Fly Ranch
Wildfire History
and
Current Fire Hazard Conditions

Compiled by Scott Williams

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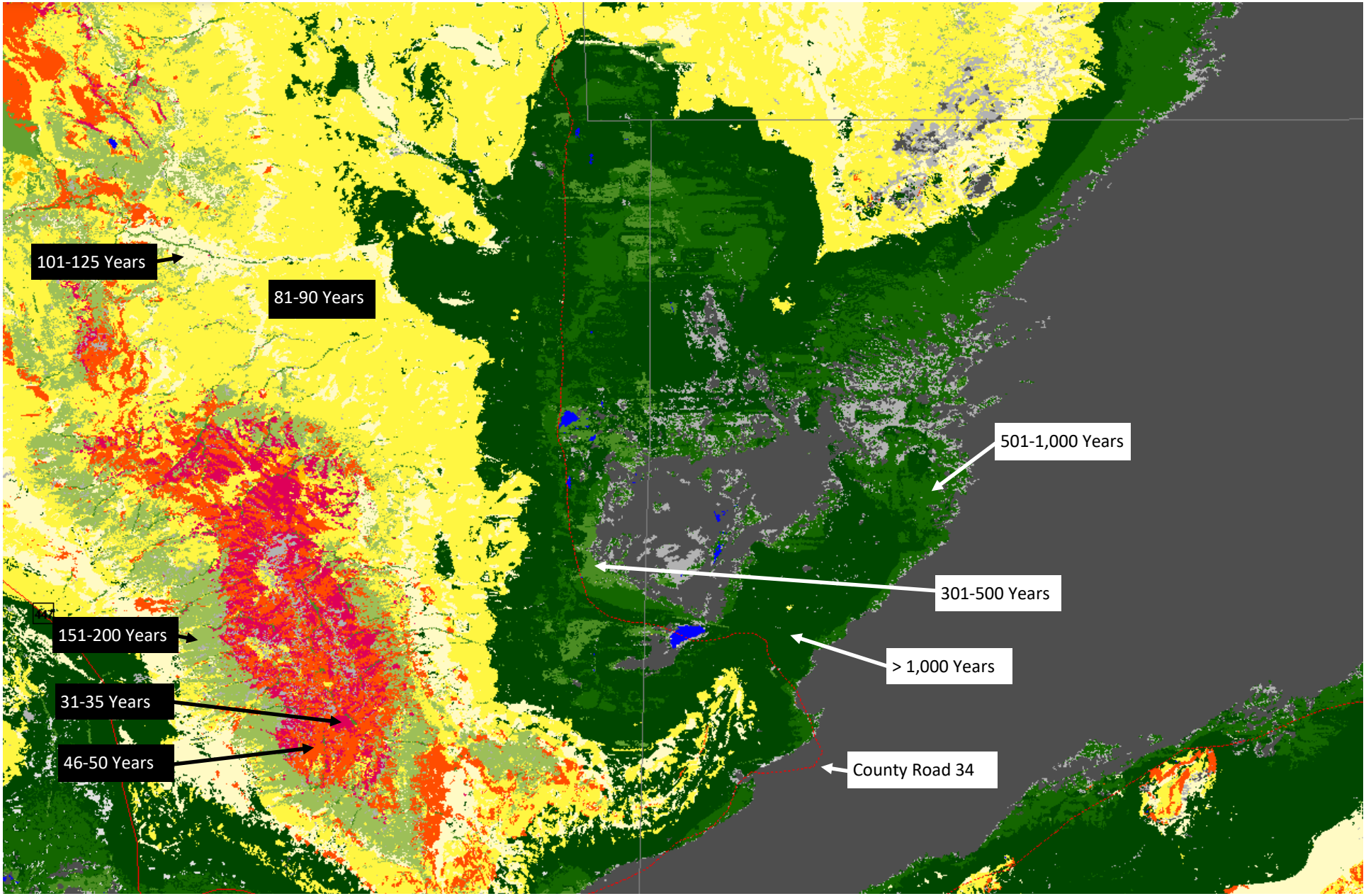
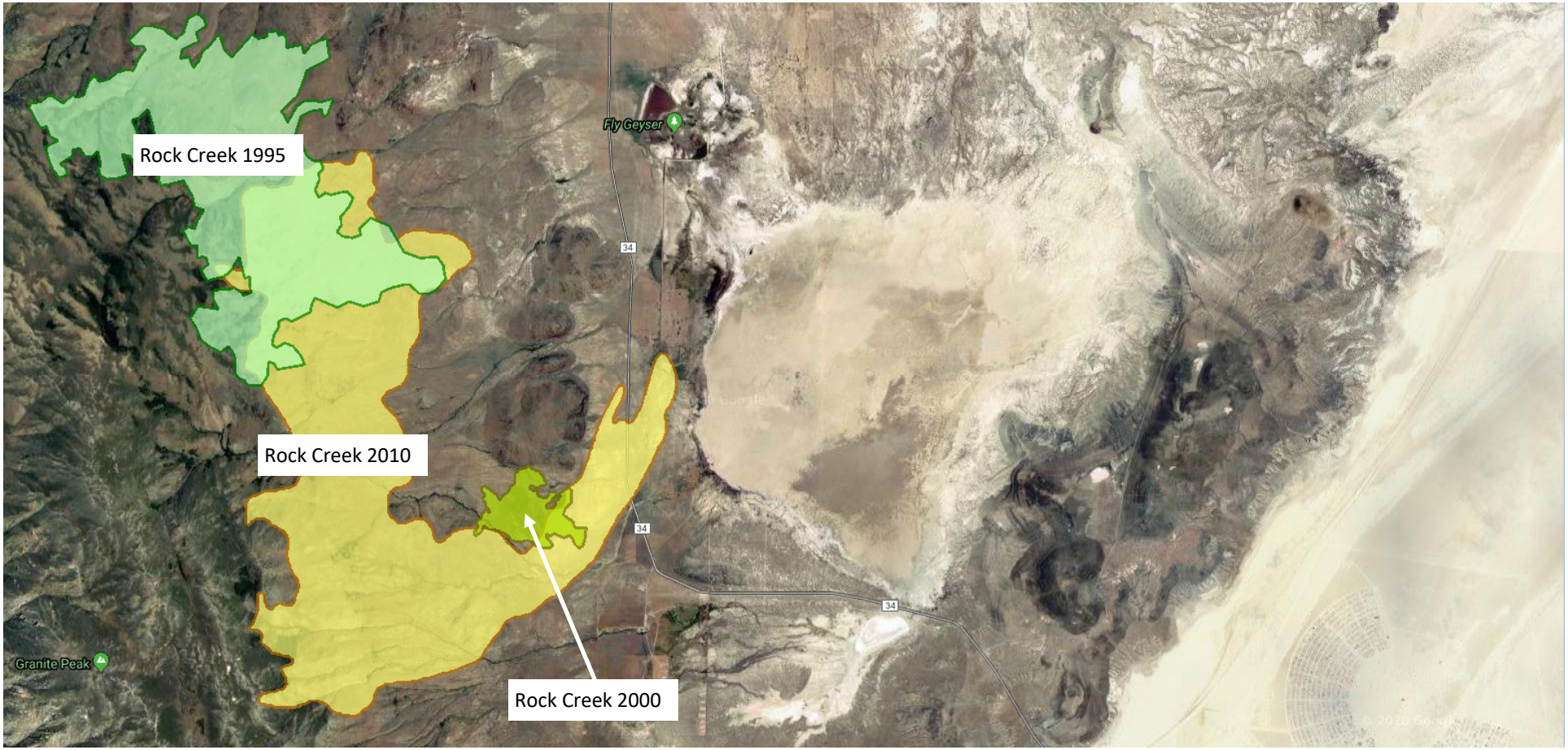
Mean Fire Return Interval— The Mean Fire Return Interval quantifies the average period between fires under the presumed historical fire regime. The Fly Ranch environment (center area on the map) is comprised of native vegetation types that support long period fire return intervals. The majority of the property's mean fire return intervals range from approximately 300 — >1,000 years (Source: LANDFIRE). In disturbed areas where native vegetation has been displaced by non-native annual grasses the fire regime has shifted to short fire return intervals.



Fire History During the Past 100 Years—There is little historic fire history in the Fly Ranch area. According to BLM records the Fly Ranch property has not burned during the past 100 years except the Rock Creek fire burned on to the southwest portion in 2010. The three wildfires shown were started by lightning (Source: Wildland Fire Decision Support System).



Fly Ranch Current Fire Hazard Conditions

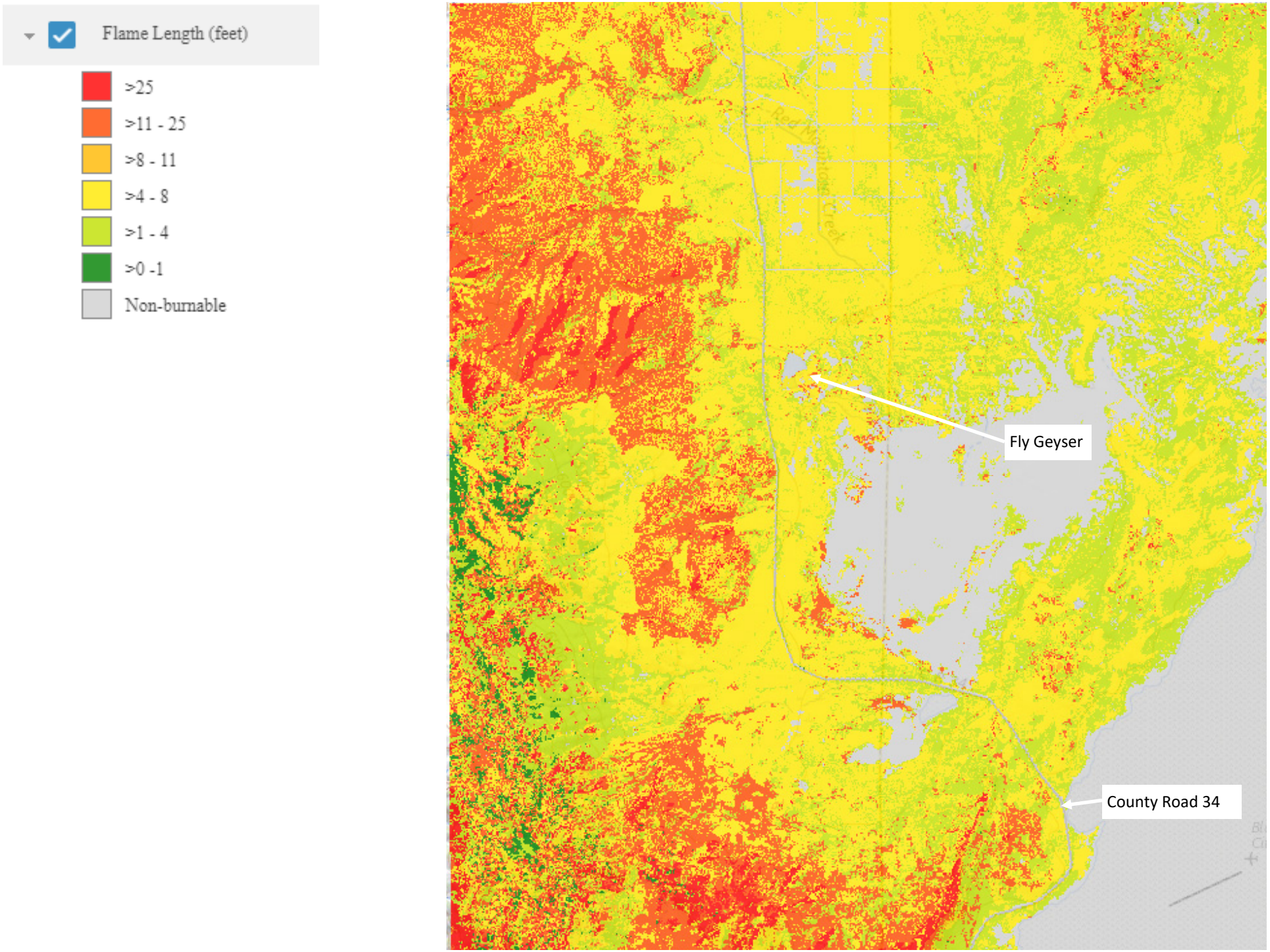
Methodology—The Fox Mountain Remote Automated Weather Station (RAWS) is the closest station to the Fly Ranch property and has been in service long enough to provide adequate data for ten years from 2009-2018. Standard fire season, May 1 – September 31, fire weather and fuel moisture data from the station were analyzed using the FireFamily Plus model to produce 90th percentile weather and fuels conditions. The Interagency Fuels Treatment Decision Support System(1) (IFTDSS) Landscape Fire Behavior and Burn Probability modules were used to make 90th Percentile "Very High" wildfire burning conditions and burn probability runs.

Results—The model run results, below, show that under very high fire danger conditions during the summer months a wildfire burning in annual grasses and shrubs would burn most likely from the northwest to southeast with predominately 4'-8' flame lengths(2) at a rate of spread of approximately 0.25-0.63 miles per hour. The winds would be about 13 miles per hour from the northwest. The probability that individual firebrands would ignite new starts would be about 97% which means there would be a lot of spotting out ahead of the main fire. While the fire behavior would be less than that would occur in the mountains on the west side of the property, a wildfire would still threaten flammable structures in its path. Direct flame contact with flammable structures would pose the greatest risk of ignition. However, firebrands can ignite flammable structures hundreds of feet from the main fire and without direct flame contact.

This analysis only addresses current fire hazard conditions and does not make any recommendations concerning risk mitigations.

(1) IFTDSS is a web-based application designed to make fuels treatment planning and analysis more efficient and effective. IFTDSS provides access to data and models through one simple user interface. It is available to all interested users, regardless of agency or organizational affiliation.

(2) See more about flame lengths on the next pages.


Flame Length (feet)
>25
>11 - 25
>8 - 11
>4 - 8
>1 - 4
>0 -1
Non-burnable
Fly Geyser
County Road 34

- Generally, higher flame lengths are produced in shrubs and forest stand fuels.
- Faster rates of spread occur in grass and herbaceous fuels.
- Flame lengths affect fire suppression capabilities and potential damage to values at risk

Flame Length (Feet)	Fireline Intensity (BTU/Ft/Sec)	Interpretation
0-4	0-100	Persons using handtools can generally attack fires at the head or flanks. Handline should hold the fire.
4-8	100-500	Fires are too intense for direct attack on the head by persons using handtools. Handline cannot be relied on to hold fire. Equipment such as dozers, engines, and retardant aircraft can be effective.
8-11	500-1,000	Fires may present serious control problems such as torching, crowning, and spotting. Control efforts at the head of the fire will probably be ineffective.
11+	1,000+	Crowning, spotting, and major runs are common, control efforts at the head of the fire are ineffective.

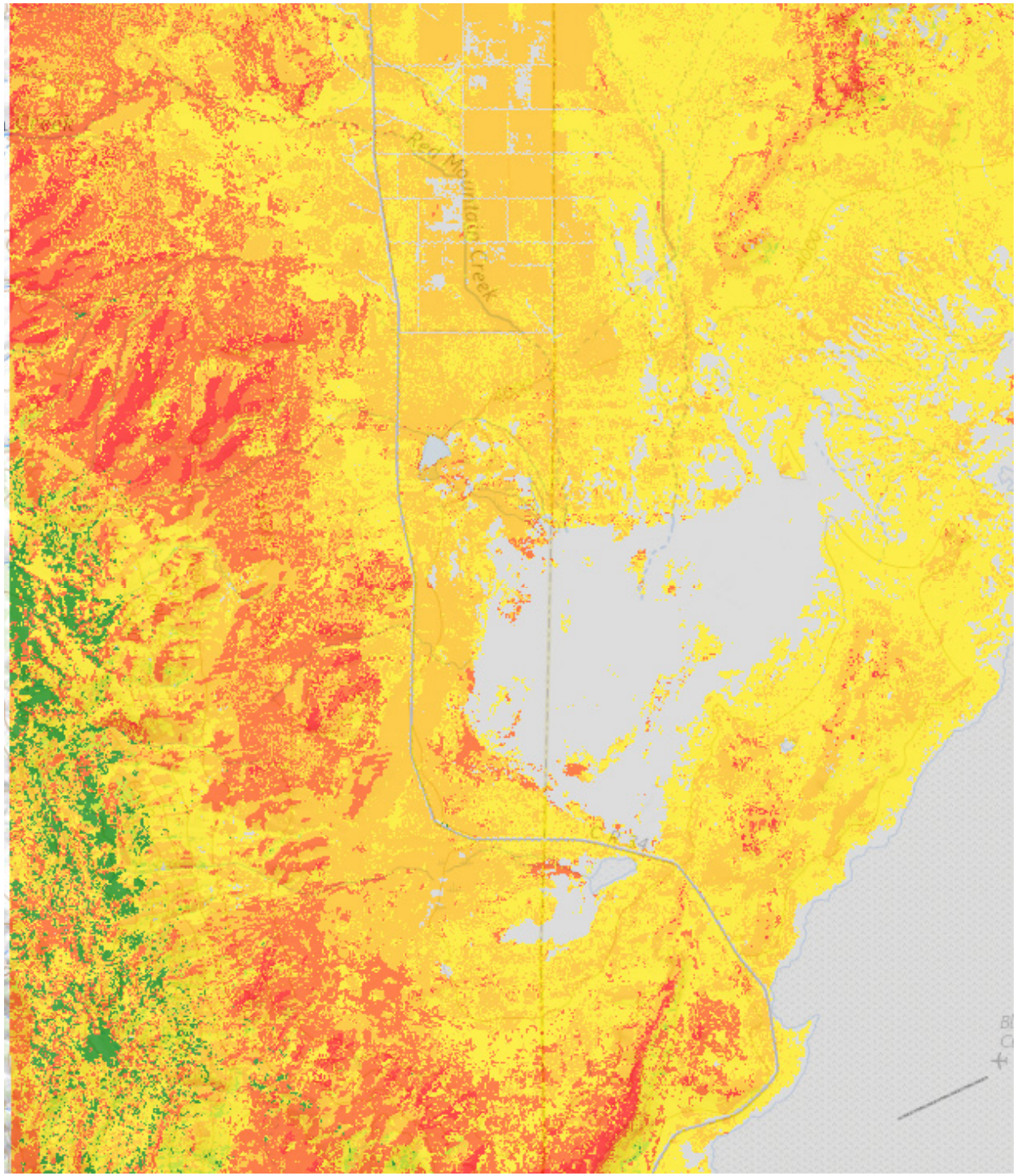
Fire behavior is the manner in which a fire reacts to the influences of fuel, weather, and topography. Fire behavior is typically modeled at the flaming front of the fire and described most simply in terms of fireline intensity (flame length) and in rate of forward spread. The implications of observed or expected fire behavior are important components of suppression strategies and tactics, particularly in terms of the difficulty of control and effectiveness of various suppression resources. The Hauling Chart is a tool for measuring the safety and potential effectiveness of various fireline resources given a visual assessment of active flame length. It was so named because it infers the relative intensity of the fire behavior to trigger points where hauling various resources to or away from a fire should be considered.

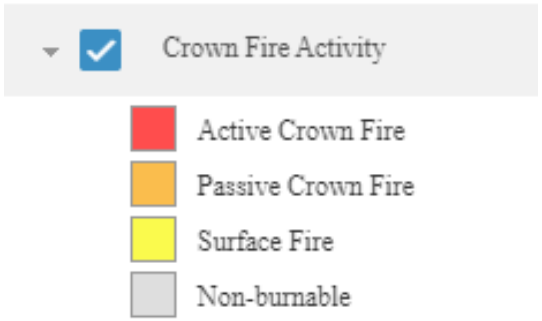
Source: Fireline Handbook, National Wildfire Coordinating Group, 2006; Rothermel 1983; principally adapted from Andrews and Rothermel 1982.

Rate of Spread (chains/hr)

- >150
- >50 - 150
- >20 - 50
- >5 - 20
- >2 - 5
- >0 - 2
- Non-burnable

80 chains = 1 mile

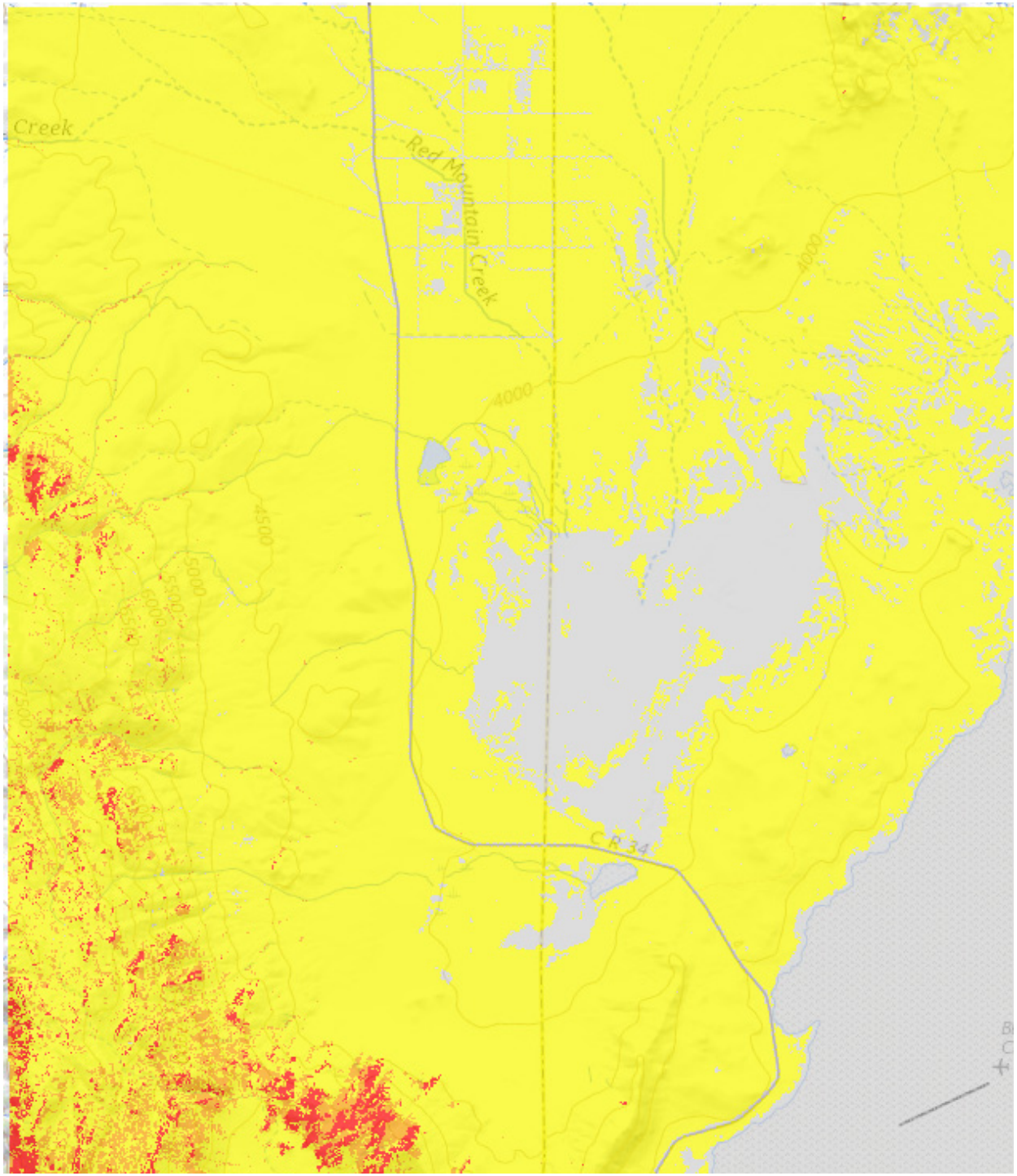




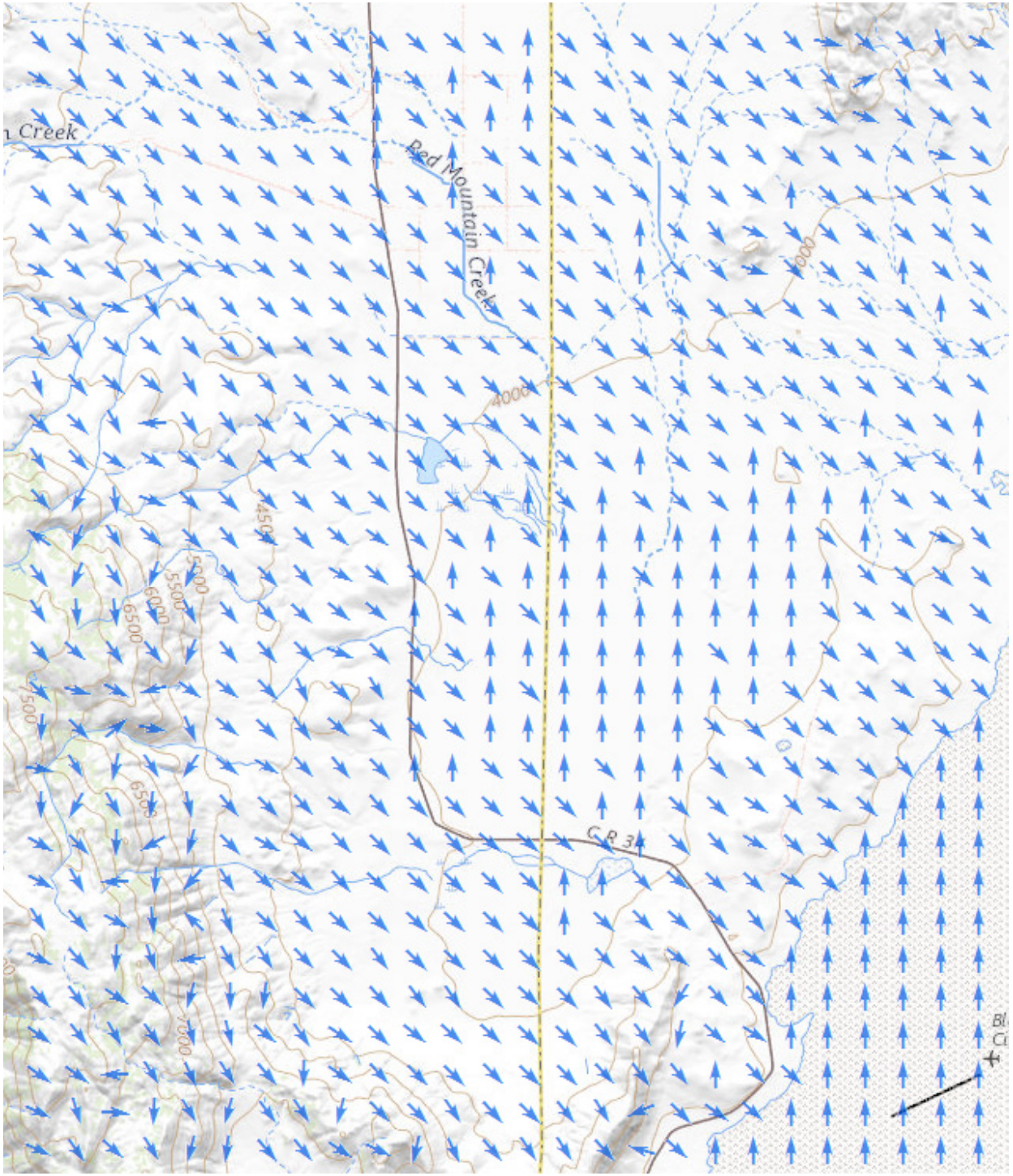
Active Crown Fire — A fire in which a solid flame develops in the crowns of trees, but the surface and crown phases advance as a linked unit dependent on each other.

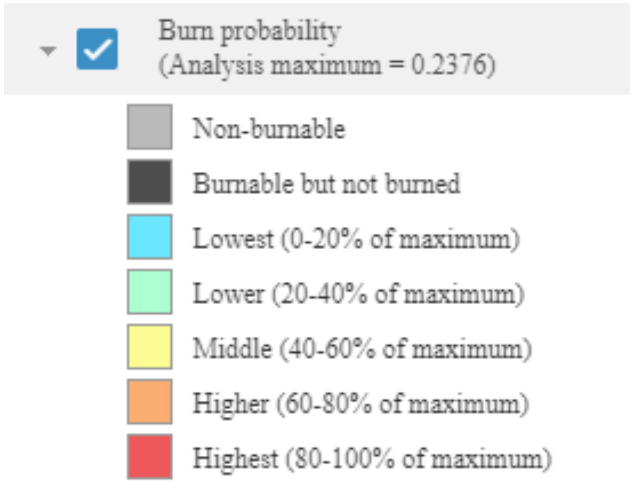
Passive Crown Fire — A fire in the crowns of trees in which trees or groups of trees torch, ignited by the passing front of the fire. The torching trees reinforce the spread rate, but these fires are not basically different from surface fires.

Surface Fire — Fire that burns loose debris on the surface, which includes dead branches, leaves, and low vegetation.



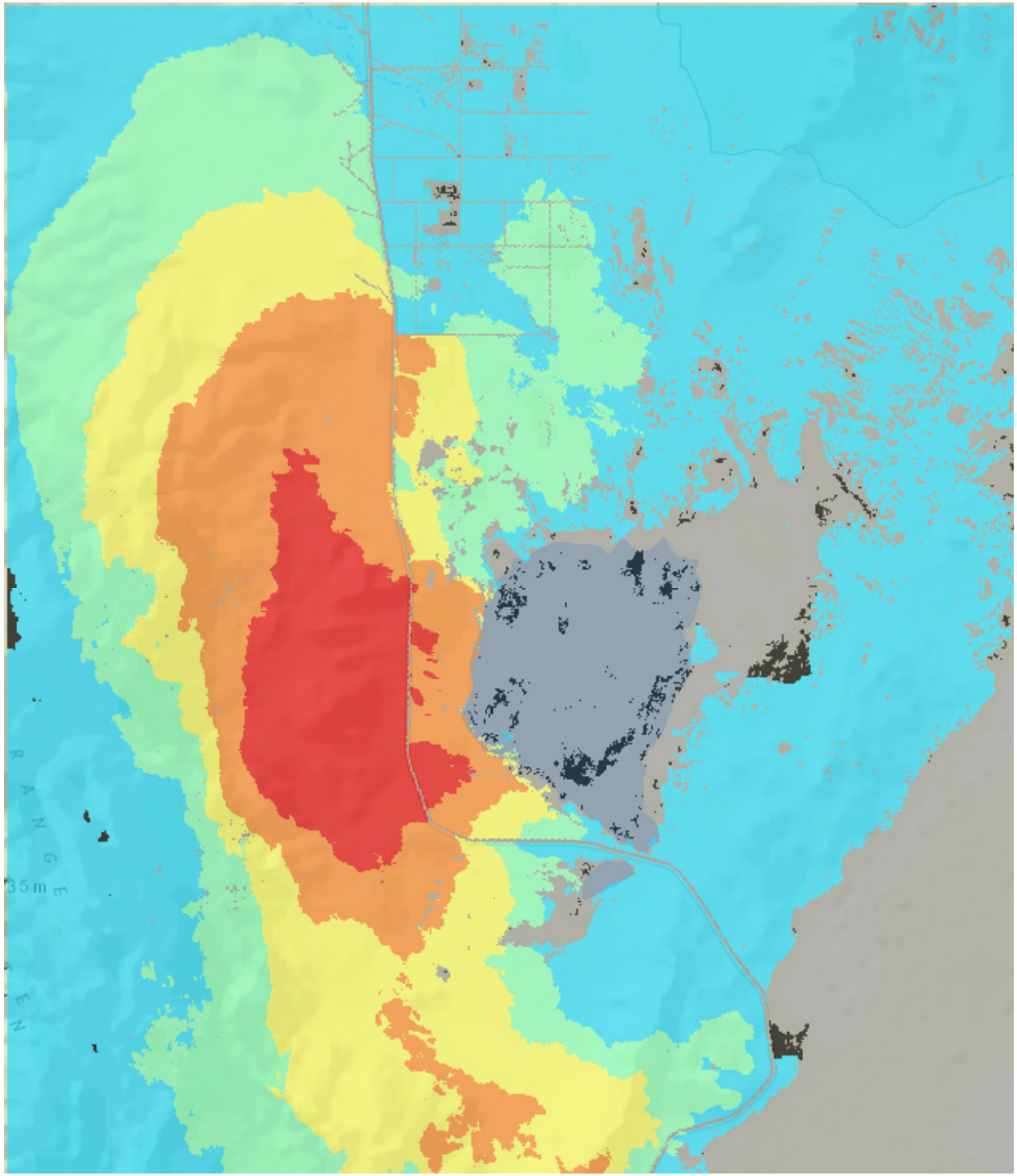
Arrows Indicate Fire Spread Direction under 90th Percentile Wildfire Burning Conditions

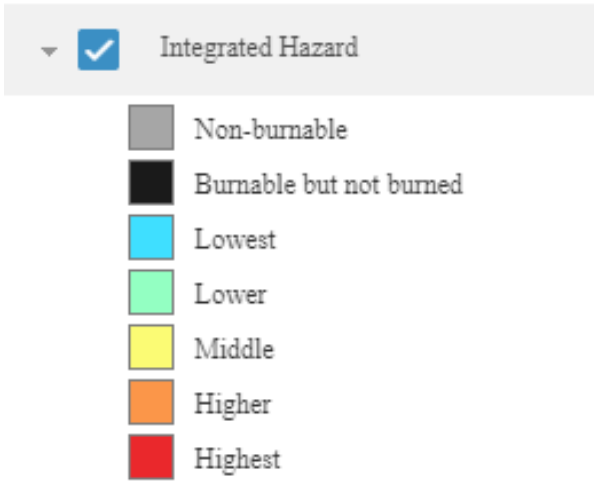




Burn Probability

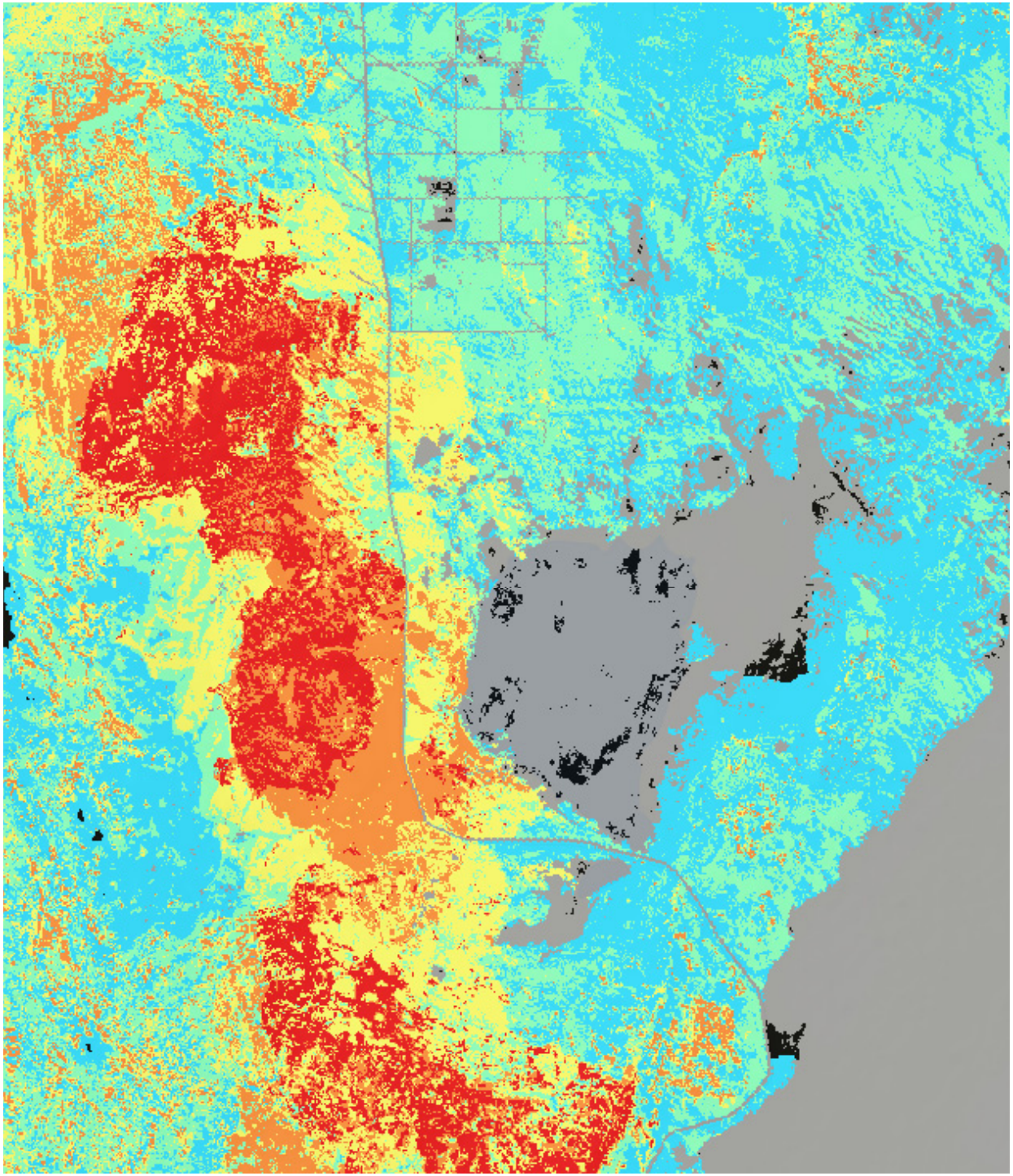
Probability represents the likelihood of a fire occurring. Its best used to understand how fuels treatments in one location can reduce fire potential in another.





Integrated Hazard

Integrated Hazard is the combination of Burn Probability and Conditional Flame Length. This single value can be used to determine treatment location when the objective is to reduce both likelihood and intensity.



Meta Data

RAWS 90th Percentile Fire Season Burning Conditions – 2009-2018
Fire Season May 1 – September 31

Location Fox Mountain Nevada
Latitude 41° 00' 22" NESS ID 3256F112
Longitude 119° 34' 05" NWS ID 260110
Elevation 6,890 ft. Agency BLM
Live Woody Fuel Moisture – 60%
Herbaceous Fuel Moisture – 11% (Annual Herbaceous)
1 Hour Time Lag Fuel Moisture – 2%
10 Hour Time Lag Fuel Moisture – 3%
100 Hour Time Lag Fuel Moisture – 4%
1,000 Hour Time Lag Fuel Moisture – 5%
Wind Speed – 13 mph (20 Foot)
Wind Direction – 315°
Temperature – 73° F
Probability of Ignition from a Firebrand – 97%