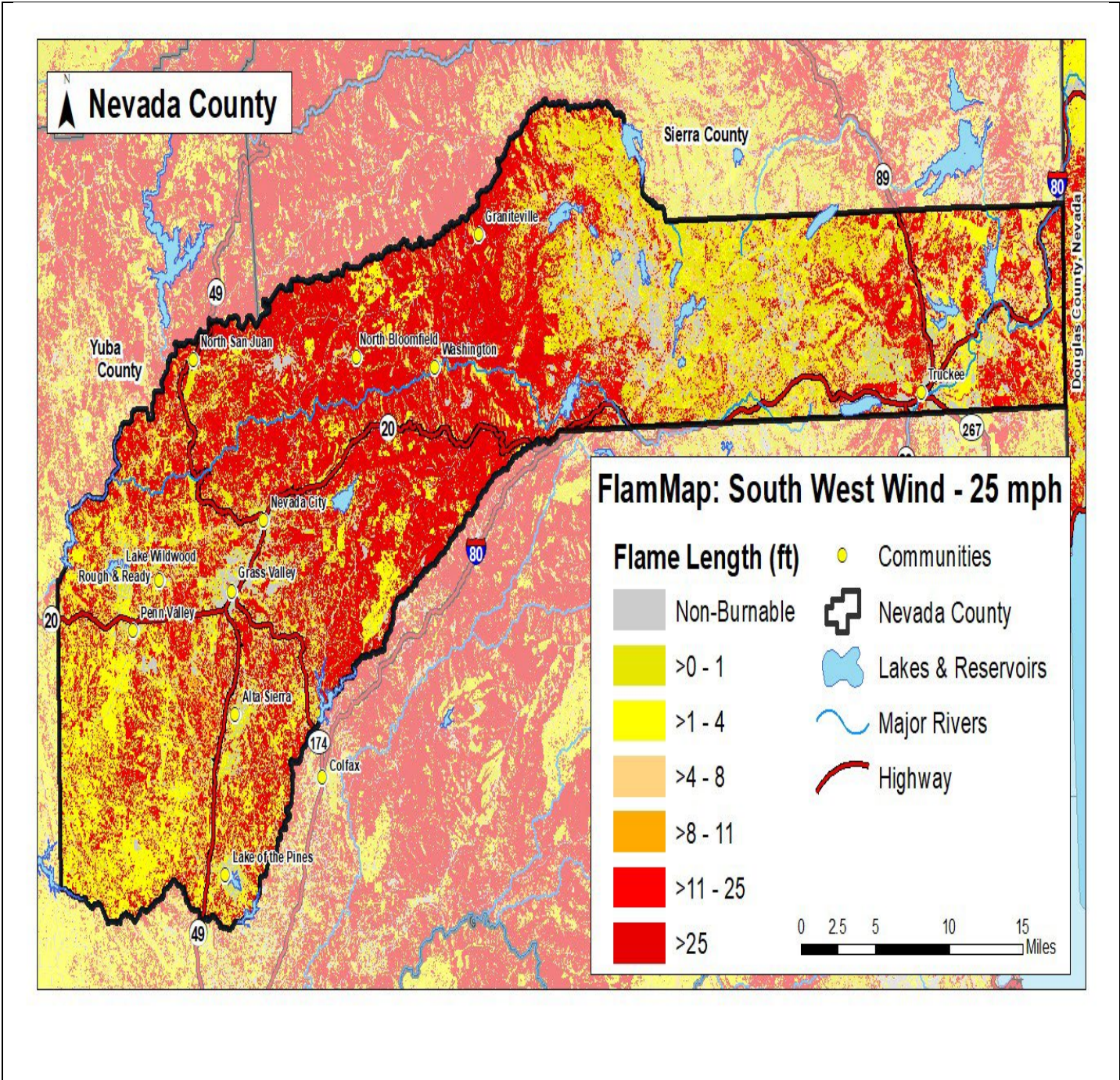


Potential Fire Type during very windy weather, with very dry fuel moisture in Nevada County, typical of late summer or fall. Modeled using FLAMMAP with winds of 25 mph from the SW and dry fuel moisture.

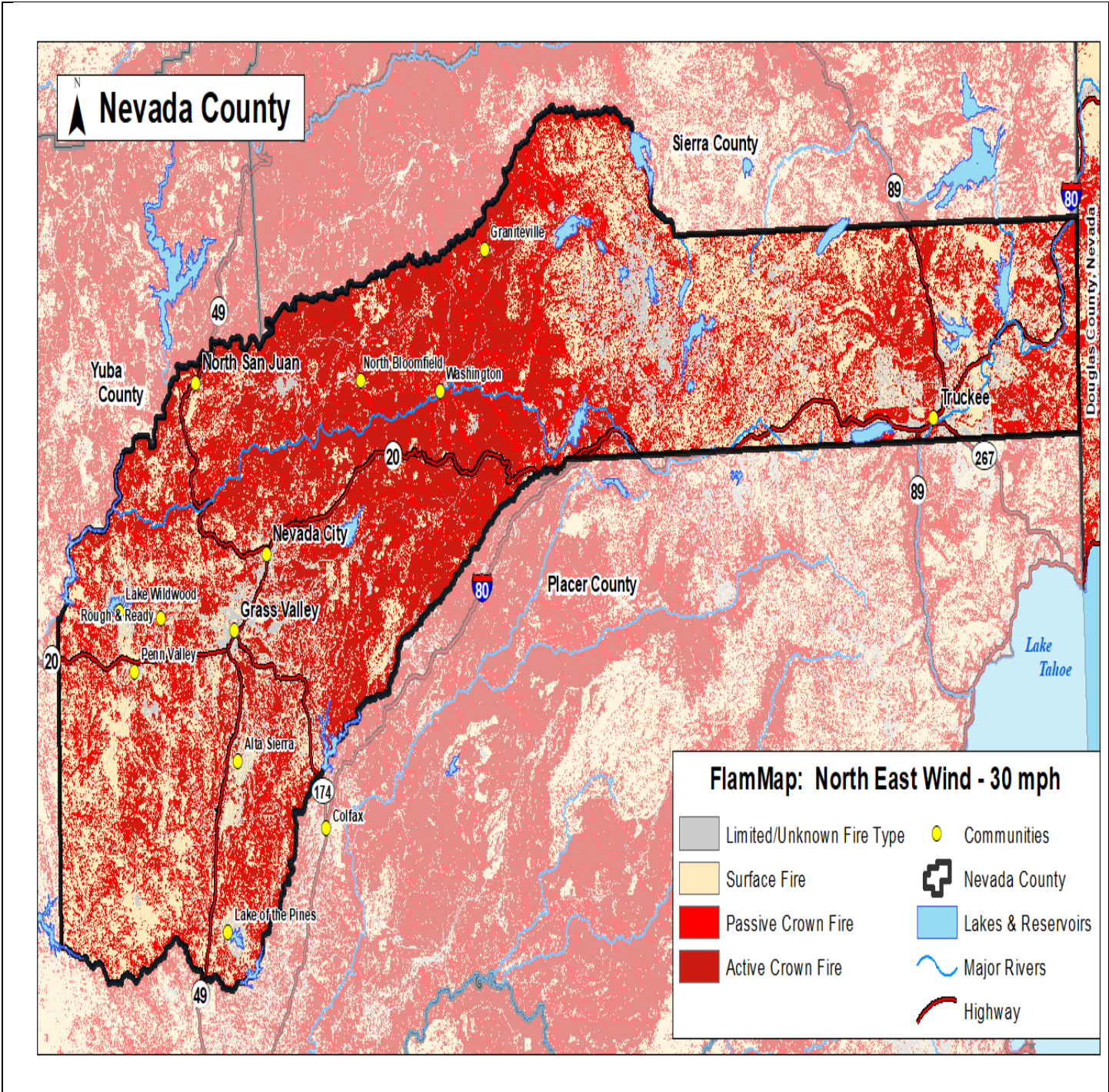
Details on the model used, inputs and other outputs are in Appendix II.



**Potential Flame length during very windy weather, with very dry fuel moistures in Nevada County, typical of late summer or fall. Modeled using FLAMMAP with winds of 25 mph from the SW and dry fuel moisture. Details on the model used, inputs and other outputs are detailed in Appendix II.**

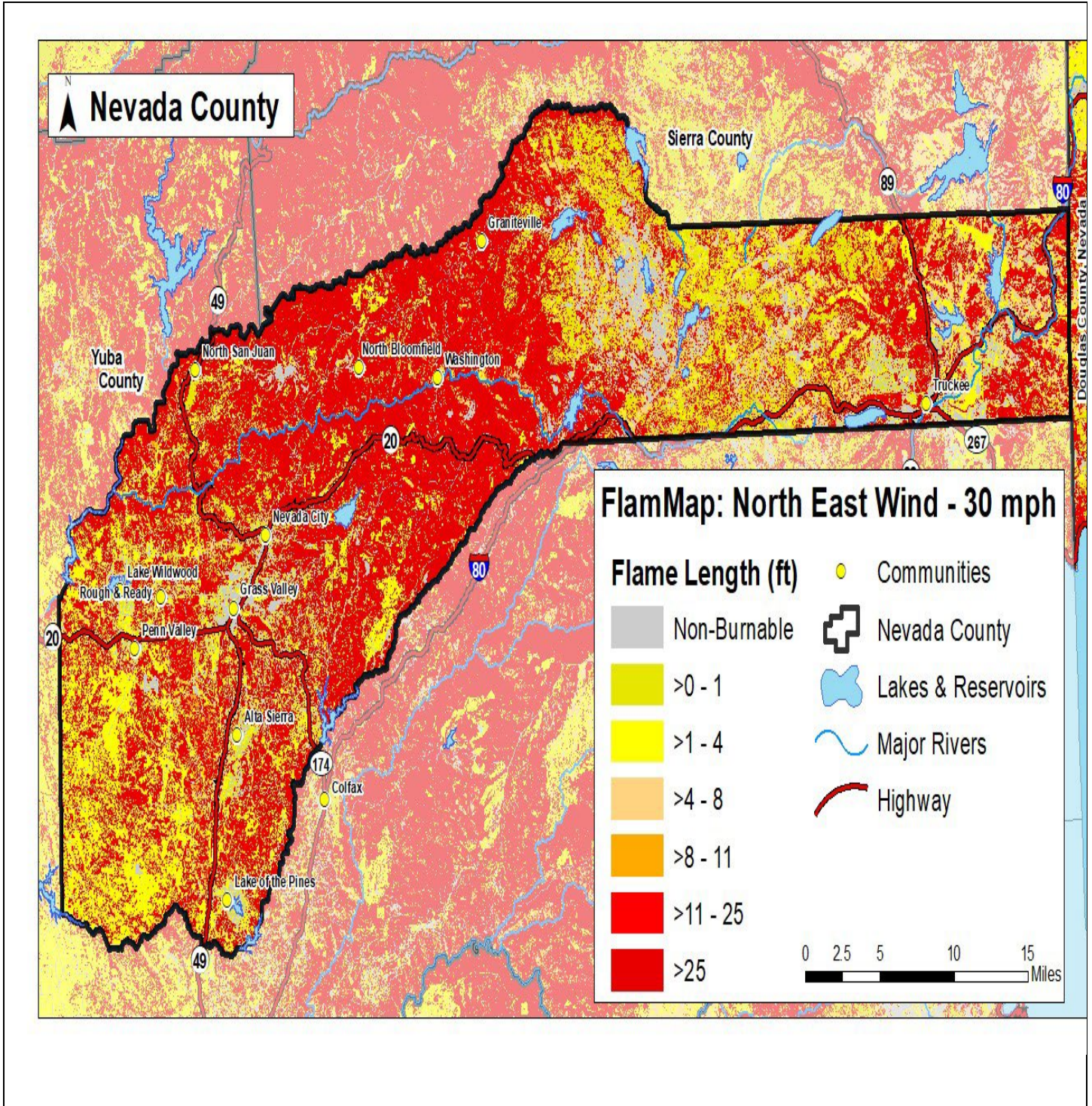


**Potential Fire Type during extreme fire weather, with very dry fuel moistures in Nevada County, representative of very dry, usually fall conditions. Modeled using FLAMMAP with winds of 30 mph from the NE and very dry fuel moisture. Details on the model used, inputs, and other outputs are in Appendix II.**



**Potential Flame length during very windy weather, with very dry fuel moistures in Nevada County, typical of late summer or fall. Modeled using FLAMMAP with winds of 30 mph from the NE and very dry fuel moisture.**

Details on the model used, inputs and other outputs are in Appendix II.



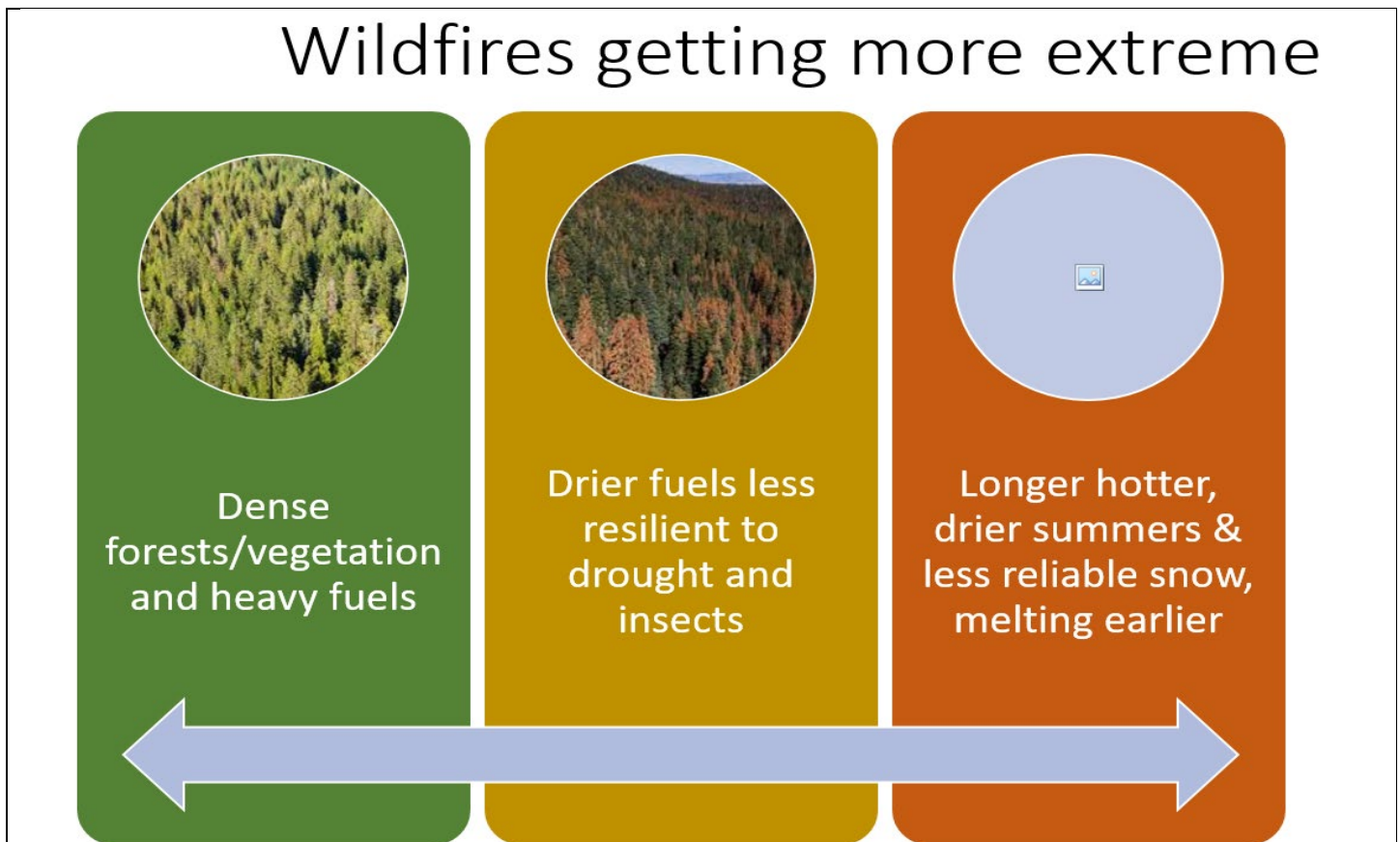


- **Mountain topography with canyons and drainages make Nevada County susceptible to rapid and accelerating, intense fire spread.**
  - Daily winds are faster and regular in canyons (e.g., South and Middle Yuba, Truckee Rivers).
  - Canyons run the same direction as typical wind direction, adding to wind speed.
  - Increased wind is a key factor in fast and intense fires.
- **The potential for extreme fire behavior and growth is increasing in Nevada County.**

Dead and live vegetation keeps accumulating, adding more fuel to wildfires.

- Tree mortality is increasing periodically from insects, drought, and too many trees competing for limited soil moisture.
- Vegetation keeps growing and fuels accumulating, across large areas.
- More vegetation and fuels lead to more intense and fast growing fire.
- Weather trends are making fire season longer and fires more intense and fast moving.
  - Longer/hotter summers dry out vegetation, increasing flammability lengthening fire season duration.

*Extreme wildfires are increasingly likely due to dense fuel, longer and more intense fire seasons, and stressed, vulnerable vegetation from a combination of dense vegetation, hotter/drier conditions, leading to higher mortality and more dead fuel loads.*



## Drier Fuel Conditions:

When plants dry out, they are more flammable. They burn more readily, and burn hotter, and contribute to more intense, rapidly growing, and sometimes larger fires, especially when they are closely spaced.

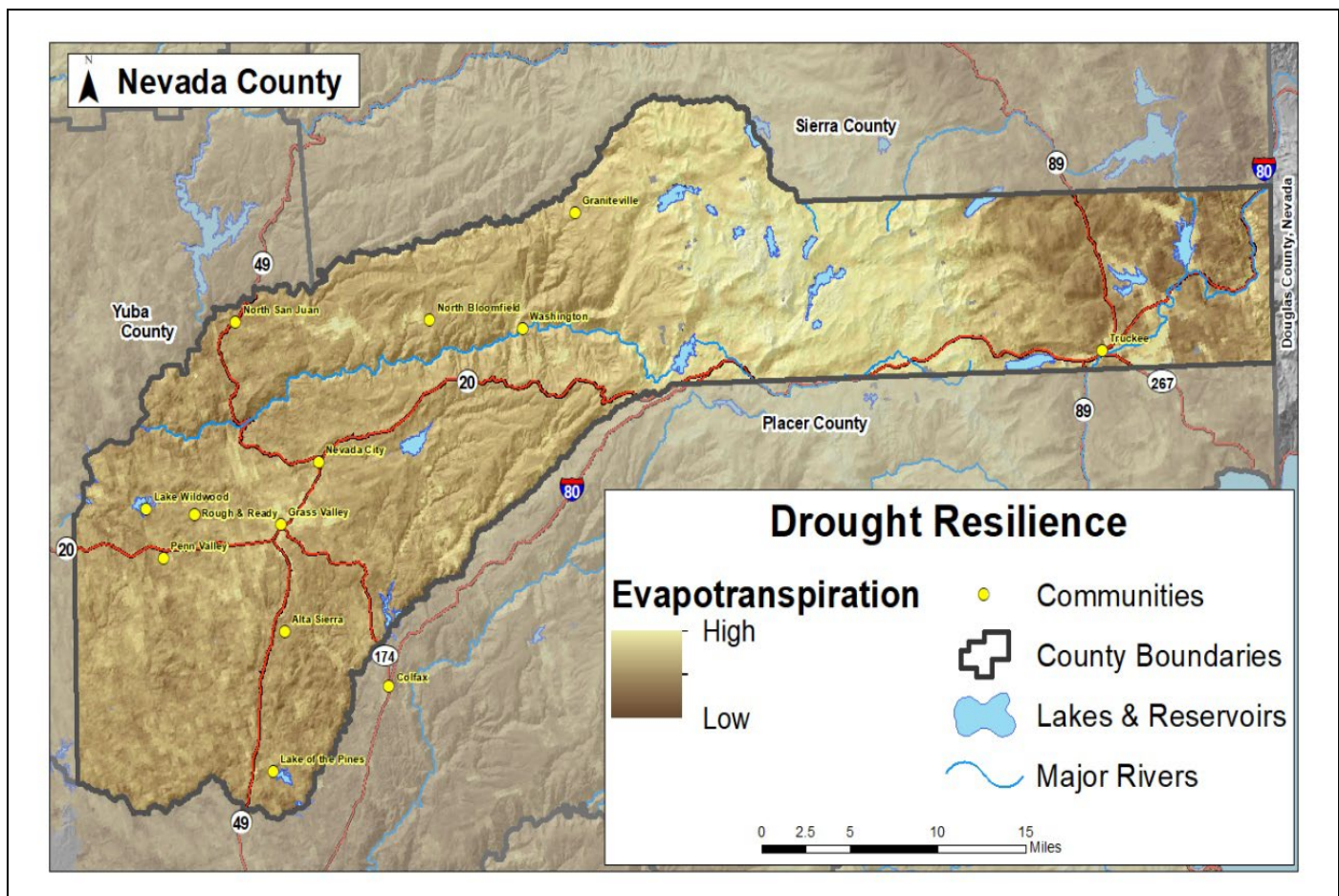
Dense forests and shrubs, heavy dead grass, and high fuel loading combined with dry vegetation is a recipe for intense, and large fires. Even when forests are less dense and surface fuels are lighter, when dry, fires are less intense.

Plants dry out due to lack moisture from rain or snow or because they lose water through evaporation during extended hot and dry weather patterns. "Plants respond to conditions in their immediate vicinity.

To understand the vegetative moisture stress during drought, it is important to measure the local moisture balance.

The actual evapotranspiration fraction (AETF) provides such a measure, indicating whether a location is expected to experience local drying during a drought vs. receiving sufficient precipitation to remain moist during an extended drought. (data dictionary drought resilience/evapotranspiration map layer, CA Forest Resilience/Wildfire Taskforce - Appendix II).

**Drought resilience of vegetation. Darker brown areas experience more moisture loss from trees and plants when they are dry, resulting in more flammable fuels.** (Source, CA Wildfire and Forest Resilience Taskforce. <https://rrk.sdsc.edu/sierra.html>).



- **More intense wildfires are spreading farther and growing very large.**

- Drier fuels and vegetation, combined with large areas of dense vegetation contribute to explosive fire behavior and growth.
- Intense fires are creating their own fire weather, adding to extreme growth.
- More intense fire and fire generated weather is resulting in more embers, traveling farther, often miles, spreading fire farther and faster.

Dense forests and shrubs are more susceptible to drying out because there are more trees and shrubs competing for a limited amount of soil moisture.

Tree mortality from insects and droughts increases periodically or from wildfires and the dead trees that are left increase the amount of dead fuel. Vegetation keeps growing and accumulating, becoming more continuous.

New science has documented what many wildfire professionals have experienced and thought. Large landscape areas of dense and dry forests, dead trees (standing snags and down logs), and shrubs can burn explosively.

Very large, high intensity wildfires have been occurring throughout California, with some of the largest and most catastrophic to the immediate north and south of Nevada County.

The deadly Camp, North Complex Fires and the Dixie Fire occurred within the past 5 years, burning in Butte, Plumas and Lassen Counties. To the south, the Mosquito, Caldor, King and other large fires have burned in Placer and Eldorado counties.

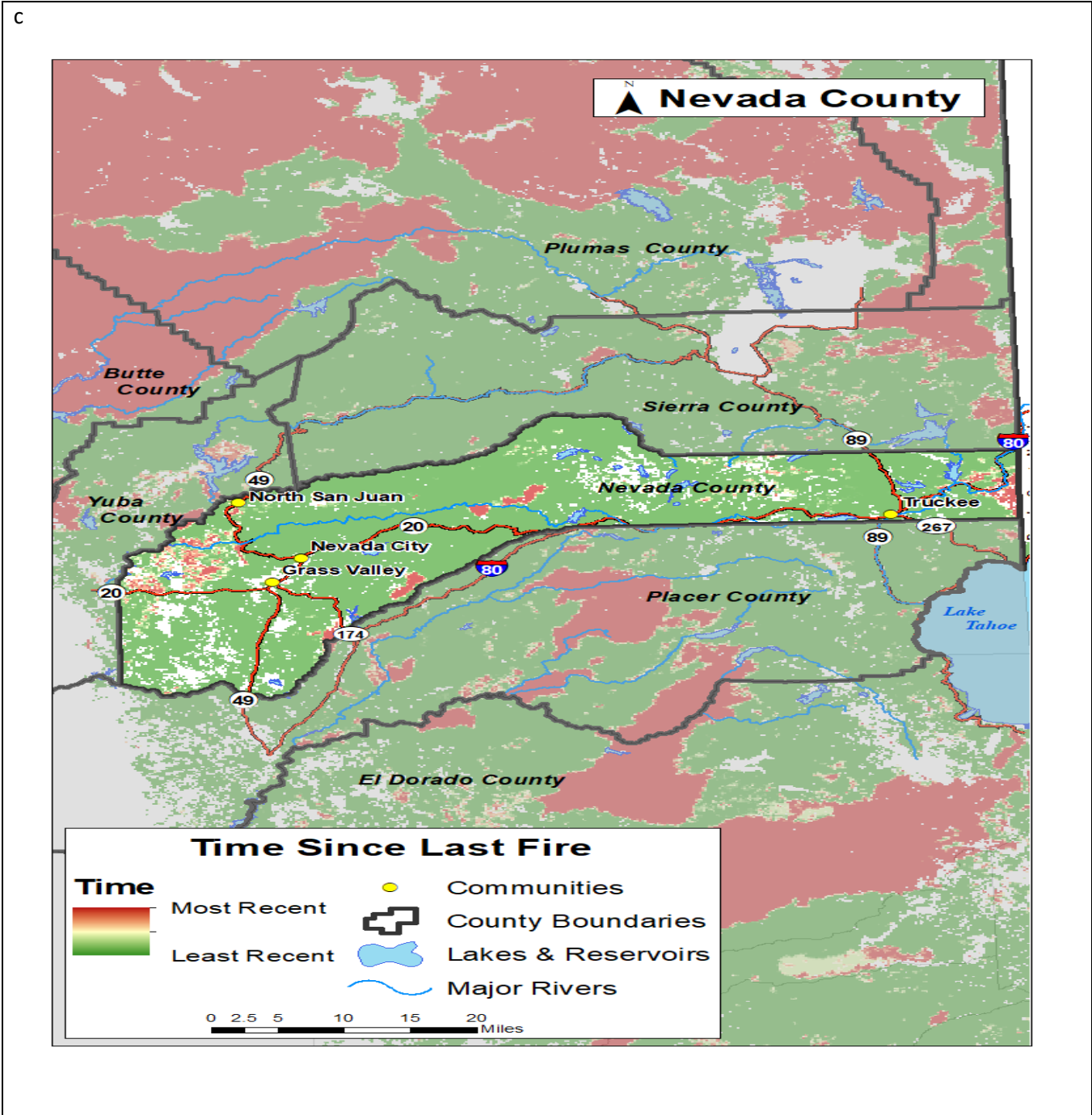
- **Common features of the wildfire conditions in the surrounding areas with Nevada County.**

- Mountain topography with large canyons, oriented southwest to northeast or east to west.
- Large areas of dense forests, high fuel loading and continuous, older chaparral or shrubs or dry grass.
- Same fire weather conditions, including periodic high winds when fuels are dry.

- **Nevada County has high fire potential for large/very large fires that have occurred to the north and south.**

- Fuels, topography and weather are like the large burn areas to the north and south.
- Past large, catastrophic fires have burned in Nevada County such as the 49er fire that burned from highway 49 near North San Juan to Lake Wildwood (east wind) and the Donner Burn near Truckee
- Nevada County has had smaller wildfires, such as the Pleasant, River, Highway and numerous others.

Recent wildfires in Nevada County and surrounding counties (Plumas, Butte, Placer, Eldorado) with similar terrain, fire weather and dense/heavy fuels. (Source, CA Wildfire and Forest Resilience Taskforce)



# Susceptibility and Risk (Ignitions)

## Overview

Risk is how likely a wildfire is. Susceptibility is how likely potential negative impacts are from wildfire. In section I, key factors that influence risk and susceptibility, such as the location of Wildland Urban Interface (WUI), fuel conditions, topography, fire weather, and characteristics of communities and people. In this section, there is more information on what the potential impacts to communities to communities would be and contributing conditions.

## Values at Risk

Values at risk is a process used to inventory, map and assess the relative importance and risk from wildfire for different aspects of communities and their surrounding landscapes. Values can range from those that are directly used by residents such as homes and infrastructure (i.e., hospitals, schools, fire stations, communication sites, power lines and stations, water sources etc.). Broader values from the surrounding landscape and general environment such as wildlife, native habitat, sensitive aquatic habitat and biodiversity are typically included in broader values at risk assessment conducted across larger areas, like national forests and bioregions.

This information is compiled and used, along with core community values, by wildfire response agencies such as CAL FIRE and national forests to prioritize wildfire suppression actions during wildfires. Nevada County is undertaking a more in-depth CWPP over the next few years and will likely incorporate both the direct and general values at risk. Here, the focus is on the places that are of direct value and use by residents, homes and infrastructure.

## Wildland Urban Interface and Structure Exposure

A very large proportion of Nevada County, outside of National Forests is in WUI. Maps of WUI are based on the location of structures and other key infrastructure or developed areas (e.g., power lines, water sources). A Structure Exposure Score was recently developed, that combines information on location of structures, surrounding wildfire potential (based on fire modeling). A map of the Structure Exposure Score for Nevada County was published by the CA Forest Resilience and Wildfire Taskforce (Figure x, below).

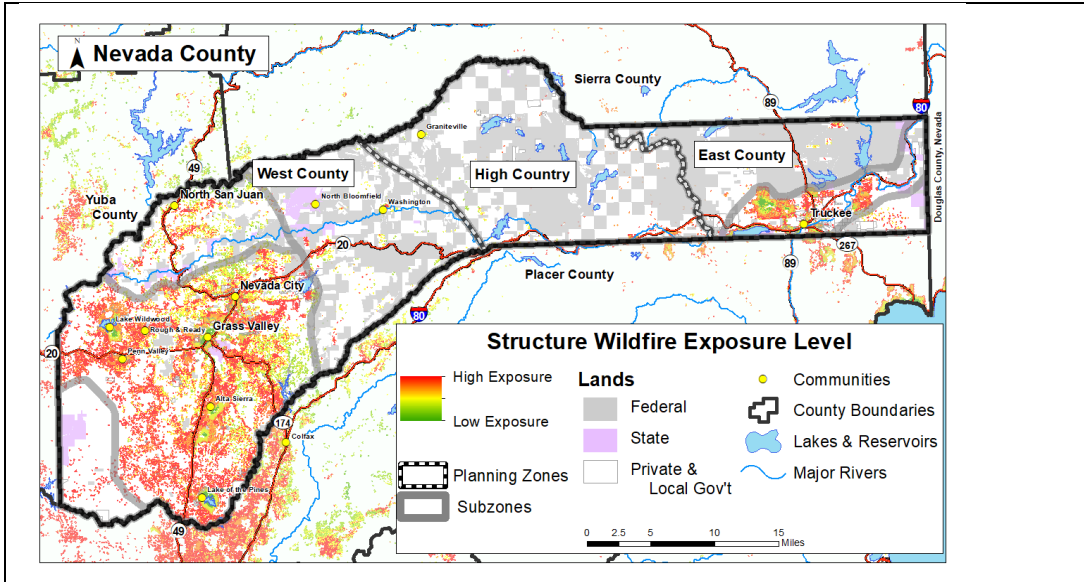
This provides an overall picture of how likely structures, including homes and commercial buildings, could be affected by wildfire in nearby wildland vegetation (adjacent or intermixed). The wildfire modeling included the potential for embers to travel into and near communities. Each dot or pixel does not necessarily portray individual structures and is not meant or accurate for that purpose.

It is also limited by available information. Some areas that show low vulnerability may be high but are shown as low because the available fuels data is not detailed in all areas, especially WUI areas. But the implications for Nevada County are evident.

## Situation

- The exposure of structures to wildfires is high throughout most populated Nevada County (Figure below)

### Structures Exposed to Wildfire



## What this means

- Defensible space and home hardening is critical for all structures, residential and commercial in Nevada County.

## Infrastructure

Schools, cell towers and other communication sites, water sources, power lines, fire stations, and hospitals are all examples of infrastructure. They are critical to operating communities. State, federal and local agencies all maintain maps of key infrastructure. These organizations have and are conducting “values at risk” analysis, which combines maps of infrastructure locations with fire probability and hazard maps. This framework addresses the strategies and actions that are important to ensuring the resilience of these assets and areas from wildfire.

## Vulnerable Populations

People, neighborhoods and communities that have lower incomes, more seniors and/or residents with disabilities are more vulnerable to catastrophic wildfire. Some of their situations are similar and others vary by group. Some residents may fall into more than one or all of these groups.

## Situation

- Overall vulnerable populations are less prepared for wildfire.
  - their homes and property are less prepared for wildfire
  - Seniors often fall into more than one category of vulnerable populations

### **Low Income and/or Seniors:**

- Live in older homes, less hardened, more likely to burn
- May not be able to afford to get needed defensible space and home hardening work done.
- Difficulty in affording homeowner's wildfire property insurance

### **Seniors and/or Persons with limited mobility:**

- it's often harder for do the work themselves to harden their homes or create and maintain defensible space
- It may be more difficult for them to easily evacuate for various reasons (lack of transportation, internet or cell capacity, difficulty in mobility, unable to drive)

### **Newcomers:**

Residents that are new to the county are not included in typical vulnerable populations. However, they tend to lack information and awareness of the hazard, risk, and potential impacts of wildfire, and/or what steps they need to take to prepare their property, homes and for wildfire evacuations. This makes them vulnerable and are an important segment of the Nevada County population that needs to be considered in a CWPP.

For various reasons, there are residents moving to Nevada County. This may include persons with financial resources that want to live in a more rural environment, live in an area where homes are relatively more affordable than larger cities, be closer to recreation sites, are able to work remotely, and just like Nevada County. They have financial resources to prepare their property and home or business but may not know that they need to or what to do.

Other people with fewer financial resources may move to Nevada County for various reasons. They may not be aware of the risk of wildfire, not know what they need to prepare, and not have the financial resources to prepare.

## **Fire Severity and Control; Difficulty and Potential Impacts**

Fire severity describes how much impact it will have. High fire severity means there is more impact on homes or forests. Fire intensity combined with the condition of forests, watersheds, or other resources, such as how much fuel they have, influences how much wildfire impacts them. More intense fires can affect the abilities of firefighters to control a wildfire.

### **Fire Control**

Fire Control is the practice of reducing the heat output of a fire through extinguishment using suppression and/or reduction of the area over which the fire exists. Nevada County has a combination of several firefighting forces to accomplish these goals.

The combined efforts of Federal, State, Fire Districts and City Fire Departments all play an equal role in prevention and suppression throughout our County. These agencies have specific areas of responsibility but freely share resources through MOU agreements for immediate aid, mutual aid and partnership contracts. Some staffing levels are seasonal while others remain consistent year-round. Staffing is either paid, volunteer or a combination.

Most local fire agencies cited a need for additional staffing on engines and additional hand crews. The lack of adequate personnel on engines and available hand crews contributes to fire spreading early on. This is particularly evident when local resources are assigned out of the area on large fires.

The diffusion of local resources on either local fires or other fires out of the area reduces the ability to control new local ignitions. Using Type-1 hand crews on fires locally and out of the area also reduces the available hand crews to continue fuels reduction work during an active fire season.

\*Nevada County also has the advantage of a local air attack base that has firefighting aircraft assigned. The Grass Valley Air Attack Base (GVAAB) significantly contributes to fire control. Peak staffing provides two command aircraft and two air tankers.

## **Fire Severity**

Below is a list from a chart firefighters use to determine possible extinguishments methods under conditions they are observing. But Rate of spread and resistance to control are also important.

- Flames less than 4' can generally be controlled directly with firefighters and hand tools
- Flames between 4' and 8' are generally too intense for hand tools and engines and water is needed to control the fire.
- Flames greater than 8' are when equipment such as bulldozers are more effective and safer to control wildfire.
- Beyond 12', that is when aircraft becomes more necessary.

At any flame length, all firefighting methods and tools can and are often used. Firefighters use general categories of flame lengths to describe how easy it is to control the fires. The taller the flames, the harder it is for firefighters to control it. With flames less than 4 feet, it is easier for firefighters to use any means to control the fire including hand tools and a garden hose. When flames are more than 4 feet but less than 8 feet, the choices are a little more limited but fire engines with water sources and bulldozers can be effective. Flames taller than 8 feet generally means that mechanical means such as fire engines are bulldozers are not effective right next to the actively burning fire line and aircraft and/or moving back from the fire to construct fuel breaks is needed to control the fire effectively and safely.

## **Improve Risk Assessment Information**

The California Wildfire and Forest Resilience Taskforce has made available many useful information for wildfire risk assessments. LANDFIRE, a national data source, has made available input data to run fire behavior models. Both data sources depend on the same underlying fuels data and fire behavior models. While these are the best available and state of the art, there are limitations to both the fuels data and fire behavior models. There are ongoing and continual efforts to improve these and thus improve risk assessments. There are also continual changes to vegetation, fuels and potential fire behavior. These changes can result from tree mortality, fuel accumulation over time and fuel reduction treatments.

## **Improved Fire Behavior Models**

Improved fire behavior models in development will provide a better basis for future risk assessments. These include models that improve how weather is incorporated and do a better job at predicting fire in canyons and other conditions where it typically accelerates, rapidly intensifies and even creates its own weather. In the next several years or sooner, the Coupled Atmosphere-Wildland Fire Environment modeling system was developed by Dr. Janice Coen, a scientist at the National Center for Atmospheric Research. Dr. Coen has tested it on numerous test cases, including successful recreation of the rapidly accelerating, deadly Camp and North Complex Fires in Butte and Plumas Counties. There is also research in the application of AI to improve fire behavior models. It is unclear when these will be sufficiently tested and widely available. A third approach in development that could provide an improved basis for both other models, are the physics-based models in development by the US Forest Service Missoula Technology and Development Center.



## Improved Fuels Data

- Most current fuels data available across larger areas is based upon satellite images. Satellite data is continually improving.
- Currently, there is none that accurately detects and measures the fuels on the surface, such as below forest canopies, that are key to modeling fire behavior.
- Once wildfires become more intense and burn up into the tree crowns, satellite-based data, such as from Lidar, is more accurate.
- Until there is an approach to detect and measure fuels on the surface (i.e., litter and duff, dead branches, lower growing plants), the fuels input to fire behavior models will stay the same.
- The current fuels information provides a reasonably accurate prediction of fire behavior. Changes in fuels are challenging.
- When fuel treatments that reduce surface fuels, such as cut, pile and burn, biomass removal, or prescribed burning occur, there is not a direct way to easily show the changes in fuel layers.
- Partly, this is because there is no one repository for fuel treatments by agencies, organizations, and private landowners.
- Similarly, there is not a direct or easy approach to show fuel accumulation.
- These are important in assessing how fuels and fire risk change over time, and if treatments are effective.
- There are multiple efforts underway to compile fuel treatment information in a single repository, including by the CA Wildfire and Forest Resilience Taskforce.
- Fuels are always changing. They are accumulating.
- Trees and shrubs continue to grow. Litter and branches fall to the ground. When there is tree mortality, especially across larger areas, fuel conditions can change dramatically.
- The associated potential fire behavior changes as well.
- The fuel assessments and fire behavior predictions in this CWPP are good for this period. They will need to be updated regularly to keep current.

## Part-III / Treatment Strategies and Partnership Approach

### Overview

Based upon the assessments in Parts I and II, Part III lays out the basic framework for what a community prepared for wildfire looks like, how that compares with the current situation, and what are the approaches, strategies, and actions to move toward the desired community preparedness.

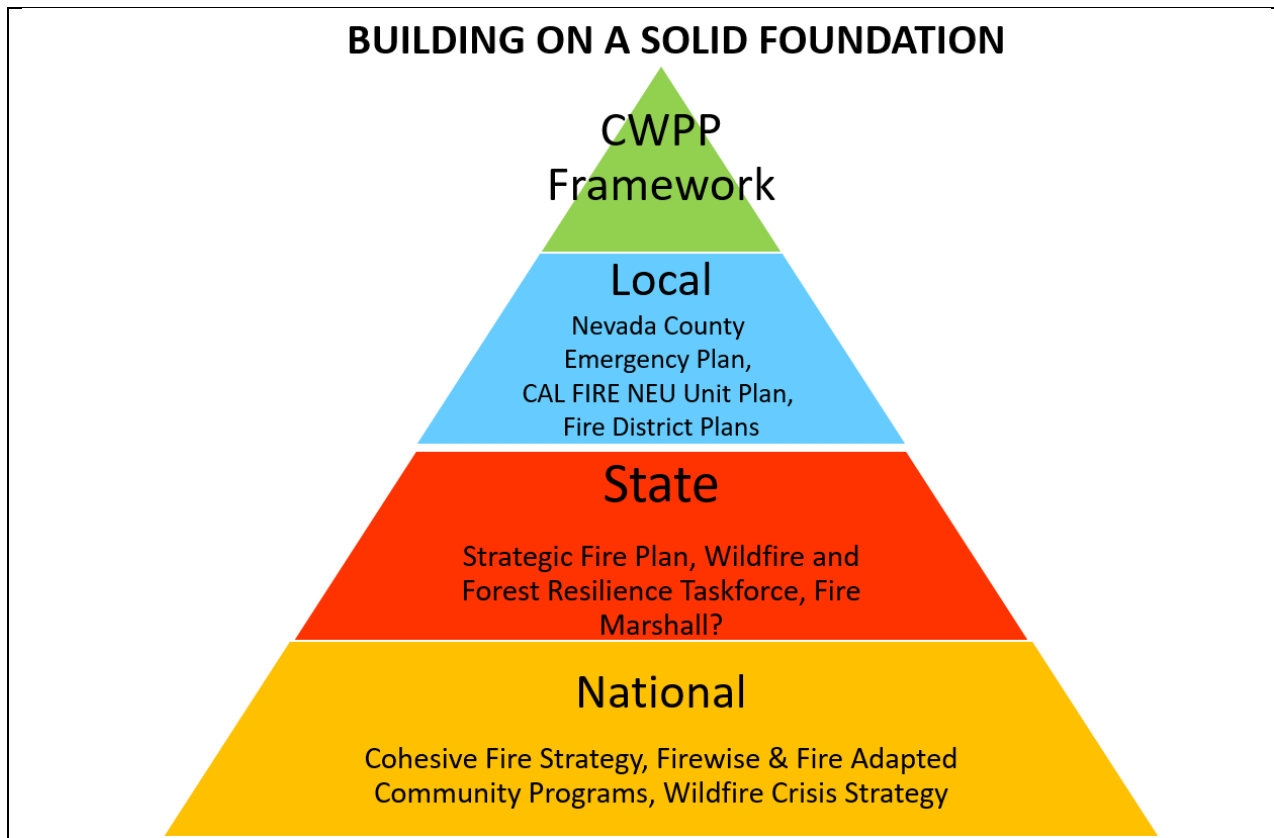
A community prepared for wildfires includes

- Prepared and resilient, Firewise and Fire Adapted Communities
- Surrounding landscape resilient to high intensity wildfire
- Effective fire response capacity



There are several important and useful national, state, and local related wildfire strategic plans that are complementary and tiered to each other (see figure below).

*This CWPP Framework builds upon and is linked to these wildfire plans.*



There are shared common strategies and ideas that apply to our county and communities. Three primary shared goals include

- Resilient communities that are Firewise, fire Adapted, and supported by local, state, and national organizations and agencies
- Landscapes that are resilient to wildfire and help reduce wildfire intensity near communities.
- Wildfire response is effective across boundaries and at local, state, and federal levels

The strategies, approaches, and actions to achieve these goals are described in the sections below.

These are not fixed but rather a starting point that is meant to be improved and changed over time as conditions change, latest information becomes available, and/or innovative ideas and resources arise.

Resilient landscapes come first because they are a key part of what makes communities safer and resilient.

Next promoting fire resilient and prepared communities & infrastructure. Finally, is increasing wildfire response capacity and effectiveness.

## What we Want: Desired Conditions

It's important to outline what it looks like to have a community prepared and resilient for wildfire, before identifying the strategies and actions to get there. In this section, desired conditions are described for each of the major three components of community wildfire safety:

- Restoring and Maintaining Resilient Landscapes
- Promoting Fire Resilient and Prepared Communities & Infrastructure
- Increasing Wildfire Response Capacity and Effectiveness

And important to all three major components of wildfire safety:

- Roads Safe Evacuations and Fire Access/Strategic Value
- Post-Wildfire Recover

The desired conditions are based on existing state, local and national fire strategies and local fire experts. Key sources for the desired conditions include:

- National Cohesive Fire Plan
- California Forest Resilience and Wildfire Strategic Plan
- California Strategic Fire Plan
- CAL FIRE NEU Unit Plan
- Local Fire District Plans

## Restoring and Maintaining Resilient Landscapes

### *WUI Landscape Influence Zones*

For at least three decades, expansion of low-density residential development in the wildland urban interface has been widely recognized as a primary factor influencing the increased threat of fire to rural areas. Suppression capabilities by local, state, and federal agencies has not been able to adapt to the rapid encroachment into previously unoccupied areas of California. Access and evacuation infrastructure has lacked the ability to handle the increased volume traffic needed in any large wildland fire event. The landscape around these WUI areas requires a reduction of fuels to increase resiliency for the public. As the reduction of fuel in the landscape around WUI areas increases so does the safety for residents and suppression personnel. The residents will be provided with additional safety during evacuation along narrow, rural roads that are frequently in the WUI Landscape. Suppression personnel can use these landscape areas with reduced fuels to stage equipment as well as a starting point for primary and secondary fire lines while protecting more concentrated WUI areas. Prioritizing fuels reduction in the WUI Landscape areas provides these and several other advantages to communities.

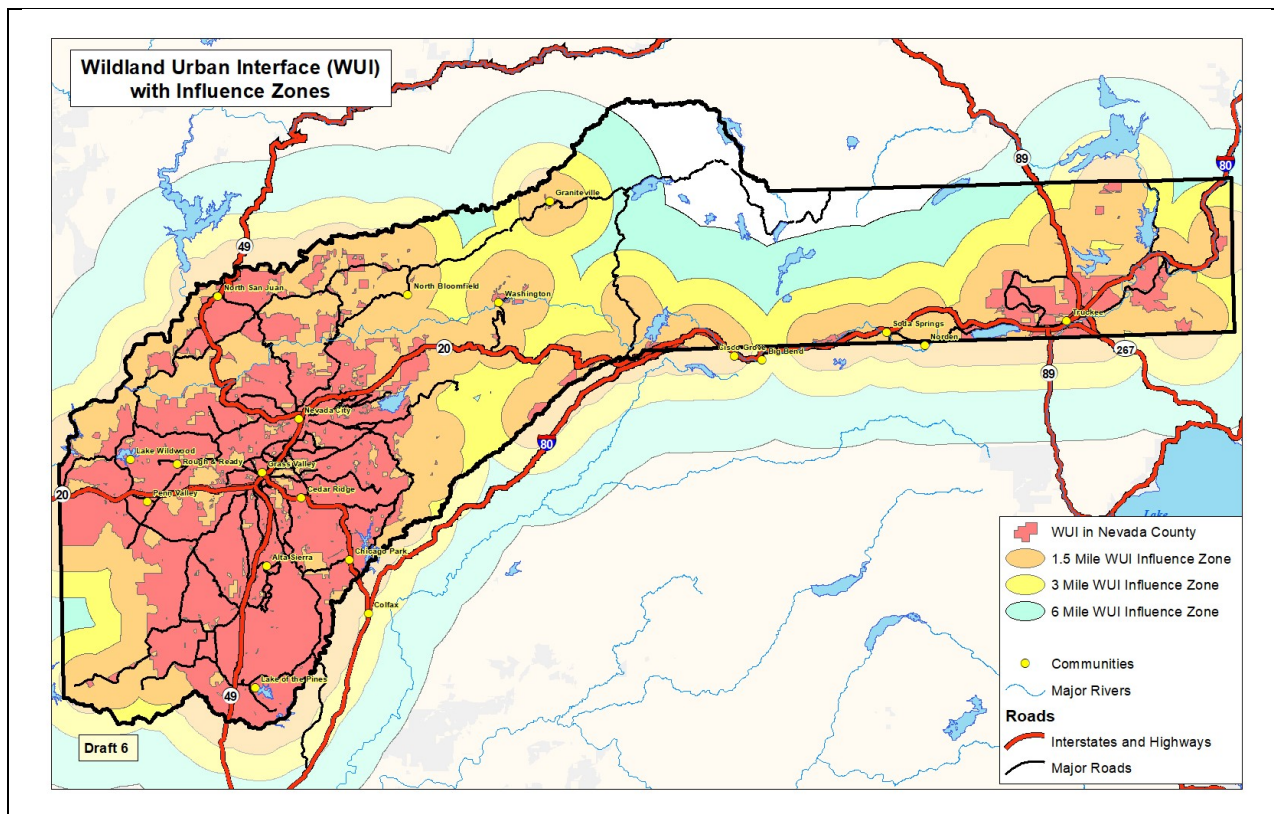
In the past, priorities in community wildfire protection plan focused on areas within communities and WUI, and strategic fire control areas, such as fuel breaks. With recent dramatic increases in large fire sizes, fires with areas of extremely high intensity, and more explosive fire behavior, it is important to consider the role of how fire will behave and spread in the greater surrounding landscape. Fires burn into and toward communities from farther away, often miles or more. In addition to focusing on reducing fuel hazard within WUI areas, fuel breaks and other strategic fire control areas, the entire landscape surrounding communities is important to ensure resilient landscapes and safe communities.

A nested set of landscape influence zones around WUI was developed that incorporated typical spotting distances, how many wildfires spread rapidly. Many WUI layers use a buffer distance of 1.5 miles, because this is a typical distance that wildfires will jump or “spot” ahead from embers in the main fire. The structure exposure rating map (in Section II, from the CA Forest Resilience and Wildfire Taskforce) was based on 1.5 miles from the structures. In the past and more frequently in the recent past, embers are now causing spot fires farther than that, often to 3 miles.

In the map below the 3 WUI landscape influence zones are:

- WUI area, with communities, developed and inhabited areas, and intermixed wildlands.
- 1.5-mile, immediate WUI influence zone
- 3-miles, near WUI influence zone
- 6-miles, greater landscape influence zone

WUI and landscape influence zones across Nevada County and adjacent areas.



## DESIRED CONDITIONS

1. **The proportion of resilient, low fire potential areas would be**
  - WUI – more than 90% of the area is resilient to wildfire, with good defensible space, low fuel loads, and low potential for intense wildfire.
  - 1.5-mile, immediate WUI Influence Zone – 60 to 90% of the area is in patches resilient, with low potential for intense wildfire.
  - 3-mile, near WUI Influence zone – 40 to 60% of the area is in patches resilient and with low potential for intense wildfire.

	Desired Condition			
	WUI	Immediate WUI Influence Zone (1.5 miles buffer)	Near WUI Influence Zone (3-mile buffer)	Greater Landscape WUI Zone (6-mile buffer)
<b>% landscape resilient</b>	>90%	60-90%	40-60%	33% (20-40%)

**2. Resilience and low wildfire potential during all kinds of fire weather means**

- Vegetation and fuels meet defensible space requirements.
- Fires would burn at low intensity, with flame lengths less than 4 feet.
- Embers are unlikely to create growing spot fires.
- Fires are unlikely to extend from the surface into crowns or spread as crown fire.

**3. Strategic Fuel Breaks and Strategic Areas support resilient landscapes**

- Strategic fuel breaks occur across the county, that help firefighters to reduce the spread of high intensity wildfire into the community
- Contribute to the proportion of resilient, low fire potential areas
- 6-mile, greater landscape WUI Influence zone – more than 1/3 in patches resilient and with low potential for intense wildfires.

**4. Landscape and strategic area treatment design incorporates low probability, high impact risk**

- Risk assessments used for strategic area placement go beyond basic probabilistic likelihoods
- Canyons and influences on extreme fire behavior are considered
- Treatments near or in known potential extreme fire sources are adjusted to moderate greater fire behavior potential (i.e., more intense, and larger areas treated than in other areas)
- Large area fuel treatments or other mitigation measures are planned for canyons, in phases

**5. The frequency and rate of treatment are high enough to reach and maintain a resilient landscape.**

- In the WUI, all developed areas are treated at least every 10 to 15 years.
- In the Immediate WUI Influence Zone, 20% of the area mapped at extremely high to high hazard are treated every year on a rotating basis until > 60% are resilient in perpetuity.
- In the Near WUI Influence Zone, 10% of the area mapped at very high to high hazard are treated every year on a rotating basis until >40% are resilient in perpetuity.
- In the Greater WUI Influence Zone, 5% of the area mapped at extremely high to high hazard are treated every year on a rotating basis until >30% are resilient in perpetuity.

In general, in and closer to the WUI, there would be a greater proportion of the area that is resilient to fire and has low potential for intense wildfire. Areas farther away from the WUI, that are likely potential sources of extreme fire behavior are also addressed, especially canyons.

## Promoting Fire Resilient and Prepared Communities & Infrastructure

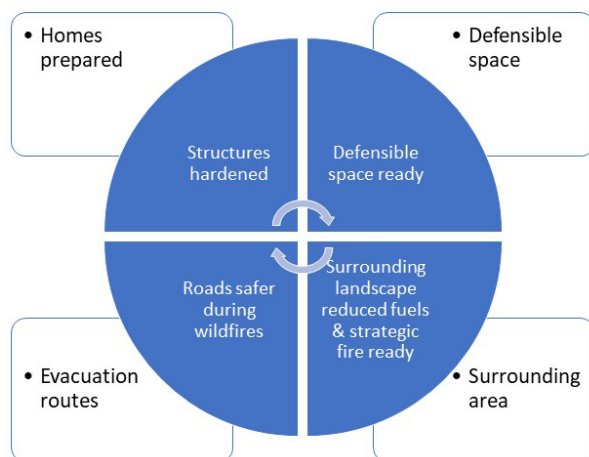
Nevada County has more Firewise Communities than any other in the country.

There are key measures of what area this covers and the population in the county.

But few are totally prepared and resilient to wildfires. The desired conditions below outline what prepared and resilient communities look like. Recognized Firewise Communities are a major step in moving toward an informed and prepared community for wildfires. Preparation of a Firewise Community is a process, it is not just completed once a community gets established. It means it is started or mid-way and that residents recognize the needs to:

- **Reach all members of the community** and work to educate them, themselves and seek resources to further their education
- **Defensible space:** continuously work to create community and individual property defensible space
- **Home hardening:** work towards and maintain home hardening
- **Evacuate safely**

### Prepared and Resilient Communities



## ***DESIRED CONDITIONS***

The general desired condition is that all communities and individuals in the county are prepared for and resilient to wildfire.

### **Reach all Members of the Community**

- All communities and residents live in a Firewise Community
- All members of Firewise communities are educated and actively engaged in defensible space, home hardening and evacuation readiness.
- Continuous monitoring of Firewise knowledge and engagement occurs, and is evaluated annually by Firewise Community, location in the county and other key area identifiers (i.e., census block and/or identified disadvantaged areas)
- A process is in place to educate and improve awareness of visitors and newcomers upon arrival.
- Readily accessible information is available on a wide variety of mediums (i.e., digital, written, radio, web, other social media, community events of all kinds)
- Defensible space and home hardening preparedness levels (see below under current situation), aggregated by Firewise Community are widely available and provided to the community annually.

### **Defensible Space Preparedness**

- **100% of homes have defensible space meeting PRC 4291 standards**
  - There is annual, and continuous maintenance of defensible space preparedness
  - Resources are readily available and information on how to get help to community members without resources to readily accomplish on their own.
  - Defensible space inspection information from fire agencies and Firewise advisory visits can be compiled together to get a comprehensive annual assessment of defensible space conditions at the community, fire district, geographic area, and county scales.
- **100% of homes have the most important home hardening features** (i.e., roofs, siding, enclosed decks and porches, vents, no flammable items on porches or decks)
- **Resources are readily available and information on how to get help to community members without resources to readily accomplish on their own.**
- **Proactively work with insurers and the State on ensuring that financial incentives for Firewise and fire resilient choices are readily available and widely accessible to all landowners.**
- **All residents, visitors, businesses, agencies, and organizations are evacuation ready.** They are signed up/registered to receive multiple evacuation alerts and orders
  - Emergency response agencies have and employ multiple means of emergency notifications that address neighborhood and site-specific situations
    - Consider cell towers may be incapacitated
    - Support to maintain landlines is readily available
    - Small towns, neighborhoods or communities have access to old-style warning sounds (i.e., bells)
  - Vulnerable, transportation limited residents have access to planned support to evacuate
  - Firewise communities have organized phone trees and neighborhood “block captains” to facilitate early notification



## **Fuel Treatments: Capacity and Effectiveness**

There are many different approaches and tools that can be used to reduce fuels and maintain low fuel levels. These include thinning, piling, mastication, biomass removal, prescribed burning, grazing, hand clearing, chipping, and herbicides. In addition to getting more of the landscape and properties in the county treated, it is especially important that the treatments are effective. That is, they result in reduced wildfire behavior and impacts. Fire intensity is lowered, flame lengths are low, duration of heat is reduced. Fires are more easily controlled and the impacts less damaging. It's also important to have the means, financial support, physical ability, and workforce availability to get the work done.

### ***DESIRED CONDITIONS***

- **Fuel treatments result in reduced fire behavior. Levels and arrangements of fuels result in flame lengths less than 4 feet, during peak fire season, in residential and strategic fuel treatment areas.** This type of fire can be readily suppressed by firefighters, safely. There is an extremely low to no likelihood of crown fire starting or spreading. The likelihood of embers, new fires starting, or rapid spread is extremely low.
- **Fuel treatments are complete, reducing all fuel layers: surface, ladder, and crown fuels.**
- **There is a readily available workforce and support resources for landowners and organizations to get fuels reduction work done.** Support includes financial, equipment and tools, education and training, and people.
- **Residents, businesses, and organizations have a comprehensive set of educational and technical resources to plan, implement and evaluate effective fuel treatments.** This may include but is not limited to technical advisors, demonstration sites, workshops and training, professional education and training programs, and a multi-approach set of basic informational materials on the menu of approaches and the various tools that can be used to reduce fuels.

## **Evacuation/Fire Access Capacity, Safety, Strategic Value**

Roads that provide safe evacuations and fire access and, in many cases, strategic fire suppression value are critical to all aspects of community wildfire safety. This includes all key focus areas: landscape resilience, fire resilience, prepared communities, infrastructure, and wildfire response and capacity. Because it is central to these key areas, it is elevated to a separate section.

There are several key scientific sources of information and recommendations related to roadside safety clearance for human passage. These include the science of "Safe Separation Distance," developed by the Missoula Fire Lab, based on the levels of heat generated from roadside vegetation that can prevent safe passage, and would typically cause severe injury and/or be considered lethal to humans.

This information and further research by the National Institute of Standards on factors and causes of human fatalities during the deadly Camp Fire just north of Nevada County in regions with similar conditions, where more than 80 people died recently, must be incorporated into all future ingress/egress planning for Nevada County immediately. More information on roads is contained in Appendix II.

## *Desired Conditions*

- **Road Conditions provide for safe evacuation and simultaneously safe firefighter and law enforcement access.** Road surfaces are in good condition. Road width and pullouts are adequate for egress and ingress traffic at the same time. Potential road obstructions are identified and mitigated (i.e. trees and power lines that could fall across and block roads).
- **Roadside fuels reduction provides a safe separation distance, allowing firefighters and residents, in or out of vehicles, to safely pass without facing severe injury or possibly death.**
  - Vegetation and fuels meet defensible space requirements at a minimum (PRC 4291)
  - Fences and other structures within 30 to 100 feet of the road are non-flammable
- **Roadside treatments do not spread and increase highly flammable, invasive weeds that are difficult to control and readily move from roadsides to adjacent areas** (i.e., scotch broom, barbed goat grass, starthistle).
  - Best practices for weed control are widely available and practiced by equipment operators and roadside fuel reduction contractors (public, private, and government agencies).
  - There are county ordinances to limit the establishment and spread of highly flammable, invasive weeds.
  - There is regular enforcement of county and related state ordinances and accountability by operators, to limit the establishment and spread of highly flammable weeds.
  - Weed wash stations are widely available across the county in all areas for use by equipment operators
- **Residents, visitors, businesses, and organizations are knowledgeable about all aspects of evacuations during wildfires, including what fire might look and feel like, where, when and how to go.**
  - There is available information, distributed in various media and approaches on evacuation routes, best practices, and safety.
  - Regular outreach to all members of the public from widespread to local neighborhood events occurs on evacuation routes, procedures, and safety.
  - Evacuation planning and real-time information technology is widely available and used for evacuation education, planning, management, and information sharing, including during evacuation events.
    - Real-time evacuation route status information is available to residents and visitors through various means (website, radio, social media posts, phone apps).

## **Post-Wildfire Conditions and Recovery actions**

As wildfires become more severe and damaging, the impacts become more widespread and potentially longer lasting. Being proactively prepared for a comprehensive, fast-acting, post-wildfire recovery response for communities and landscape resilience is critical.

There will likely also be significant short and long-term impacts to local fire district funding, as the tax base assessments they are dependent upon to remain operational may be reduced or lost for extended periods based on Calamity filings when homes and structures burn, taking years to rebuild, if ever.

## *Desired Conditions*

- **Vegetation and forests are ready to burn the next time, resilient to fire.**
  - Keep forests and vegetation open and in a mosaic.
  - Keep fuel loading (live and dead) at low levels, that limit potential fire behavior to low intensity fire with limited to no opportunity to transition into crown fire.
  - Promote a mosaic (heterogeneity) of vegetation types, cover.
  - The next forest and other vegetation will live in the next climate.
- **Recovery actions promote and maintain good water quality and quantity**
- **Collaboratively developed plans are in place to ensure rapid recovery** including:
  - Immediately available, readily accessible information to affected residents on next steps.
  - Rapid post-fire recovery needs assessment.
  - Rapid post-fire clean-up and environmental clearance.
- **Local fire districts have pooled, or county supported and designated reserve funds in place that they can draw upon temporarily to sustain capacity and level of response in the district, if tax-related income decreases from structure losses.**

## **Community Collaboration**

Effective community collaboration is much more than people and organizations just working together. It takes hard work, organized structure, transparency, commitment, accountability, and equitable opportunity and involvement by agencies and organizations of all sizes.

## *Desired Conditions*

- **Collaboration results in transition from projects to sustainable programs for wildfire hazard reduction and education**
  - **Capacity is in place to attain larger landscape resilience treatment block grants**
    - For landscape resilience, meet basic requirements for the Sierra Conservancy block grants (established effective, collaborative decision making; facilities to process biomass; large landscape resilience plan; collaborative administrative capacity; xxxx)
  - **Programmatic plans are in place for key aspects (i.e., roadside fuel reduction and maintenance) with programmatic environmental compliance documents** in place to allow for rapid project planning, funding, and implementation.
- **There are shared resources to increase efficiency in project planning and implementation.**
  - There is a shared and growing stewardship workforce to capitalize on strengths of various community organizations.
- **Varied types and sizes of wood utilization and vegetation debris facilities occur throughout the county, to serve all residents, organizations, agencies, and locations of projects.**
- **There is a diversity of types and sizes of organizations, agencies, and landowner groups in the county working on community wildfire protection and safety.** This maximizes opportunities to pursue different projects of diverse types, sizes, and locations throughout the county.
  - Spread funding sources out to ensure on-going funding sources, diversified options
  - More organizations working individually and collaboratively, the more success with accessing a variety or diversity of funds
  - All funding is different, some more restrictive than others – diversity in organizations can increase flexibility
    - Procurement ease
    - Disbursement and regulatory processes

- **Collaboration leverages individual organization strengths for more expeditious and economical wildfire safety project accomplishments.** Organizations and agencies work together to share expertise and mission focus to fill overlaps or missing pieces. Responsiveness strengths and agility for time crucial issues are used effectively to get more done faster.

## **Current Situation: Where are we at, compared to desired conditions?**

The second step in developing effective strategies and actions is to look at where we are now for each of the desired conditions. How close are we to them? In this section, the current situation is summarized for each of the three key components of community wildfire safety. Th

### **Restoring and Maintaining Resilient Landscapes**

In sections I and II, a lot of information was presented on the current state of vegetation, fuels, potential fire behavior, and resilience to fire, drought, and insects. To have the best understanding of how resilient our current landscapes are, it is important to consider all the recent and on-going fuel reduction and forest health treatments. This is difficult because there is no comprehensive source of information on past and current treatments. The California Wildfire Taskforce recently released a new fuel treatment tracking tool and database for state and federal agencies. But for other work, the information is scattered amongst local agencies, landowners and organizations involved in these types of projects.

For this document, the Fire Safe Council compiled as much, readily available information as possible. But it does not include all efforts to reduce fuels and improve forest and vegetation resiliency. This includes all smaller but important projects being accomplished within Firewise Communities or by individual landowners. As the latest information arises, or other organizations or agencies develop better, more comprehensive maps of projects, it can be readily updated. Even if there was a comprehensive map of treated areas, it does not necessarily include detailed information on how the fuels and potential for fire has changed. This is not a straightforward task. There are state and national programs that do this, such as CAL FIRE FRAPP, LANDFIRE nationally, but they are not updated every year and tend to be more broad brush, and not able to capture smaller projects, such as those by individual landowner or Firewise Communities.

Since the map is not comprehensive, additional information from the Firewise Community Hazard Assessments, and expert opinion from local fire districts, CAL FIRE, state parks, and federal agencies, especially the Tahoe National Forest. Some of the key strategies and actions in the following section describe how such a comprehensive map and set of information could be developed and continuously updated.

### ***Situation***

#### **1. The proportion of resilient, low fire potential areas**

Many community partners are working on fuel reduction and forest resilience projects in the WUI and WUI Influence Zones. This includes but is not limited to CAL FIRE, the Fire Safe Council, Yuba Watershed Institute, Nevada Irrigation District, the Tahoe National Forest, State Parks, BLM, local fire districts, and private landowners (both within Firewise Communities and in other areas).

There is no specific location where all this information is stored so that the proportion of the landscape treated within the last 15 years is at or near the desired levels of resilient, low potential of high intensity fire.

	Current Situation			
	WUI	Immediate WUI Influence Zone (1.5 miles buffer)	Near WUI Influence Zone (3-mile buffer)	Greater Landscape WUI Zone (6-mile buffer)
% landscape resilient	<40%	<20%	<20%	<20%

**2. Resilience and low wildfire potential during all kinds of fire weather means**

- Vegetation and fuels meet defensible space requirements.
- Fires would burn at low intensity, with flame lengths less than 4 feet.
- Embers are unlikely to create growing spot fires.
- Fires are unlikely to extend from the surface into crowns or spread as crown fire.

**3. Strategic Fuel Breaks and Strategic Areas support resilient landscapes**

- A network of strategic fuel breaks and strategic areas are identified, implemented, and maintained across the county.

**Promoting Fire Resilient and Prepared Communities & Infrastructure**

There are many efforts to inventory and assess the level of defensible space preparedness, home hardening, evacuation safety, and level of community engagement in wildfire safety. Like landscape resilience, there is no comprehensive set of data on these components of community preparedness and resilience to wildfire. To assess the current situation, overall information was gathered from Firewise Community Hazard Assessments and the expert opinion of local fire experts from fire agencies. A key strategy and action item is to develop an approach to develop such as comprehensive and frequently updated set of information on community preparedness and resilience to wildfire.

*Situation*

**Reach all Members of the Community**

The proportion of the developed, private areas and population are key measures of what level of coverage these communities represent.

**Defensible Space Preparedness**

The CAL FIRE and local fire agency defensible space inspection forms, and the NFPA Firewise Hazard and Risk Assessment has a series of evaluation criteria that are useful for assessing the current state of defensible space preparedness. There is no multi-organization compilation of this information as desired, but a first approximation is shown in the table below. This was developed based upon professional input by fire agencies conducting the inspections and assessments. It represents expert opinion based upon inspections and assessments. There is some level of uncertainty associated with it that is estimated and noted in the table.