

Inyo National Forest Wildland Fire and Fuels Management

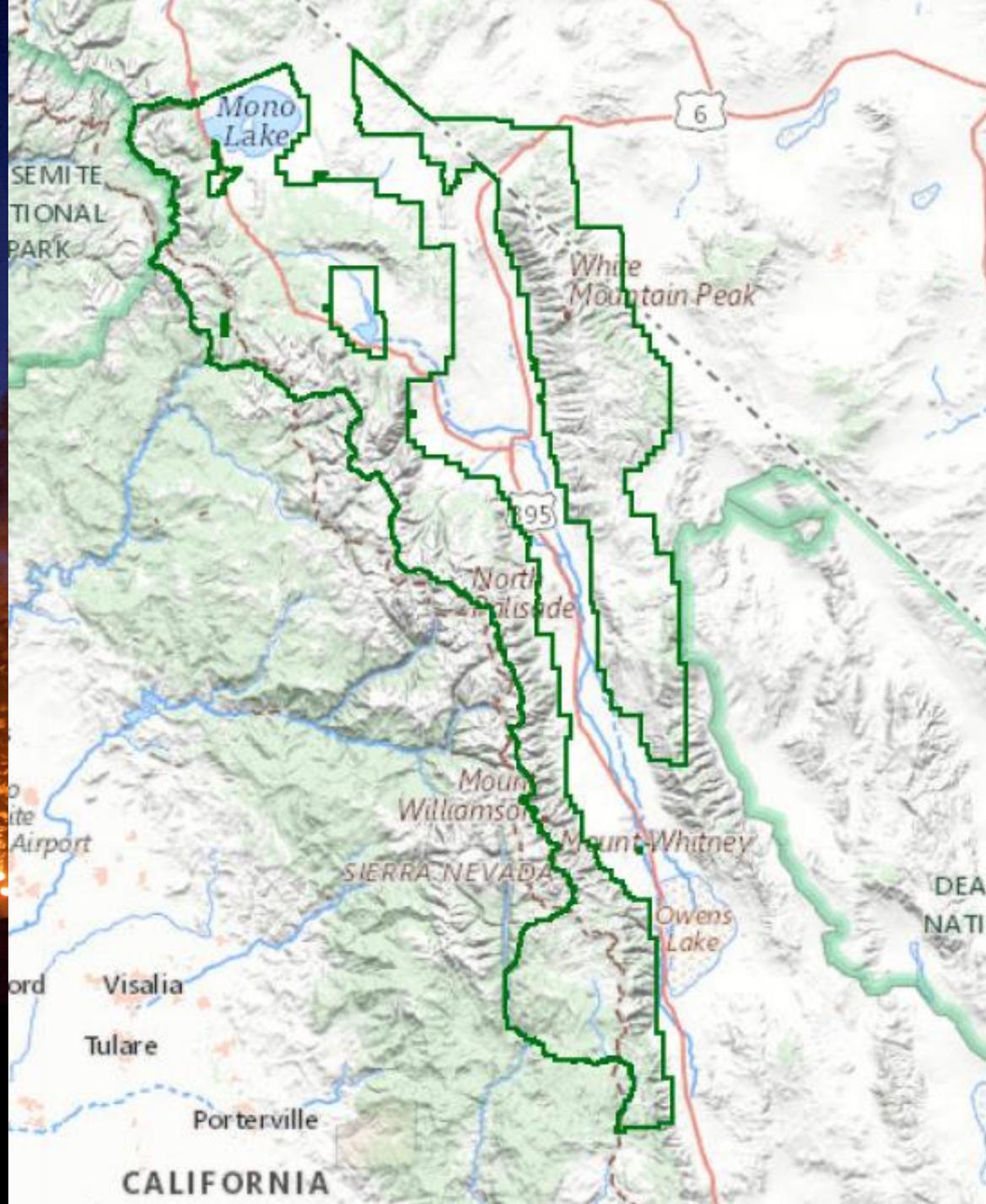


U.S. Forest Service
Inyo National Forest

Taro Pusina
Interagency Fire Management Officer

Inyo National Forest

- ~2,000,000 acres total
- Nine wilderness areas for ~1,000,000 acres
- Highly complex wildland fire and fuels program
- Multiple communities and interagency partners
- Prior to European contact (fire suppression) scientists estimate 20-30,000 acres burned annually on Inyo NF



Inyo National Forest

- One of the largest Forests of 18 in the Region with some of the most recreational use but with the second smallest budget and staffing
- Interagency fire personnel include fire staff, (4) district fire management officers, (4) battalion chiefs, (7) prevention officers, (1) Type 1 wildland fire module, (1) Type 1 hotshot crew, (1) Type 3 helitack module, (9) Type 3 engine modules and an interagency dispatch center
- No funded, dedicated operational fuels positions

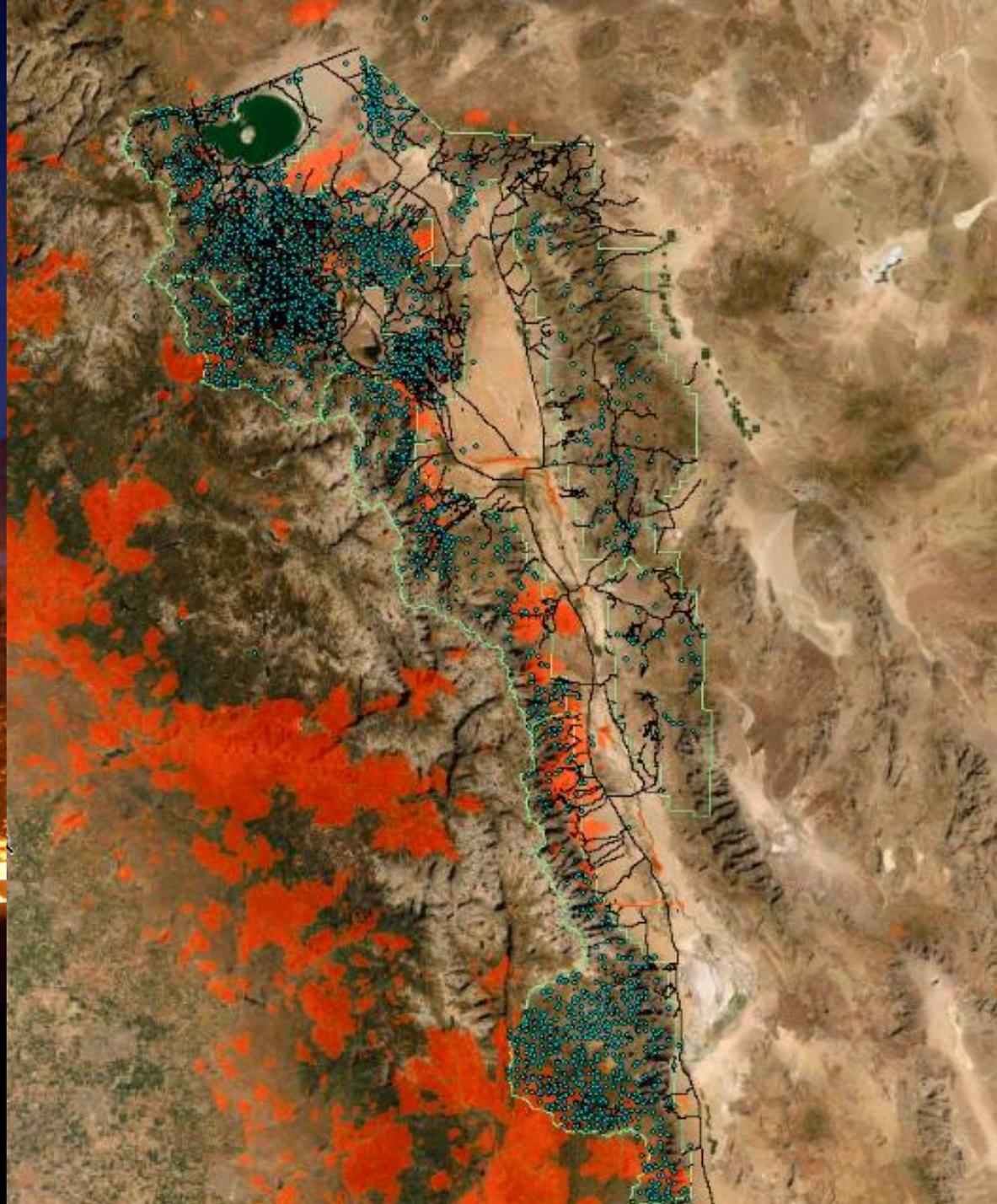


U.S. Forest Service
Inyo National Forest

Taro Pusina
Interagency Fire Management Officer

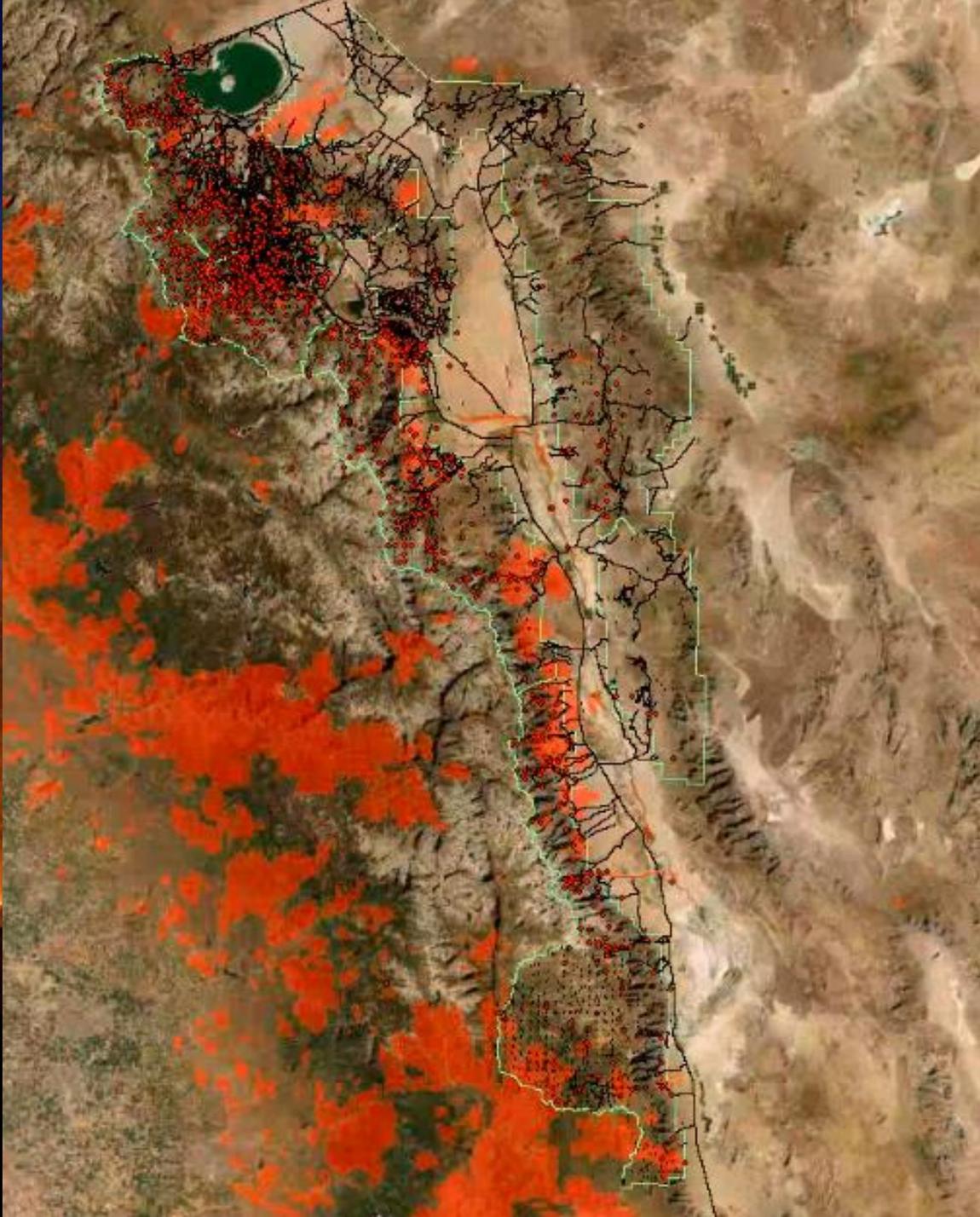
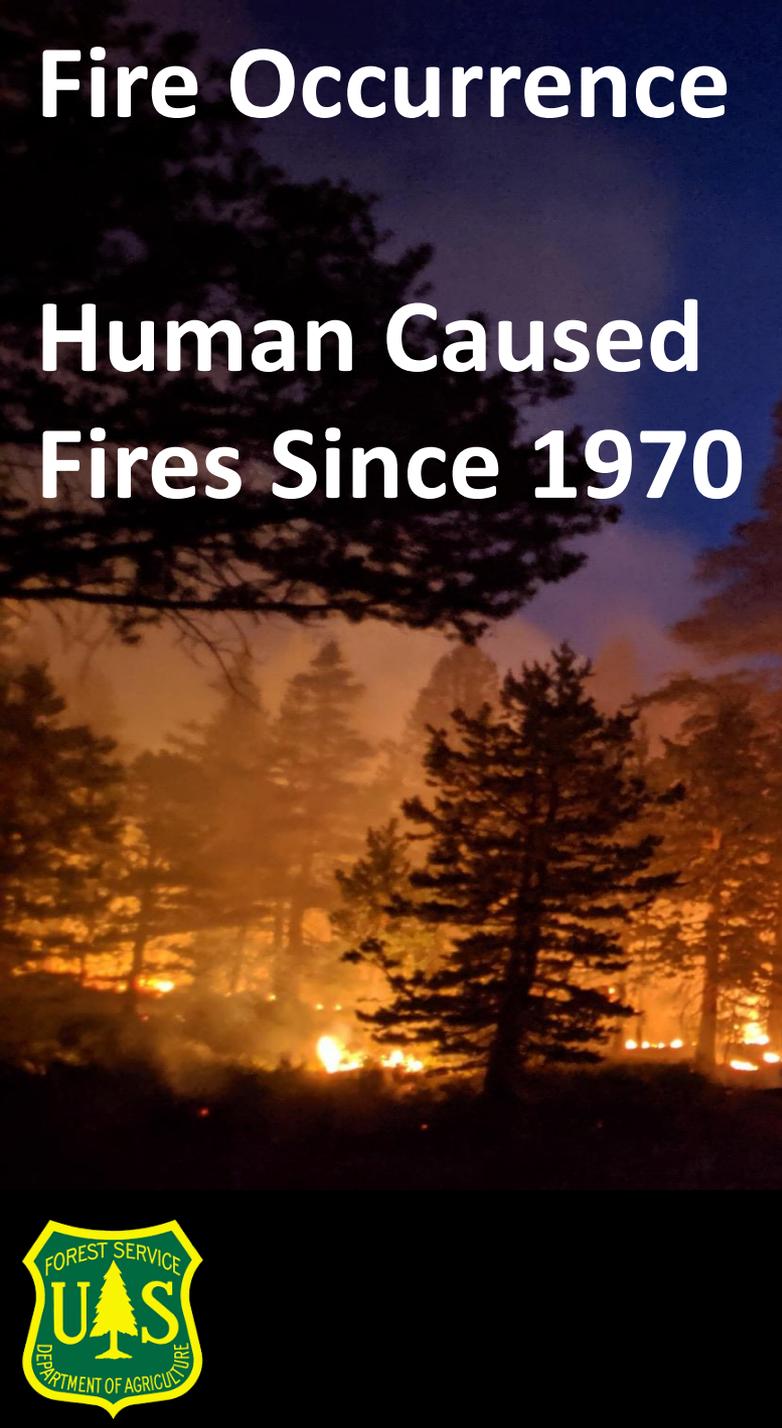


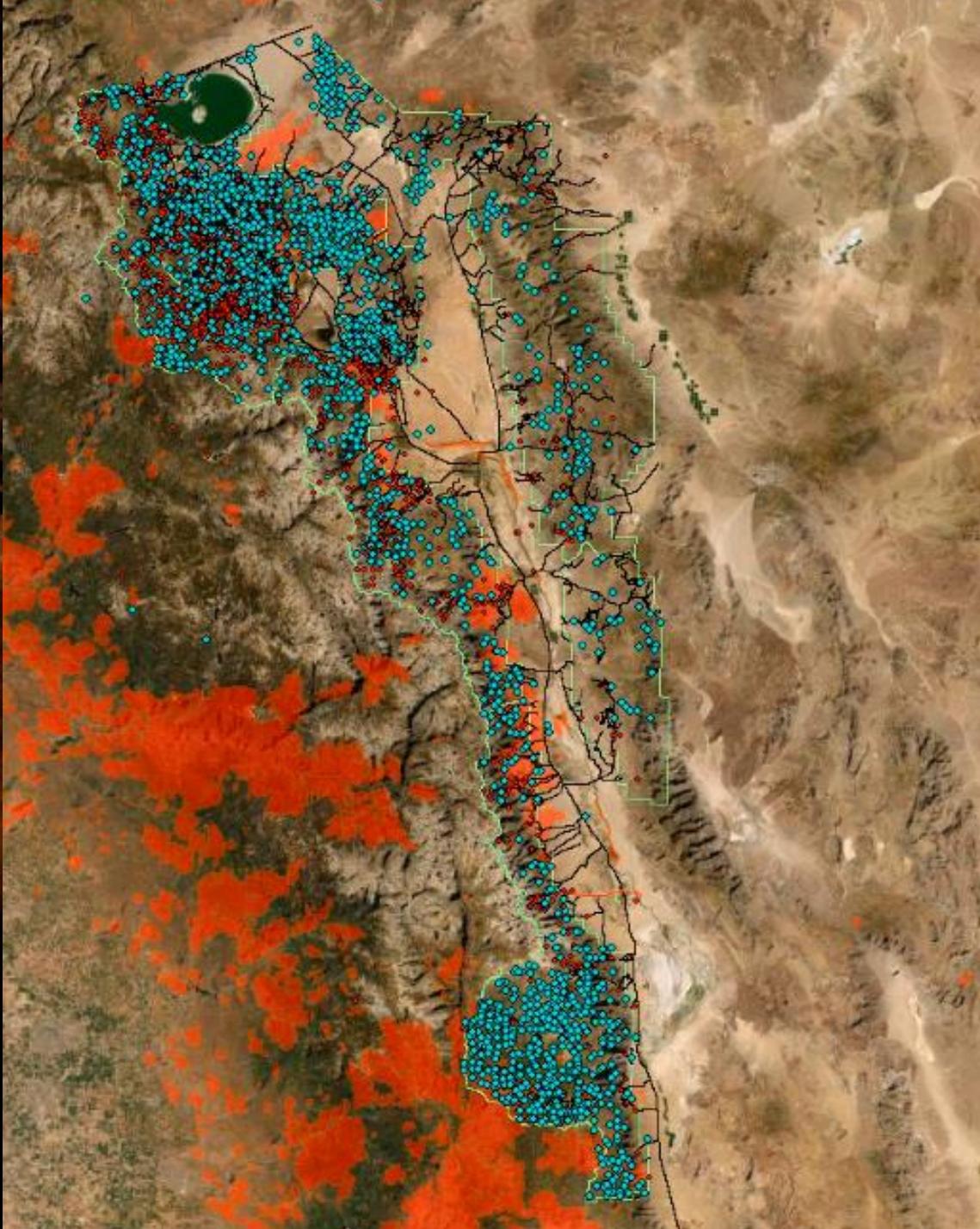
Fire Occurrence Lightning Caused Fires Since 1970



Fire Occurrence

Human Caused Fires Since 1970





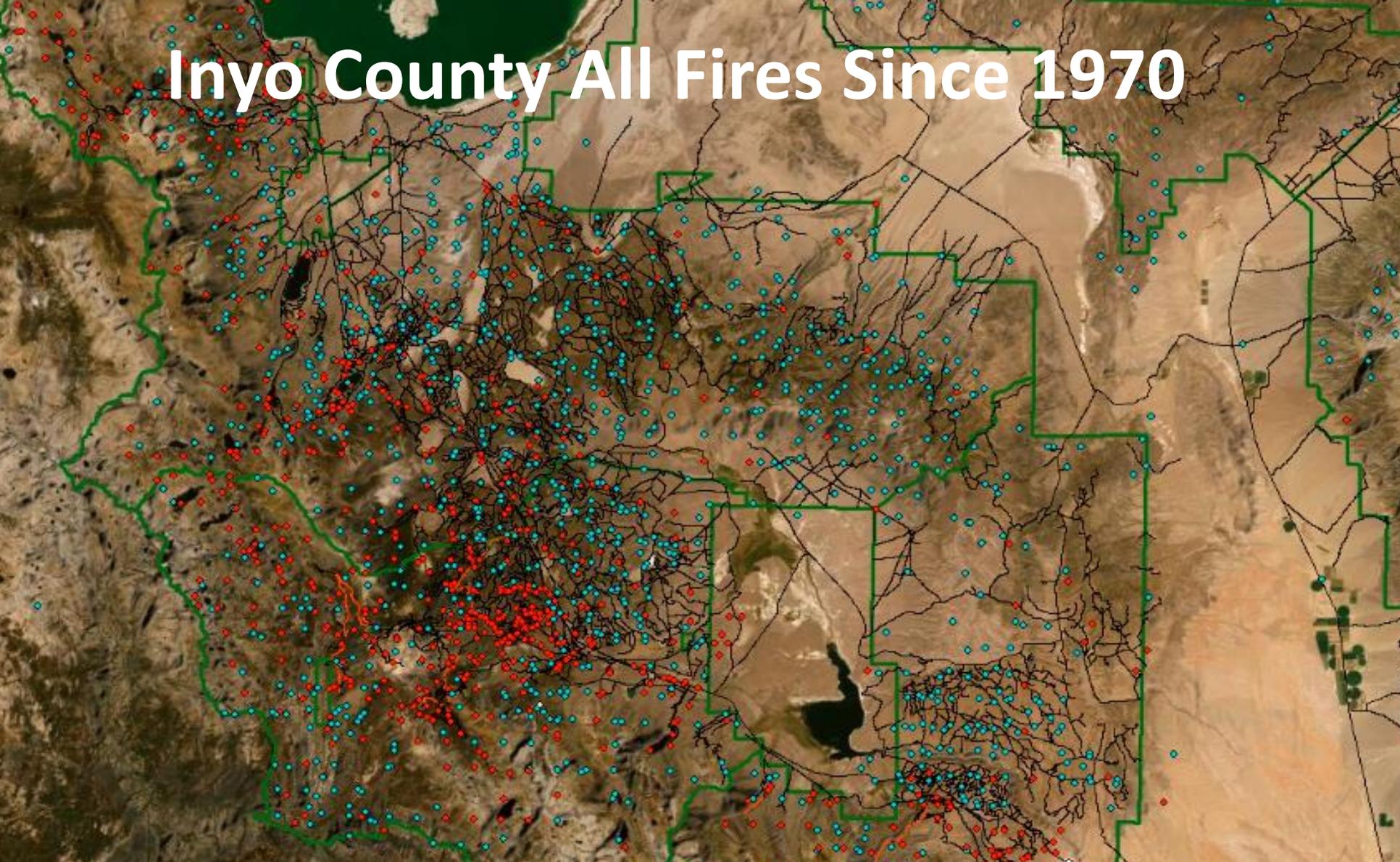
All Fires Since 1970



U.S. Forest Service

Taro Pusina
Interagency Fire Management Officer

Inyo County All Fires Since 1970

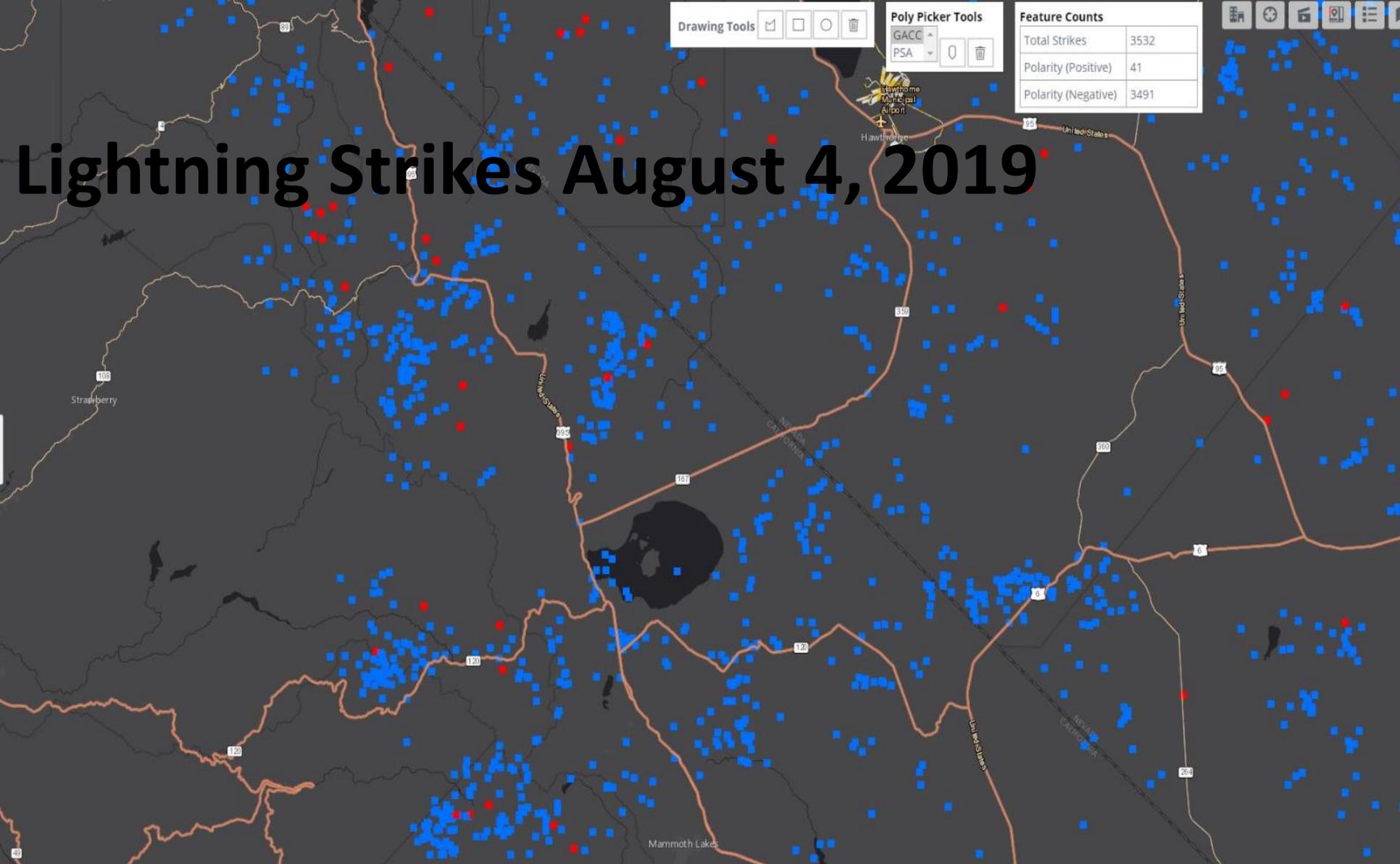


U.S. Forest Service
Inyo National Forest

Taro Pusina
Interagency Fire Management Officer



Lightning Strikes August 4, 2019

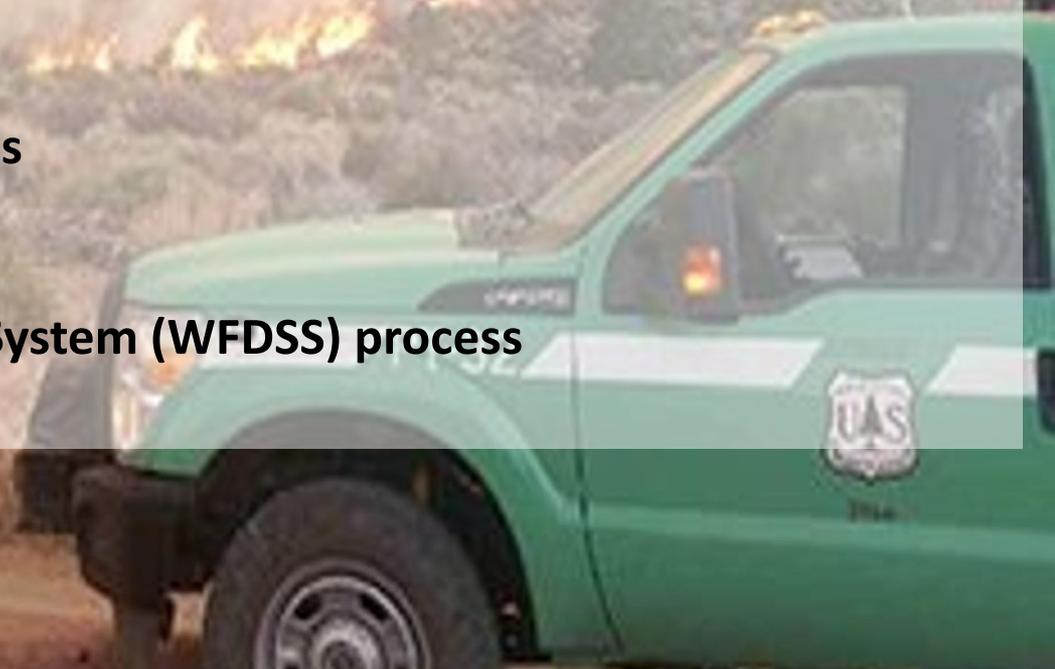


U.S. Forest Service
Inyo National Forest

Taro Pusina
Interagency Fire Management Officer

Inyo Forest Wildland Fire Response Criterion

- Default has always been aggressive suppression
- Human caused – suppression/protection only objective
- Lightning caused, Federal/Forest policy allow for all response options
- Life and property – Wildland Urban Interface (WUI) – always the top priority
- Proximity to other values at risk
- Seasonality and fire danger
- Planning and preparedness levels
- Fuels, weather, topography
- Political climate
- Wildland Fire Decision Support System (WFDSS) process
- Wildland Fire Decision Matrix



U.S. Forest Service
Inyo National Forest

Taro Pusina
Interagency Fire Management Officer

2018 Inyo Forest Plan - Fire Desired Conditions

Fire Management Activities

- Increase pace and scale of treatments based on science and Natural Range of Variation (NRV) to protect WUI and other values
- Firefighter and public safety is always the first priority
- Proactive fire management reduces loss of life/property or ecosystem function
- Reduce fuel (vegetation) buildup
- Maintain and protect habitat for animal and plant species
- Reduce smoke from larger fires
- Restore fire on the landscape - wildland fire is a necessary process, integral to the sustainability of fire-adapted ecosystems
- Risk-based approach in planning and decision making
- Responsive to the latest fire and social sciences
- Early Adapter, adaptable to changing conditions, ie. climate change
- These actions are also an integral part of achieving sustainable recreation
- Increased awareness of wildfire and associated risk
- Communities must learn to live with wildland fire
- These actions promote sustainable recreation



U.S. Forest Service
Inyo National Forest

Taro Pusina
Interagency Fire Management Officer

Inyo Forest Plan – Fire Goals

- Restore ecosystems to a more fire resilient condition and lessen the threat of catastrophic wildfire
- Coordinate with stakeholders on prevention, preparedness, treatments and wildland fire response
- Help communities become fire adapted, reducing likelihood of loss of life and property
- Use a suite of treatments to reduce accumulated vegetation - grazing, mechanical, timber, prescribed and wildfires managed to meet resource objectives
- Manage lightning ignitions for multiple objectives including protection and resource benefits

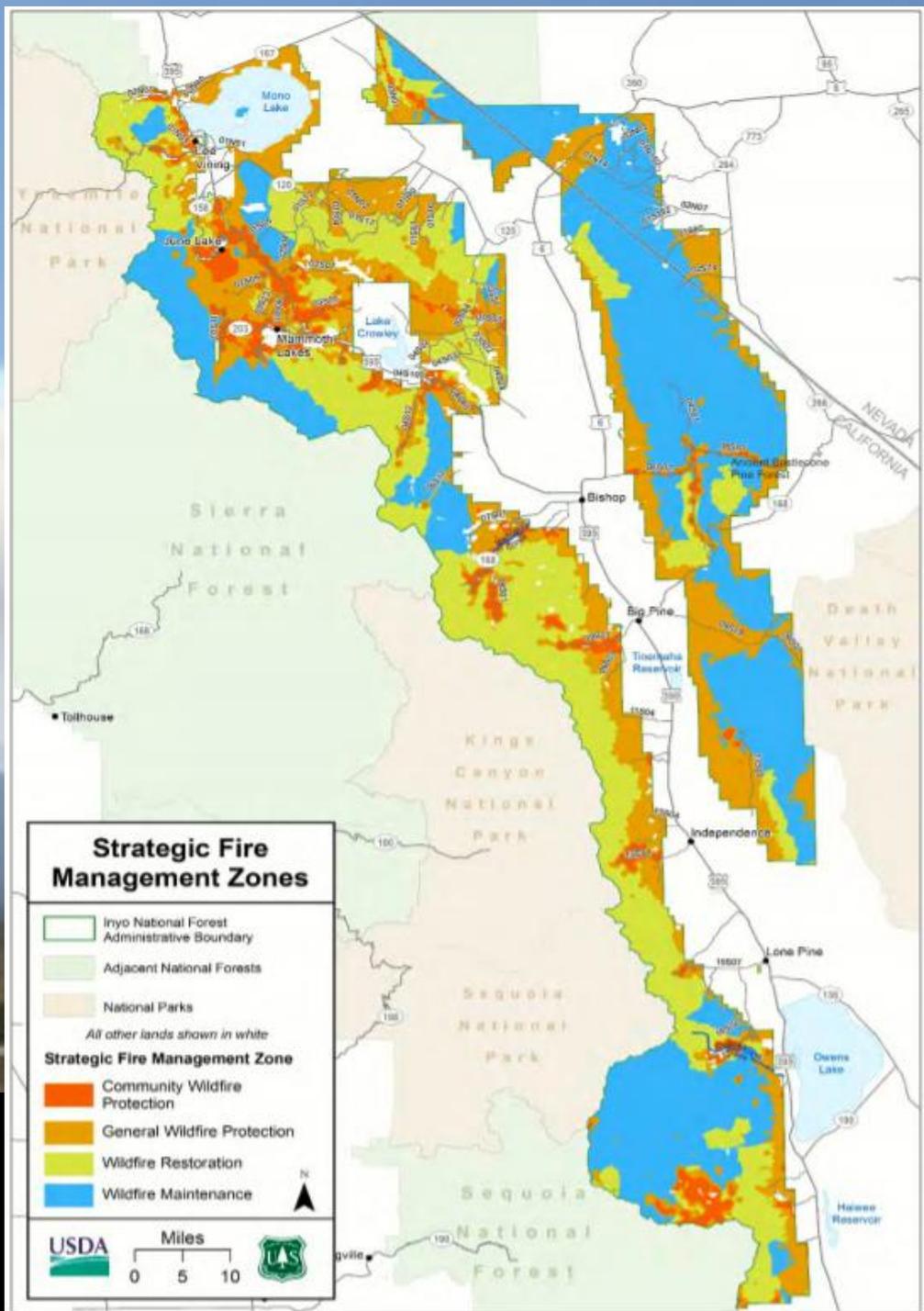


U.S. Forest Service
Inyo National Forest

Taro Pusina
Interagency Fire Management Officer

Inyo Forest Plan

Strategic Fire Management Zones



Inyo Forest Plan

Strategic Fire Management Zones

- Based on a southern Sierra Nevada wildfire risk assessment
- Provides decision makers a framework before an ignition occurs by pre-assessing areas for wildland fire risk and benefits
- Forest Plan is organized into these zones to aid fire management decisions
- Zones assist decision makers in meeting the full range of Plan objectives
- Active management within the zones reduces hazardous fuels and mitigates safety hazards for firefighters working in the WUI



U.S. Forest Service
Inyo National Forest

Taro Pusina
Interagency Fire Management Officer

Inyo Forest Plan - Strategic Fire Management Zones

Community Wildfire Protection Zone

- Hazardous fuel conditions currently put communities, community assets and private land at a very high risk of damage from wildfire
- Under most conditions, wildfire mitigation, fuel reduction treatments and fire protection is needed in the community wildfire protection zone to prevent direct threats to life or property
- Wildfire is suppressed under most conditions due to the very significant risk, potential economic loss and public safety concerns posed by a wildfire occurring within this zone
- The long term focus is to create fire-adapted communities that are less reliant on aggressive wildfire suppression and protection



U.S. Forest Service

Taro Pusina
Interagency Fire Management Officer

Inyo Forest Plan - Strategic Fire Management Zones

General Wildfire Protection Zone

- Conditions currently put some natural resource values at high risk of damage from wildfire
- Wildfires that burn in this zone can potentially benefit natural resources, however, negative impacts to many natural resources are more likely under most weather, fuel moisture, and other environmental conditions during peak fire season
- Targeted ecological restoration and hazardous fuel reduction are needed in the general wildfire protection zone to safeguard communities and resources



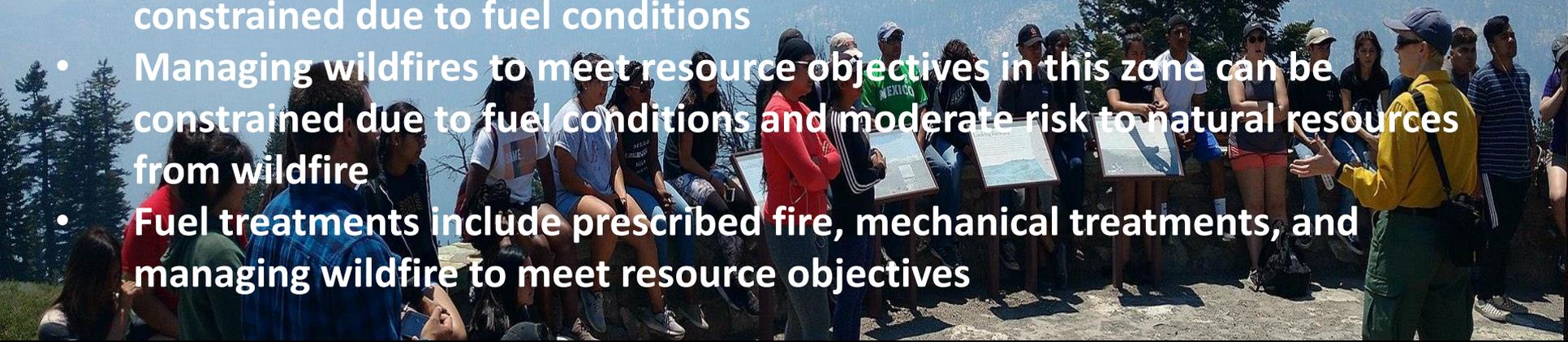
U.S. Forest Service
Inyo National Forest

Taro Pusina
Interagency Fire Management Officer

Inyo Forest Plan - Strategic Fire Management Zones

Wildfire Restoration Zone

- Wildland fires that start in this zone generally pose a low to moderate threat to communities in average fire season conditions
- Wildland fires in this zone can potentially benefit natural resources under favorable environmental conditions
- Managing wildland fires to meet resource objectives in this zone can be constrained due to fuel conditions
- Managing wildfires to meet resource objectives in this zone can be constrained due to fuel conditions and moderate risk to natural resources from wildfire
- Fuel treatments include prescribed fire, mechanical treatments, and managing wildfire to meet resource objectives



U.S. Forest Service
Inyo National Forest

Taro Pusina
Interagency Fire Management Officer

Inyo Forest Plan - Strategic Fire Management Zones

Wildfire Maintenance Zone

- The wildfire maintenance zone poses a low threat to communities in average fire season conditions, and where conditions allow natural resources to benefit from wildland fire
- Managing wildland fire to meet resource objectives in this zone is the least constrained
- Ecological maintenance can be carried out by the management of wildland fire under a wide range of weather, fuel moisture, and other environmental conditions
- Using prescribed fire to meet resource objectives is also appropriate



U.S. Forest Service
Inyo National Forest

Taro Pusina
Interagency Fire Management Officer

Prescribed Fire, Mechanical and Timber Treatments

- Surrogate for naturally occurring wildland fire to restore and maintain the forest
- Most effective tool for restoring resilience to catastrophic wildfire and protecting WUI, natural and other values at risk
- Allows homeowners and firefighters *defensible space* around infrastructure and other high values
- Implementation when social and environmental conditions are most favorable
- We decide to the best of our ability when to have the treatment, fire and smoke
- Proven effectiveness at modifying catastrophic wildfire behavior



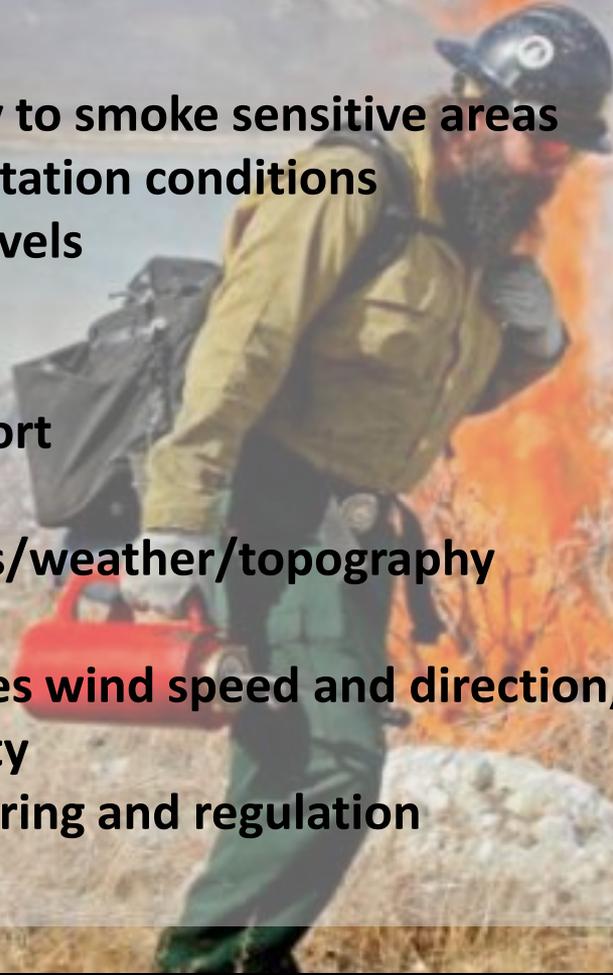
U.S. Forest Service
Inyo National Forest

Taro Pusina
Interagency Fire Management Officer

Prescribed Fire Treatments

Go/No Go and Prescription Parameters

- Seasonality and fire danger
- Air quality/smoke – proximity to smoke sensitive areas
- (Live and dead) Fuel and vegetation conditions
- Planning and preparedness levels
- Availability of resources
- Funding
- Local/regional/national support
- Risk tolerance
- Fire behavior potential – fuels/weather/topography
- Politics
- Burn Plan prescription includes wind speed and direction, fuel moisture, temperature, relative humidity
- Air quality and smoke monitoring and regulation
- Burn objectives



U.S. Forest Service
Inyo National Forest

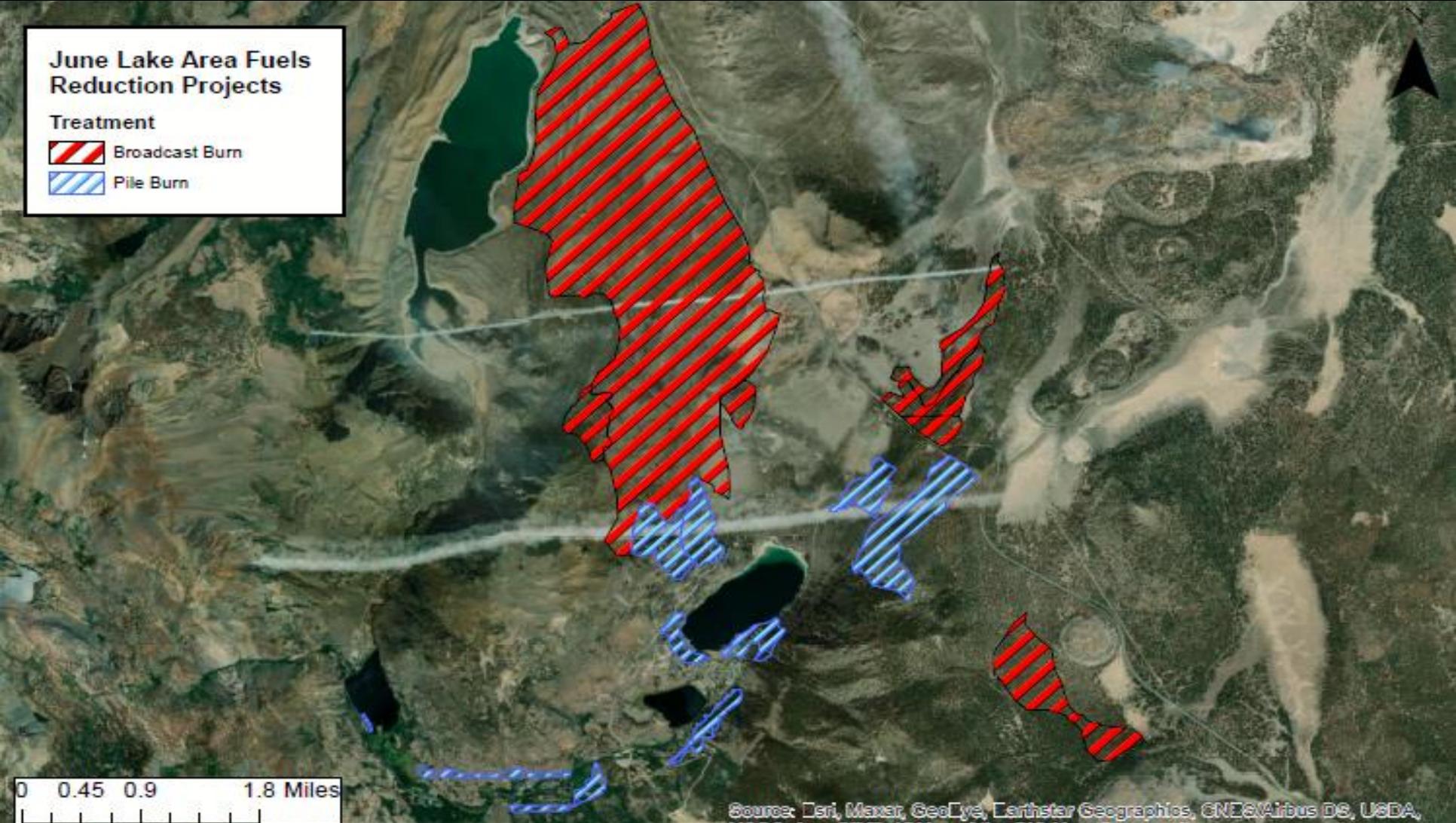
Taro Pusina
Interagency Fire Management Officer

2021 Fuels Treatments – June Loop, 689 acres

June Lake Area Fuels Reduction Projects

Treatment

-  Broadcast Burn
-  Pile Burn



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA,



U.S. Forest Service
Inyo National Forest

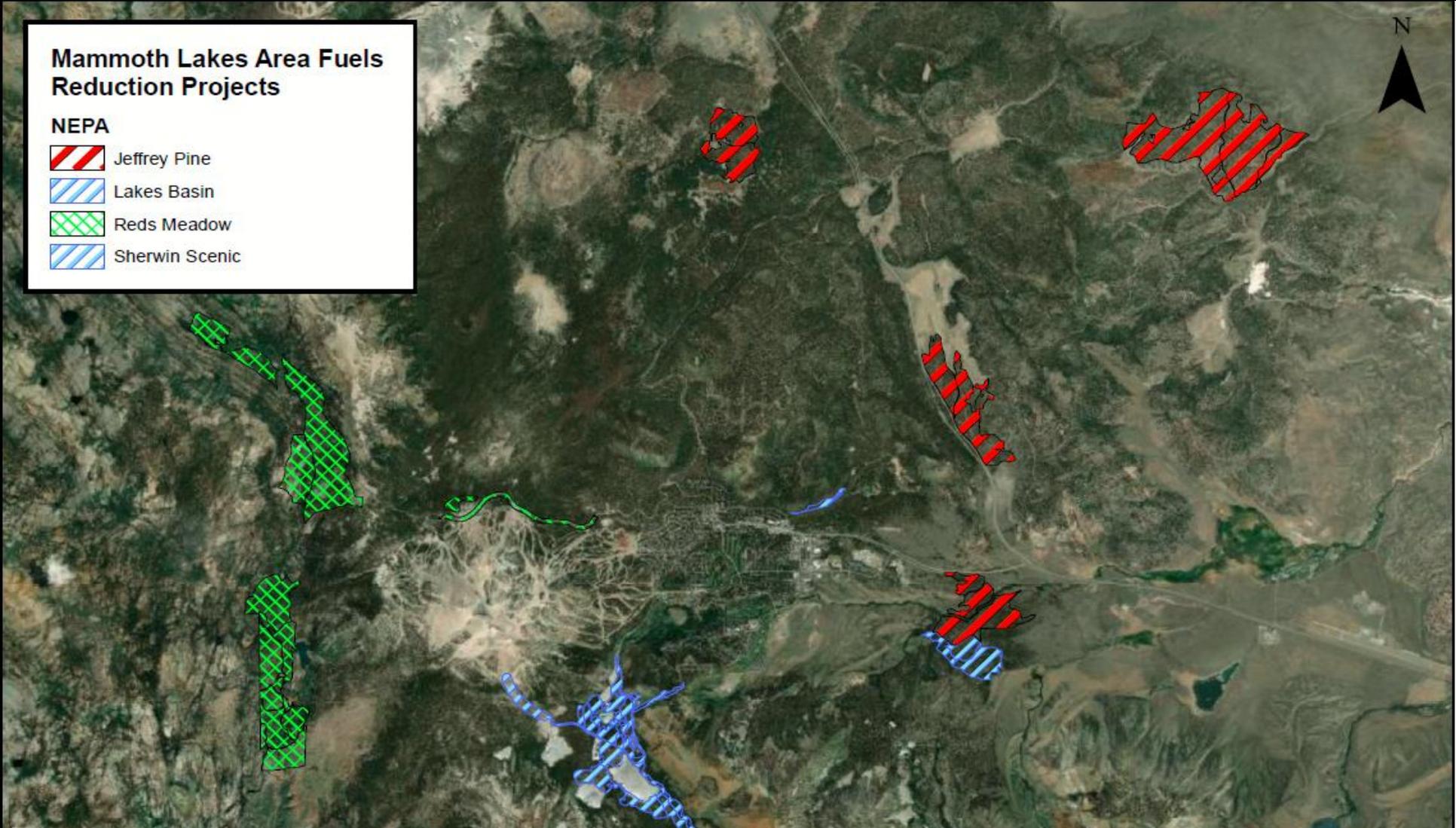
Taro Pusina
Interagency Fire Management Officer

2021 Fuels Treatments – Mammoth Lakes, 1417 acres

Mammoth Lakes Area Fuels Reduction Projects

NEPA

-  Jeffrey Pine
-  Lakes Basin
-  Reds Meadow
-  Sherwin Scenic



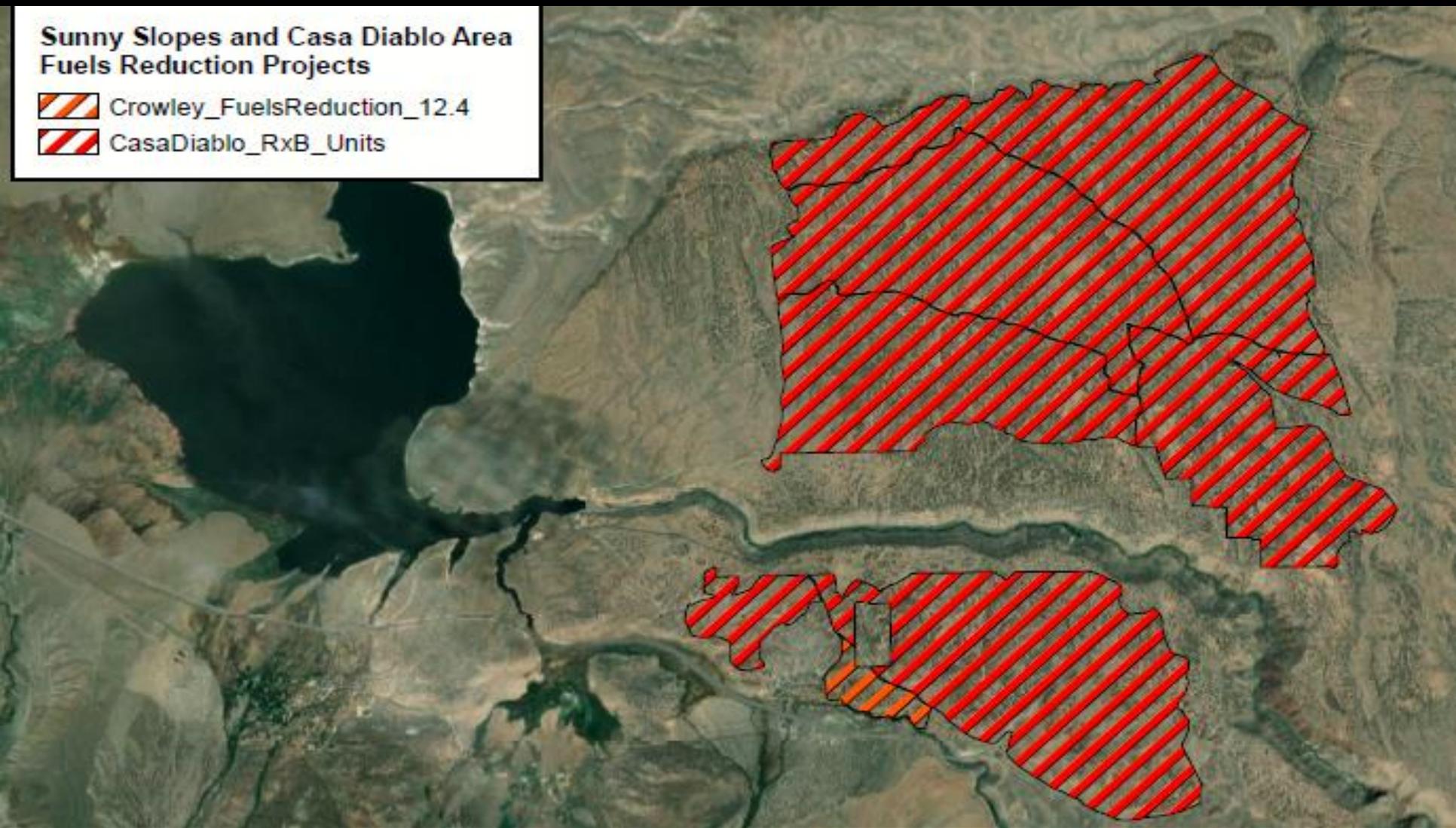
U.S. Forest Service
Inyo National Forest

Taro Pusina
Interagency Fire Management Officer

2021 Fuels Treatments – Casa Diablo, 1417 acres

Sunny Slopes and Casa Diablo Area Fuels Reduction Projects

-  Crowley_FuelsReduction_12.4
-  CasaDiablo_RxB_Units



U.S. Forest Service
Inyo National Forest

Taro Pusina
Interagency Fire Management Officer

2021 Fuels Treatments continued

- **Swall Meadows – 30 acres. Pile burning adjacent to Swall Meadows and Paradise**
- **Bishop Creek – 60 acres. Mechanical pile treatment proximate to Hwy. 168, Aspendell, Parchers and Habeggars resorts**

Timber

- **Personal Fuelwood – 1700 MBF (thousand board feet)**
- **Reds Meadow Road Construction Timber Sale – 133 MBF**
- **Three Creeks Timber Sale – 300 MBF**
- **Beetle Kill Hazard Tree Removal – 100 MBF**
- **Southern California Edison Hazard Tree Removal – 500 MBF**



U.S. Forest Service
Inyo National Forest

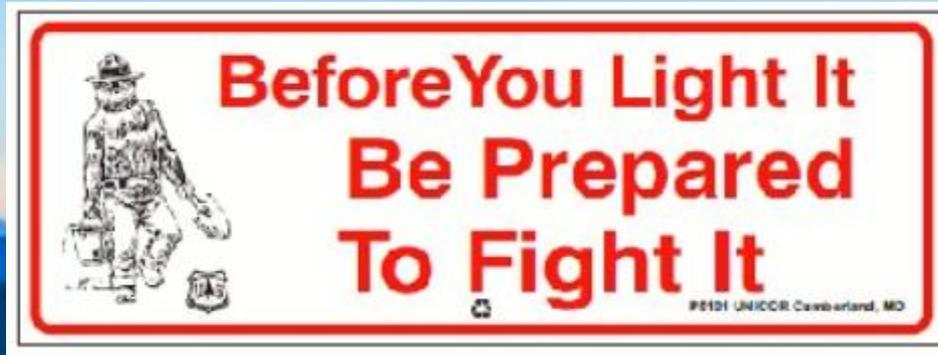
Taro Pusina
Interagency Fire Management Officer

Fire Prevention

Fire Restriction Criterion

- Science based
- Fuel moisture
- Energy Release Component (ERC)
- Depleted resources
- High wildfire occurrence
- Resistance to control
- Fire Danger
- High Planning/Preparedness Level

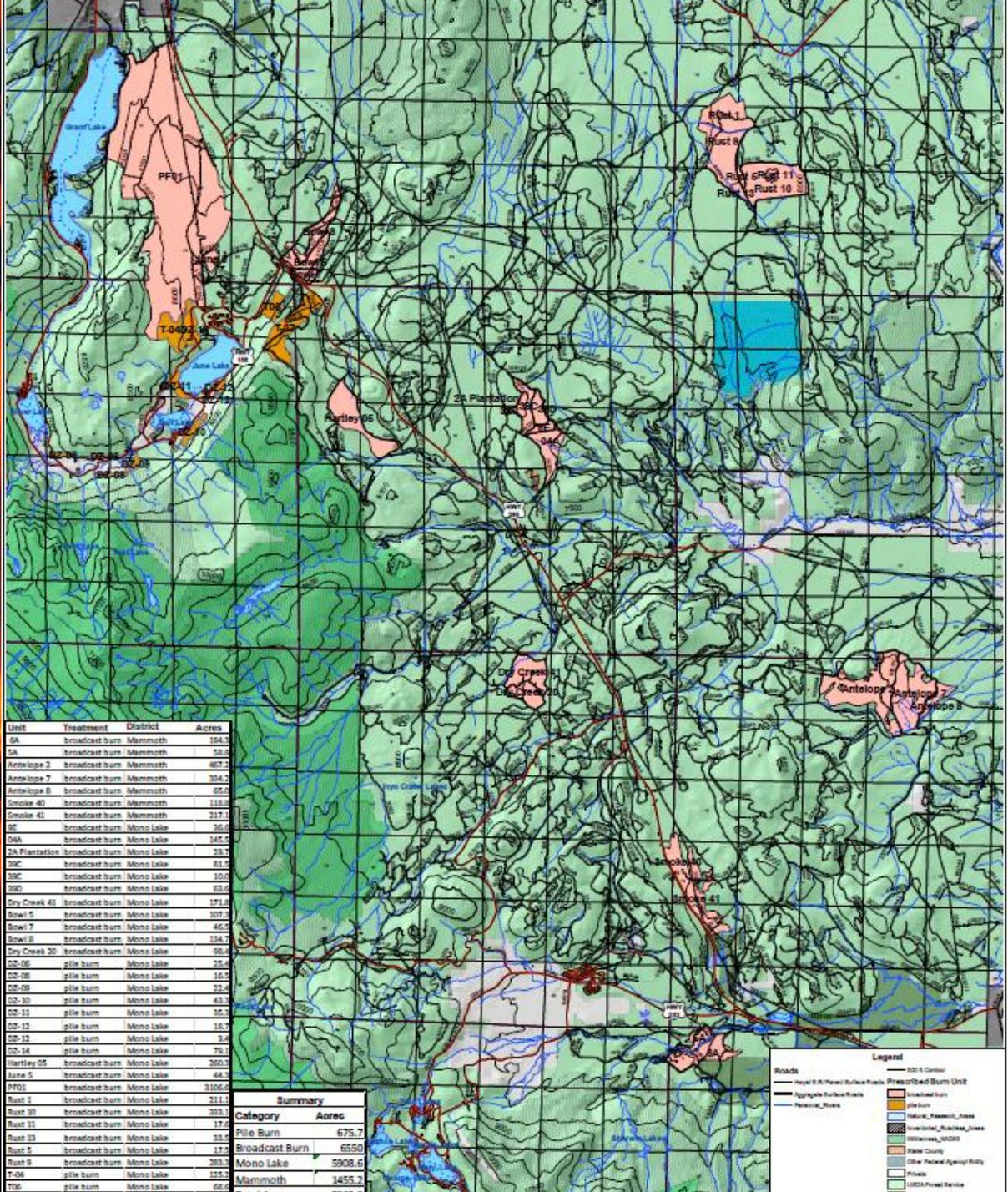
Phased Approach



U.S. Forest Service
Inyo National Forest

Taro Pusina
Interagency Fire Management Officer

Past



Unit	Treatment	District	Acres
CA	broadcast burn	Mammoth	164.2
CA	broadcast burn	Mammoth	58.8
Antelope 2	broadcast burn	Mammoth	467.2
Antelope 7	broadcast burn	Mammoth	354.2
Antelope 8	broadcast burn	Mammoth	65.0
Smoke 40	broadcast burn	Mammoth	118.8
Smoke 41	broadcast burn	Mammoth	217.1
OT	broadcast burn	Mono Lake	36.6
OAA	broadcast burn	Mono Lake	145.5
JA Plantation	broadcast burn	Mono Lake	25.7
TC	broadcast burn	Mono Lake	81.6
TC	broadcast burn	Mono Lake	70.0
TD	broadcast burn	Mono Lake	63.8
Dry Creek 43	broadcast burn	Mono Lake	174.8
Dry 5	broadcast burn	Mono Lake	302.7
Dry 7	broadcast burn	Mono Lake	462.7
Dry 8	broadcast burn	Mono Lake	134.7
Dry Creek 20	broadcast burn	Mono Lake	98.4
CO-06	pile burn	Mono Lake	25.4
CO-08	pile burn	Mono Lake	16.5
CO-09	pile burn	Mono Lake	22.4
CO-10	pile burn	Mono Lake	43.3
CO-11	pile burn	Mono Lake	25.3
CO-12	pile burn	Mono Lake	18.7
CO-13	pile burn	Mono Lake	3.4
CO-14	pile burn	Mono Lake	76.1
Hartley 05	broadcast burn	Mono Lake	260.0
June 5	broadcast burn	Mono Lake	44.3
PFT0	broadcast burn	Mono Lake	3166.6
Rust 1	broadcast burn	Mono Lake	211.2
Rust 10	broadcast burn	Mono Lake	203.1
Rust 11	broadcast burn	Mono Lake	17.0
Rust 13	broadcast burn	Mono Lake	53.2
Rust 5	broadcast burn	Mono Lake	172.0
Rust 9	broadcast burn	Mono Lake	203.3
T-06	pile burn	Mono Lake	125.2
T06	pile burn	Mono Lake	66.0

Summary	
Category	Acres
Pile Burn	675.7
Broadcast Burn	6590.6
Mono Lake	5908.6
Mammoth	1455.2

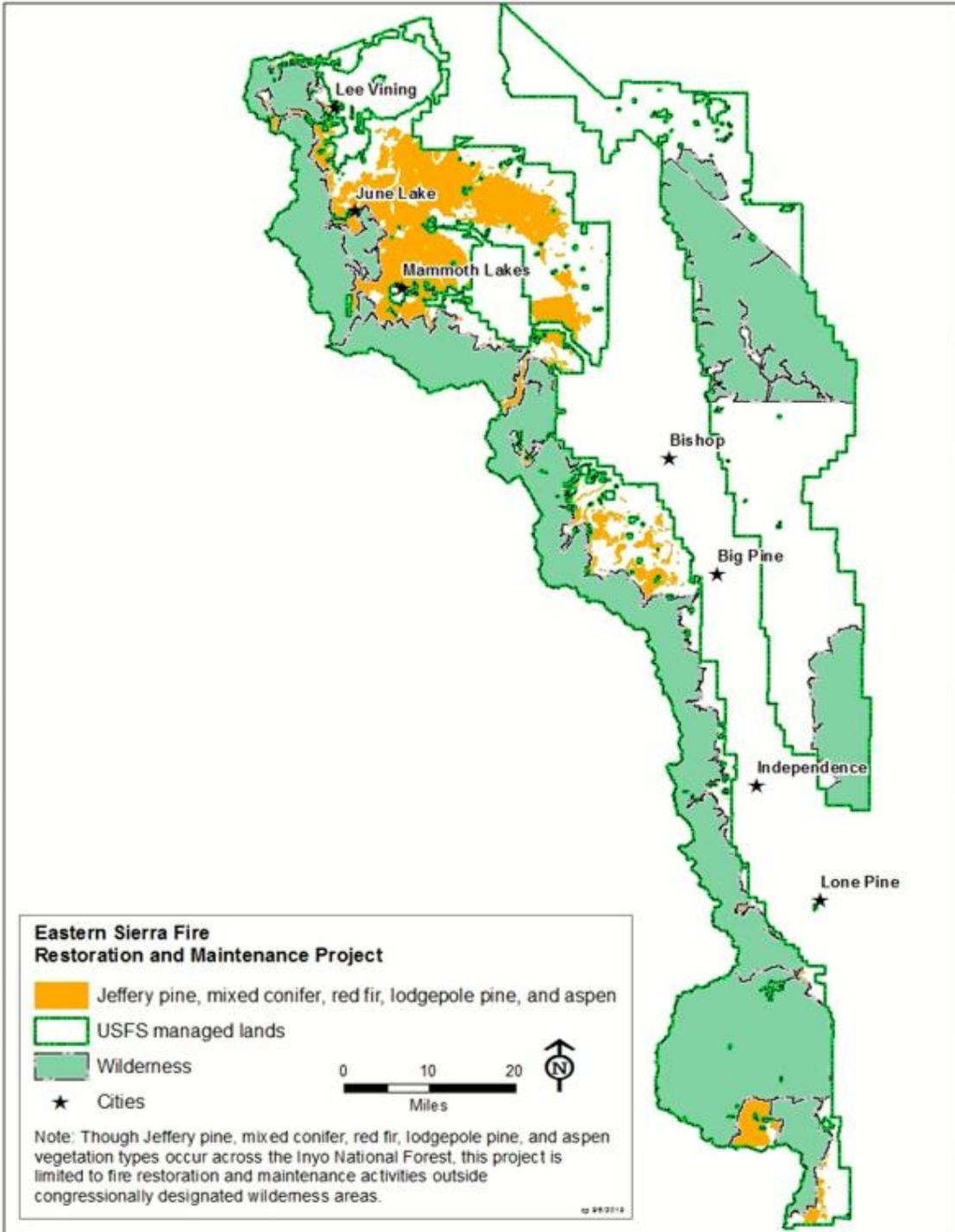
Legend

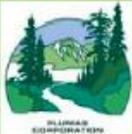
- Roads
 - Highway 89/Forest Service Roads
 - Aggregate Public Roads
 - Private Roads
- 300 ft Contour
- Prescribed Burn Unit
 - Broadcast Burn
 - Pile Burn
 - Native Prescribed Burn
 - Prescribed Burn Unit
 - Private
 - USDA Forest Service



Future

Eastern Sierra Fire Restoration and Maintenance Project

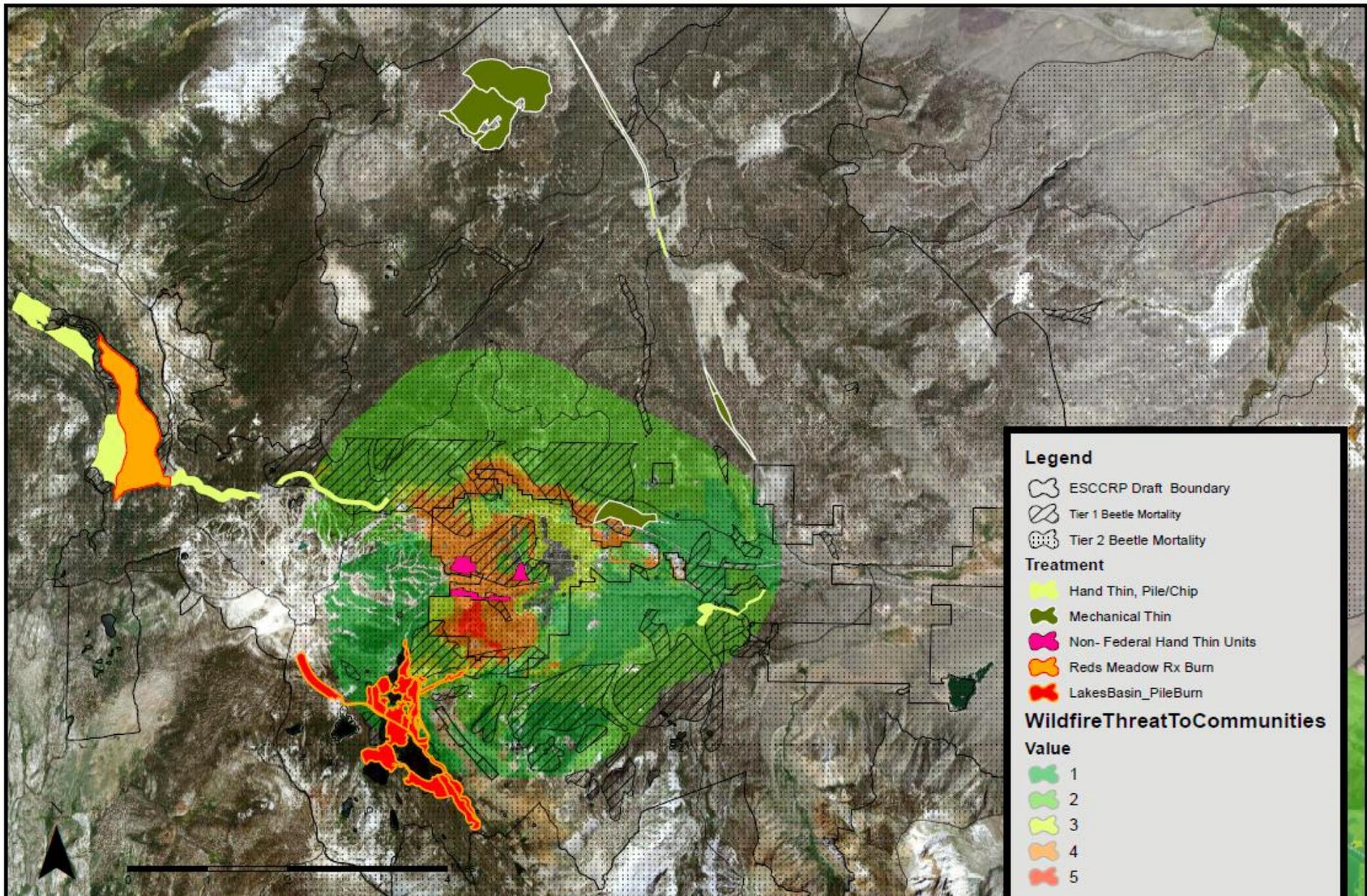




Eastern Sierra Climate and Communities Resilience Project

Proposed Phase I Treatment: NEPA Ready Units and Units within the Town of Mammoth Lakes

Working together to promote resilient landscapes, build fire adapted communities, and provide for safe and effective wildfire response.





**U.S. Forest Service
Inyo National Forest**

**Taro Pusina
Interagency Fire Management Officer**



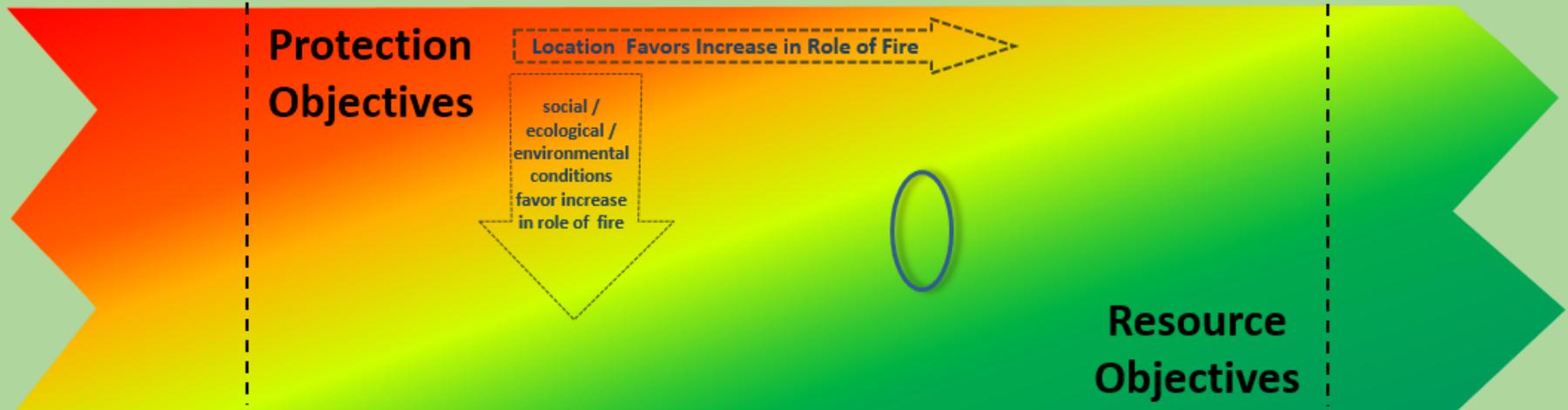
Managing Wildfire on a Continuum

Human safety risk,
ecological risk,
management
requirements,
regulations

**Decision Point - risk/benefit
analysis** beyond this point – “only”
protection objectives

**Decision Point - risk/benefit
analysis** beyond this point – “only”
resource objectives

Career risk,
ecological risk,
management
requirements,
regulations



The Kelsey-Häussermann Wildfire Management Continuum
(change ellipse to meet your situation)

 = Any fire, project, zone,.



U.S. Forest Service
Inyo National Forest

Taro Pusina
Interagency Fire Management Officer

Have a Great Year!



**U.S. Forest Service
Inyo National Forest**

**Taro Pusina
Interagency Fire Management Officer**

