2023 to 2025 Electrical Corporation
Wildfire Mitigation Plans

Docket #2023-2025-WMPs

Wildfire Mitigation Plan

LS Power Grid California, LLC

for Submittal to:

OFFICE OF ENERGY INFRASTRUCTURE SAFETY

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ACRONYM LIST

°F	Fahrenheit
AFN	Access and Functional Needs
ANSI/NETA	American National Standard Institute/InterNational Electrical Testing Association
APM	Applicant-Proposed Measure
CAISO	California Independent Systems Operator
CAL FIRE	California Department of Forestry and Fire Protection
Cal OES	California Governor's Office of Emergency Services
CEQA	California Environmental Quality Act
CFPP	Construction Fire Prevention Plan
CMMS	Computer Maintenance Management System
CPUC	California Public Utilities Commission
EAM	enterprise asset management
EHV	extra high voltage
ERC	Emergency Response Commander
FEMA	Federal Emergency Management Agency
Fern Road Substation	Fern Road Static Synchronous Compensator Substation
FHSZ	Fire Hazard Severity Zone
FRAP	Fire and Resource Assessment Program
FTE	Full Time Employee
GIS	gas-insulated switchgear
HFRA	High Fire Risk Area
HFTD	High Fire Threat District
I-	Interstate

IFTDSS	Interagency Fuel Treatment Decision Support System
ISO	International Organization for Standardization
ITO	Independent Transmission Operator
kV	kilovolt
LRA	CAL FIRE Local Resource Area
LSPG-CA	LS Power Grid-California
LV	low voltage
MAA	Mutual Aid Agreements
MM	mitigation measure
MOA	memorandum of agreement
MW	megawatt
N/A	Not Applicable
NERC	North American Electric Reliability Corporation
NIMS	National Incident Management Systems
Orchard Substation	Orchard Static Synchronous Compensator Substation
OSHA	Occupational Safety and Health Administration
PG&E	Pacific Gas and Electric Company
PRC	Public Resources Code
PSPS	Public Safety Power Shutoffs
QDR	Quarterly Data Reports
RAWS	Remote Automatic Weather Stations
RCP	representative concentration pathway
RFW	Red Flag Warning
ROS	rate of spread
SAF	Society of American Foresters

SCADA	Supervisory Control and Data Acquisition
SME	Subject Matter Expert
SOTP	System Operator Training Program
SR-	State Route
SRA	CAL FIRE State Resource Area
STATCOM	Static Synchronous Compensator
SVI	Social Vulnerability Index
TBD	to be determined
TSO	Transmission System Operator
WEAP	Worker Environmental Awareness Program
WMP	Wildfire Mitigation Plan
WUI	Wildland-Urban Interface

1. Executive Summary

LS Power Grid California, LLC (LSPG-CA) is a wholly owned subsidiary of LS Power and a California Electrical Corporation classified as an Independent Transmission Operator (ITO) by Energy Safety.

LSPG-CA anticipates having two 500 kilovolt (kV) substation facilities (Fern Road and Orchard) under construction in 2023, with both planned to be energized in 2024. The Orchard Static Synchronous Compensator (STATCOM) Substation (Orchard Substation)[1] is the only facility permitted for construction by the California Public Utilities Commission (CPUC) at the time of filing the 2023 Wildfire Mitigation Plan (WMP). The expected approval of the Fern Road STATCOM Substation (Fern Road Substation) is imminent, and LSPG-CA anticipates that processes, programs, and practices established in this WMP will apply to all LSPG-CA facilities in the future.

Because this WMP will be actively reviewed and adaptively managed, future WMPs may include variations in content, format, covered assets, and/or approach. LSPG-CA is committed to improvement of wildfire-related plans, systems, and processes and will include new wildfire-related initiatives in future WMP submissions.

Summary of the 2020–2022 WMP Cycle

LSPG-CA was not a California Electrical Corporation prior to 2023 and thus did not have a WMP in the 2020–2022 cycle.

Summary of the 2023–2025 Base WMP

The primary goal of the WMP is to describe how LSPG-CA will construct, maintain, and operate its electrical equipment in a manner that will keep its customers and communities safe by minimizing the risk of catastrophic wildfire.

LSPG-CA has WMP objectives in the following WMP categories for 3- and 10-year time periods:

- Grid Design, Operations, and Maintenance
- Vegetation Management and Inspections
- Situational Awareness and Forecasting

[1] *Fern Road Substation and Orchard Substation* refer to the overall project process at different geographic locations. *Substation site* refers to the footprint boundary. *Substation* refers to the electrical equipment within the substation site. *Project area* refers to the substation site and 2-mile buffer.

- Emergency Preparedness
- Community Outreach and Engagement

The WMP framework includes the following components, which would be updated every 3 years, per WMP cycle:

1. Goals and plan objectives, as described above
2. Scope of application (i.e., electrical corporation service territory)
3. Hazard identification
4. Risk scenario identification
5. Risk analysis (i.e., likelihood and consequences)
6. Risk presentation
7. Risk evaluation
8. Risk mitigation and management

The risk informed framework discussion can be found below in Section 4.4, *Risk-Informed Framework,* of this WMP.

2. Responsible Persons

- **Executive-level owner with overall responsibility:**
  - B. Cameron Fredkin, Chief Operating Officer, LSPG-CA
- **Program owners with responsibility for each of the main components of the plan:**
  - Overview of WMP
    - Ross Hohlt, Director, Asset Management, LSPG-CA
  - Overview of the Service Territory
    - James Rekowski, Project Engineer, LSPG-CA
  - Risk Methodology and Assessment
    - Ross Hohlt, Director, Asset Management, LSPG-CA
  - Wildfire Mitigation Strategy Development
    - Ross Hohlt, Director, Asset Management, LSPG-CA
  - Wildfire Mitigations
    - Heath Holt, Health, Safety, and Environmental Manager, LSPG-CA
  - Public Safety Power Shutoff
    - Heath Holt, Health, Safety, and Environmental Manager, LSPG-CA
  - Lessons Learned/Corrective Action Program
    - Ross Hohlt, Director, Asset Management, LSPG-CA
- **General ownership for questions related to the WMP:**
  - Ross Hohlt, Director, Asset Management, LSPG-CA

3. Statutory Requirements Checklist

Table 3-1 lists the applicable statutory requirements for LSPG-CA's WMP as detailed in Public Utilities Code Section 8386(c).

Table 3-1. Statutory Requirements Checklist

Public Utilities Code Section 8386	**Description**	**WMP Section/Page**
(c)(1)	An accounting of the responsibilities of persons responsible for executing the plan.	Section 2, p. 3 (Responsible Persons)
(c)(2)	The objectives of the plan.	Section 4.2, p. 12 (Plan Objectives) Section 8.1.1.2, p. 99 (Targets)
(c)(3)	A description of the preventive strategies and programs to be adopted by the electrical corporation to minimize the risk of its electrical lines and equipment causing catastrophic wildfires, including consideration of dynamic climate change risks.	Section 4.4, p. 15 (Risk Informed Framework) Section 6, p. 72 (Risk Methodology Assessment) Section 7.1 p. 87 (Risk Evaluation) Section 7.2.2, p. 97 (Anticipated Risk Reduction) Section 8, p. 99 (Wildfire Mitigations)
(c)(4)	A description of the metrics the electrical corporation plans to use to evaluate the plan's performance and the assumptions that underlie the use of those metrics.	Section 8.1.1.3, p. 99 (Design, Operations, and Maintenance Performance Metrics) Section 8.2.1.3, p. 117 (Vegetation Management and Inspections Performance Metrics)

Public Utilities Code Section 8386	Description	WMP Section/Page
		Section 8.3.1.3, p. 129 (Situational Awareness and Forecasting Performance Metrics) Section 8.4.1.3, p. 141 (Emergency Preparedness Performance Metrics)
(c)(5)	A discussion of how the application of previously identified metrics to previous plan performances has informed the plan.	Not Applicable (N/A): LSPG-CA was not a California Electrical Corporation prior to 2023 and thus did not have a WMP in the 2020–2022 cycle.
(c)(6)	A description of the electrical corporation's protocols for disabling reclosers and de-energizing portions of the electrical distribution system that consider the associated impacts on public safety. As part of these protocols, each electrical corporation shall include protocols related to mitigating the public safety impacts of disabling reclosers and de-energizing portions of the electrical distribution system that consider the impacts on all of the aspects listed in Public Utilities Code Section 8386(c).	N/A: LSPG-CA is an Independent Transmission Operator (ITO) and does not own any electrical distribution systems or directly serve any end-use customers.
(c)(7)	A description of the electrical corporation's appropriate and feasible procedures for notifying a customer who may be impacted by the de-energizing of electrical lines, including procedures for those customers receiving medical baseline allowances as	N/A: LSPG-CA is an ITO and does not own any electrical distribution systems or directly serve any end-use customers.

Public Utilities Code Section 8386	**Description**	**WMP Section/Page**
	described in paragraph (6). The procedures shall direct notification to all public safety offices, critical first responders, health care facilities, and operators of telecommunications infrastructure with premises within the footprint of potential de-energization for a given event. The procedures shall comply with any orders of the commission regarding notifications of de-energization events.	
(c)(8)	Identification of circuits that have frequently been de-energized pursuant to a de-energization event to mitigate the risk of wildfire and the measures taken, or planned to be taken, by the electrical corporation to reduce the need for, and impact of, future de-energization of those circuits, including, but not limited to, the estimated annual decline in circuit de-energization and de-energization impact on customers, and replacing, hardening, or undergrounding any portion of the circuit or of upstream transmission or distribution lines.	N/A: LSPG-CA is an ITO and does not own any transmission lines, own any electrical distribution systems, or directly serve any end-use customers.
(c)(9)	Plans for vegetation management.	Section 8.2, p. 117 (Vegetation Management and Inspections)
(c)(10)	Plans for inspections of the electrical corporation's electrical infrastructure.	Section 8.1.3, p. 103 (Asset Inspections)

Public Utilities Code Section 8386	**Description**	**WMP Section/Page**
(c)(11)	A description of the electrical corporation's protocols for the de-energization of the electrical corporation's transmission infrastructure, for instances when the de-energization may impact customers who, or entities that, are dependent upon the infrastructure. The protocols shall comply with any order of the commission regarding de-energization events.	Section 8.5, p 172 (Community Outreach and Engagement)
(c)(12)	A list that identifies, describes, and prioritizes all wildfire risks, and drivers for those risks, throughout the electrical corporation's service territory, including all relevant wildfire risk and risk mitigation information that is part of the commission's Safety Model Assessment Proceeding (A.15-05-002, et al.) and the Risk Assessment Mitigation Phase filings. The list shall include, but not be limited to, both of the following: • Risks and risk drivers associated with design, construction, operations, and maintenance of the electrical corporation's equipment and facilities. • Particular risks and risk drivers associated with topographic and climatological risk factors throughout the different parts of the electrical corporation's service territory.	Section 6, p. 72 (Risk Methodology and Assessment) 6.2.2, p. 75 (Risk and Risk Components Calculation) Section 7.1, p. 87 (Risk Evaluation) Section 7.2.2, p. 97 (Anticipated Risk Reduction)

Public Utilities Code Section 8386	**Description**	**WMP Section/Page**
(c)(13)	A description of how the plan accounts for the wildfire risk identified in the electrical corporation's Risk Assessment Mitigation Phase filing.	Section 7.1.4.1, p. 91 (LSPG-CA Identifying and Evaluating Mitigation Initiatives) Section 7.2.1, p. 93 (Overview of Mitigation Initiatives and Activities) Section 8.2.3.5, p. 122 (Substation Defensible Space)
(c)(14)	A description of the actions the electrical corporation will take to ensure its system will achieve the highest level of safety, reliability, and resiliency, and to ensure that its system is prepared for a major event, including hardening and modernizing its infrastructure with improved engineering, system design, standards, equipment, and facilities, such as undergrounding, insulating of distribution wires, and replacing poles.	Section 4, p. 12 (Goal and Objectives) Section 8, p. 99 (Wildfire Mitigations)
(c)(15)	A description of where and how the electrical corporation considered undergrounding electrical distribution lines within those areas of its service territory identified to have the highest wildfire risk in a commission fire threat map.	N/A: LSPG-CA is an ITO and does not own any electrical distribution systems or directly serve any end-use customers.

Public Utilities Code Section 8386	**Description**	**WMP Section/Page**
(c)(16)	A showing that the electrical corporation has an adequately sized and trained workforce to promptly restore service after a major event, taking into account employees of other utilities pursuant to mutual aid agreements and employees of entities that have entered into contracts with the electrical corporation.	Section 8.1.9, p. 112 (Workforce Planning)
(c)(17)	Identification of any geographic area in the electrical corporation's service territory that is a higher wildfire threat than is currently identified in a commission fire threat map, and where the commission should consider expanding the high fire threat district based on new information or changes in the environment.	Section 5.3.3, p. 51 (High Fire Threat Districts) Section 6.4, p. 79 (Risk Analysis Results and Presentation)
(c)(18)	A methodology for identifying and presenting enterprise-wide safety risk and wildfire-related risk that is consistent with the methodology used by other electrical corporations unless the commission determines otherwise.	Section 6, p. 72 (Risk Methodology and Assessment)
(c)(19)	A description of how the plan is consistent with the electrical corporation's disaster and emergency preparedness plan prepared pursuant to Section 768.6, including both of the following: • Plans to prepare for, and to restore service after, a wildfire, including workforce mobilization and	Section 8.4, p. 139 (Emergency Preparedness)

Public Utilities Code Section 8386	Description	WMP Section/Page
	prepositioning equipment and employees. • Plans for community outreach and public awareness before, during, and after a wildfire, including language notification in English, Spanish, and the top three primary languages used in the state other than English or Spanish, as determined by the commission based on the United States Census data.	
(c)(20)	A statement of how the electrical corporation will restore service after a wildfire.	Section 8.4.5.1, p. 166 (Overview of Service Restoration Plan)
(c)(21)	Protocols for compliance with requirements adopted by the commission regarding activities to support customers during and after a wildfire, outage reporting, support for low-income customers, billing adjustments, deposit waivers, extended payment plans, suspension of disconnection and nonpayment fees, repair processing and timing, access to electrical corporation representatives, and emergency communications.	N/A: LSPG-CA is an ITO and does not own any electrical distribution systems or directly serve any end-use customers.
(c)(22)	A description of the processes and procedures the electrical corporation will use to do all of the following: • Monitor and audit the implementation of the plan.	Section 8.1.5, p. 107 (Asset Management and Inspection Enterprise System(s))

Public Utilities Code Section 8386	**Description**	**WMP Section/Page**
	• Identify any deficiencies in the plan or the plan's implementation and correct those deficiencies. • Monitor and audit the effectiveness of electrical line and equipment inspections, including inspections performed by contractors and carried out under the plan, and other applicable statutes and commission rules	Section 8.1.6, p. 108 (Quality Assurance and Quality Control) Section 11, p. 184 (Corrective Action Program)
(c)(23)	Any other information that the Wildfire Safety Division (Energy Safety) may require.	N/A: LSPG-CA believes all statutory requirements have been met.

4. Overview of WMP

4.1 Primary Goal

The primary goal of the WMP is to describe how LSPG-CA will construct, maintain, and operate its electrical equipment in a manner that will keep its customers and communities safe by minimizing the risk of catastrophic wildfire.

4.2 Plan Objectives

LSPG-CA's WMP overarching objective is to comply with applicable provisions of Public Utilities Code Section 8386 at LSPG-CA's facilities.

Certain provisions in Public Utilities Code Section 8386 and the WMP Guidelines, such as those addressing communications with customers and protocols for disconnecting service to customers, do not apply to an Independent Transmission Operator (ITO) such as LSPG-CA. This WMP addresses provisions in Public Utilities Code Section 8386 and the WMP Guidelines as they relate to the LSPG-CA facilities.

While the Orchard Substation is the only facility permitted for construction by the CPUC at the time of filing the 2023 WMP, the expected approval of the Fern Road Substation is imminent, and LSPG-CA anticipates that processes, programs, and practices established in this WMP will apply to all LSPG-CA facilities in the future. Because this WMP will be actively reviewed and adaptively managed, future WMPs may include variations in content, format, covered assets, and/or approach.

The WMP recognizes the following facts relevant to assessing wildfire risk and establishing effective mitigations:

- LSPG-CA does not have any facilities operational during the time this WMP was prepared.
- LSPG-CA expects to in-service two transmission substations, but no transmission lines, during the current 3-year WMP cycle.
- LSPG-CA does not serve wholesale, distribution, or retail customers nor does it have any residential, commercial, or industrial interconnections.
- LSPG-CA facilities will be under the operational control of the California Independent Systems Operator (CAISO).

LSPG-CA's WMP objectives for 3- and 10-year time periods are discussed below.

4.2.1 Grid Design, Operations, and Maintenance

LSPG-CA's 3-year objective for grid design, operations, and maintenance is to enhance work safety procedures in areas identified as High Fire Threat District (HFTD) and High Fire Risk Area (HFRA) and safely transition from construction to operation of both substation facilities.

LSPG-CA's 10-year objective for grid design, operations, and maintenance is to incorporate enterprise asset management systems into the maintenance program to ensure system reliability and public safety.

4.2.2 Vegetation Management and Inspections

LSPG-CA's 3- and 10-year objective for vegetation management and inspections is to establish and maintain a substation vegetation management program to reduce the risk of vegetation contact and potential wildfire spread.

4.2.3 Situational Awareness and Forecasting

LSPG-CA's 3-year objective for situational awareness and forecasting is to establish and maintain an environmental monitoring and weather forecasting program that informs measures to reduce the risk of wildfires from environmental or weather-related conditions.

LSPG-CA's 10-year objective for grid design, operations, and maintenance is to evaluate and enhance Transmission System Operators' (TSOs) use of live video.

4.2.4 Emergency Preparedness

LSPG-CA's 3-year objectives for emergency preparedness are to perform workforce training for emergency response, establish and implement fire-safe construction practices to reduce the risk of ignition, and establish contact with local public safety and fire agencies and ensure site locations and access information are integrated into relevant dispatch systems.

LSPG-CA's 10-year objective for emergency preparedness is to establish more formalized review of emergency preparedness procedures with benchmarking systems.

4.2.5 Community Outreach and Engagement

LSPG-CA's 3-year objectives for community outreach and engagement is to establish and maintain relationships with interconnecting utilities to ensure clear communications to reduce the risk of wildfire and improve emergency response.

LSPG-CA's 10-year objective for community outreach and engagement is to formalize a mechanism to share lessons learned among ITO peers.

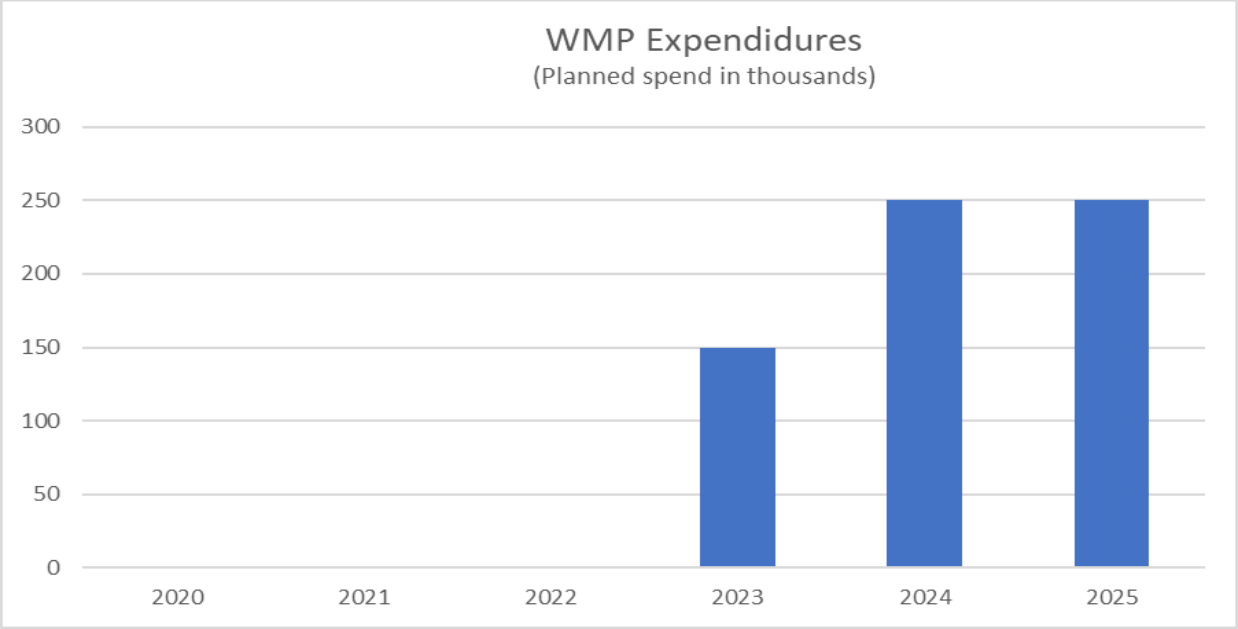
4.3 Proposed Expenditures

Table 4-1 and Figure 4-1 provide a summary of LSPG-CA's WMP expenditures. LSPG-CA had no planned or actual spend from 2020 to 2022. The financials represented in the summary table equal the aggregate spending listed in the financial tables of the Quarterly Data Reports (QDR) (see the Energy Safety Data Guidelines). Energy Safety's WMP evaluation, including approval or denial, must not be construed as approval of, or agreement with, costs listed in the WMP.

Table 4-1. Summary of WMP Expenditures

Year	**Spend (thousands $ USD)**
2020	Planned (as reported in the 2020 WMP) = N/A Actual = N/A ±△ = N/A
2021	Planned (as reported in the 2021 WMP Update) = N/A Actual = N/A ±△ = N/A
2022	Planned (as reported in the 2022 WMP Update) = N/A Actual = N/A ±△ = N/A
2023	Planned = 150
2024	Planned = 250
2025	Planned = 250

Figure 4-1. Summary of WMP Expenditures



4.4 Risk-Informed Framework

LSPG-CA adopted a risk-informed approach to developing its WMP. The risk-informed approach includes several components, as described in Table 4-2. The approach balances optimized life safety and property protection with other performance objectives, while providing a transparent process to internal and external stakeholders. Mitigation efforts target the highest risk areas.

Table 4-2. Risk-Informed Approach Components

Risk-Informed Approach Component	**Brief Description**
1. Goals and plan objectives	The primary goal of the WMP is to describe how LSPG-CA will construct, maintain, and operate its electrical equipment in a manner that will keep its customers and communities safe by minimizing the risk of catastrophic wildfire. LSPG-CA has the following WMP objectives by WMP categories for 3- and 10-year time periods: • Grid Design, Operations, and Maintenance • Vegetation Management and Inspections

Risk-Informed Approach Component	Brief Description
	• Situational Awareness and Forecasting • Emergency Preparedness • Community Outreach and Engagement
2. Scope of application (i.e., electrical corporation service territory)	LSPG-CA will have two 500 kV substation facilities (Fern Road and Orchard) under construction in 2023, with both planned to be energized in 2024. LSPG-CA has no transmission lines or distribution facilities planned or in operation. Sections 5.4.1 through 5.4.3 do not apply to LSPG-CA because LSPG-CA is an ITO without end users. Critical infrastructure located within the 2-mile Fern Road Substation area: 1) Whitmore Fire Company, 2) Whitmore Elementary School, and 3) one private land mobile communication tower. Fern Road Substation and the critical facilities/infrastructure listed above, are located within a Tier 2 HFTD. Critical infrastructure located within the 2-mile Orchard Substation area: 1) Pacific Gas and Electric Company (PG&E) Gates Substation, 2) PG&E Jayne Switching Substation, 3) PG&E West Gates Solar System, 4) Westlands Solar Farm, 5) Gates Solar Station, 6) one antenna structure registration communication tower, 7) one cellular communication tower, 8) two private land mobile communication towers, 9) nine microwave communication towers, 10) one wastewater treatment facility, 11) Interstate (I-) 5, and 12) State Route (SR-) 269. The Orchard Substation, and the surrounding critical facilities/infrastructure listed above, are not located within a HFTD/HFRA. The WMP implementation requires the permits outlined in Table 5-6, located in Section 5.4.5, *Environmental Compliance and Permitting,* of this WMP.
3. Hazard identification	LSPG-CA's expected operations do not include transmission line, distribution lines, and end users. The overall utility risk

Risk-Informed Approach Component	Brief Description
	comes from ignition risk, which is comprised of three intermediate risk components: ignition likelihood, wildfire likelihood, and wildfire consequence. Ignition likelihood is comprised of the two foundational risk components :1) vegetation contact and 2) equipment ignition. Wildfire likelihood is comprised of the foundational risk component burn probability, which is influenced by fire history and topography. Wildfire consequence is comprised of the foundational risk component wildfire intensity, which is influenced by fire behavior and topography. Ignition Likelihood: Equipment at both the Fern Road Substation site and Orchard Substation site would be limited to substation equipment. Equipment components include circuit breakers, reactors, insulated gas bipolar transistor value/control enclosures, cooling equipment, connectors, conductors, transformers, other STATCOM systems, and disconnect switches. There are no overhead transmission lines that are associated with increased opportunities for contact with vegetation and probable ignition. The limited ground equipment at the Fern Road Substation site is located near predominantly grass vegetation, with a minor component of shrubs and trees. The Orchard Substation site is located in non-burnable substrate (irrigated agricultural field). Vegetation maintenance standards would maintain any grass and shrubs cleared around the substation structure at both substation sites; Fern Road Substation would have little to no possibility of a woody tree making contact with the substation given the structure placement. Wildfire Likelihood: The main metric of wildfire likelihood is burn probability, which is the likelihood of a fire occurring under a set of fuel moisture and weather conditions. The Fern Road Substation site has a high burn probability, given the

Risk-Informed Approach Component	Brief Description
	dominance of pyric grasses in the area; the Orchard Substation site has no burn probability given the non-burnable substrate. Wildfire Consequence: The main metrics of wildfire consequence are flame length, rate of spread (ROS), and crown fire activity. The Fern Road Substation site predominantly sustains moderate flame lengths, which is common in continuous or in heavier grass fuel loadings. Most of the substation site has a minimal ROS of less than 20 chains per hour. Crown fire activity is fire supported in the canopy/crown of trees or shrubs—it is indicative of more extreme fire behavior as compared to surface fire. The Fern Road Substation site is predicted to predominantly support surface fire. The Orchard Substation site has no quantifiable flame length, does not support any quantifiable ROS, and does not support crown fire activity as it is in non-burnable substrate. The likelihood of catastrophic wildfire in both project areas is minimal; fire history, burn probability, and predicted fire behavior under current fuels conditions do not support extreme fire behavior. In the past two decades, there have been few to no wildfires recorded in the project areas. The Fern Road Substation has a higher likelihood of an ignition and wildfire given the vegetation type and fire history, but still exhibits low to moderate fire behavior overall; there is a slight possibility of woody vegetation making contact with the substation. The Orchard Substation has the substation located in non-burnable substrate with no overhead woody vegetation.
4. Risk scenario identification	Risk Scenario 1: Scenario 1 is a human-caused or natural source of ignition in the vicinity of a substation site. If the ignition source leads to a wildfire that spreads, there is the potential for fire to reach the substation and create additional ignition sources due to the presence of combustible material.

Risk-Informed Approach Component	Brief Description
	A cleared 30-foot perimeter will be increased in areas classified as HFTD or HFTA; these often align with High and Very High Fire Hazard Severity Zones (FHSZs). Historic fire return intervals indicate vegetation types that are prone to wildfire every 0 to 25 years at the two substation sites. Risk Scenario 2: Scenario 2 is a source of ignition from substation electrical equipment due to equipment malfunction. The cleared 30-foot perimeter will be increased in areas classified as HFTD or HFTA; these often align with High and Very High FHSZs. Partially enclosed substations have fire detection systems in place, increasing systems hardening by immediate notification of an equipment fire. Risk Scenario 3: Scenario 3 is a source of ignition by vegetation contact with the substation equipment. This scenario is only possible at substation sites with trees that may reach beyond the minimum 30-foot vegetation cleared perimeter and have the potential to strike the substation. Regular equipment and site inspections will minimize the potential for trees to strike the substation or remain in contact with the substation and act as a fire conduit. The cleared 30-foot perimeter will be increased in areas classified as HFTD or HFTA, further minimizing the risk of vegetation contact leading to ignition. Risk Scenario 4: Scenario 4 is an extreme weather event, such as a red flag warning, wind advisory, or a fuels and fire behavior advisory. Modeling under 97th percentile weather conditions during historic peak fire season (late May–October) lessens the risk of not planning for an extreme weather event or predicting fire behavior in a worst-case scenario.
5. Risk analysis (i.e., likelihood and consequences)	The Overall Utility Risk is defined by a spatial landscape categorization; a weighted quantitative risk assessment categorizes a specific area as having a low, moderate, high, or extreme risk. The weighted risk assessment includes wildfire probability, wildfire behavior metrics, fire history, and values

Risk-Informed Approach Component	Brief Description
	at risk (critical infrastructure) as inputs. All inputs were given an equal rating. As an ITO, the risk components and analysis are not held to the CPUC's Risk Assessment and Mitigation Phase regulatory review and public-vetting process; however, this process does align with applicable CPUC decisions regarding disclosure of risks. The overall utility risk was defined by only ignition risk. Ignition risk was calculated as a total of 1) ignition likelihood, 2) wildfire likelihood, and 3) wildfire consequence.
6. Risk presentation	The overall weighted quantitative risk assessment categorizes most of the Fern Road Substation site as an extreme risk (approximately 62%), and most of the project area as a moderate risk (approximately 49%). The remaining substation site is predominantly classified as moderate risk (approximately 21%), with minor percentages classified as both low and high risk. These extreme risk areas are in alignment with the CPUC HFTD Tier 2 area, which covers the entirety of the Fern Road Substation site. Consequently, this will not trigger proposed changes for CPUC review. Thus the HFRA is the entirety of the Fern Road Substation site, which also aligns with the High and Very High FHSZ classification of the site. The vegetative composition, and thus the fuel models, indicate a high burn probability for the Fern Road Substation; however, fire behavior metrics predict low to moderate fire behavior. The Fern Road Substation presents the greatest overall utility risk as compared to Orchard Substation. Vegetation composition and fuel models at Fern Road Substation are more conducive to carrying wildfire and have a short historic fire return interval (0–5 years) in most of the project area. The overall weighted quantitative risk assessment categorizes the Orchard Substation site as a low risk category (approximately 95%), and most of the project area as a low risk

Risk-Informed Approach Component	Brief Description
	(approximately 54%), with minor components as moderate, high, and extreme. This low-risk categorization is in alignment with the lack of CPUC HFTD and FHSZ classifications in the project area. The entirety of the Orchard Substation site is on non-burnable substrate, with areas of flammable grass within the project area. Fire behavior metrics predict low to moderate fire behavior.
7. Risk evaluation	As stated in Section 7.1.1, *Approach,* of this WMP, the general risk evaluation approach consists of the following: • Key stakeholder groups, including LSPG-CA leads and local fire districts. • The risk-informed approach considered identified goals and plan objectives, scope of application, hazard and risk scenario identification, subsequent risk analysis and evaluation, and risk mitigation and management. Only hazards and risks applicable to the asset type and location were considered as within scope. A quantitative risk analysis identified areas where there was an ignition and wildfire risk; scalable mitigation initiatives were developed. • LSPG-CA's current risk calculation is a baseline because it is not yet operational. Once operational, LSPG-CA would fully implement all mitigation measures, including increased vegetation buffer zones for assets in an HFTD or HFTA. This increased mitigation measure equates to a direct reduction in risk. Regular collection of data and tracking of implementation measures will allow for monitoring, review, and potential modification of measures to reach improvement targets as risk is calculated over time. The risk management framework is a continuous cycle.

Risk-Informed Approach Component	Brief Description
8. Risk mitigation and management	LSPG-CA does not have a service territory, so the selection of mitigation initiatives considered the current planned assets (Fern Road and Orchard Substations) and their respective locations. Near-term (within 3 years) initiatives focus on the transition from construction to operations and the implementation of operating practices. Longer-term (10 years) initiatives consider broader process improvements that will be feasible once LSPG-CA has some operating history. The initiatives chosen were selected to reduce risk of ignition during construction and establish robust ongoing operating practices from the first day of operation. Initiatives related to design were not pursued because the initial design of the assets and the nature of substation-only facilities results in LSPG-CA's equipment being significantly hardened against wildfire risk. Traditional vegetation management practices generally apply to transmission and distribution lines. Because LSPG-CA's facilities are substations, the vegetation initiative selected is related to substation inspections. Outreach and emergency preparedness will focus on relationships and communication with local agencies because LSPG-CA does not directly serve customers. LSPG-CA did not determine a need for any interim mitigation initiatives.

5. Overview of the Service Territory

5.1 Service Territory

Section 5.1 does not apply to LSPG-CA because LSPG-CA is an ITO without end users.

5.2 Electrical Infrastructure

LSPG-CA has two 500 kV substation facilities that will be under construction in 2023, with both planned to be energized in 2024. LSPG-CA has no transmission lines or distribution facilities planned or in operation during the current WMP cycle.

Table 5-1 provides an overview of LSPG-CA's equipment.

Table 5-2. Overview of Key Electrical Equipment

Type of Equipment	**HFTD**	**Non-HFTD**	**Total**
Substations (#)	1	1	2
Power generation facilities (#)	0	0	0
Overhead transmission lines (circuit miles)	0	0	0
Overhead distribution lines (circuit miles)	0	0	0
Hardened overhead distribution lines (circuit miles)	0	0	0
Hardened overhead transmission lines (circuit miles)	0	0	0
Underground transmission and distribution lines (circuit miles)	0	0	0
Distribution transformers (#)	0	0	0
Reclosers (#)	0	0	0
Poles (#)	0	0	0
Towers (#)	0	0	0
Microgrids (#)	0	0	0

5.3 Environmental Settings

The Fern Road Substation site is approximately 40 acres[2] in size located in eastern Shasta County on the western slope of the Sierra Nevada foothills, east of Redding, Shasta County, California. Specifically, the project is north of SR-44 and south of SR-299, approximately 1.25 miles north of the town of Whitmore (Figure 5-1). The Fern Road Substation site and most of the project area is categorized as a California Department of Forestry and Fire Protection (CAL FIRE) State Resource Area (SRA) High and Very High Fire Hazard Severity Zones (FHSZs) (Figure 5-2), dominated by hardwood forests/woodland.

The Orchard Substation site is approximately 20 acres[3] in size and is located on the valley floor of the Central Valley of California in western Fresno County, approximately 13 miles east of the town of Coalinga, 13 miles north of Kettleman City, and 2 miles east of I-5 (Figure 5-3). The substation site and most of the project area is categorized as a CAL FIRE Local Resource Area (LRA) FHSZ of non-wildland/non-urban (Figure 5-4), dominated by irrigated agricultural land.

[2] The Fern Road Substation site will be approximately 40 acres, to be determined within a larger approximately 149-acre footprint. Analyses were conducted and maps created based on the larger 149-acre footprint to encompass any potential positioning of the 40-acre Substation site. Substation electrical equipment will be an approximately 13-acre footprint within the 40 acres.

[3] The Orchard Substation site will be approximately 20 acres, located within a larger approximately 71-acre parcel. Substation electrical equipment will be an approximately 13-acre footprint within the 20 acres.

Figure 5-1. Fern Road Substation Location

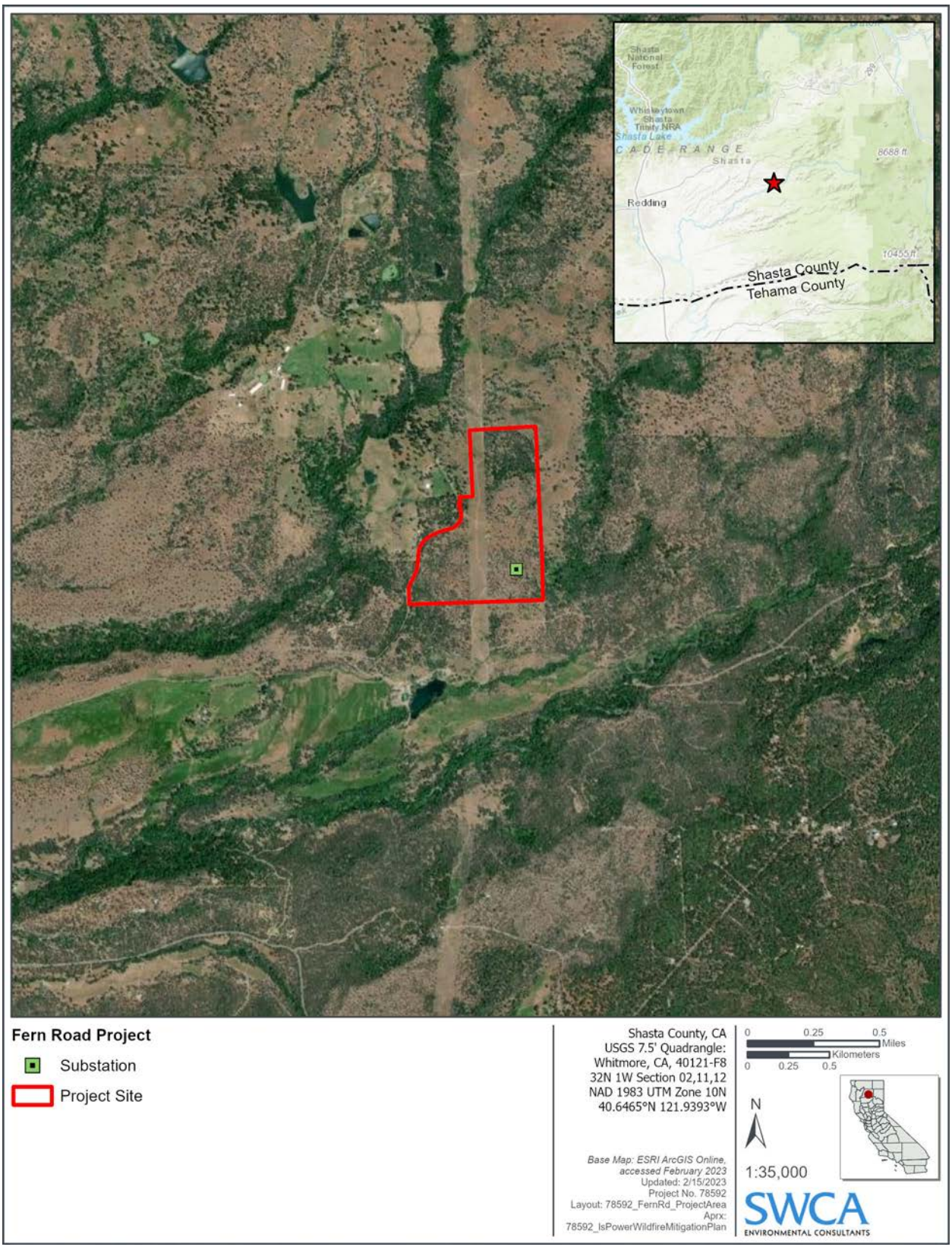


Figure 5-2. Fern Road Substation Fire Hazard Severity Zone

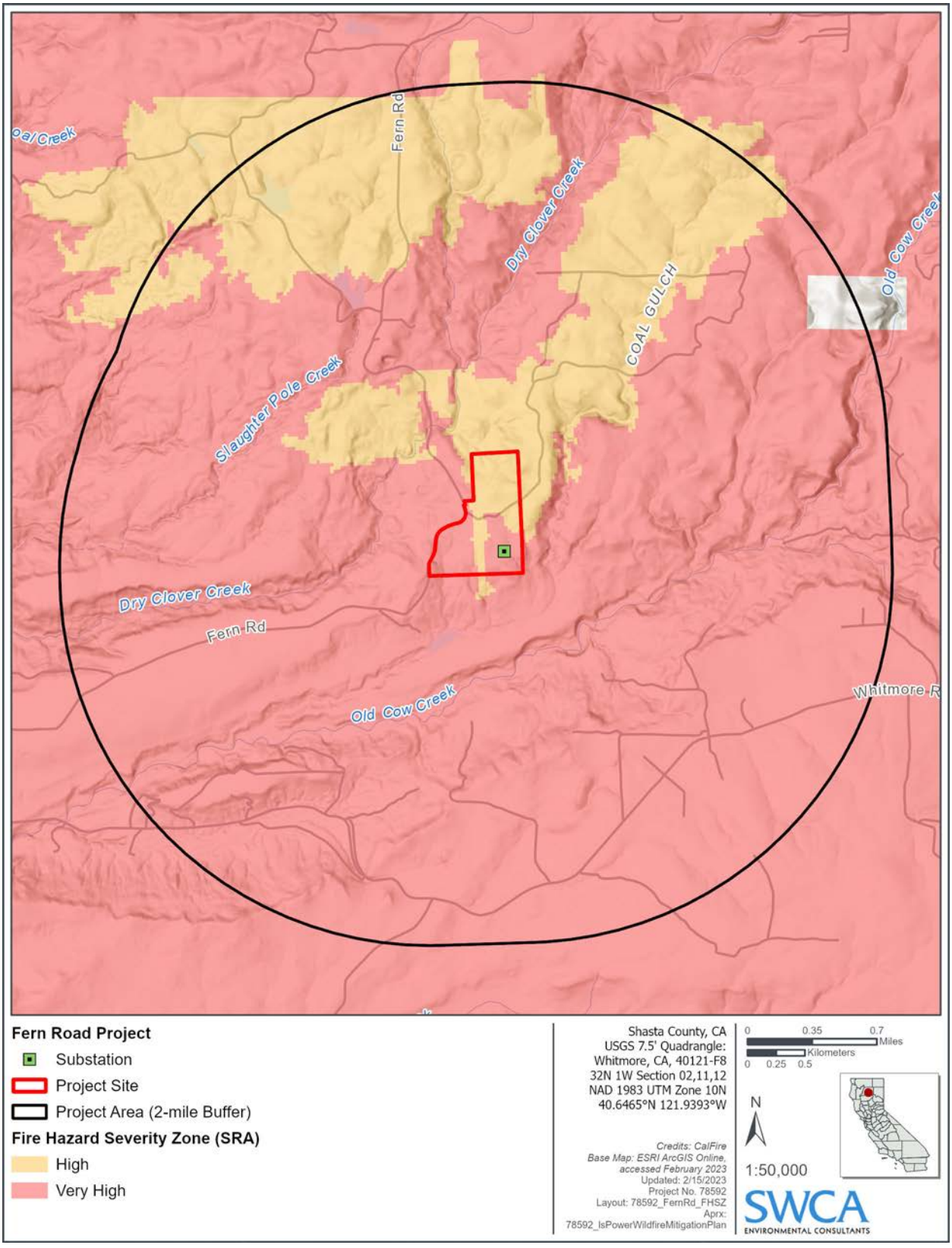


Figure 5-3. Orchard Substation Location

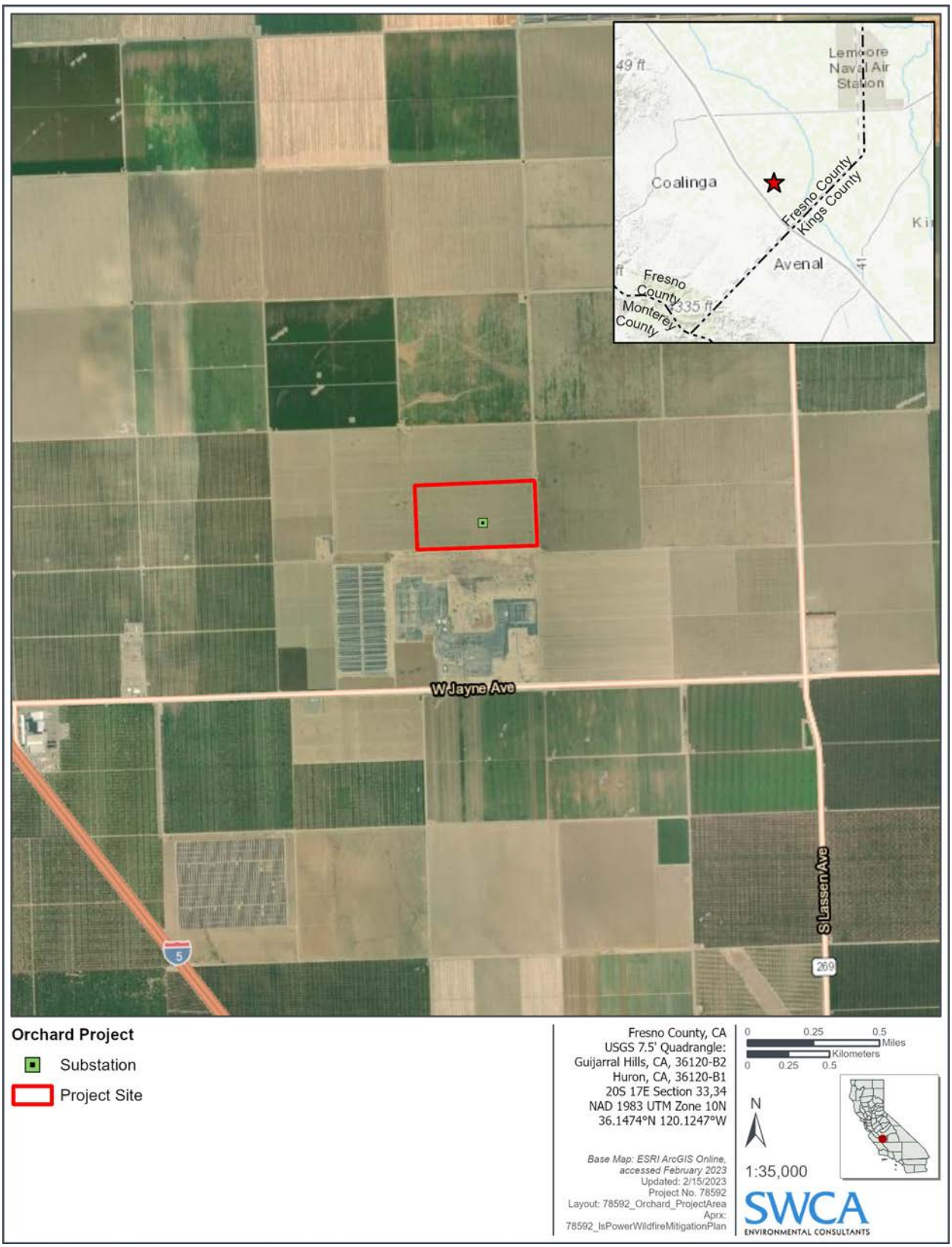
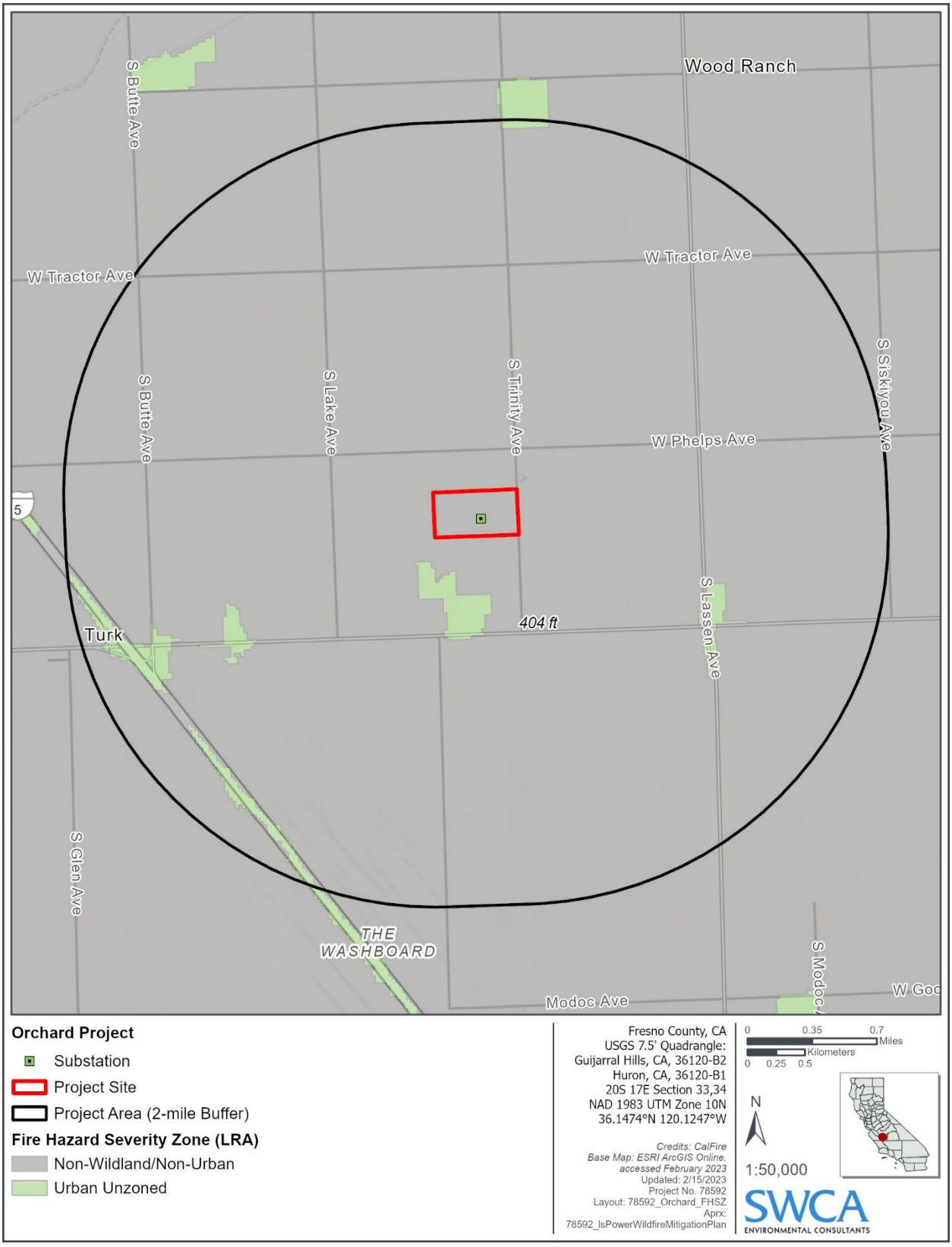


Figure 5-4. Orchard Substation Fire Hazard Severity Zone



5.3.1 Fire Ecology

5.3.1.1 Fern Road Substation

The Fern Road Substation is located in the Sierra foothills in an area dominated by hardwood forests/woodlands and herbaceous communities. The Society of American Foresters (SAF) defines the majority of the project area as blue oak-digger pine (Table 5-1; Figure 5-5). The high average temperature is 77 degrees Fahrenheit (°F) with an average annual precipitation of 40 inches. This area consists of drought-resistant vegetation, which is prone to wildfire.

The fuel model for the substation site is categorized predominantly as low load dry climate grass (GR2). The 2-mile radius surrounding the substation site contains primarily low load dry climate grass (GR2), very high load dry climate timber-shrub (TU5), moderate load dry climate grass-shrub (GS2), and low load humid climate timber-shrub (SH4) (Table 5-2; Figure 5-6). The majority of the project area has a fire return interval ranging from 0 to 25 years (Figure 5-7). The burn probability of the substation site is primarily categorized as highest burn probability (Figure 5-8). Fern Road Substation predominantly sustains low flame lengths of 0 to 4 feet (Figure 5-9). The rate of spread (ROS) at the substation site is predominantly 5 to 20 chains per hour, with the majority of the surrounding area ranging from 0 to 5 and 5 to 20 chains per hour (Figure 5-10). Crown fire activity for the substation site is categorized as surface fire mixed with passive crown fire, which is consistent with the surrounding area (Figure 5-11).

Table 5-3.1. Fern Road Substation Existing Broad and Society of American Foresters Vegetation Types

Vegetation Type	**Acres**	**Percentage of Project Area**
Broad Vegetation		
Hardwood forest/woodland	5,757.23	52.74%
Herbaceous	2,340.07	21.44%
Shrub	1,532.84	14.04%
Conifer forest/woodland	909.58	8.33%
Mixed conifer and hardwood forest/ woodland Mixed chaparral	347.43	3.18%
Water	29.51	0.27%
Total	**10,916.66**	**100%**

Vegetation Type	**Acres**	**Percentage of Project Area**
Society of American Foresters Vegetation		
Blue oak-digger pine	4,566.83	41.83%
Not Forest or Woodland	2,369.57	21.71%
Hard chaparral	1,532.84	14.04%
Pacific ponderosa pine	1,208.38	11.07%
California black oak	1146.02	10.50%
Canyon live oak	44.38	0.41%
Douglas-fir - tanoak - Pacific madrone	6.00	0.05%
Knobcone pine	36.91	0.34%
Sierra Nevada mixed conifer	5.71	0.05%
Total	**10,916.65**	**100%**
Fuel Types		
NB1	312.333191	2.86%
NB3	8.890378	0.08%
NB8	36.45065	0.33%
NB9	57.745336	0.53%
GR1	44.504663	0.41%
GR2	3598.391052	32.96%
GR3	14.604462	0.13%
GS1	128.270244	1.17%
GS2	1588.620598	14.55%
SH2	3.784385	0.03%
SH4	1304.186627	11.95%
SH5	663.02979	6.07%

Vegetation Type	**Acres**	**Percentage of Project Area**
SH7	0.666778	0.01%
TU2	2.668664	0.02%
<Null>	274.056174	2.51%
TU5	1865.717705	17.09%
TL2	20.311442	0.19%
TL3	505.223771	4.63%
<Null>	2.889861	0.03%
TL5	114.465252	1.05%
TL6	275.340085	2.52%
TL8	86.453269	0.79%
TL9	8.04937	0.07%
Total	**10916.65375**	**100**

Figure 5-5. Fern Road Substation Vegetation Type

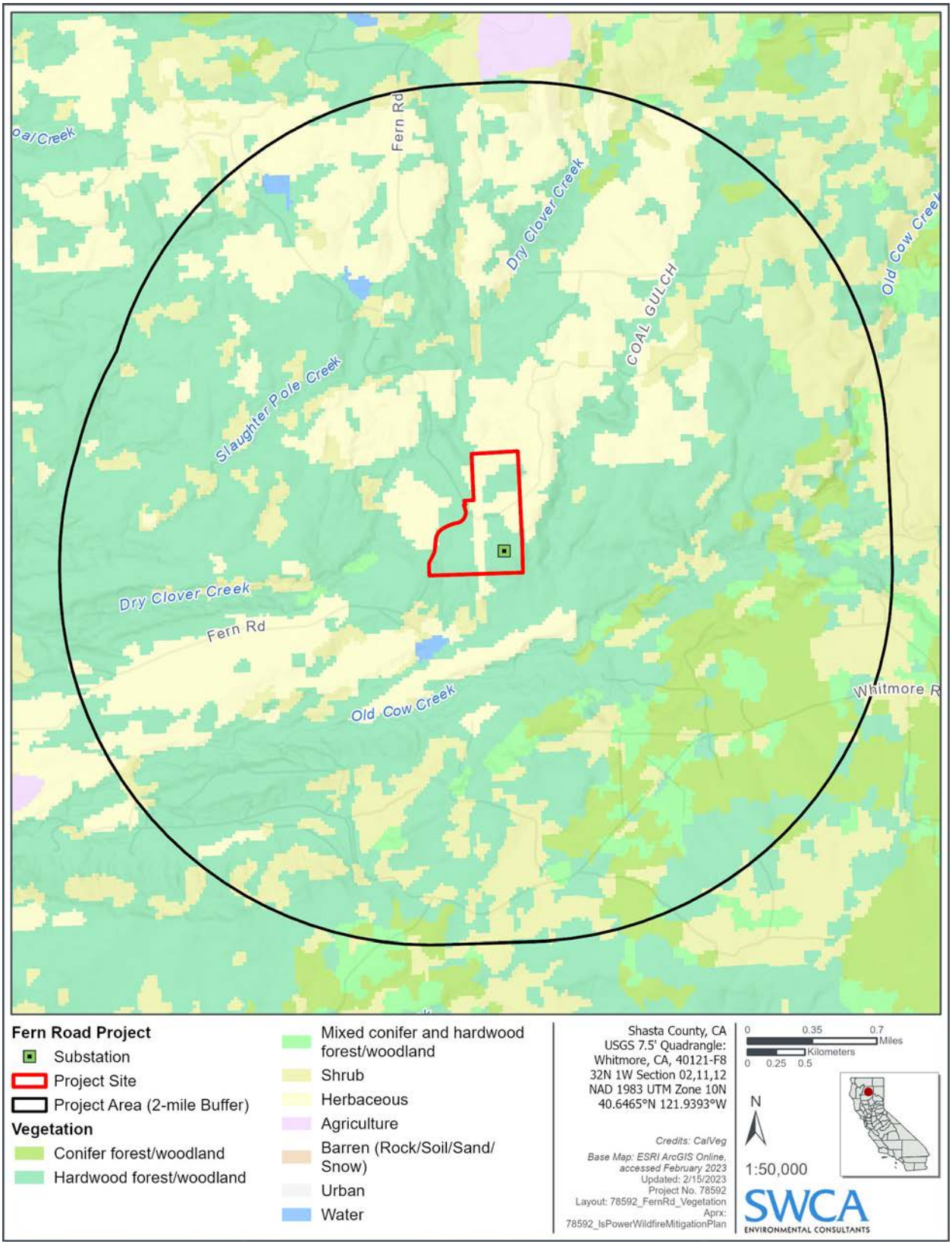


Figure 5-6. Fern Road Fuels Model

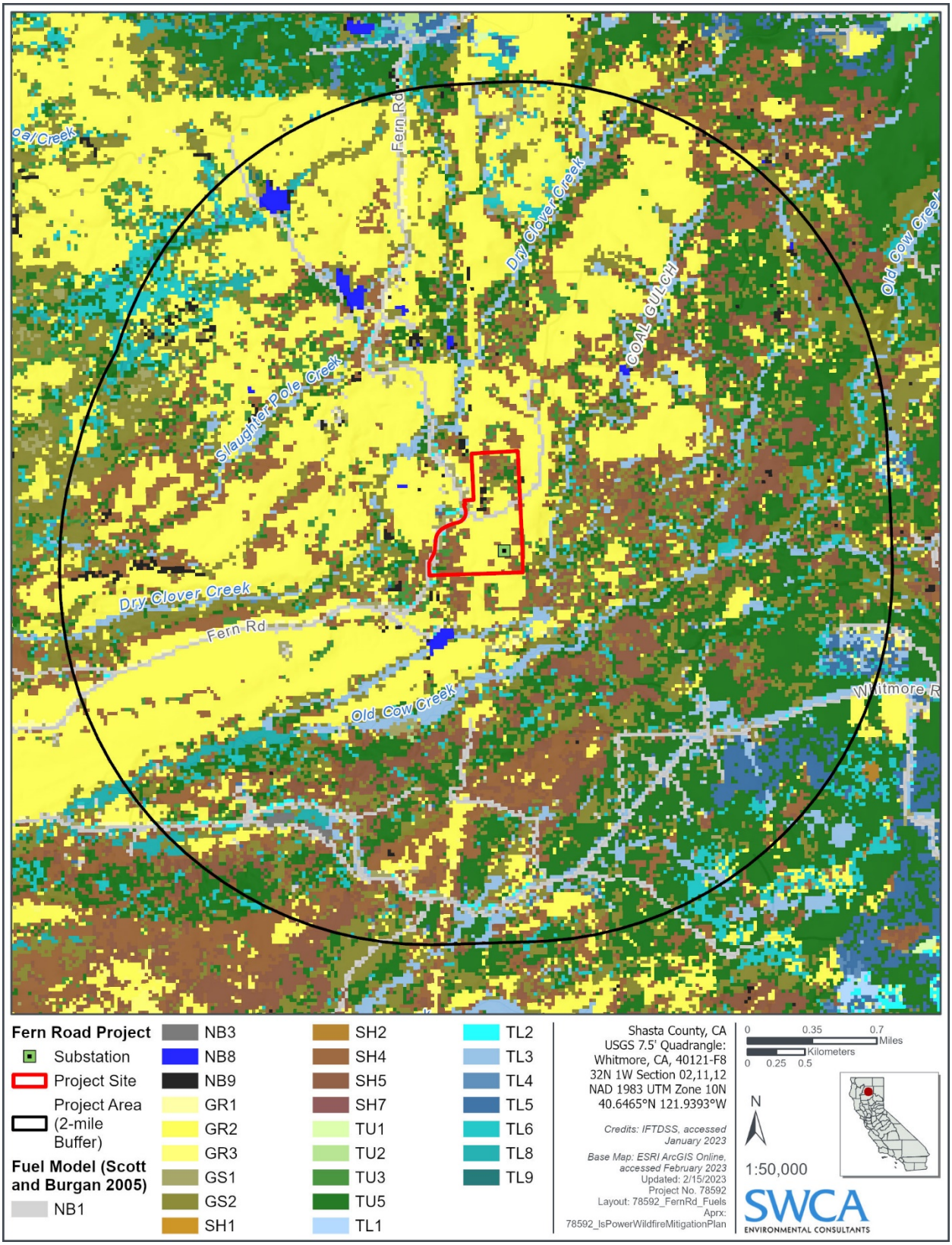


Figure 5-7. Fern Road Fire Return Interval

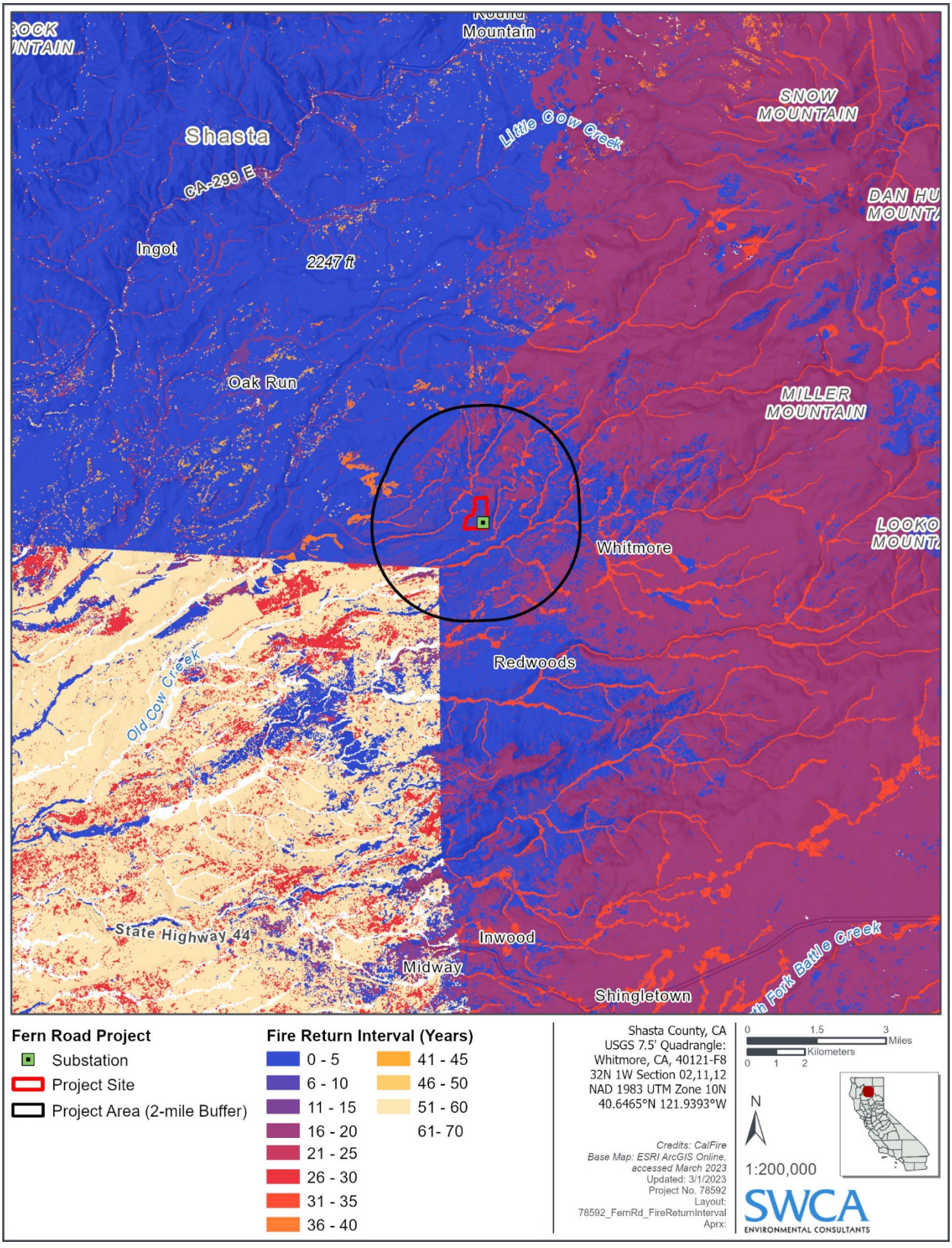


Figure 5-8. Fern Road Burn Probability

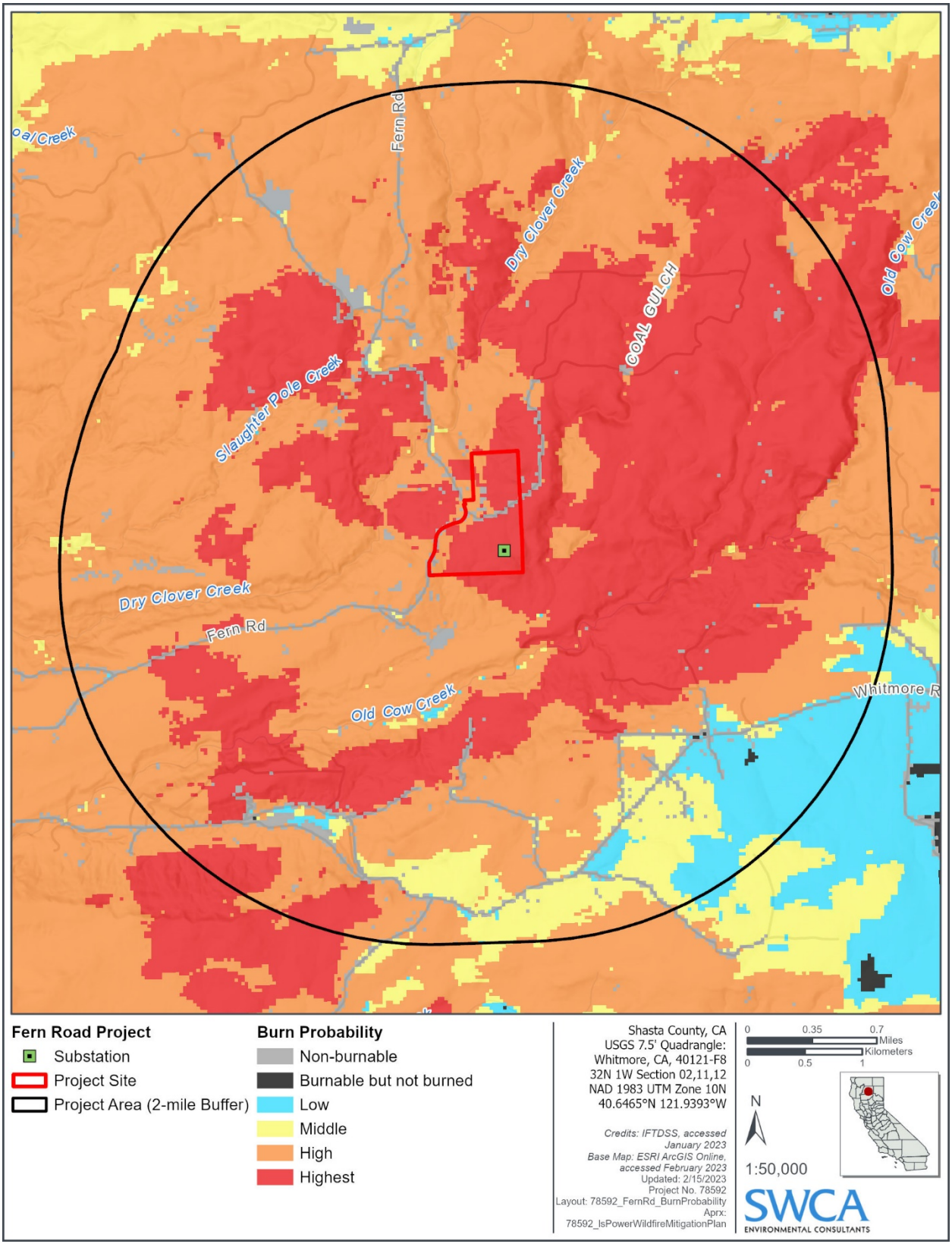


Figure 5-9. Fern Road Flame Length

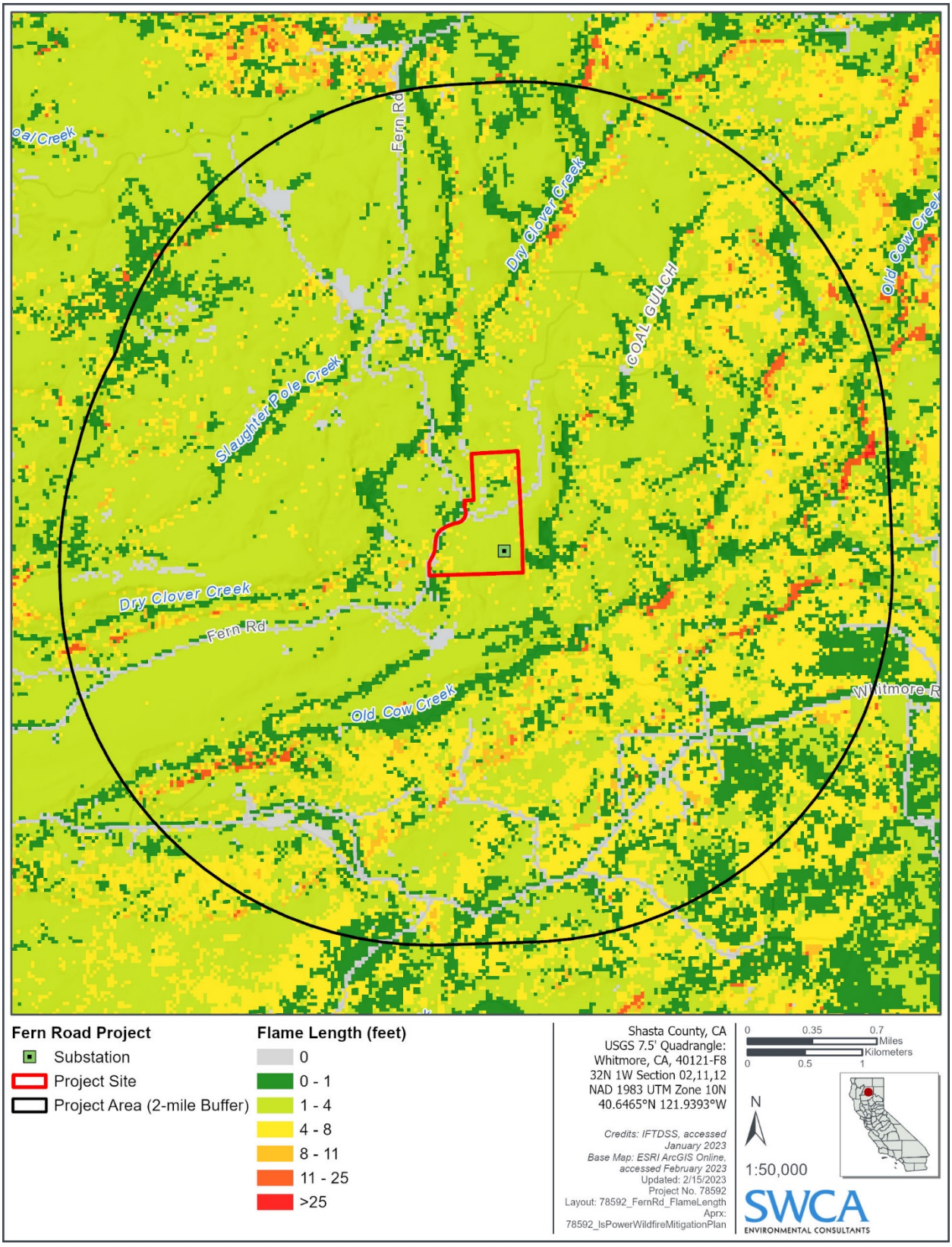


Figure 5-10. Fern Road Rate of Spread

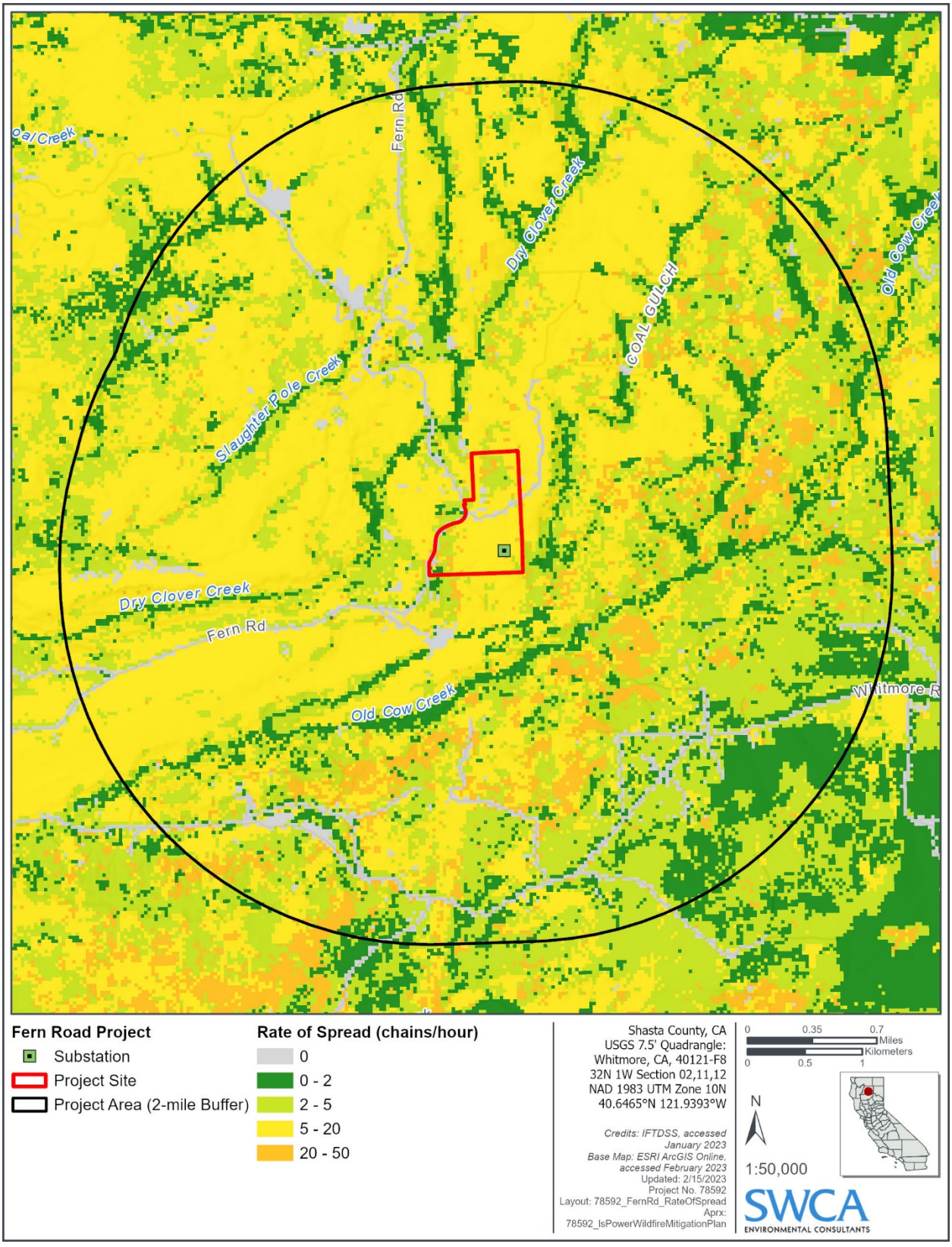
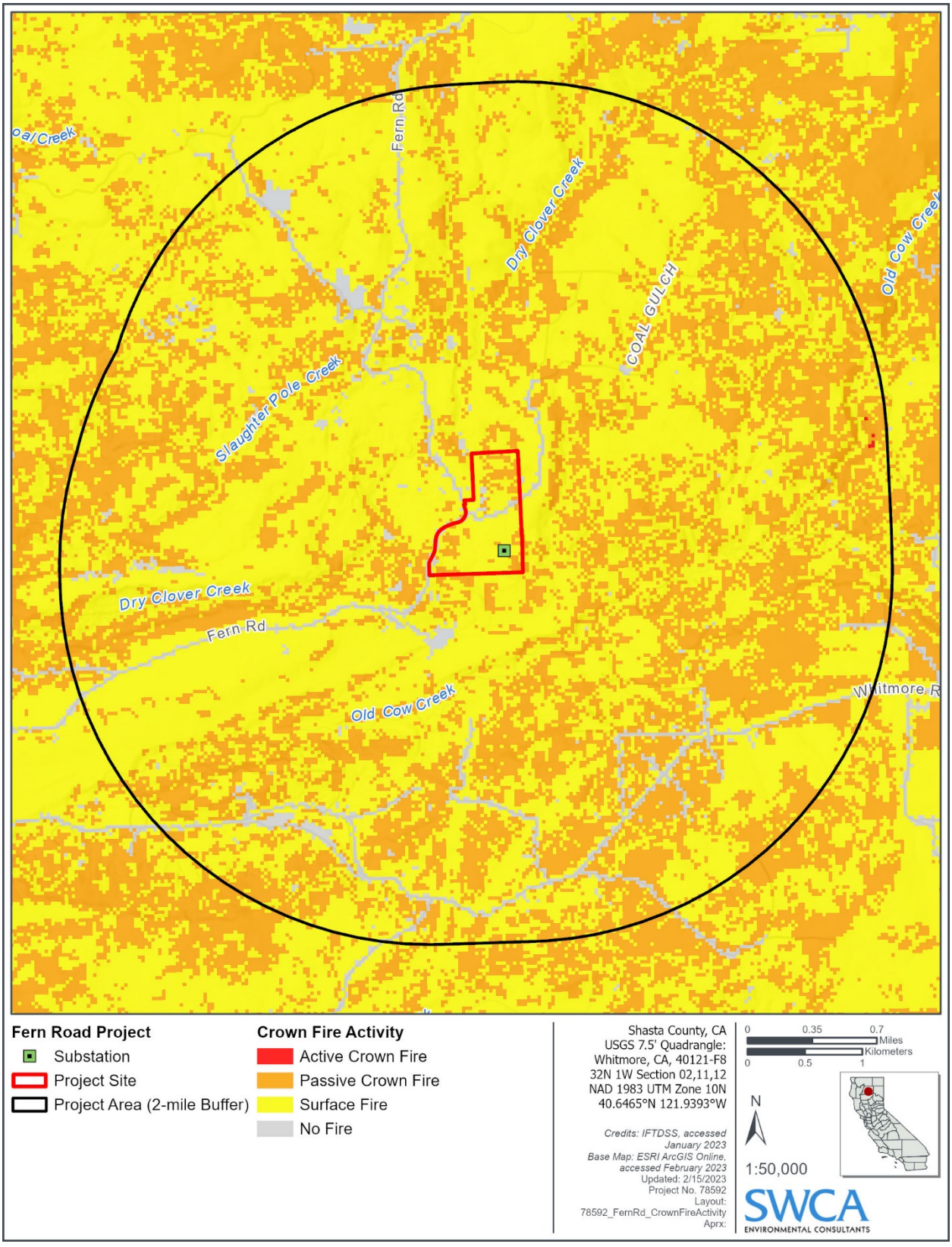


Figure 5-11. Fern Road Crown Fire Activity



5.3.1.2 Orchard Substation

The Orchard Substation has relatively flat topography. The project area is predominantly agricultural land dominated by crops categorized as herbaceous vegetation type with low potential for wildfire, characterized by irrigated agricultural fields, associated canal systems, and low-growing vegetation (Table 5-3; Figure 5-12). Local weather conditions are dry (<1 inch of rain per month from April–November) with a high average temperature 84°F and an average precipitation of 7 inches.

The fuel model of the substation site is categorized as a non-burnable agricultural field (NB3), with the 2 mile-radius around the substation site primarily comprised of non-burnable agricultural fields (NB3); short, sparse dry climate grass (GR1); and low load dry climate grass (GR2) (Table 5-3; Figure 5-13). The Orchard Substation area exhibits a short fire return interval ranging from 0 to 5 years (Figure 5-14). The substation site, and the majority of the project area, is categorized as an LRA FHSZ of non-wildland/non-urban (Figure 5-4). The burn probability of the substation site is primarily categorized as non-burnable, surrounded by non-burnable or low burn probability in the project area (Figure 5-15). The Orchard Substation site has no quantifiable flame length, as it is in non-burnable substrate, and the project area supports low flame lengths ranging from 0 to 4 feet (Figure 5-16). The ROS at the substation site is 0 chains per hour, with the majority of the project area ranging from 0 to 50 chains per hour (Figure 5-17). Crown fire activity for the substation site is categorized as “no fire” as it does not support fire, and the project area is classified as “no fire” and surface fire, predominantly (Figure 5-18).

The vegetative composition, historic fire return interval, and weather patterns indicate a mixed landscape that when an ignition source is present, can readily burn and supports low fire behavior.

Table 5-1.2. Orchard Substation Existing Broad and Society of American Foresters Vegetation Types

Vegetation Type	**Acres**	**Percentage of Project Area**
Broad Vegetation		
Herbaceous	8,889.64	89.81%
Urban	208.12	2.10%
Hardwood forest/woodland	798.99	8.07%

Vegetation Type	**Acres**	**Percentage of Project Area**
Water	1.63	0.02%
Total	9,898.39	100%
Society of American Foresters Vegetation		
Not Forest or Woodland	9,099.40	91.93%
Non-native hardwood forest	798.99	8.07%
Total	9,898.39	100%
Fuel Type		
NB1	912.61	9.22
NB3	4756.90	48.06
NB8	0.03	0.003
NB9	0.45	0.004
GR1	263.80	2.67
GR2	2928.92	29.59
GS1	44.21	0.45
GS2	12.95	0.13
SH2	0.91	0.01
TL3	0.67	0.01
TL6	976.94	9.87
Total	9898.39	100

Figure 5-12. Orchard Substation Vegetation Type

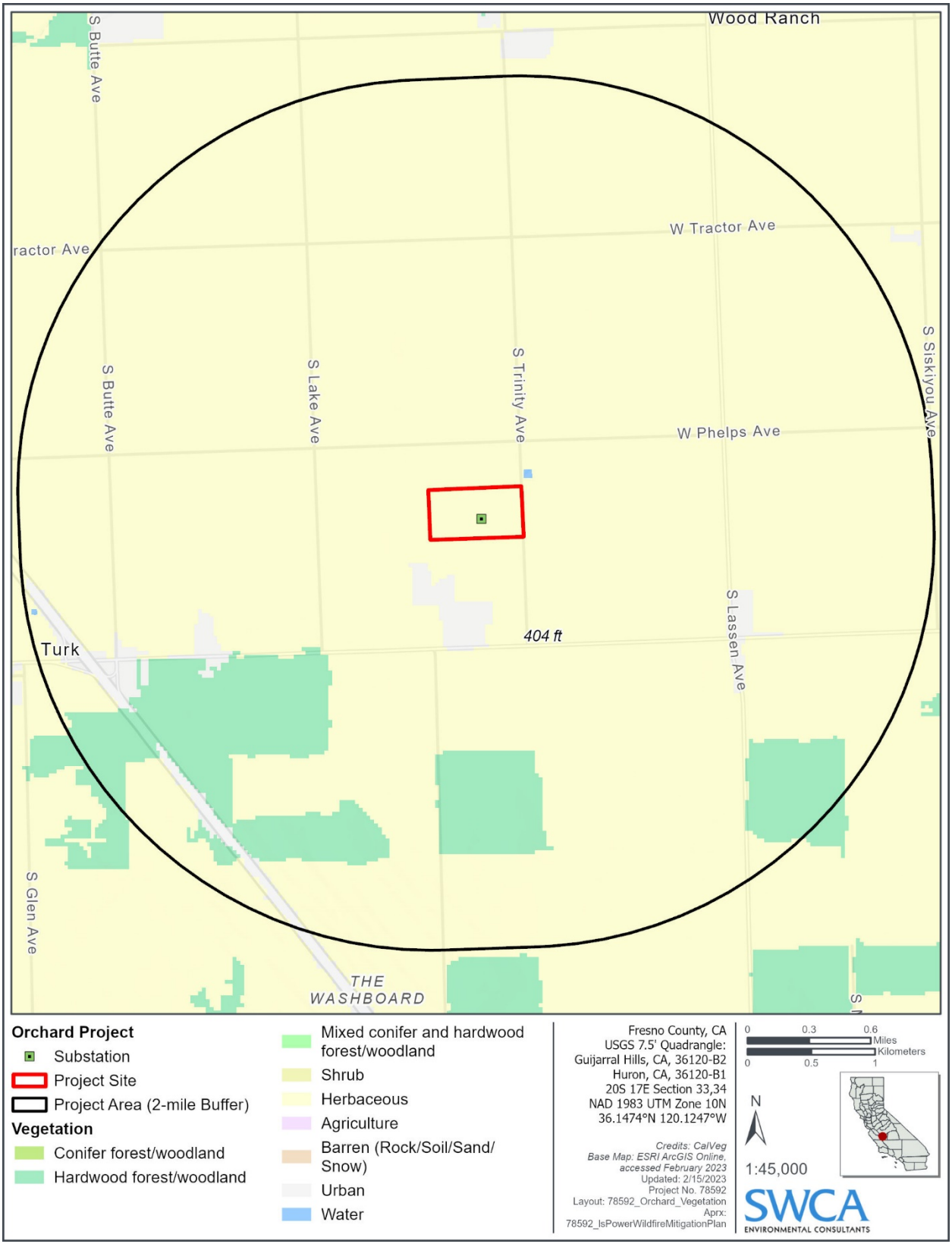


Figure 5-13. Orchard Fuels Model

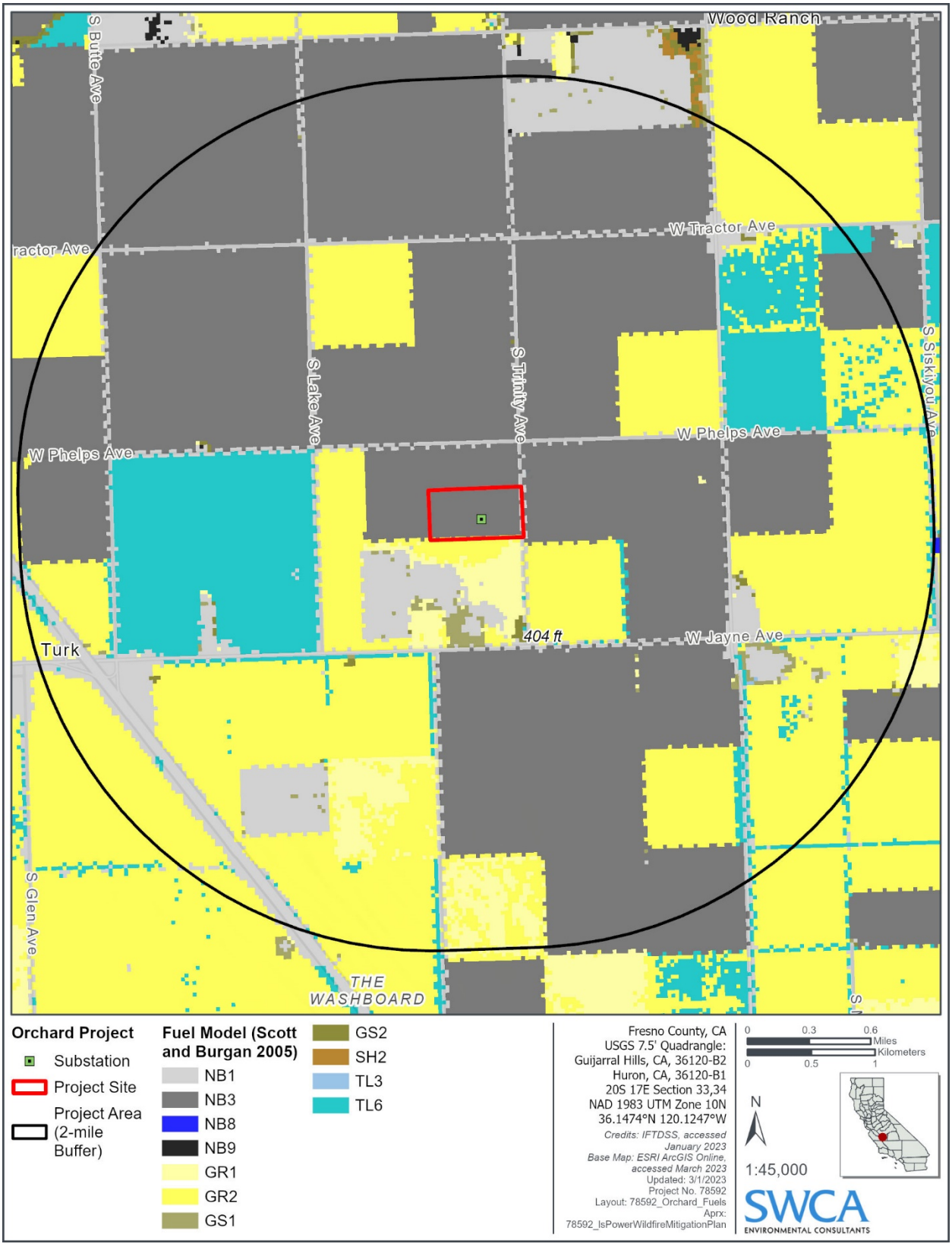


Figure 5-14. Orchard Fire Return Interval

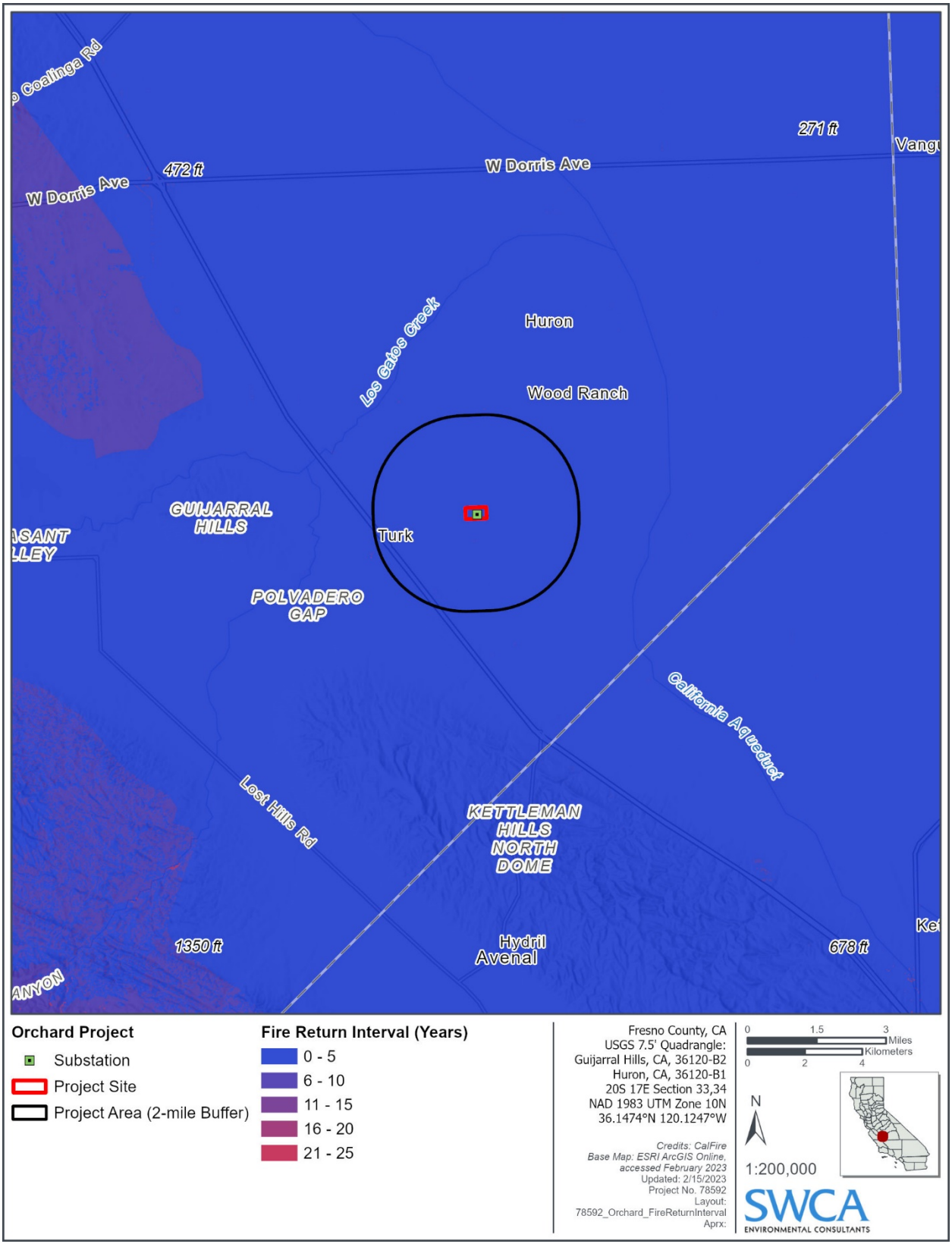


Figure 5-15. Orchard Burn Probability

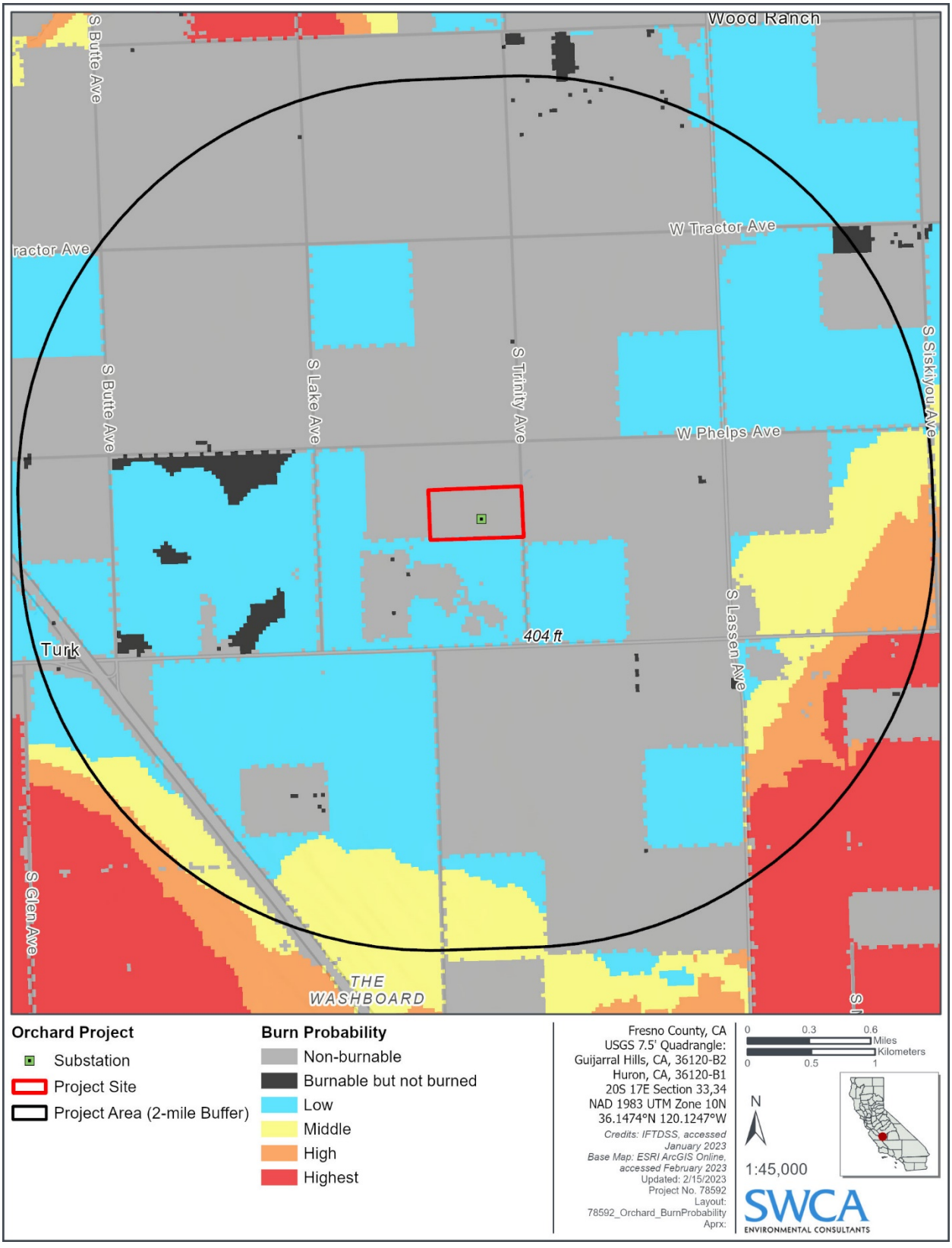


Figure 5-16. Orchard Flame Length

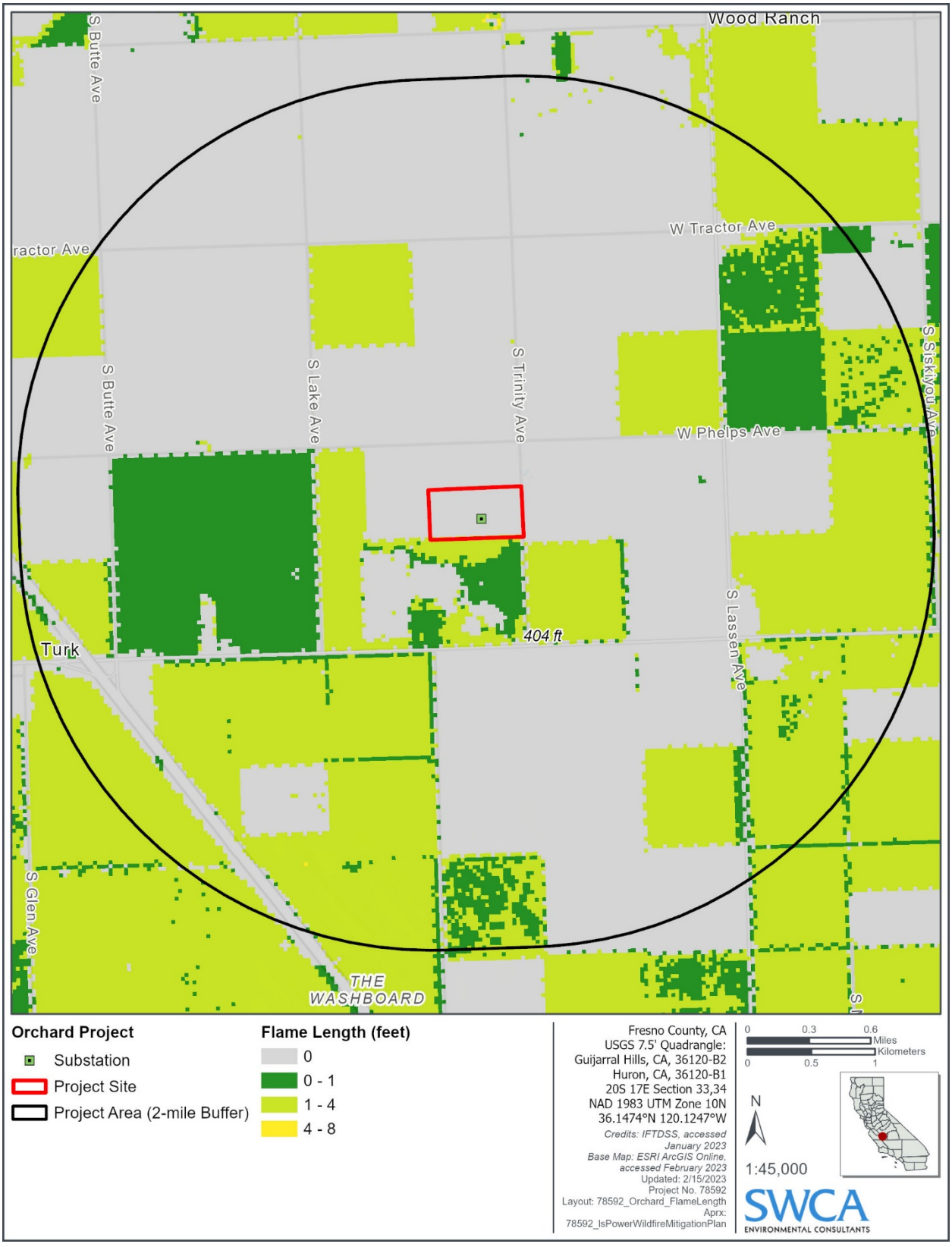


Figure 5-17. Orchard Rate of Spread

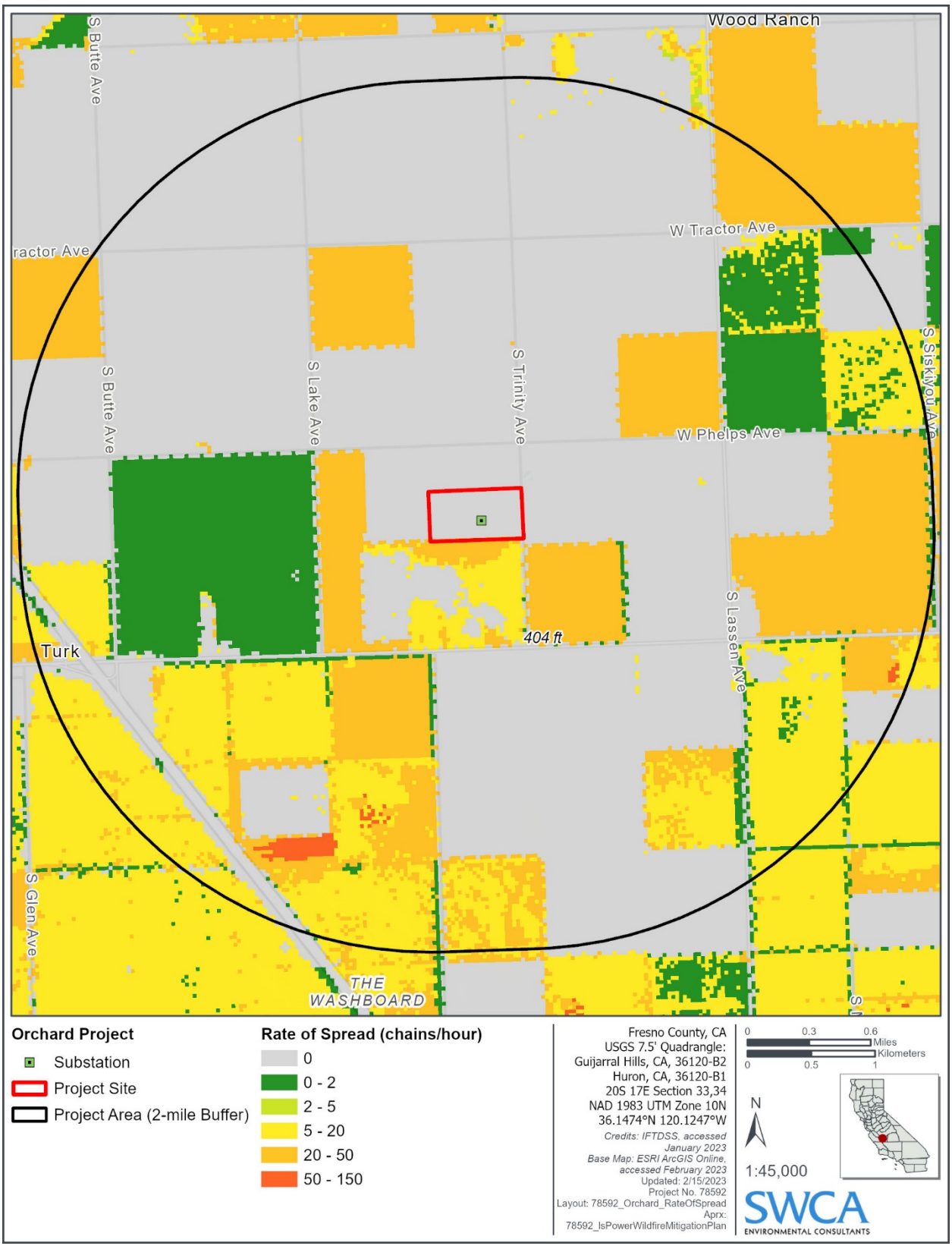
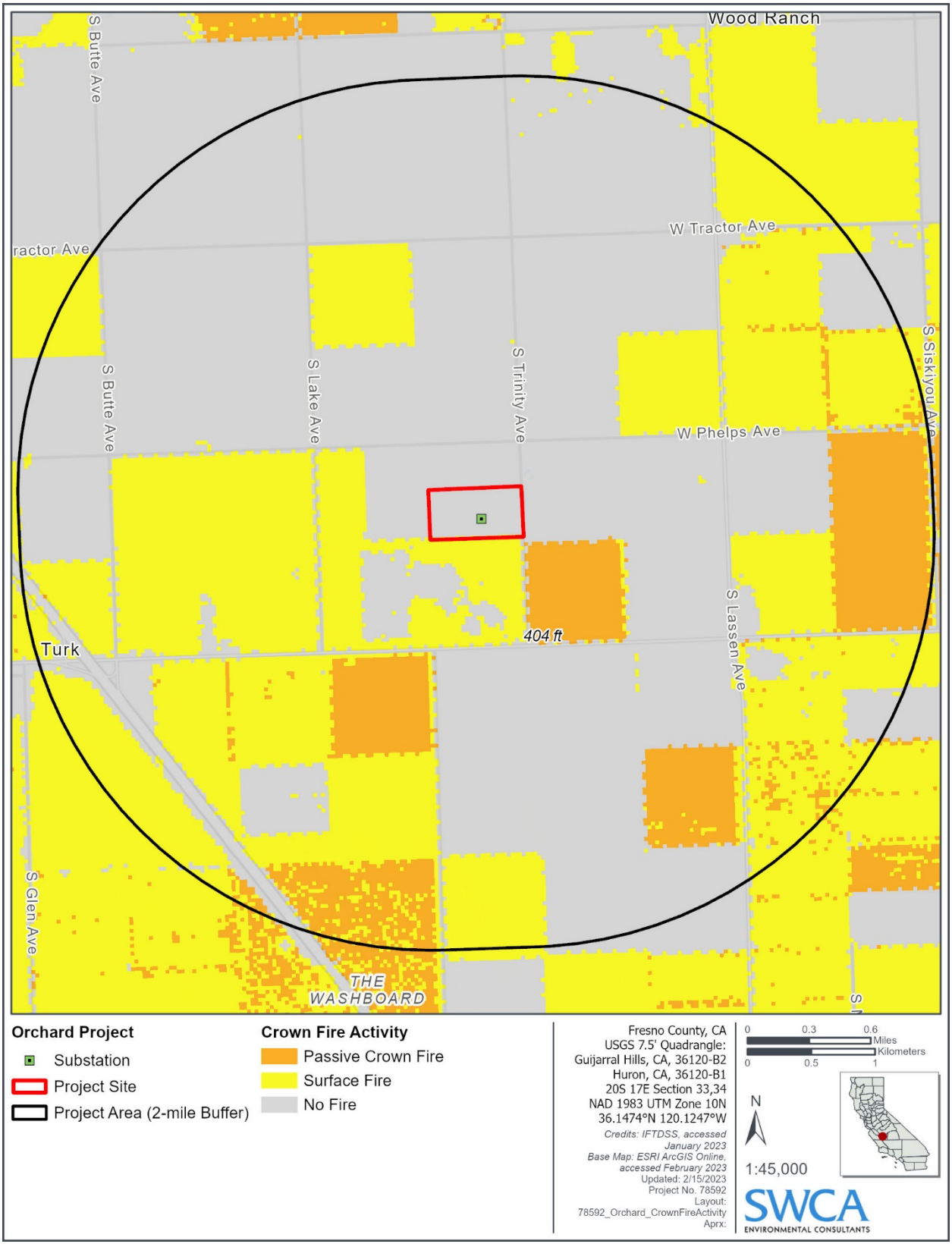


Figure 5-18. Orchard Crown Fire Activity



5.3.2 Catastrophic Wildfire History

A catastrophic wildfire can be defined in terms of ecological, social, and economic impacts, but is generally defined as a wildfire that results in significant losses to any or all these resource areas. No catastrophic wildfires have occurred within the vicinity of the Fern Road or Orchard Substations within the last 20 years, nor have any wildfires caused by electrical companies occurred within the last 20 years[4].

5.3.2.1 Fern Road Substation

Since 1980, three wildfires have occurred within the Fern Road Substation area. The fires were not caused by electrical corporations but by equipment use and playing with fire; the third cause is unknown. The reported fire size was less than 50 acres for two fires, and unreported for the third (Figure 5-19). These wildfires are not considered catastrophic.

5.3.2.2 Orchard Substation Project

Since 1980, no wildfires have occurred within the Orchard Substation Project area (Figure 5-20).

[4] California Department of Forestry and Fire Protection (CAL FIRE). 2023. Fire and Resource Assessment Program (FRAP) Geographic Information Systems Data. Available at: https://frap.fire.ca.gov/mapping/gis-data/. Accessed January 18, 2023.

Figure 5-19. Fern Road Wildfire History Map

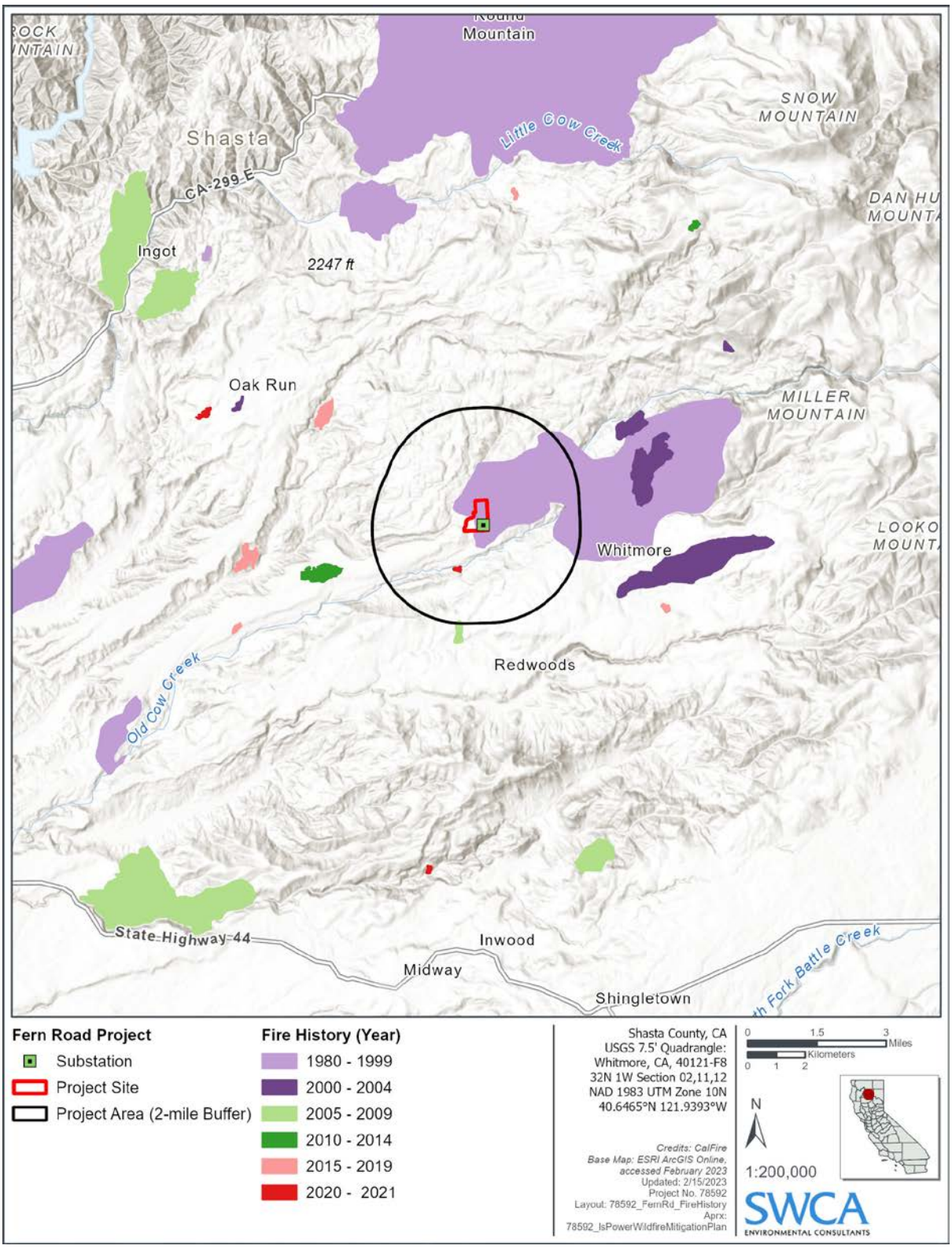
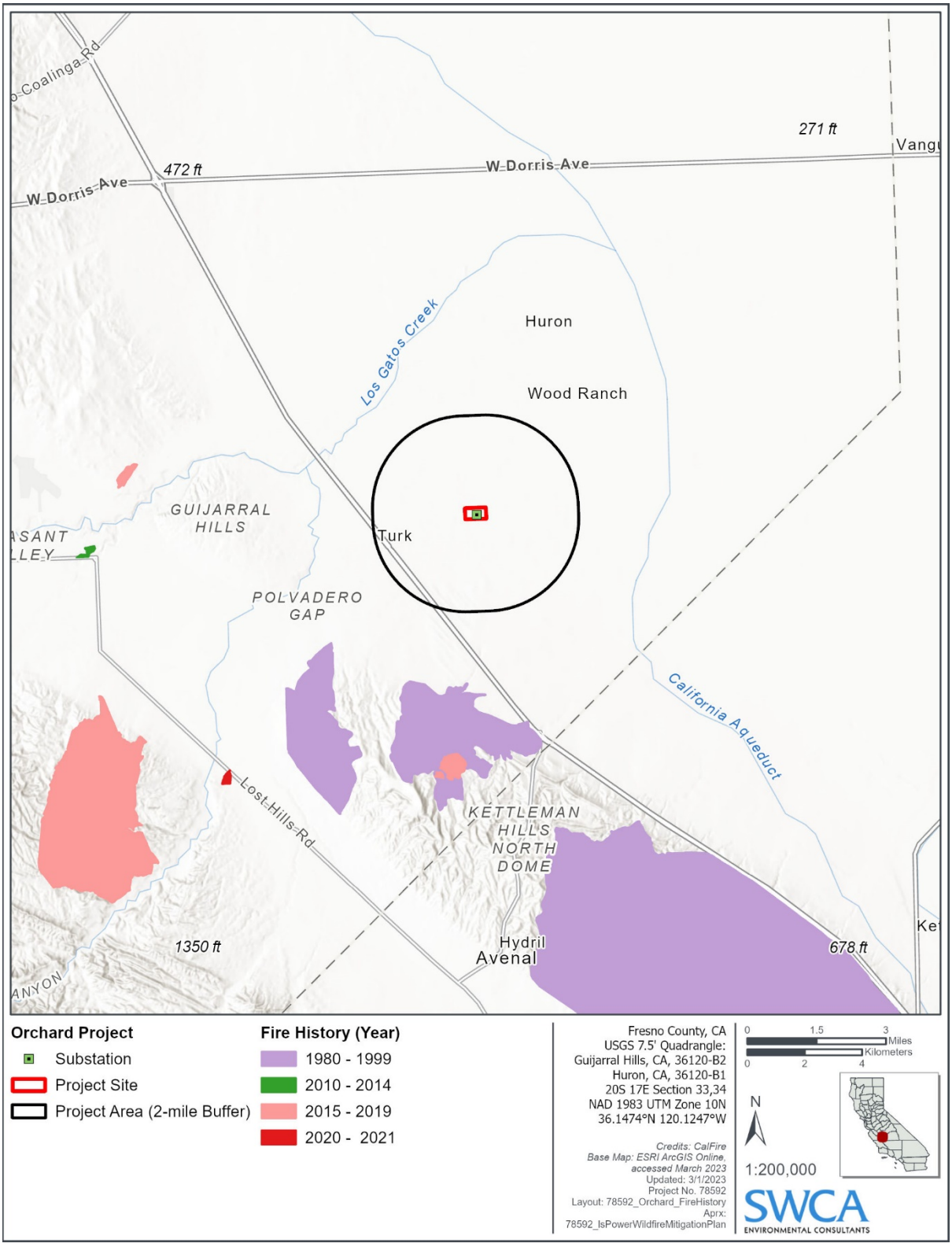


Figure 5-20. Orchard Substation Wildfire History Map



5.3.3 High Fire Threat Districts

5.3.3.1 Fern Road Substation

The Fern Road Substation is within a Tier 2 HFTD. An area of Tier 3 HFTD is approximately 3 miles north. The next area of Tier 3 HFTD is approximately 6.5 miles south near Shingletown (Table 5-5; Figure 5-21).

5.3.3.2 Orchard Substation

The Orchard Substation is not within an HFTD. The closest HFTD (Tier 2) is approximately 22 miles southwest of the project near Cholame Hills (Table 5-5; Figure 5-22).

Table 5-5. Fern Road and Orchard HFTD Statistics

High Fire Threat District	**Fern Road Substation Site (sq. mi.) and Percent (%)**	**Fern Road Substation Area (sq. mi.)**	**Orchard Substation Site (sq. mi.) and Percent (%)**	**Orchard Substation Area (sq. mi.)**
Non-HFTD	0 (0%)	0	0.11 (100%)	15.47
Tier 2	0.23 (100%)	15.15	0 (0%)	0
Tier 3	0 (0%)	1.91	0 (0%)	0
Total	**0.23 (100%)**	**17.06**	**0.11 (100%)**	**15.47**

Figure 5-21. Fern Road High Fire Threat District

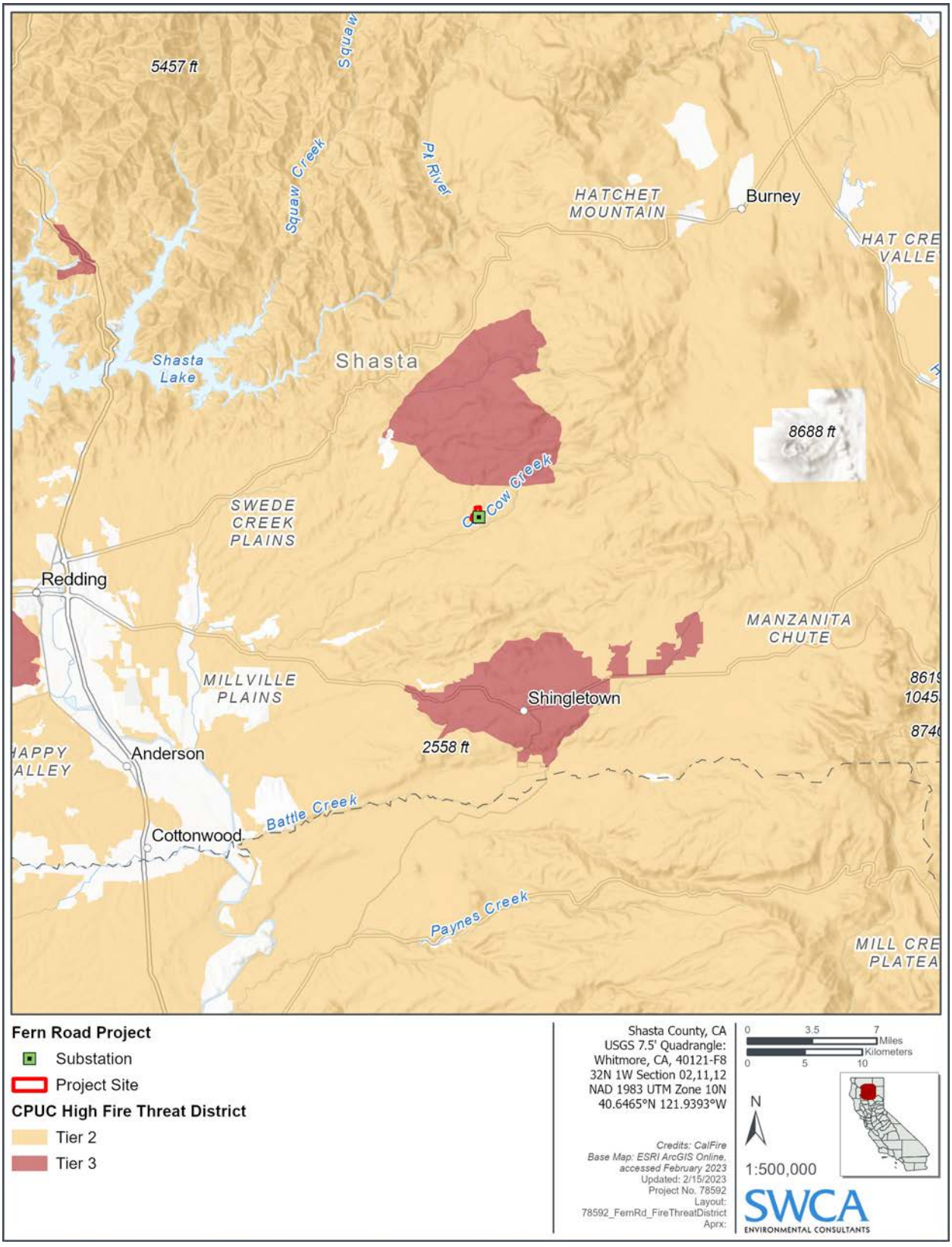
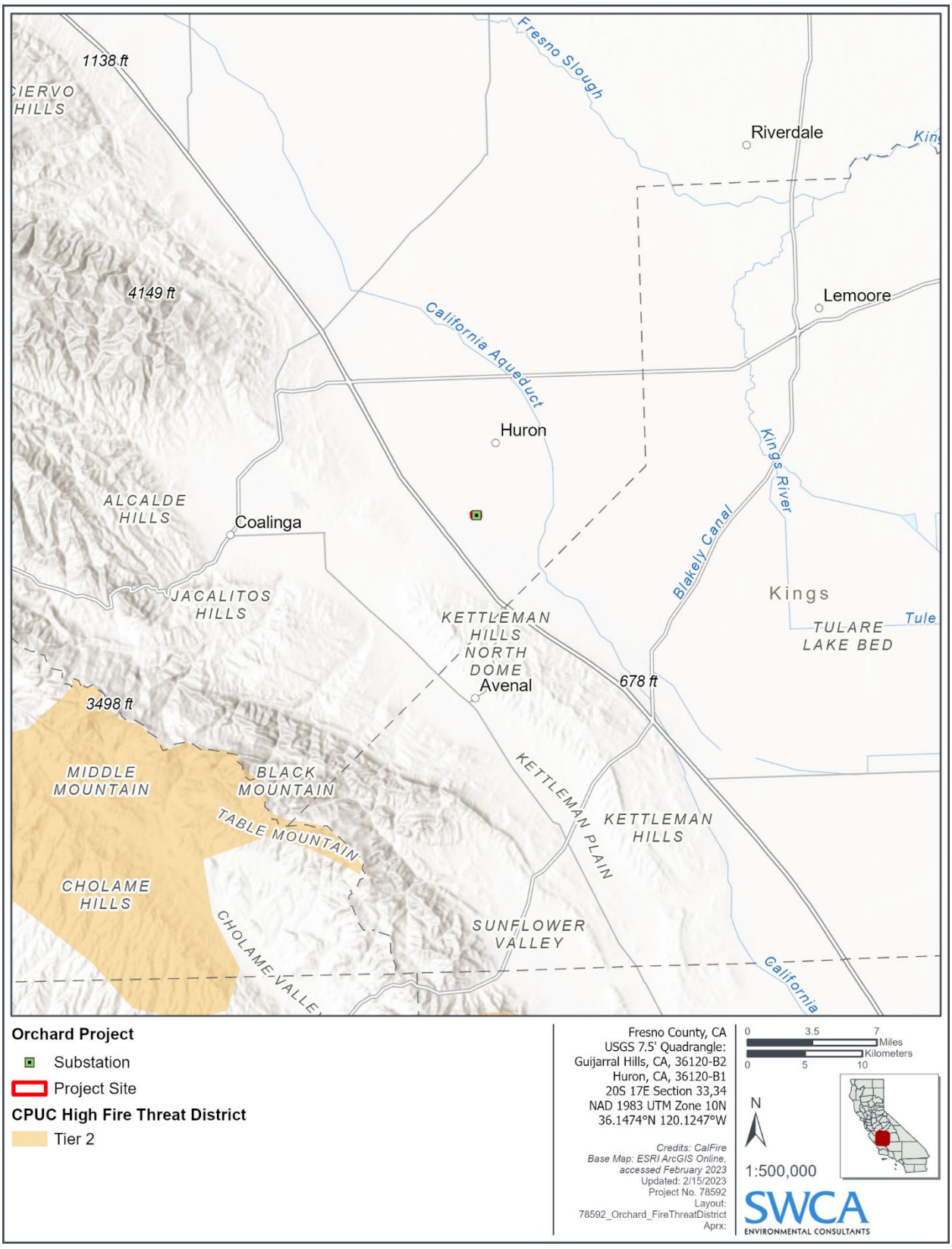


Figure 5-22. Orchard High Fire Threat District



5.3.4 Climate Change

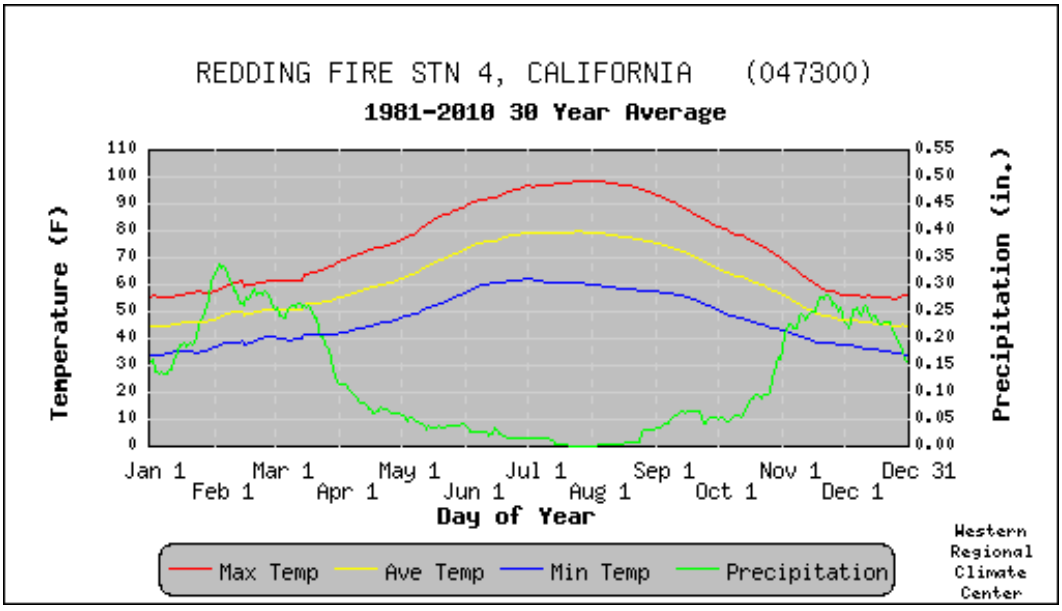
5.3.4.1 General Climate Conditions

Fern Road Substation

According to 30-year data from the Whitmore Remote Automated Weather Station (RAWS), average temperatures fluctuate from 42°F in December to 77°F in July. Daily maximum temperatures may reach 100°F in July and minimum temperatures may reach 31°F between December and February. Average annual precipitation is 40 inches. Most precipitation occurs in December and January averaging 7 and 6 inches, respectively. Average monthly precipitation is less than 1 inch from July through September[5] (Figures 5-23 and 5-24).

Annual mean climatology for maximum temperature, minimum temperature, and precipitation (Figure 5-23) depicts monthly averages over 30 years (1981–2010) specific to the project location. The annual average precipitation is 45.3 inches at the Fern Road Substation (Figure 5-24).[6]

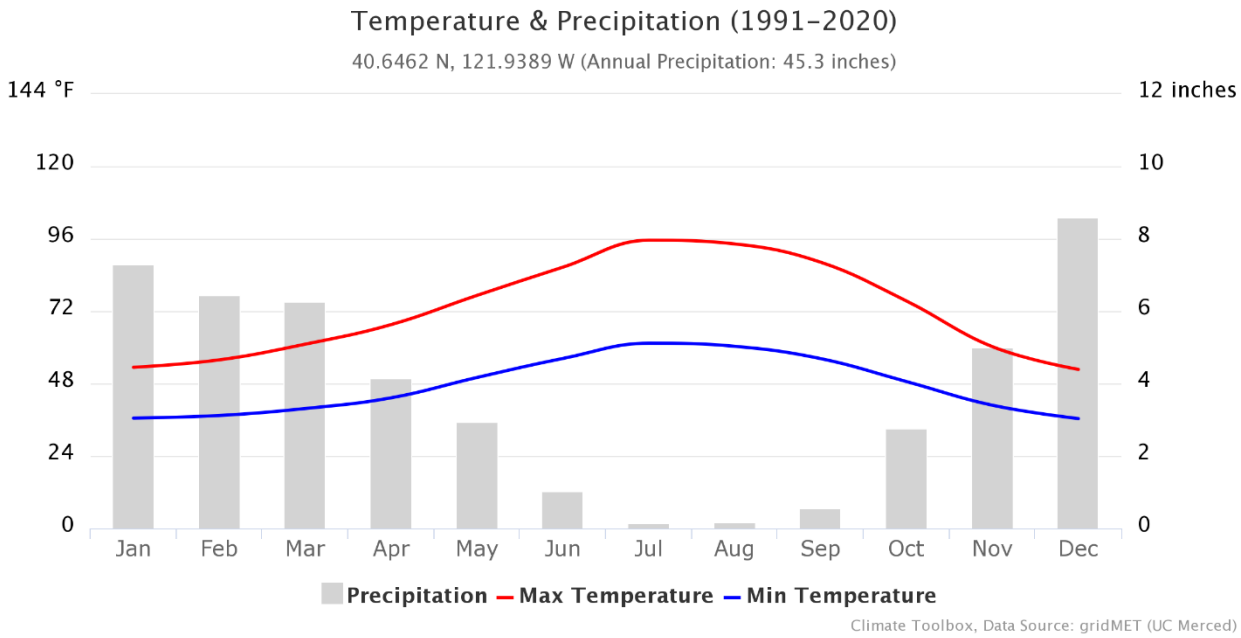
Figure 5-23. Fern Road Substation Annual Mean Climatology (1981–2010)



[5] Western Regional Climate Center (WRCC). 2023. Remote Automatic Weather Stations USA Climate Archive. Available at: https://raws.dri.edu/. Accessed January 20, 2023.

[6] University of California, Merced. 2023. Climate Toolbox Applications, Tools. Historical Climography. Available at: https://climatetoolbox.org/tool/Historical-Climograph. Accessed January 30, 2023.

Figure 5-24. Fern Road Substation Annual Mean Climatology (1991–2020)



Orchard Substation

According to 30-year data from the Kettleman Hills RAWS, average temperatures fluctuate from 49°F in December to 84°F in July. Daily maximum temperatures may reach 101°F in July and minimum temperatures may reach 38°F between December and January. Average annual precipitation is 7 inches. Most precipitation occurs between December and March. Average monthly precipitation is less than 1 inch from April through November (Figures 5-25 and 5-26).

Annual mean climatology for maximum temperature, minimum temperature, and precipitation (Figure 5-25) depicts monthly averages over 30 years (1981–2010) specific to the project location. The annual average precipitation is 7.3 inches at the Orchard Substation (Figure 5-26).

Figure 5-25. Orchard Substation Annual Mean Climatology (1981–2010)

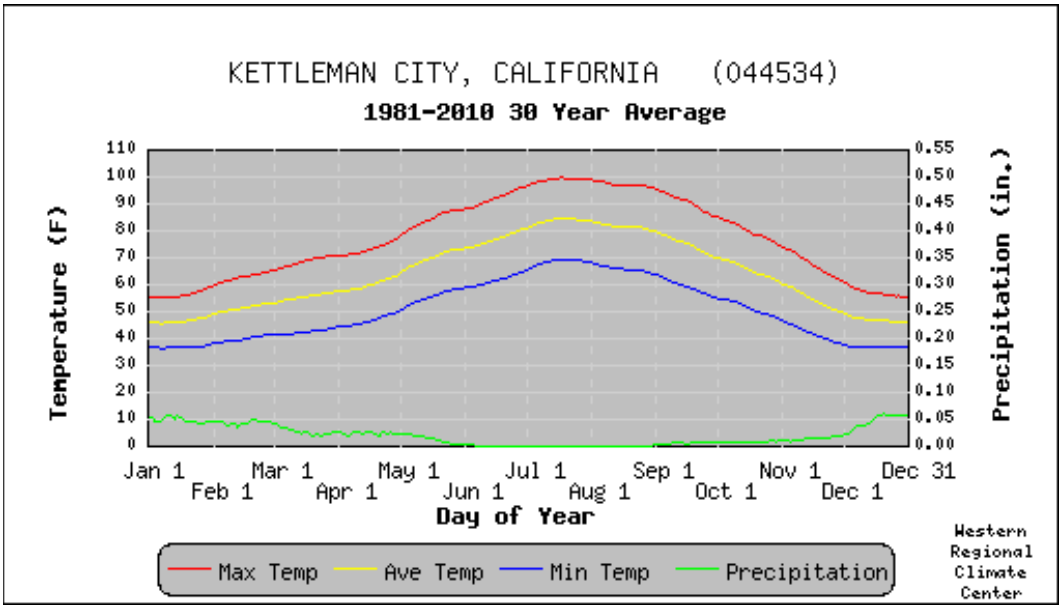
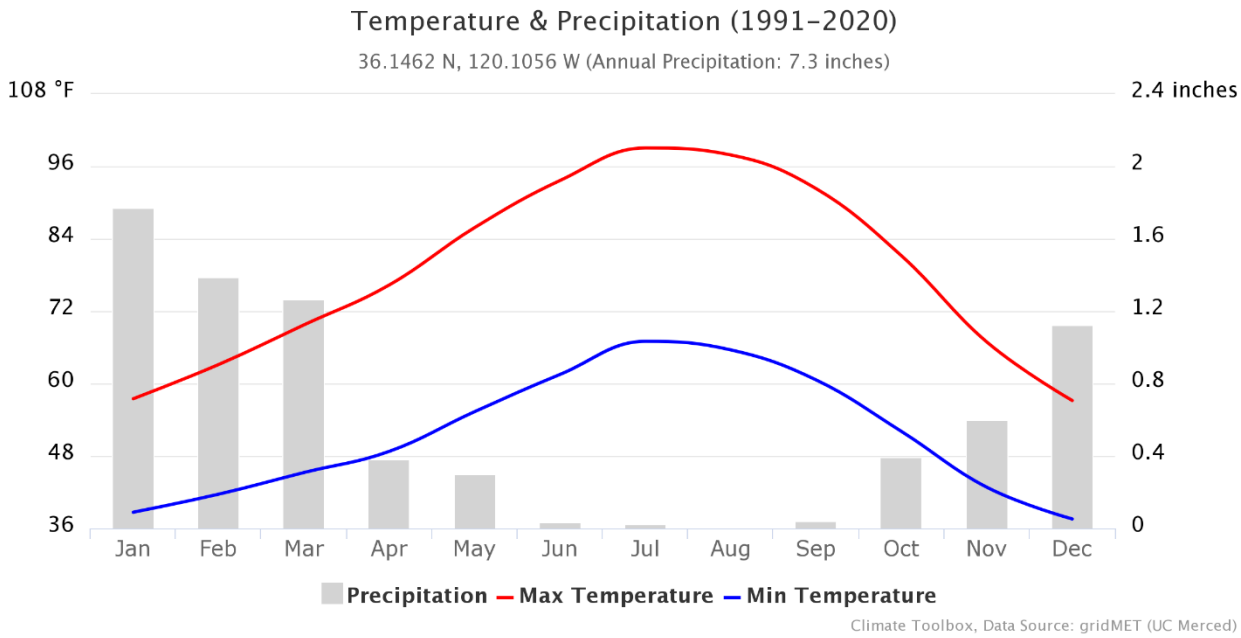


Figure 5-26. Orchard Substation Annual Mean Climatology (1991–2020)



5.3.4.2 Climate Change Phenomena and Trends

Fern Road Substation

Historic weather data from the Kettleman Hills RAWS indicates distinct patterns over the past three decades for the Fern Road Substation area. Since 1993, 95th percentile dead fuel

moistures (100-hour and 10-hour) have been declining with each decade, meaning increased availability of fuels to burn. The 95th percentile relative humidity has decreased and the 95th percentile dry bulb temperature has increased with each decade, indicating extended warming periods and drought conditions. The 95th percentile wind speed has increased with each decade. These trends could be expected to continue with future climate change and lead to increased issuance of fire weather watches, red flag warnings, high wind advisories, and fuels and fire behavior advisories. If these weather trends continue, conditions will be more conducive to large wildfire spread.

Historical annual maximum temperatures between 1979 to 2021 increased an average of 0.4°F per decade, with an average of 72.2°F (Figure 5-27). Both the minimum and mean annual temperature has increased by the 0.7°F and 0.5°F per decade, respectively, over the last 30 years (Figures 5-28 and 5-29). Annual precipitation decreased an average of 1.5 inches per decade at the Fern Road Substation over the last 30 years (Figure 5-30). These trends show conditions becoming warmer and drier from 1979 to 2021 at the Fern Road Substation.

Climate projection models were evaluated to estimate predicted temperature and precipitation changes. The higher emission representative concentration pathway (RCP 8.5) was chosen to represent worst-case scenario conditions for each model at the Fern Road Substation. Projected change in maximum temperature (daytime highs) and minimum temperature (nighttime lows) through 2100 was evaluated. Historical data was evaluated from 1950 to 2005 and showed a projection of roughly 9°F increase by 2100 (Figures 5-31 and 5-32).

Additionally, changes in average dead fuel moisture and average number of days of extreme fire danger for winter/spring and summer/fall periods, based on global climate model outputs was evaluated using higher emission RCP 8.5 in Figure 5-33. Fuel moisture is projected to decrease by 0.1% in summer, 0.5% in fall, 0.2% in winter, and 0.1% spring by 2055 from the mid-2020s. This demonstrates a general decrease in fuel moisture, which can increase burn probability given an ignition source or the potential for large wildfire spread. Specifically, extreme fire danger results show an increase of nearly 3 days of extreme fire danger in summer, 1 day in fall, 0 days in winter, and 0.1 days in spring by 2055 from the mid-2020s (Figure 5-33).

Figure 5-27. Fern Road Substation Maximum Annual Temperature (1979–2021)

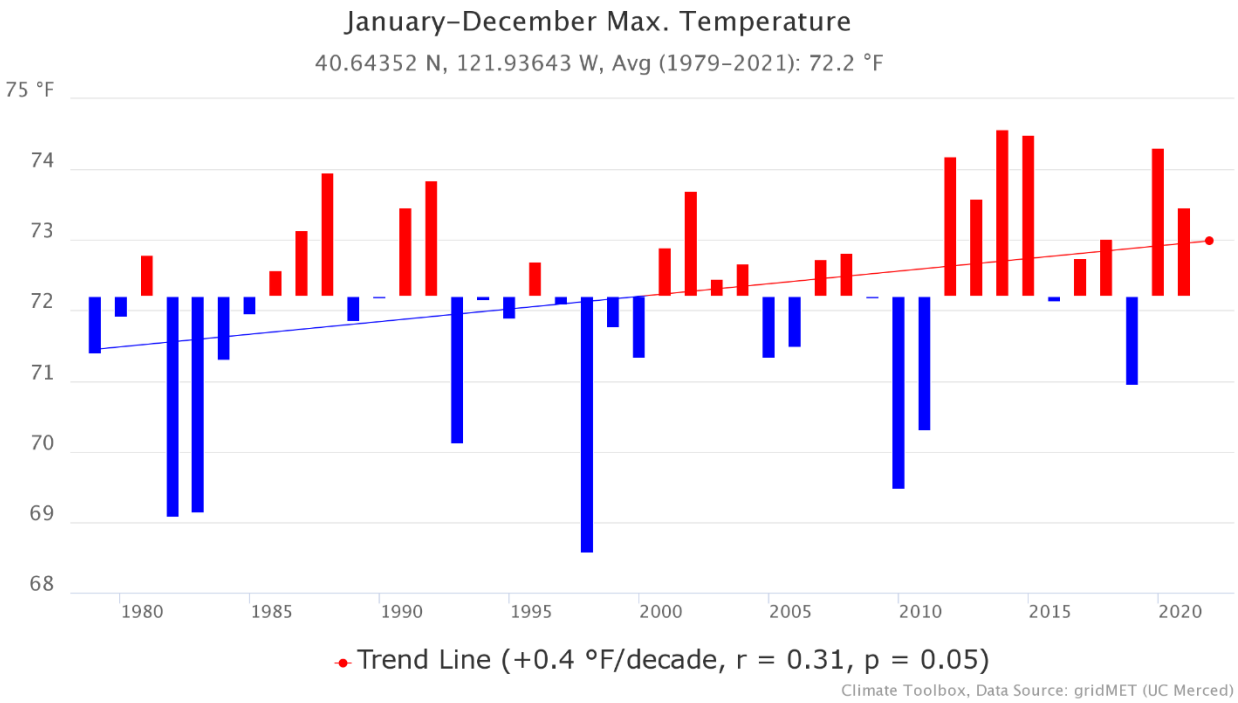


Figure 5-28. Fern Road Substation Minimum Annual Temperature (1979–2021)

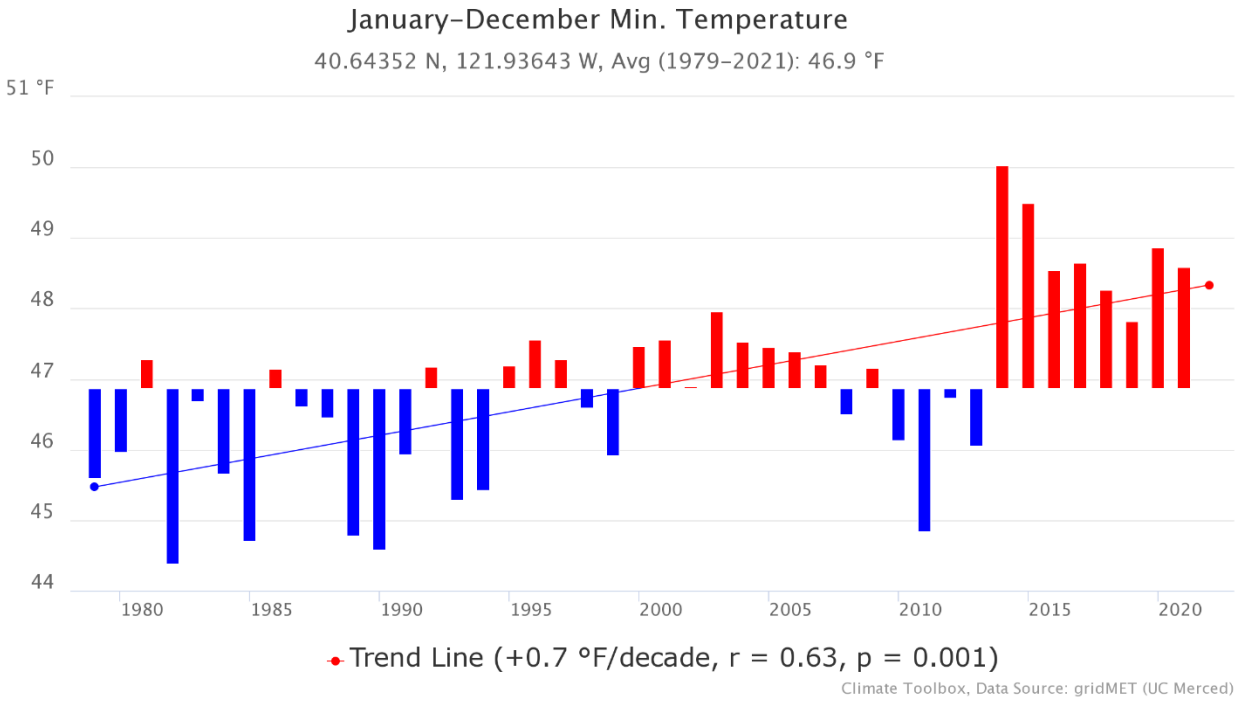


Figure 5-29. Fern Road Substation Mean Annual Temperature (1979–2021)

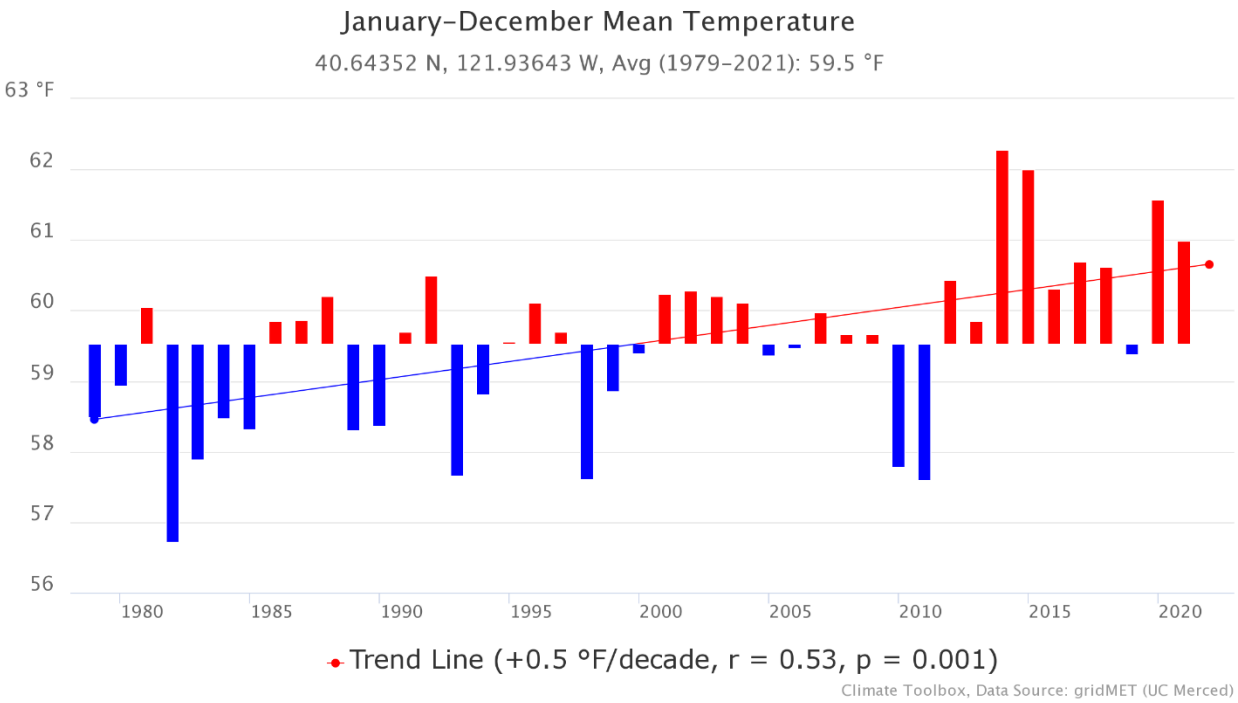


Figure 5-30. Fern Road Substation Annual Precipitation (1979–2021)

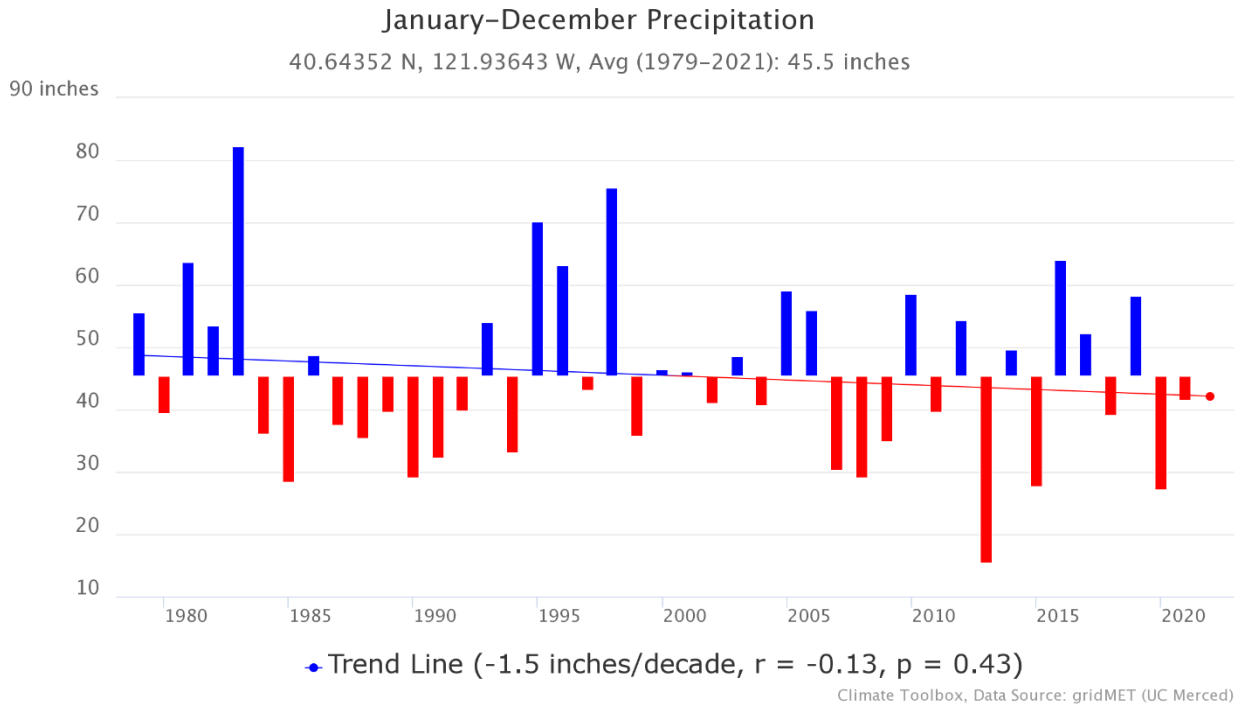


Figure 5-31. Fern Road Substation Projected Change in Maximum Temperature (Daytime Highs) Through 2100

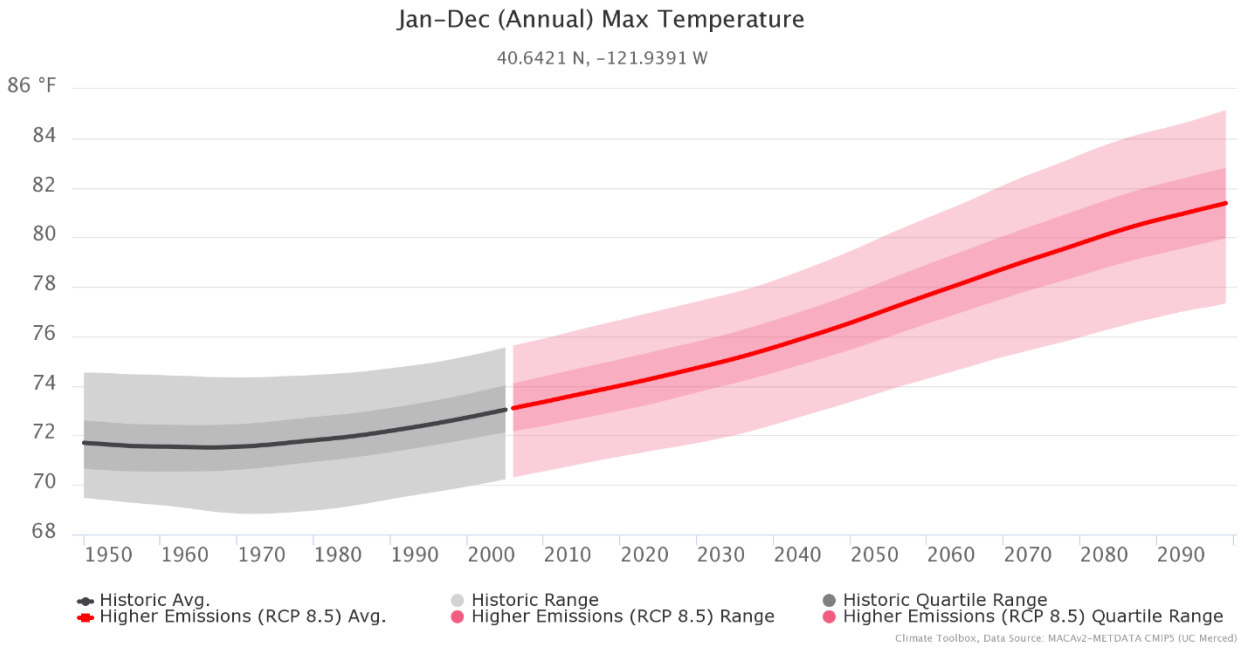


Figure 5-32. Fern Road Substation Projected Change in Minimum Temperature (Nighttime Lows) Through 2100

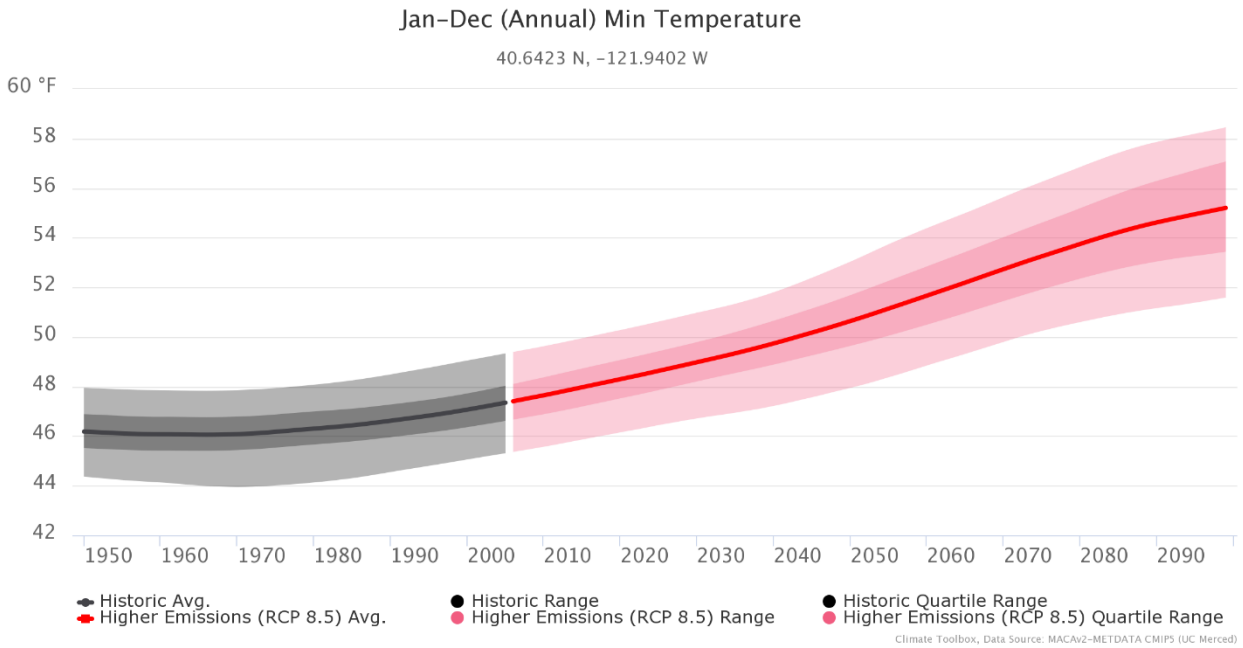
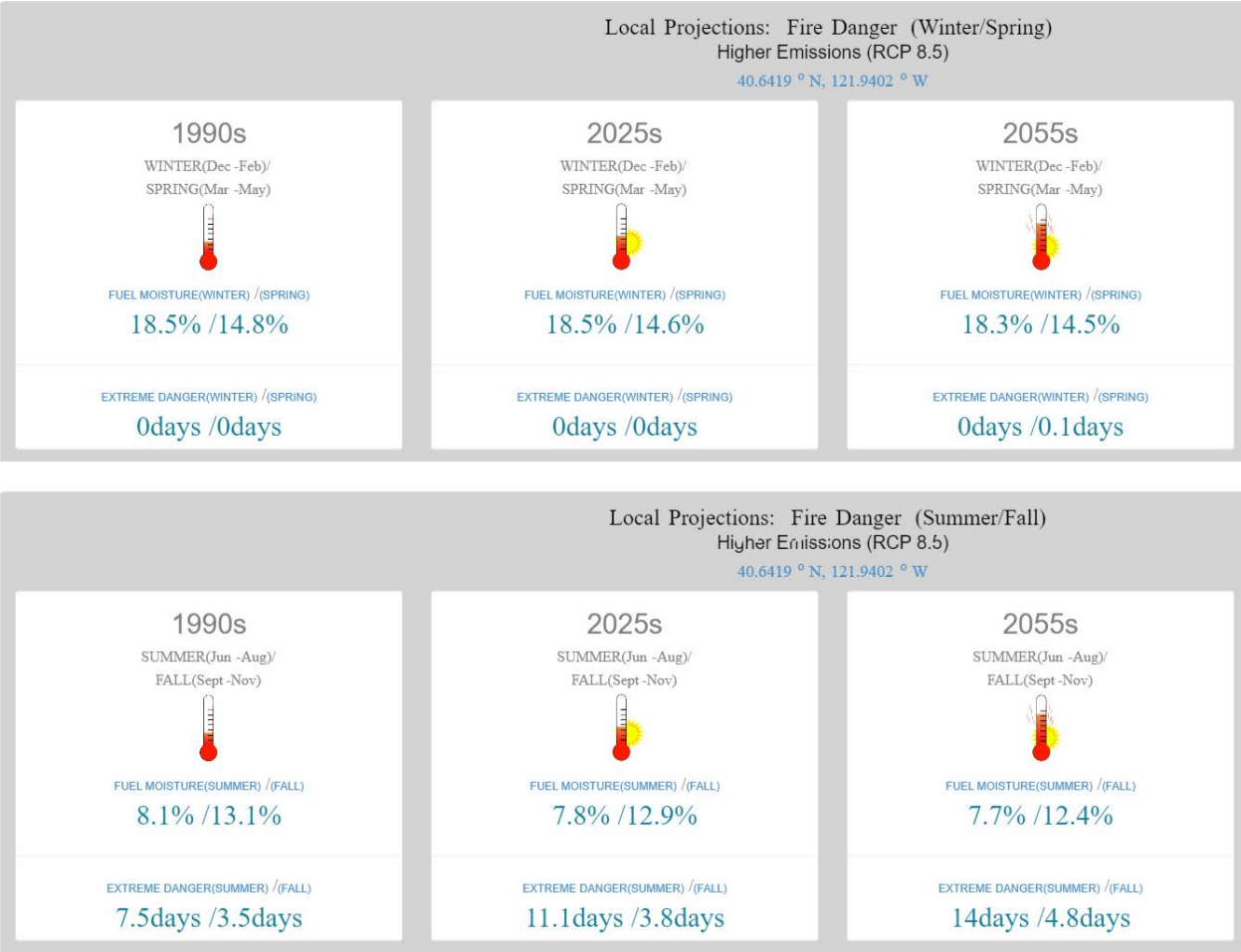


Figure 5-33. Fern Road Substation Projected Changes in Average Fuel Moisture and Average Number of Days of Extreme Fire Danger for Winter/Spring and Summer/Fall Periods, Based on Global Climate Model Outputs



Orchard Substation

While less pronounced, the historic weather data from the Whitmore RAWS indicates distinct patterns over the past three decades for the Orchard Substation. Since 1993, 95th percentile dead fuel moisture (100-hour) has been declining with each decade, meaning increased availability of fuels to burn. The 95th percentile relative humidity has decreased and the 95th percentile dry bulb temperature has increased with each decade, indicating extended warming periods and drought conditions. These trends could be expected to continue with future climate change and lead to increased issuance of fire weather watches, red flag warnings, and fuels and fire behavior advisories.

Historical annual maximum temperatures between 1979 and 2021 increased an average of 0.5°F per decade, with an average of 78.3°F (Figure 5-34). Both the minimum and mean annual temperature has increased by the 0.3°F and 0.4°F per decade, respectively, over the last

30 years (Figures 5-35 and 5-36). Annual precipitation showed very little change with an average decrease of 0.1 inches per decade at the Orchard Substation over the last 30 years (Figure 5-37). These trends show slightly warmer and drier conditions.

Climate projection models were evaluated to estimate predicted temperature and precipitation changes. The higher emission (RCP 8.5) was chosen to represent worst-case scenario conditions for each model at the Orchard Substation. Projected change in maximum temperature (daytime highs) and minimum temperature (nighttime lows) through 2100 was evaluated. Historical data was evaluated from 1950 to 2005 and showed a projection of roughly 10°F increase in maximum average temperature and 8°F increase in minimum average temperature by the year 2100 (Figures 5-38 and 5-39).

Additionally, changes in average dead fuel moisture and average number of days of extreme fire danger for winter/spring and summer/fall periods, based on global climate model outputs was evaluated using higher emission RCP 8.5 in Figure 5-40. Fuel moisture is projected to decrease by 0.1% in summer, 0.4% in fall, 0.3% in winter, and 0.2% spring by 2055 from the mid-2020s. This demonstrates a general decrease in fuel moisture, which can increase burn probability given an ignition source or the potential for large wildfire spread. Specifically, extreme fire danger results show an increase of 1.8 days of extreme fire danger in summer, 0.4 day in fall, 0 days in winter, and 0.4 days in spring by 2055 from the mid-2020s (Figure 5-40).

Figure 5-34. Orchard Maximum Annual Temperature (1979–2021)

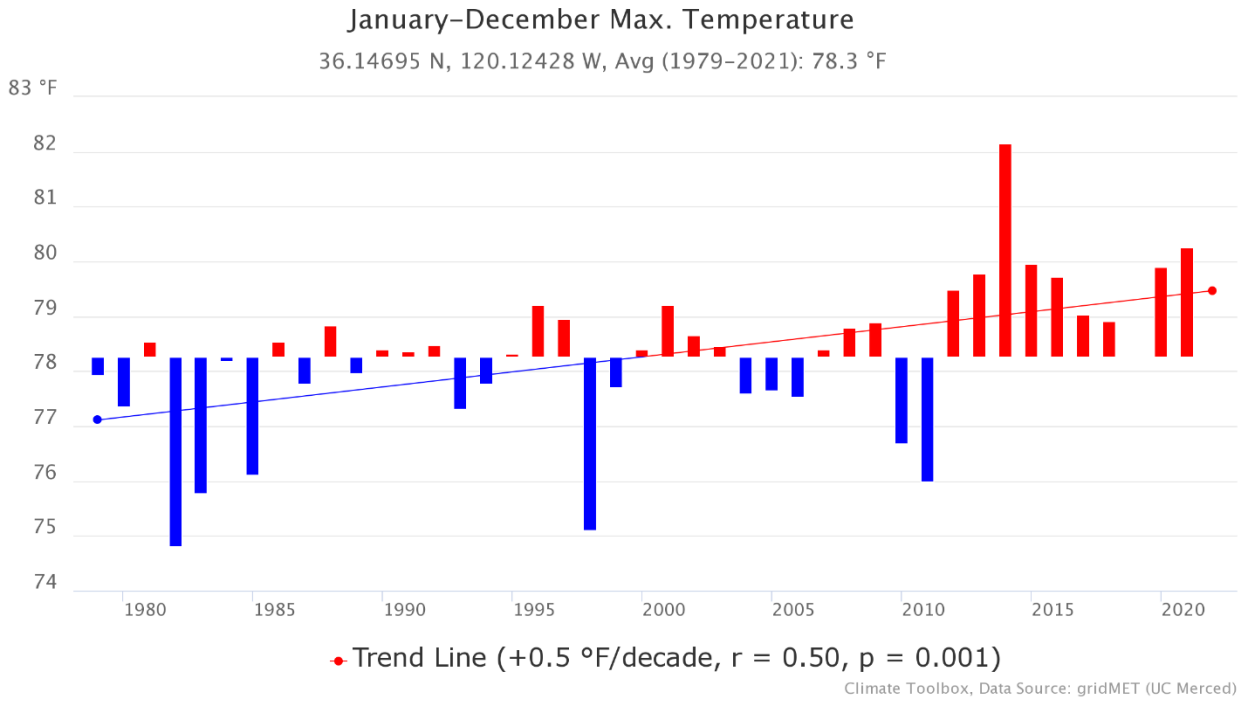


Figure 5-35. Orchard Minimum Annual Temperature (1979–2021)

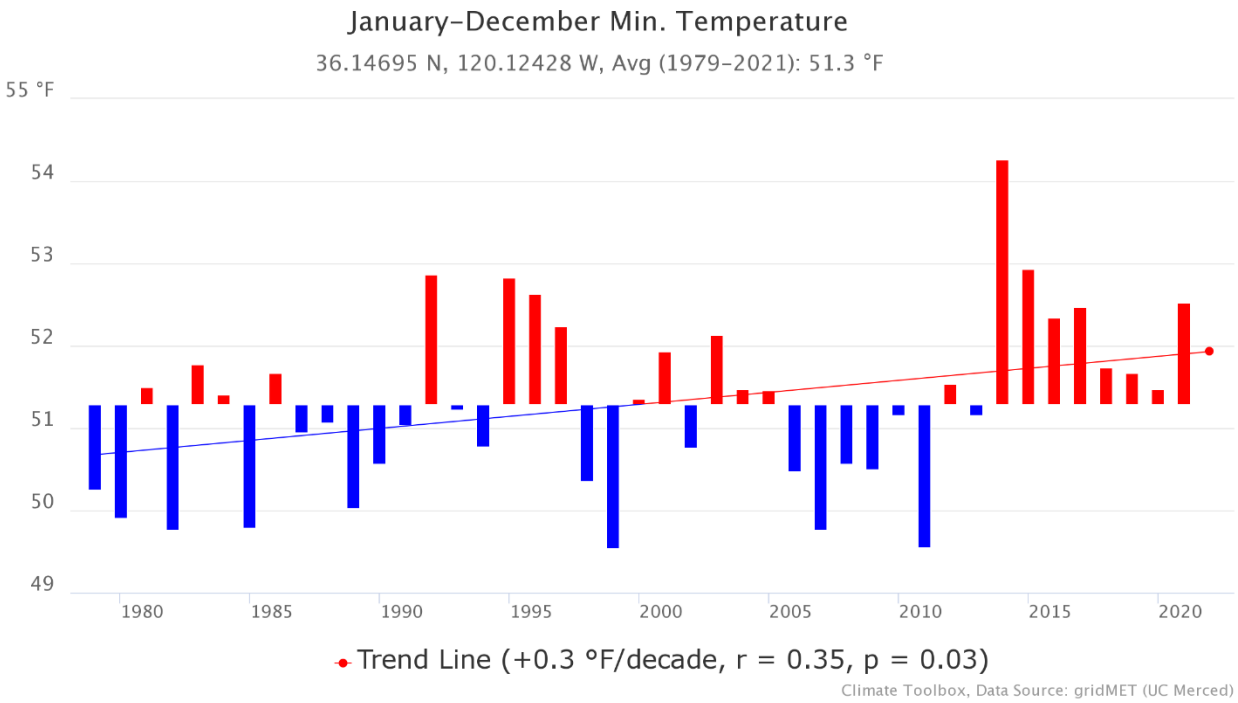


Figure 5-36. Orchard Mean Annual Temperature (1979–2021)

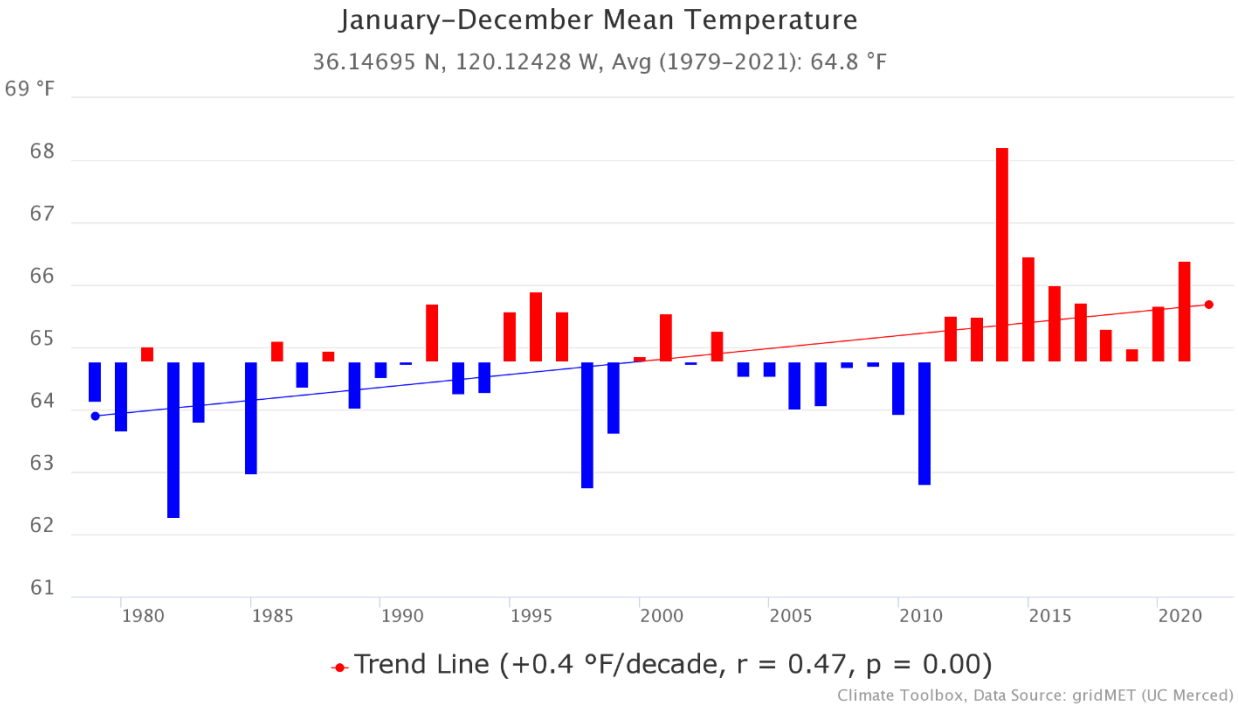


Figure 5-37. Orchard Annual Precipitation (1979–2021)

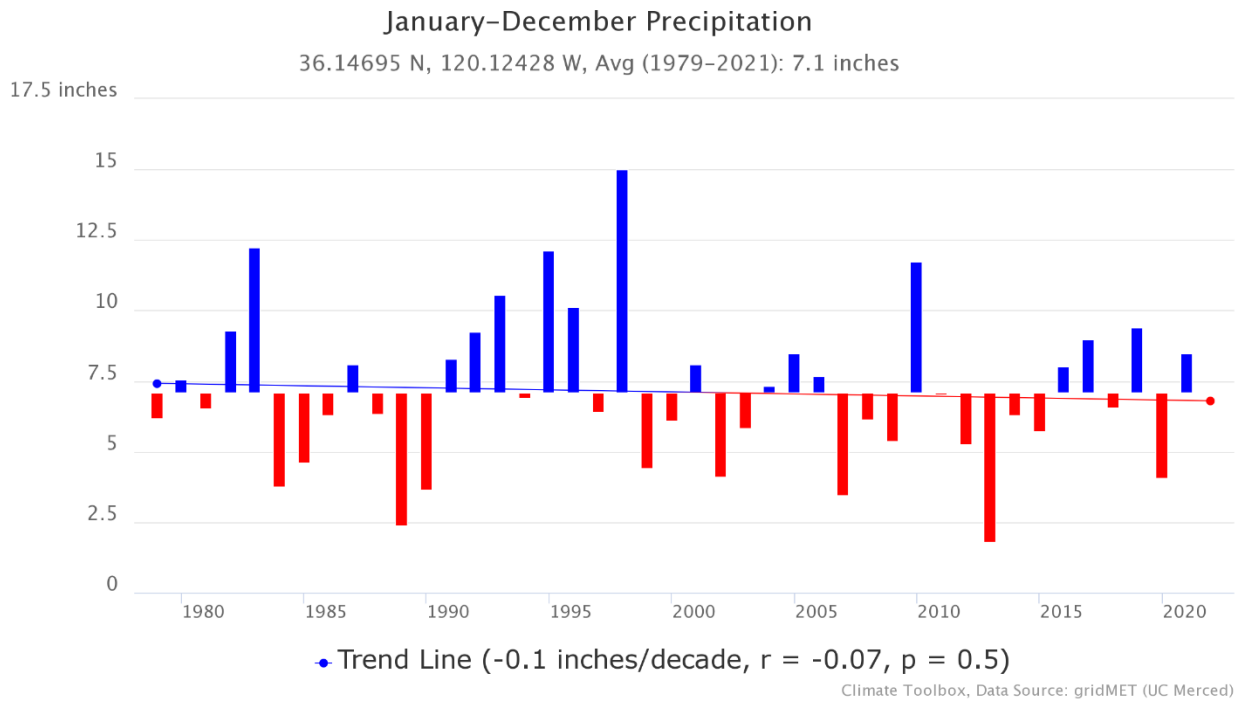


Figure 5-38. Orchard Substation Projected Change in Maximum Temperature (Daytime Highs) Through 2100

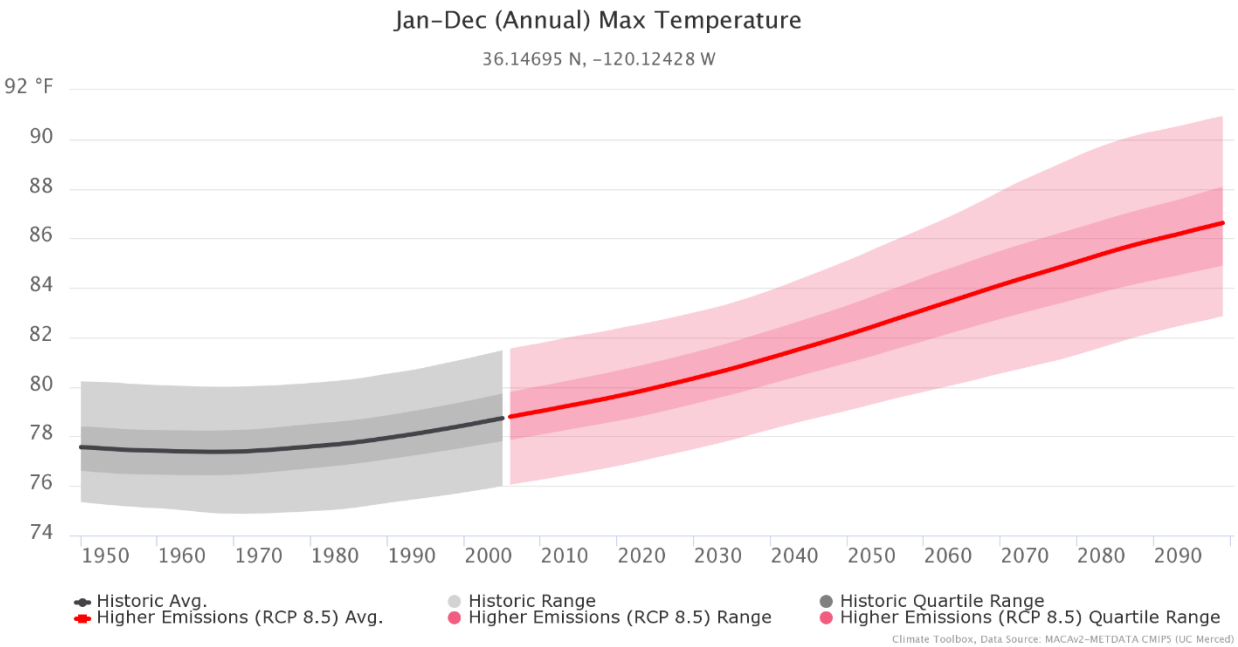


Figure 5-39. Orchard Substation Projected Change in Minimum Temperature (Nighttime Lows) Through 2100

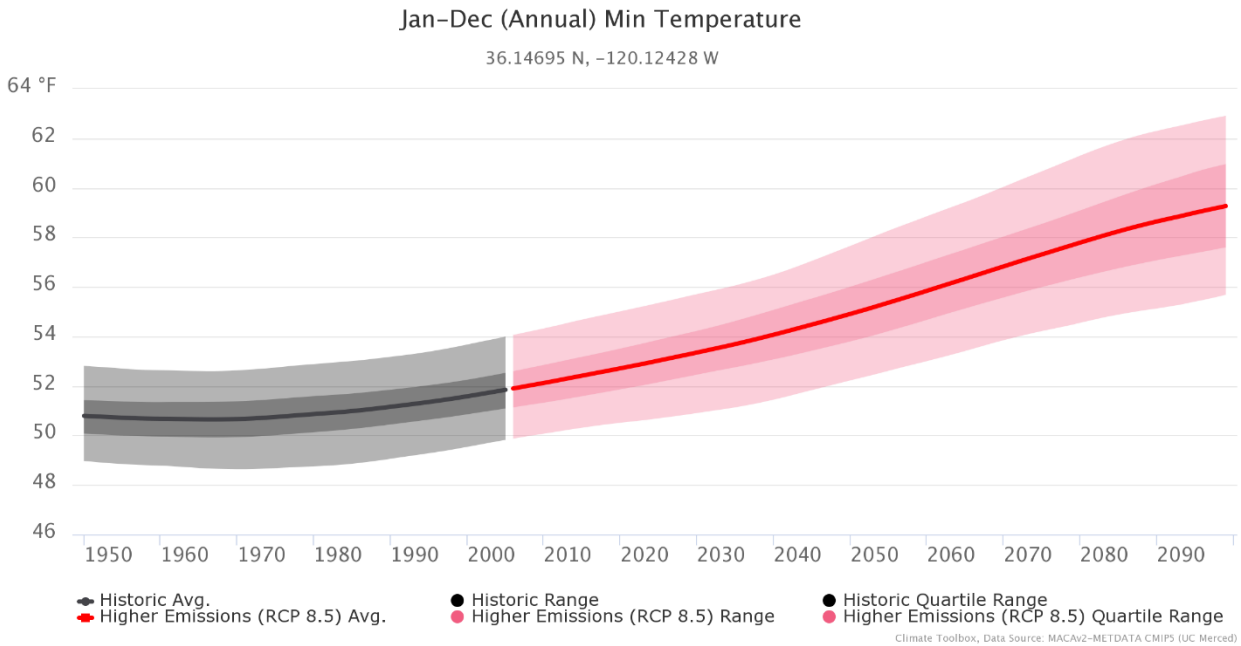
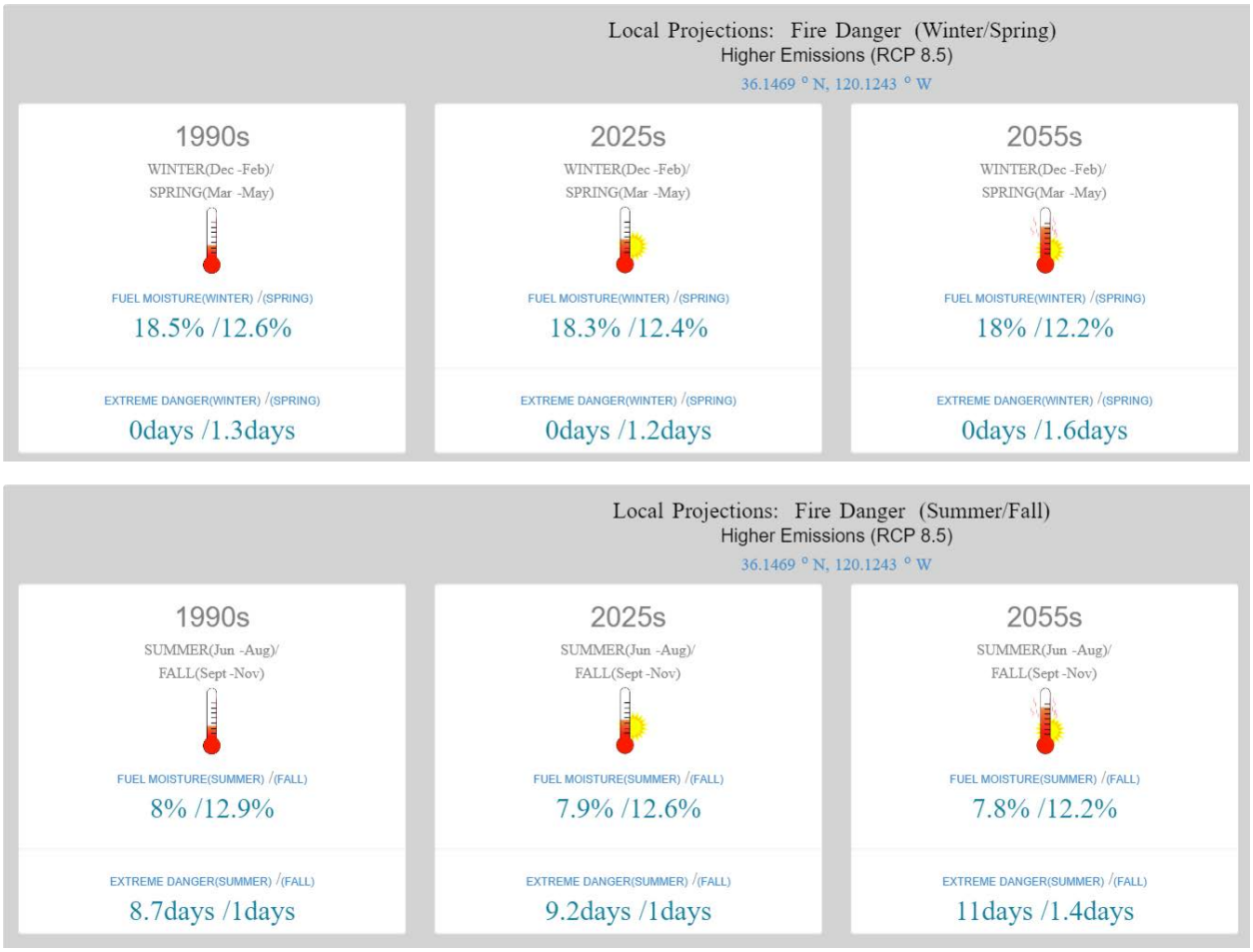


Figure 5-40. Orchard Substation Projected Changes in Average Fuel Moisture and Average Number of Days of Extreme Fire Danger for Winter/Spring and Summer/Fall Periods, Based on Global Climate Model Outputs



5.3.5 Topography

5.3.5.1 Fern Road Substation

The Fern Road Substation is located in the foothills of the northern Sierra Nevada Mountain Range. The proposed site is west of Coal Gulch, north of Old Cow Creek, and east of Clover Creek. Elevation within the project area ranges from 1,895 feet to 2,100 feet. Four wetlands (<0.1 acre), two intermittent channels, and two ephemeral channels occur within the project area.

5.3.5.2 Orchard Substation

The Orchard Substation is located in the southwestern portion of the Central Valley. The site is generally flat, ranging in elevation from 390 to 405 feet. South of the substation site is an existing substation. Other parcels surrounding the substation site are used for agriculture.

5.4 Community Values at Risk

5.4.1 Urban, Rural, and Highly Rural Customers

Section 5.4.1 does not apply to LSPG-CA because LSPG-CA is an ITO without end-use customers.

5.4.2 Wildland-Urban Interfaces

Section 5.4.2 does not apply to LSPG-CA because LSPG-CA is an ITO without end-use customers.

5.4.3 Communities at Risk from Wildfire

Given the limited scope and scale of LSPG-CA's anticipated operations, the overall community risk adjacent to LSPG-CA's facilities is extremely low. Residences nearest the Fern Road Substation are at least 0.3 mile away and are located on the opposite side of a 300-foot vegetation-free transmission line corridor. The Orchard Substation is surrounded by agricultural land with no incorporated Fresno County residences within 2 miles.

5.4.3.1 Individuals at Risk from Wildfire

Fern Road Substation

According to the California Governor's Office of Emergency Services (Cal OES) Hazard Exposure and Social Vulnerability Heat map, the Fern Road Substation is at the 99th percentile[7] for fire. The nearest unincorporated community of Shasta County to the substation site is Whitmore, which is located approximately 1.3 miles to the southeast and has a population of 416. Whitmore has the same percentile ranking for fire as the substation site. Populated areas in Whitmore are predominantly exposed to wildfire from direct sources, such as adjacent

[7] California Office of Emergency Services (Cal OES). 2022. Hazard Mitigation Assistance Branch's Multiple Hazards and Social Vulnerability Analysis. Cal OES Recovery Division dated January 18, 2022. Available at: https://calema.maps.arcgis.com/apps/dashboards/3c78aea361be4ea8a21b22b30e613d6e. Accessed February 3, 2023.

flammable vegetation. Potentially vulnerable populations may experience difficulty preparing for and responding to wildfire; Whitmore has a 47th percentile ranking for social vulnerability.[8]

Orchard Substation

According to the Cal OES Hazard Exposure and Social Vulnerability Heat map, Orchard Substation is at the 87th percentile for fire. The nearest incorporated community of Fresno County to the substation site is Huron, which is located approximately 3.7 miles to the north and has a population of 7,084. Huron has the same percentile ranking for fire as the substation site. Populated areas in Huron are predominantly exposed to wildfire from indirect sources, such as embers or home-to-home ignition. Potentially vulnerable populations may experience difficulty preparing for and responding to wildfire; Huron has a 99th percentile ranking for social vulnerability.[9]

5.4.3.2 Social Vulnerability and Exposure to Electrical Corporation Wildfire Risk

Fern Road Substation

The Fern Road Substation is located in an area with a designated Social Vulnerability Index (SVI) of 0.47. A number of factors, including poverty, lack of access to transportation, and crowded housing, may weaken a community's ability to prevent human suffering and financial loss in a disaster, and are used to calculate social vulnerability. In this area, the ratio of the median household income to state median is 0.77 and therefore considered vulnerable.[10] The ratio of median household income to state median shows the ratio of the median household income in

[8] U.S. Forest Service. 2023. Wildfire Risks to Communities. Available at: https://wildfirerisk.org/. Accessed February 3, 2023.
[9] U.S. Forest Service. 2023. Wildfire Risks to Communities. Available at: https://wildfirerisk.org/. Accessed February 3, 2023.
[10] Center for Disease Control (CDC). 2023. Agency for Toxic Substances and Disease Registry (ATSDR) Social Vulnerability Index (SVI). Available at: https://www.atsdr.cdc.gov/placeandhealth/svi/interactive_map.html. Accessed February 3, 2023.

the census tract to the state median; census tracts with a ratio of less than 0.8 are flagged as being vulnerable.

Orchard Substation

The Orchard Substation is located in an area with a designated SVI of 0.99. In this area, the ratio of the median household income to state median is 0.59 and therefore considered vulnerable.

5.4.3.3 Sub-Divisions with Limited Egress or No Secondary Egress

The California Board of Forestry and Fire Protection Subdivision Review Program has not provided data for subdivisions with limited egress or no secondary egress for the Fern Road Substation or Orchard Substation areas.[11]

5.4.4 Critical Facilities and Infrastructure at Risk from Wildfire

The following critical infrastructure, defined as facilities and infrastructure that are essential to public safety and require additional assistance and advance planning to ensure resiliency during power outage events, is located within approximately 2 miles of LSPG-CA's Fern Road Substation: 1) Whitmore Fire Company, 2) Whitmore Elementary School, and 3) one private land mobile communication tower. Whitmore Fire Company (located at 30480 Boggs Lane, Whitmore, CA) is a volunteer fire department approximately 1.5 miles to the southeast of the substation site. Whitmore Elementary School (located at 30611 Whitmore Road, Whitmore, CA) is approximately 1.5 miles to the southeast of the substation site. One private land mobile communication tower is located within approximately 2 miles of the substation site. Fern Road Substation, and the critical facilities/infrastructure listed above, are located within a Tier 2 HFTD.

The following critical infrastructure is located within approximately 2 miles of LSPG-CA's Orchard Substation: 1) Pacific Gas and Electric Company (PG&E) Gates Substation, 2) PG&E Jayne Switching Substation, 3) PG&E West Gates Solar System, 4) Westlands Solar Farm, 5) Gates Solar Station, 6) one antenna structure registration communication tower, 7) once cellular communication tower, 8) two private land mobile communication towers, 9) nine microwave communication towers, 10) one wastewater treatment facility, 11) I-5, and 12) SR-269. The PG&E Gates Substation (located at 36.140825, -120.126081) is adjacent to and directly south of the Orchard Substation. The PG&E Jayne Switching Substation (located at 36.137344, -

[11] California Board of Forestry and Fire Protection. 2023. Subdivision Survey Reports. Available at: https://calfire-forestry.maps.arcgis.com/apps/webappviewer/index.html?id=a045e9e9c01c4dd7abdf14ad30646eaf. Accessed February 3, 2023.

120.136116) is approximately 0.6 mile southwest. The PG&E West Gates Solar System (located at 36.141975, -120.132900) is within approximately 0.5 miles to the southwest. The Westlands Solar Farm (located at 36.127994, -120.142301) is approximately 1.25 miles southwest, and the Gates Solar Station (located at 36.177685, -120.111145) is approximately 1.75 miles north, partially within the 2-mile buffer area. A total of 13 communication towers are within the 2-mile buffer, and one wastewater treatment facility, I-5, and the Jayne Avenue Wastewater Treatment Facility (located at 36.13553, -120.15627) are approximately 1.70 miles southwest. I-5 passes through the area to the southwest, and SR-269 passes through the area to the east. The Orchard Substation site and the surrounding critical facilities/infrastructure listed above are not located within a HFTD/HFRA.

While there are facilities within an approximately 2-mile buffer, the substations do not significantly affect the critical infrastructure risk profile. The expected operations of the two substations do not include transmission lines, distribution lines, and end users, resulting in a limited scope; PSPSs are not within the scope of expected operations. Additionally, systems hardening measures will be incorporated from the start of operations.

5.4.5 Environmental Compliance and Permitting

The following is a summary of how LSPG-CA will ensure compliance with applicable environmental laws, regulations, and permitting related to the implementation of this WMP.

- LSPG-CA will ensure compliance with applicable environmental laws, regulations, and permitting related to the implementation of its WMP. LSPG-CA does not anticipate additional environmental permitting requirements related to the implementation of its WMP beyond what has been or is expected to be obtained for the construction and operation of its facilities.
- The Fern Road and Orchard Substation Projects are subject to the California Environmental Quality Act (CEQA) and will therefore go through environmental review and permitting to comply with all applicable federal, state, and local laws. Consultation by LSPG-CA and/or the CPUC with the appropriate regulatory agencies will occur throughout the varying stages of planning, construction, and operation, as required. Once operational, implementation of the mitigation measures (MMs) and Applicant Proposed Measures (APMs) defined by the CEQA process that apply to operations will ensure environmental compliance for activities associated with the current and future WMPs.
- LSPG-CA was not a California Electrical Corporation prior to 2023 and thus did not have a WMP in the 2020–2022 cycle; therefore, plans for addressing roadblocks and planned

improvements of the WMP based on changes in environmental compliance and permitting procedures since the last WMP do not apply.

- The relevant federal and state laws, regulations, and permits are shown in Table 5-6.

Table 5-6. Relevant Federal and State Environmental Laws, Regulations, and Permitting Requirements for Implementing the WMP

Environmental Law, Regulation, or Permit	**Responsible Permittee/Agency**
Federal	
Endangered Species Act Compliance	U.S. Fish and Wildlife Service (USFWS)
Migratory Bird Treaty Act	USFWS
Bald and Golden Eagle Protection Act	USFWS
Section 404 of the Clean Water Act, Individual or Nationwide Permit	U.S. Army Corps of Engineers (USACE)
National Historic Preservation Act Section 106 Compliance	California State Historic Preservation Office
Determination of No Hazard to Air Navigation	Federal Aviation Administration
Clean Air Act Compliance	U.S. Environmental Protection Agency (USEPA)
State	
Permit to Construct	CPUC
Section 401 of the Federal Clean Water Act	Regional Water Quality Control Board
California Endangered Species Act	California Department of Fish and Wildlife

6. Risk Methodology and Assessment

The sections below detail the technical methodology, data and assumptions, risk analysis process, and results. Due to LSPG-CA ’s limited scope and scale of operations as an ITO, certain subsections are not applicable or have been combined.

6.1 Methodology

6.1.1 Overview

A wildfire quantitative risk assessment was performed using industry-standard modeling platforms, national data sources, and best available science on wildfires. The risk assessment models the probability of a wildfire, expected fire behavior, the scale of a probable wildfire, and the hazards of a utility-caused wildfire, as well as an overall risk categorization rating. Historic fire and weather patterns for the project areas were integral components of the assessment. Due to LSPG-CA ’s limited scope and scale of operations as an ITO, modeling was not conducted regarding Public Safety Power Shutoffs (PSPS) or Wildland-Urban Interface (WUI) risks. The results of the risk assessment informed Section 7, *Wildfire Mitigation Strategy Development*, with implementable best practices that have measurable metrics to meet Section 4, *Goals and Objectives*.

The Overall Utility Risk is defined by a spatial landscape categorization; a weighted quantitative risk assessment categorizes a specific area as having a low, moderate, high, or extreme risk. The weighted risk assessment includes wildfire probability, wildfire behavior metrics, fire history, and values at risk (critical infrastructure) as inputs. The critical infrastructure are listed in Section 5.4.4, *Critical Facilities and Infrastructure at Risk from Wildfire*, of this WMP.

6.1.2 Summary of Risk Models

Table 6-1 summarizes the risk models; *Appendix B provides further information on these models.*

Table 6-1. Risk Models

Identification	Risk Component	Key Inputs	Sources of Inputs	Key Outputs
OUR	Overall Utility Risk	Ignition risk	IFTDSS[12] CAL FIRE[13] RAWS[14] LANDFIRE[15]	Ignition probability leading to a wildfire at site and impacts from wildfire
IR	Ignition Risk	Ignition likelihood Wildfire likelihood Wildfire consequence	LANDFIRE IFTDSS	Ignition likelihood at substation site
IL	Ignition Likelihood	Equipment Vegetation	LANDFIRE RAWS CAL FIRE	Ignition at a specific location
WL	Wildfire Likelihood	Fire history Burn Probability Topography	LANDFIRE IFTDSS CAL FIRE	Wildfire propagation at a specific location
WC	Wildfire Consequence	Fire behavior Fire intensity Topography	LANDFIRE IFTDSS	Wildfire impact (behavior and intensity) at a specific location
VC	Vegetation Contact	Wind speed Fuel moisture	LANDFIRE IFTDSS	Likelihood of ignition from vegetation

[12] U.S. Department of Interior. 2022. Interagency Fuel Treatment Decision Support System (IFTDSS). Wildland Fire Management RD&A.
[13] California Department of Forestry and Fire Protection (CAL FIRE). 2023. Fire and Resource Assessment Program (FRAP) GIS Data. Available at: https://frap.fire.ca.gov/mapping/gis-data/. Accessed January 18, 2023.
[14] Western Regional Climate Center. 2022. RAWS USA Climate Archive.
[15] LANDFIRE. 2022. Existing Vegetation Type Layer. Available at: https://www.landfire.gov/evt.php. Accessed February 3, 2023.

Identification	Risk Component	Key Inputs	Sources of Inputs	Key Outputs
			RAWS	contacting equipment
EI	Equipment Ignition	Wind speed Fuel moisture	CAL FIRE	Likelihood of ignition from electrical equipment operations and maintenance

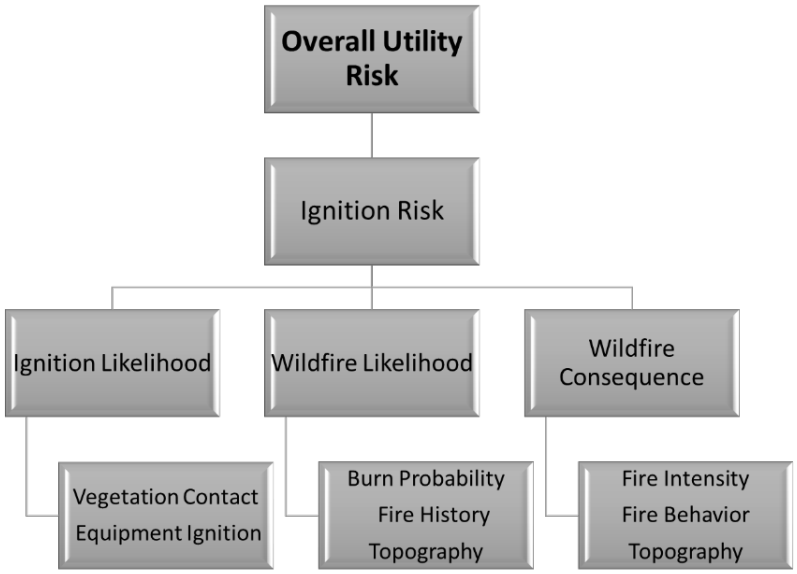
6.2 Risk Analysis Framework

The risk analysis framework is based on several tiers of risk components resulting in an overall risk assessment categorization. Factors such as vegetation composition, historic weather, topography, electrical equipment/assets, critical infrastructure, and climate change were evaluated. The technical approach and key assumptions follow.

6.2.1 Risk and Risk Component Identification

Given the limited scope and scale of LSPG-CA ’s expected operations (no distribution lines and end users), the overall utility risk comes from ignition risk; PSPS risk was not a component of the risk analysis. Ignition risk is defined as the culmination of all impacts from ignitions and wildfires at a specific location. The ignition risk is comprised of three intermediate risk components: ignition likelihood, wildfire likelihood, and wildfire consequence (Figure 6-1). Ignition likelihood is comprised of the two foundational risk components: 1) vegetation contact and 2) equipment ignition. Wildfire likelihood is comprised of the foundational risk component burn probability, which is influenced by fire history and topography. Wildfire consequence is comprised of the foundational risk component wildfire intensity, which is influenced by fire behavior and topography.

Figure 6-1. Composition of Overall Utility Risk



6.2.2 Risk and Risk Components Calculation

The overall utility risk is defined by a spatial landscape categorization; a weighted quantitative risk assessment categorizes a specific area as having a low, moderate, high, or extreme risk. The weighted risk assessment includes wildfire probability, wildfire behavior metrics, fire history, and values at risk (critical infrastructure) as inputs. All inputs were given an equal rating on the landscape. Additional application of the weighted quantitative risk assessment is detailed in Section 6.4, *Risk Analysis Results and Presentation,* of this WMP. As an ITO, the risk components and analysis are not held to the CPUC's Risk Assessment and Mitigation Phase regulatory review and public-vetting process; however, this process does align with applicable CPUC decisions regarding disclosure of risks.

The overall utility risk was defined by only ignition risk. Ignition risk was calculated as a total of 1) ignition likelihood, 2) wildfire likelihood, and 3) wildfire consequence. To determine ignition likelihood, the current vegetation (type, flammability, condition/fuel moisture) at the project area was assessed in combination with the type of equipment present. To determine wildfire likelihood, modeling was conducted to predict expected burn probability in the project area, incorporating fire history (number, size, location), historic weather data, and topography. To determine wildfire consequence, modeling was conducted to predict expected fire behavior in the project area. Fire behavior was classified by flame length, ROS, and crown fire activity. It is also influenced by topography and wind.

Modeling, including the overall weighted risk assessment, was conducted using the Interagency Fuel Treatment Decision Support System (IFTDSS), a web-based application designed for fuels

treatment planning and analysis. It models fire behavior across an area of interest under a variety of weather conditions while including a spatial component. Comprehensive historic RAWS data and percentiles were populated using FireFamilyPlus, a software package that calculates fuel moistures and indices from the U.S. National Fire Danger Rating System as mandated for federal and state agencies for fire preparedness and response decisions.

6.2.2.1 Ignition Likelihood

Current vegetation at each project was acquired from LANDFIRE 2020 (LF 2.2.0). Vegetation was defined by major type according to the Society of American Foresters and by Scott and Burgan's fire behavior fuel models. Fuel models classify vegetation by the main carrier of fire and are used in fire spread and fire behavior modeling. Fuel models represent substrate that will not carry fire (e.g., bare ground) and that support a full range of fire spread. The type of vegetation present, the fuel model classification, and the condition of the vegetation all determine the likelihood of an ignition from a natural or man-made source. Vegetation condition was gathered from the closest RAWS; Fern Road Substation utilized Whitmore RAWS and the Orchard Substation utilized Kettleman Hills RAWS. RAWS data for 1-hour, 10-hour, 100-hour, live herbaceous, and live woody fuel moisture determined the developmental stage of vegetation and thus its combustibility. Specific fuel models also represent the flammability of vegetation; for instance, continuous grasses are typically a common carrier of fire as compared to western riparian vegetation.

Equipment at both the Fern Road and Orchard Substation Projects is limited to substation equipment. Equipment components include circuit breakers, connectors, reactors, insulated gas bipolar transistor value/control enclosures, cooling equipment, conductor, transformers, STATCOMs, and disconnect switches. There are no overhead transmission lines, which are associated with increased opportunities for contact with vegetation and probable ignition. The limited ground equipment at Fern Road Substation is located in predominantly grass fuel models, with a minor component of shrub and timber fuel models. The Orchard Substation is located in non-burnable substrate (irrigated agricultural field). Vegetation maintenance standards will maintain any flammable material around the substation structure at both substation sites; the Fern Road Substation would have little to no possibility of a woody tree making contact with the substation given the structure placement.

6.2.2.2 Wildfire Likelihood

The main metric of wildfire likelihood is burn probability, which is the likelihood of a fire occurring under a set of fuel moisture and weather conditions. Burn probability is the number of times a specific area burns divided by the total number of ignitions. Fire history of the area also shows the likelihood of an ignition leading to a wildfire. The Fern Road Substation has a

high burn probability, given the dominance of pyric grasses in the area; the Orchard Substation has no burn probability given the non-burnable substrate. Since 1980, there has only been one wildfire that burned through the Fern Road Substation site, and a total of three wildfires in the project area in that time. There have been zero wildfires in the Orchard Substation area since 1980.

6.2.2.3 Wildfire Consequence

The main metrics of wildfire consequence are flame length, ROS, and crown fire activity. The Fern Road Substation site predominantly sustains moderate flame lengths, which is common in continuous or in heavier grass fuel loadings. Most of the substation site has a minimal ROS of less than 20 chains per hour (1 chain equals approximately 66 feet). Crown fire activity is fire supported in the canopy/crown of trees or shrubs—it is indicative of more extreme fire behavior as compared to surface fire. The Fern Road Substation site is predominantly surface fire, with minimal acreage as passive crown fire.

The Orchard Substation has no quantifiable flame length, does not support any quantifiable ROS, and does not support crown fire activity as it is in non-burnable substrate.

The likelihood of catastrophic wildfire in both project areas is minimal; fire history, burn probability, and predicted fire behavior under current fuels conditions do not support extreme fire behavior. In the past three decades, there have been few to no wildfires recorded in the project areas. The Fern Road Substation has a higher likelihood of an ignition and wildfire given the vegetation type and fire history, but still exhibits low to moderate fire behavior overall; there is a slight possibility of woody vegetation making contact with the substation.

6.2.3 Key Assumptions and Limitations

Detailed assumptions made within models in accordance with the model documentation requirements are in Appendix B.

Table 6-2. Risk Modeling Assumptions and Limitations

Model Assumption	**Limitation**
IFTDSS fire behavior modeling uses 97th percentile weather conditions (fuel moistures, wind) from RAWS to capture extreme conditions.	97th percentile weather conditions are based on historic weather patterns (10–30 years based on RAWS in-service time). As environmental conditions change, trends may also change.

Model Assumption	Limitation
IFTDSS fire behavior modeling uses gridded winds to account for complex topography and midflame wind speed to account for fire behavior at specific locations.	Gridded winds in modeling more accurately captures historic wind patterns; however, they do not predict probability of vegetation contact with equipment.
IFTDSS fire behavior modeling uses current vegetation/fuels conditions in wildfire simulations.	As vegetation/fuels conditions change on the landscape, modeling may need updating if vegetation changes are meaningful.
Data from LANDFIRE 2.2.0 captures disturbances and landscape conditions through 2020.	Modeling may need updating if LANDFIRE releases more current data layers.

6.3 Risk Scenarios

6.3.1 Risk Scenario 1

Scenario 1 is a human-caused or natural source of ignition in the vicinity of a substation site. If the ignition source leads to a wildfire that spreads, there is the potential for fire to reach the substation and create additional ignition sources due to the presence of combustible material. Pursuant to California Public Resources Codes (PRC) 4290 and 4291, there will be a minimum 30-foot perimeter of cleared or maintained at 3 inches vegetation around the substation. This would effectively prevent most fires from reaching the substation, even under 97th percentile weather conditions during historic peak fire season (late May–October), when extremes in live and dead fuel moistures and weather metrics (temperature, relative humidity, precipitation) support fire spread. The 30-foot perimeter zone will be increased in areas classified as HFTD or HFTA; these often align with High and Very High FHSZs. Historic fire return intervals indicate vegetation types that are prone to wildfire every 0 to 25 years.

6.3.2 Risk Scenario 2

Scenario 2 is a source of ignition from substation electrical equipment due to equipment malfunction. Pursuant to PRC 4290 and 4291, there will be a minimum 30-foot perimeter of cleared or maintained at 3 inches vegetation around the substation, which would effectively prevent most ignitions from spreading to adjacent vegetation and becoming a widespread wildfire. The 30-foot perimeter zone will be increased in areas classified as HFTD or HFTA; these often align with High and Very High FHSZs. Partially enclosed substations have fire detection systems in place, increasing systems hardening by immediate notification of an equipment fire.

6.3.3 Risk Scenario 3

Scenario 3 is a source of ignition by vegetation contact with the substation equipment. This scenario is only possible at substation sites with trees that may reach beyond the minimum 30-foot perimeter zone and have the potential to strike the substation. Conditions that may lead to vegetation contact include tree age, health, another disturbance (e.g., wildfire, flood, human activities), or a weather event (high wind). Regular equipment and site inspections will minimize the potential for trees to strike the substation or remain in contact with the substation and act as a fire conduit. The cleared 30-foot perimeter will be increased in areas classified as HFTD or HFTA, further minimizing the risk of vegetation contact leading to ignition.

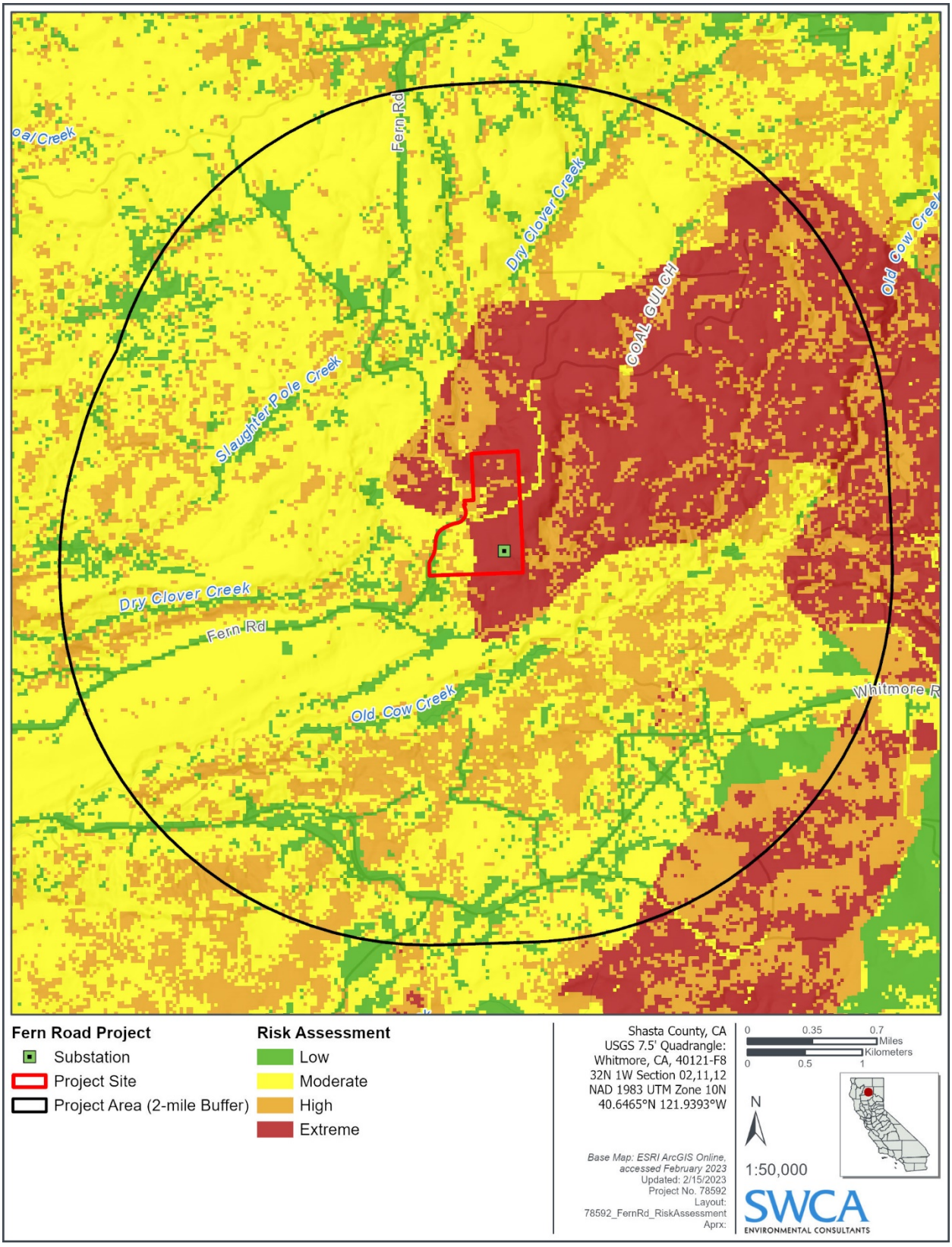
6.3.4 Risk Scenario 4

Scenario 4 is an extreme weather event, such as a red flag warning, wind advisory, or a fuels and fire behavior advisory. Modeling under 97th percentile weather conditions during historic peak fire season (late May–October) lessens the risk of not planning for an extreme weather event or predicting fire behavior in a worst-case scenario. Using historic RAWS weather data shows fuels and weather trends that, coupled with climate change scenarios in Section 5.3, *Environmental Settings,* of this WMP, could help predict future climate change conditions and impact to risk.

6.4 Risk Analysis Results and Presentation

The overall weighted quantitative risk assessment categorizes most of the Fern Road Substation site as an extreme risk category (approximately 62%), and most of the project area as a moderate risk (approximately 49%). The remaining substation site is predominantly classified as moderate risk (approximately 21%), with minor percentages classified as both low and high risk (Figure 6-2). These extreme risk areas are in alignment with the CPUC HFTD Tier 2 area, which covers the entirety of the Fern Road Substation site. Consequently, this will not trigger proposed changes for CPUC review. The HFRA is the entirety of the Fern Road Substation site, which also aligns with the High and Very High FHSZ classification of the site. The vegetative composition, and thus the fuel models, indicate a high burn probability for the Fern Road Substation; however, fire behavior metrics (flame length, ROS, and crown fire activity) predict low to moderate fire behavior.

Figure 6-2. Fern Road Substation Risk Assessment Categorization



The overall weighted quantitative risk assessment categorizes the Orchard Substation site as a low risk category (approximately 95%), and most of the project area as a low risk (approximately 54%), with minor components as moderate, high, and extreme (Figure 6-3). This low risk categorization is in alignment with the lack of CPUC HFTD and FHSZ classifications in the Project area. The entirety of the Orchard Substation site is on non-burnable substrate, with areas of flammable grass within the Project area. Fire behavior metrics (flame length, ROS, and crown fire activity) predict low to moderate fire behavior.

The Fern Road Substation presents the greatest overall utility risk as compared to the Orchard Substation. Vegetation composition and fuel models at the Fern Road Substation are more conducive to carrying wildfire and have a short historic fire return interval (0 to 5 years) in most of the project area.

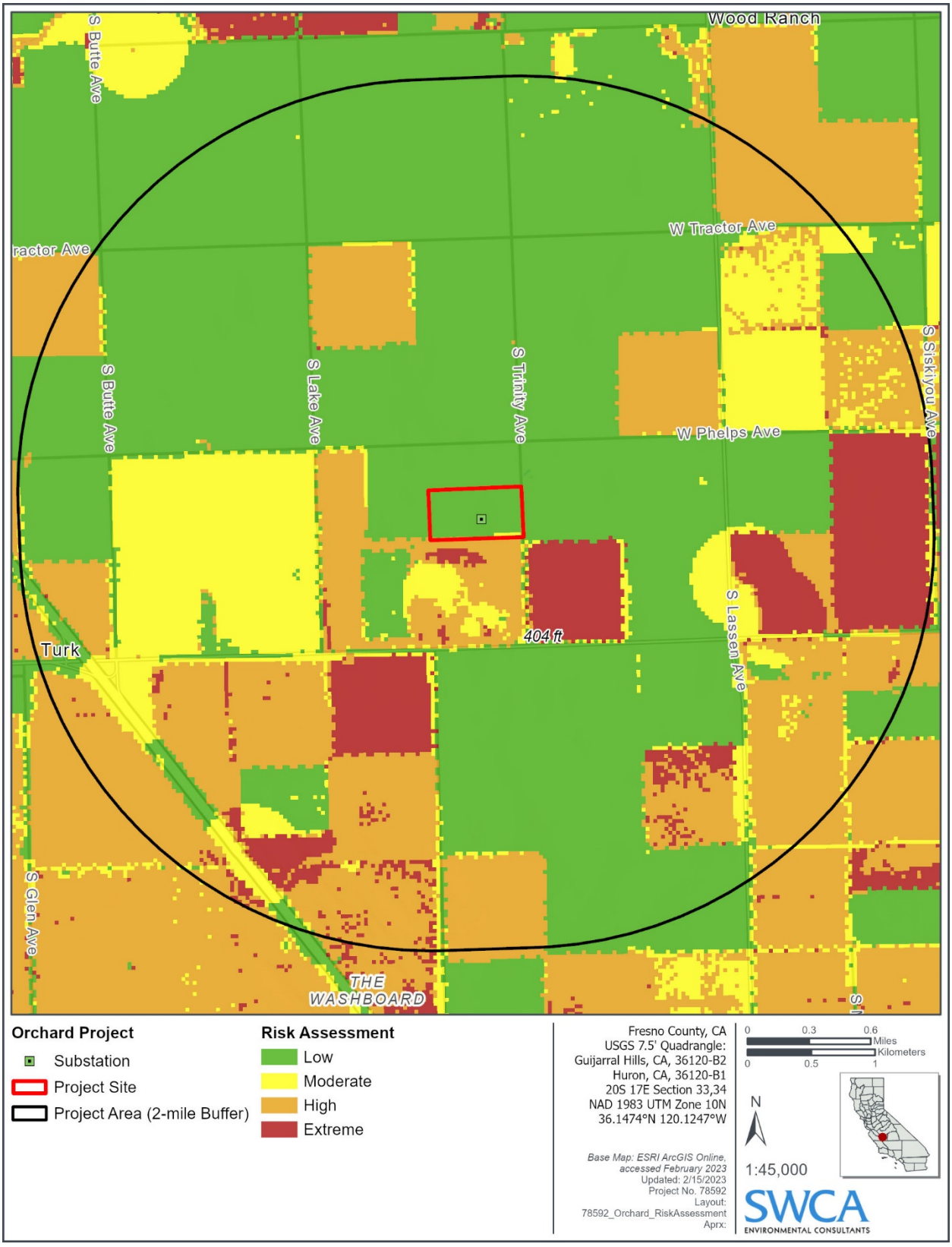
Historic weather data from the Whitmore RAWS indicates distinct patterns over the past three decades for the Fern Road Substation area. Since 1993, 95th percentile dead fuel moisture (100-hour) has been declining with each decade, meaning increased availability of fuels to burn. The 95th percentile relative humidity has decreased and the 95th percentile dry bulb temperature has increased with each decade, indicating extended warming periods and drought conditions. These trends are expected to continue with future climate change (Table 6-4.1).

Table 6-4.1. Whitmore RAWS Historic Weather (1993–2022)

Time Period	**95th Percentile 100-Hour Fuel Moisture**	**95th Percentile 10-Hour Fuel Moisture**	**95th Percentile Relative Humidity (%)**	**95th Percentile Dry Bulb (°F)**	**95th Percentile Wind Speed (miles per hour)**
1993–2002	30.03	26.00	100.00	95.00	8.00
2003–2012	29.11	26.00	97.00	96.00	6.00
2013–2022	28.70	26.00	95.00	97.00	4.00

Note: 95th percentile wind speed is recorded on an hourly basis but does not take into account wind gusts.

Figure 6-3. Orchard Substation Risk Assessment Categorization



Historic weather data from the Kettleman Hills RAWS indicates similar patterns over the past three decades for the Orchard Substation area. Since 1993, 95th percentile dead fuel moistures (100-hour and 10-hour) have been declining with each decade, meaning increased availability of fuels to burn. The 95th percentile relative humidity has decreased and the 95th percentile dry bulb temperature has increased with each decade, indicating extended warming periods and drought conditions. The 95th percentile wind speed has increased with each decade. These trends are expected to continue with future climate change (Table 6-4.2).

Table 6-4.2. Kettleman Hills RAWS Historic Weather (1993–2022)

Time Period	**95th Percentile 100-Hour Fuel Moisture**	**95th Percentile 10-Hour Fuel Moisture**	**95th Percentile Relative Humidity (%)**	**95th Percentile Dry Bulb (°F)**	**95th Percentile Wind Speed (miles per hour)**
1993–2002	23.44	15.57	98.00	95.00	20.00
2003–2012	21.88	14.34	92.00	96.00	18.00
2013–2022	20.37	12.69	81.00	97.00	19.00

Note: 95th percentile wind speed is recorded on an hourly basis but does not consider wind gusts.

Key weather metrics—issuance of fire weather watches, red flag warnings, high wind advisories, and fuels and fire behavior advisories—will be tracked for the Fire Weather Zone of both substations on an annual basis. Future climate trends may lead to increased issuance of these advisories, indicating an increased wildfire risk for the areas.

6.4.1 Top Risk Areas within the HFRA

Given LSPG-CA's limited assets and no transmission lines, Section 6.4.1 has been addressed under Section 6.4.

6.4.1.1 Geospatial Maps of Top-Risk Areas within the HFRA

Given LSPG-CA's limited assets and no transmission lines, Section 6.4.1.1 has been addressed under Section 6.4.

6.4.1.2 Proposed Updates to the HFTD

Given LSPG-CA's limited assets and no transmission lines, Section 6.4.1.2 has been addressed under Section 6.4.

6.4.2 Top Risk-Contributing Circuits/Segments/Spans

Section 6.4.2 does not apply to LSPG-CA because LSPG-CA does not own transmission lines or circuits.

6.4.3 Other Key Metrics

Given LSPG-CA's limited assets and no transmission lines, Section 6.4.3 has been addressed in Section 6.4.

6.5 Enterprise System for Risk Assessment

LSPG-CA uses a series of network drives to store internal company data, including risk assessment data inputs. As LSPG-CA has only two substations currently, the magnitude of data is very small and can be organized and stored manually via the LSPG-CA internal network. These drives are regularly backed-up and access is available to all employees supporting LSPG-CA, but access is restricted to only those who have been approved by management based on business need. LSPG-CA has a Records Retention Program Procedure that governs the identification, filing, management, preservation, and disposition of records in accordance with applicable regulatory retention requirements.

Risk assessment data inputs include annual tracking of National Weather Service advisories and RAWS weather and fuel moisture metrics, substation equipment monitoring and reporting, vegetation management compliance, and wildfire occurrence tracking. A specific substation equipment monitoring schedule will be established along with routine vegetation management. When changed conditions warrant rerunning fire behavior or quantitative risk assessment modeling, it will also be incorporated into the database.

Data additions, updates, and modifications are the responsibility of the people included in Section 2, *Responsible Persons,* of this WMP and are made on an ongoing as-needed basis. As this is LSPG-CA's first WMP submission, there are no changes since the last WMP cycle, and there are currently no planned improvements related to risk assessment data management.

6.6 Quality Assurance and Control

Because LSPG-CA has no existing presence in California, third-party consultants were used to collect and process data for the risk assessments. As the data and modeling is conducted by an independent third-party utilizing qualified subject-matter experts vetted by LSPG-CA, they also

function as both an independent data source. Quality assurance and quality control is performed by LSPG-CA at two points: LSPG-CA reviews consultants' experience, qualifications, and work products before formally engaging a new firm and LSPG-CA provides review and oversight of work produced for its facilities. Given the limited footprint of LSPG-CA facilities, there are currently no plans to self-perform risk assessment modeling. LSPG-CA plans to only engage consultants employing qualified subject-matter experts with extensive wildfire risk assessment experience.

6.6.1 Independent Review

Given LSPG-CA's limited footprint in California it is not practical or cost-effective to conduct thorough land surveys and gather the data required to self-perform in-depth risk modeling and assessment. As such, LSG-CA will be engaging consultants to gather and independently review data and risk models. The consultant supporting LSPG-CA's wildfire mitigation risk assessment efforts is a nationwide environmental consulting firm with a long history of experience and a proven track record in the area of wildfire mitigation across the US. LSPG-CA will continue to monitor and review risk assessment data during future updates to the WMP. The results of the latest independent review conducted can be reviewed in section 6.4 *Risk Analysis Results and Presentation*. Based on those results and recommendations, the initiatives listed in Table 7-3 were developed.

6.6.2 Model Controls, Design, and Review

LSPG-CA is currently using industry-standard and best available modeling platforms and data sources for fire behavior analysis (IFTDSS), weather compilation and percentile breakdown (FireFamilyPlus), seasonal vegetation conditions, indices, and analysis (RAWS and FireFamilyPlus) and vulnerability analysis (Cal OES). Several platforms, including IFTDSS, RAWS, and FireFamilyPlus, were designed to be integrated for a comprehensive approach and review. Assumptions and limitations of all models have been identified in the framework; the risk analysis framework approach is intended to be updated with each WMP cycle or significant changed conditions on the landscape. The platforms and data sources used are regularly updated, most often on an annual basis.

6.7 Risk Assessment Improvement Plan

Table 6-7 summarizes LSPG-CA's continuous improvement plan for risk assessment in four key areas. As there are currently no operational assets, this improvement plan is based on predictions of what may occur over time.

Table 6-7. Risk Assessment Improvement Plan

Key Area	**Proposed Improvement**	**Improvement Type**	**Anticipated Benefit**	**Timeline**
Risk Assessment Methodology	If fire occurrence increases in the project area, run ignition models	Technical	Increased accuracy of fire modeling	Yearly review; 4 months to complete
Risk Event Tracking	Review risk event data from electrical corporation(s) responsible for adjacent infrastructure	Programmatic	Increased accuracy of fire prediction and preparedness	Yearly review; 6 months to complete
Design Basis	Update vegetation compliance minimum standards and monitoring protocols if vegetation composition changes	Programmatic and Technical	Increased wildfire risk mitigation and preparedness	Yearly review; 12–14 months to complete
Risk Presentation	Review for added critical infrastructure that may alter overall risk quantification and presentation	Technical	Increased accuracy of risk rating	Yearly review; 6 months to complete

7. Wildfire Mitigation Strategy Development

7.1 Risk Evaluation

7.1.1 Approach

The risk evaluation approach in this WMP is designed to meet a range of industry-recognized standards (e.g., International Organization for Standardization [ISO] 31000), best practices, and research to determine a wildfire mitigation strategy. The intent is to use this approach to help inform LSPG-CA 's development of a portfolio of wildfire mitigation initiatives and activities that meet the goals and objectives stated in Section 4.1, *Primary Goal*, and Section 4.2, *Plan Objectives,* of this WMP. The general risk evaluation approach consists of the following:

- Key stakeholder groups, decision-making roles and responsibilities, and engagement process are shown in Table 7-1.
- Due to LSPG-CA 's limited scope and scale of operations as an ITO, modeling was not conducted regarding PSPS or WUI risks, only wildfire risks. The risk evaluation criteria outlined in Section 6.1, *Methodology*, informed Section 7, *Wildfire Mitigation Strategy Development*, with implementable best practices that have measurable metrics to meet Section 4 goals and objectives.
- The risk-informed approach considered identified goals and plan objectives, the scope of application, hazard and risk scenario identification, subsequent risk analysis and evaluation, and risk mitigation and management. Only hazards and risks applicable to the asset type and location were considered as within scope. A quantitative risk analysis identified areas where there was an ignition and wildfire risk; scalable mitigation initiatives were developed.
- LSPG-CA has identified a portfolio of wildfire mitigation initiatives and activities, in Table 7-2.
- A portfolio of mitigation initiatives that will be implemented over the WMP cycle are outlined in Section 7.2.1, *Overview of Mitigation Initiatives and Activities*.
- Implementation of mitigation strategies is included in Section 7.1.4, *Mitigation Selection Process*. The procedures for management oversight of implementation of the mitigations are outlined in Section 7.1.2, *Key Stakeholders for Decision-Making*. The methods of evaluation of their effectiveness once deployed are outlined in Section 7.2.2, *Anticipated Risk Reduction*.
- LSPG-CA 's current risk calculation is a baseline because it is not yet operational. Once operational, LSPG-CA will fully implement all mitigation measures, including increased

vegetation buffer zones for assets in an HFTD or HFTA. This increased mitigation measure equates to a direct reduction in risk. Regular collection of data and tracking of implementation measures will allow for monitoring, review, and potential modification of measures to reach improvement targets as risk is calculated over time. The risk management framework is a continuous cycle.

7.1.2 Key Stakeholders for Decision-Making

Stakeholder groups involved in the decision-making process are listed in Table 7-1.

Table 7-1. Stakeholder Roles and Responsibilities in the Decision-Making Process

Stakeholder	**Stakeholder Point of Contact**	**Electrical Corporation Point of Contact**	**Stakeholder Role**	**Engagement Methods**
LSPG-CA	Director, Asset Management	Director, Asset Management	Decision maker	Directs the annual update and implementation the WMP
LSPG-CA	Health, Safety, and Environmental Manager	Health, Safety, and Environmental Manager	Consulted	Participates in the annual update of the WMP
LSPG-CA	Senior Manager, Transmission Operations	Senior Manager, Transmission Operations	Consulted	Participates in the annual update of the WMP
LSPG-CA	Senior Manager, LSPG Field Operations	Senior Manager, LSPG Field Operations	Consulted	Participates in the annual update of the WMP
LSPG-CA	LSPG Executive Leadership	LSPG Executive Leadership	Consulted	Participates in the annual update of the WMP

Stakeholder	Stakeholder Point of Contact	Electrical Corporation Point of Contact	Stakeholder Role	Engagement Methods
Shasta County Fire	TBD	LSPG Health, Safety, and Environmental Manager	Informed	Informed ahead of construction activities per Construction Fire Prevention Plans (CFPPs), Annual touch-points
Fresno County Fire Protection District	TBD	LSPG Health, Safety, and Environmental Manager	Informed	Informed ahead of construction activities per CFPP, Annual touch-points

7.1.3 Risk-Informed Prioritization

In making risk mitigation decisions, LSPG-CA has identified and evaluated where it can make investments and take actions to reduce its overall utility risk. LSPG-CA developed a prioritization list based on overall utility risk outlined in Table 7-2. LSPG-CA will institute mitigation measures at all assets to reduce risk; the Fern Road Substation is currently classified as top priority for greatest identified risk.

Table 7-2. List of Prioritized Areas in an Electrical Corporation Service Territory Based on Overall Utility Risk

Priority	Area	Description	Overall Utility Risk	Associated Risk Drivers
1	Fern Road Substation	The Fern Road Substation is located in the Sierra Nevada foothills in an area dominated by hardwood forests/woodlands and herbaceous communities (Table 5-2; Figure 5-5). The Society of American	The overall weighted quantitative risk assessment categorizes most of the Fern Road Substation site as an extreme risk category, and most of the project area as a moderate risk (Figure 6-2). The	Ignition Likelihood Wildfire Likelihood

Priority	Area	Description	Overall Utility Risk	Associated Risk Drivers
		Foresters defines the majority of the 2-mile radius around the substation site as blue oak-digger pine. The high average temperature is 77°F, with an average annual precipitation of 40 inches. This area consists of drought-resistant vegetation, which is prone to wildfire.	remaining project area is predominantly classified as moderate risk. These extreme risk areas are in alignment with the CPUC HFTD Tier 2 area, which covers the entirety of the Fern Road Substation site. Consequently, this will not trigger proposed changes for CPUC review. The HFRA is the entirety of the Fern Road Substation site, which also aligns with the Very High and High FHSZ classification of the site. The vegetative composition, and thus the fuel models, indicate a high burn probability for the Fern Road Substation; however, fire behavior metrics (flame length, ROS, and crown fire activity) predict low to moderate fire behavior.	

7.1.4 Mitigation Selection Process

LSPG-CA is implementing processes to identify appropriate wildfire mitigations and to monitor the implementation of the WMP. In the following subsections, LSPG-CA describes how it will approach these strategies for each of the following time periods: once operational, annually, within 3 years, and within 10 years.

7.1.4.1 LSPG-CA Identifying and Evaluating Mitigation Initiatives

LSPG-CA's extremely limited scope and scale of its facilities anticipated to be energized within the current WMP cycle reduces the opportunity for potential mitigation initiatives as well as associated uncertainties. Because LSPG-CA currently has only transmission substation facilities under development, any mitigation initiatives related to transmission lines or distribution facilities are not possible. LSPG-CA focused on the state of the company (beginning construction and transitioning to operations) as well as the nature of the facilities themselves (substations) combined with the results of the risk assessment performed in Section 6, *Risk Methodology and Assessment*, of this WMP in order to identify mitigation initiatives. Initiatives selected focused on creating and maturing operating practices as well as implementing common mitigation techniques to reduce risk at all substations, but particularly in substations located in identified HFTAs.

7.1.4.2 Mitigation Initiative Prioritization

The limited scope and scale of facilities anticipated to be energized within the current WMP cycle reduces the opportunity for a large quantity of potential mitigation initiatives. LSPG-CA also lacks an operational history to establish baseline risk. Thus, for initial prioritization purposes, all potential mitigation measures are deemed roughly equal in potential ability to reduce risk to assets. Additionally, establishing a routine inspection and maintenance schedule aligned with recurring vegetation management, will lend itself to integration and dual prioritization. LSPG-CA will optimize risk reduction by prioritizing resource allocation based on construction sequence initially then transition to a geographical, risk-based focus. The Orchard Substation will be operational first and therefore have more resources dedicated to it until Fern Road construction begins. Due to the limited quantity of facilities, LSPG-CA has only two geographical areas to consider. One site (Fern Road) is located in a tier two high fire threat district while the other (Orchard) does not reside in a HFTA. LSPG-CA will prioritize initiatives and resources in a manner reflective of the difference in potential wildfire risk. Once the facilities have matured there will be more operating experience to draw from to enable additional prioritization of mitigation initiatives in the future, including consideration of stakeholder feedback.

Only wildfire risk, not PSPS risk, was addressed in the risk analysis framework; thus, mitigation measures only address the former.

7.1.4.3 Mitigation Initiative Scheduling

LSPG-CA is currently implementing processes to monitor implementation of the WMP. Initiatives will be scheduled based on their frequency and applicability with regards to

construction vs operational status. Below, LSPG-CA describes how it will approach these strategies for each of the following time periods:

- **Once Operational:** Once operational, LSPG-CA will establish a buffer zone and implement a monthly substation inspection program. Increased measures, such as a larger vegetation modification buffer zone, will be implemented in areas classified as an HFTD or HFTA by internal risk analysis.
- **Annually:** LSPG-CA will work to build relationships with local public safety and fire agencies once the facilities are operational and will schedule and conduct annual visits. Baseline data will be collected pre-operations and collected annually once operational to track trends and adapt the mitigation selection process if necessary.
- **Within the Next 3 Years:** During the next 3 years, LSPG-CA will implement a Hot Work Program during construction and maintenance activities, integrate StormGeo (a real-time weather monitoring and forecasting service), implement 24/7 video security surveillance at substation locations, and establish and ensure integration into Local Public Safety Computer dispatch systems.
- **Within the Next 10 Years:** During the next 10 years, LSPG-CA's wildfire mitigation strategies are expected to mature and evolve with the industry and the wildfire threat, including through LSPG-CA's operational experience and lessons learned through the CPUC's wildfire mitigation process. Enterprise asset management systems will be incorporated into LSPG-CA maintenance work orders. Control room TSOs will evaluate and enhance the use of live video, establish more formalized review of procedures with benchmarking, and share lessons learned among ITO peers.
- **Interim Mitigation Initiatives:** LSPG-CA did not determine a need for any interim mitigation initiatives as robust system hardening designs are being used and other mitigation measures will be in place from the start during both construction and operations.

Effectiveness of each initiative will be evaluated on a case by case basis. Most Initiatives will be evaluated based on a binary result of yes or no regarding if they were accomplished. When applicable, a statistical analysis can be done to measure progress and if the initiative is on track based on the initiative targets listed throughout Section 8. Once a baseline has been established, more data has been gathered, and trends have been documented and analyzed LSPG-CA will be better positioned to pursue additional initiatives to decrease wildfire risk.

7.2 Wildfire Mitigation Strategy

LSPG-CA has provided an overview of its proposed wildfire mitigation strategies based on the evaluation process identified in Section 7.1, *Risk Evaluation*.

7.2.1 Overview of Mitigation Initiatives and Activities

LSPG-CA does not have a service territory, so the selection of mitigation initiatives considered the current planned assets (Fern Road and Orchard Substations) and their respective locations. Near-term (within 3 years) initiatives focus on the transition from construction to operations and the implementation of operating practices. Longer-term (10 years) initiatives consider broader process improvements that will be feasible once LSPG-CA has some operating history.

The initiatives chosen were selected to reduce the risk of ignition during construction and establish robust ongoing operating practices from the first day of operation. Initiatives related to design were not pursued because the initial design of the assets and the nature of its substation-only facilities results in LSPG-CA's equipment being significantly hardened against wildfire risk. Traditional vegetation management practices generally apply to transmission and distribution lines. Because LSPG-CA's facilities are substations, the vegetation initiative selected is related to substation inspections. Outreach and emergency preparedness will focus on relationships and communication with local agencies because LSPG-CA does not directly serve customers.

LSPG-CA did not determine a need for any interim mitigation initiatives. Described below is an overview, including an implementation plan, for each initiative category.

- **Grid Design, Operations, and Maintenance:**
    - Two initiatives were selected for this category. Implementation of site-specific Hot Work Programs will reduce risks of potential ignitions related to initial project construction and later maintenance activities in an area classified as an HFTD or HFRA. This program will include protocols for work activities that require flame or have a high probability to produce sparks, as well as protocols for activities allowed during elevated weather events. The establishment a of monthly substation inspection program upon energization will allow LSPG-CA to maintain a high level of site visibility once substantial construction activity has concluded.
    - The Hot Work Program will be incorporated into the project's Worker Environmental Awareness Program (WEAP) training, which will be required for anyone accessing a substation site. Training records will be documented and stored. Implementation of the inspection program will begin within the first month of operation for each substation. Monthly inspection reports will be produced and stored electronically.

- **Vegetation Management:**
    - The establishment of a monthly substation inspection program upon energization will include the establishment and maintenance of risk-based vegetation modification buffer zones outside of the substations, which will allow LSPG-CA to maintain a high level of site visibility once substantial construction activity has concluded and reduce the risk of both ignitions caused by substation equipment and fire nearby breaching the substation perimeter.
    - Monthly inspection reports will be produced and stored electronically.
- **Situational Awareness and Forecasting:**
    - LSPG-CA will utilize StormGeo, a real-time weather monitoring and forecasting service. StormGeo weather data will be incorporated into operating practices and policies. LSPG-CA's planned substation security posture includes 24/7 video surveillance by the System Operations Control Center, including the substation perimeter. Implementation of this capability will allow remote viewing of the facilities at any time, which will increase awareness and incident response times, further reducing wildfire risk when sites are unmanned. A longer-term initiative will be to review and enhance practices related to the use of video capability by TSOs in conjunction with real-time weather data.
    - Integration of weather data will occur before asset energization and will be communicated directly to System Operations, Field Operations, and management personnel. Video surveillance capability will be commissioned before substation energization and successful commissioning is documented as part of North American Electric Reliability Corporation (NERC) Critical Infrastructure Protection evidence. Longer-term enhancements to operating practices related to the use and integration of video and weather data will be documented in applicable policies and procedures. This includes collection of annual weather data to track trends.
- **Emergency Preparedness:**
    - LSPG-CA will create and implement project-specific Construction Fire Prevention Plans (CFPPs). As part of the initial construction process, LSPG-CA will establish contact with local public safety and fire agencies and ensure site locations and access information are integrated into relevant dispatch systems. Once operational, LSPG-CA will conduct annual visits with fire agencies local to each site. In the long term, once an operational history has been established, a formalized review of emergency procedures with benchmarking will be performed.

- Initial implementation plans will be documented in project-specific CFPPs. Annual contact with local agencies will be documented and stored.

- **Community Outreach and Engagement:**
  - LSPG-CA does not serve customers and is not expected to have regular contact with the public. Outreach and engagement efforts will be focused on interconnecting utilities and local public safety and fire agencies. As described above, the initiative related to establishing and maintaining relationships with local agencies will ensure public officials are aware of the facilities and work to reduce risk of communication failures during an emergency.

- **PSPS:**
  - Because LSPG-CA does not own any line circuits or serve customers, it is difficult to envision a scenario in which the company would or could implement a PSPS. Any PSPS affecting LSPG-CA would likely come from an interconnecting utility and if it is necessary to de-energize LSPG-CA facilities, established operating protocols would be followed.

Table 7-3 provides a summary list of mitigation initiatives.

Table 7-3. List and Description of LSPG-CA WMP Mitigation Initiatives for 3-Year and 10-Year Outlooks

WMP Category	**Within 3 Years**	**Within 10 Years**	**Location in WMP**
Grid Design, Operations, and Maintenance	• Implement Hot Work Programs during construction and maintenance activities. • Implement monthly substation inspection program once operational.	• Incorporate enterprise asset management system into LSPG-CA maintenance work orders.	Section 8.1, Page 101
Vegetation Management	• Establish risk-based vegetation buffer zones and implement monthly substation inspection program once operational.	• Same as 3-year plan.	Section 8.2, Page 121
Situational Awareness and Forecasting	• Integrate StormGeo into decision-making and safety practices. • Implement 24/7 video security surveillance at substation locations.	• Evaluate and enhance the use of live video by control room TSOs.	Section 8.3, Page 135
Emergency Preparedness	• Establish and ensure integration into Local Public Safety Computer dispatch systems. • Work to build relationships with local fire agencies and conduct annual visits.	• Establish more formalized review of procedures with benchmarking.	Section 8.4, Page 145
Community Outreach and Engagement	• Work to build relationships with local fire agencies and conduct annual visits.	• Share lessons learned among ITO peers.	Section 8.5, Page 180
Public Safety Power Shutoffs	• N/A: LSPG-CA does not own transmission lines or serve end-use customers.	• N/A	Section 9, Page 189

7.2.2 Anticipated Risk Reduction

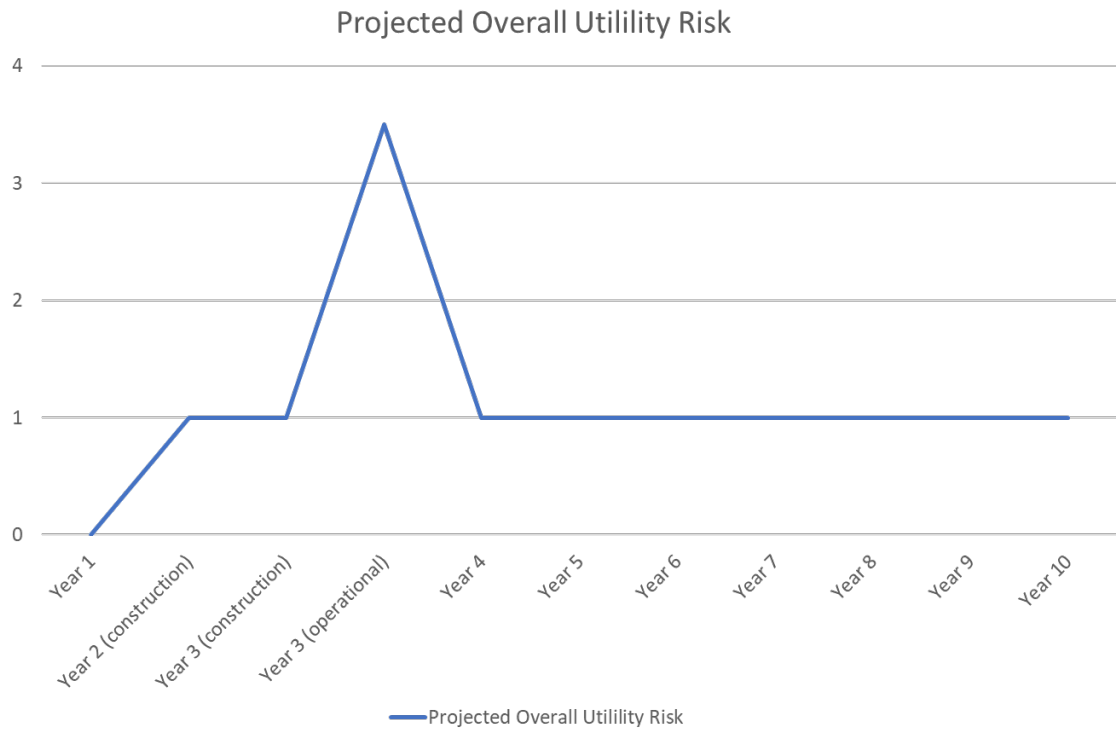
Current risk calculations are a baseline as assets are not yet operational. Once assets are operational, data will be collected to measure against the modeled wildfire risk analysis. LSPG-CA has identified a mitigation measure to reduce anticipated risk in an HFTD and HFTA; this will be increasing the vegetation buffer zone around a substation from a 30-foot to a 100-foot perimeter. This increased mitigation measure, which is based on predicted fire behavior and overall risk from modeling of current conditions, represents an approximately 230% increase in the measure taken and is directly correlated to risk reduction.

Risk reduction on high-risk circuits does not apply to LSPG-CA because it does not own circuits.

7.2.2.1 Projected Overall Risk Reduction

The overall utility risk for the service territory begins as a baseline of zero before construction and operations (Figure 7-1). As assets are constructed, risk naturally increases; construction mitigations, such as a CFPP, will reduce anticipated risks during this period. When assets become operational, regular data collection will help quantify the amount of risk as a function of time. The increased mitigation measure in an HFTD and HFTA will reduce the anticipated risk over time with a projection level comparable to the mitigated construction phase. Mitigation measures will be implemented immediately upon operations, truncating the period of potential higher risk. Projected overall risk is anticipated to remain constant over time unless there is a measurable change in environmental conditions.

Figure 7-1. Projected Overall Service Territory Risk



7.2.2.2 Risk Impact of Mitigation Initiatives

The level of risk before construction and operations is 0. Once operational, LSPG-CA would immediately implement mitigation measures. For assets located in an HFTD and HFTA, the vegetation buffer zone will increase from a 30-foot to a 100-foot perimeter. This increased mitigation measure, which is based on predicted fire behavior and overall risk from modeling of current conditions, represents an approximately 230% increase in the measure taken and is directly correlated to risk reduction. Other robust system hardening designs will be in place from the start of construction, adding to the impact of mitigation initiatives to reduce anticipated risk levels. Regular collection of data will inform the actual level of risk once assets are operational over time.

7.2.2.3 Projected Risk Reduction on Highest-Risk Circuits Over the Three-Year WMP Cycle

Risk reduction on high-risk circuits does not apply to LSPG-CA because it does not own circuits.

7.2.3 Interim Mitigation Initiatives

LSPG-CA did not determine a need for any interim mitigation initiatives as robust system hardening designs are being used and other mitigation measures will be in place from the start during both construction and operations.

8. Wildfire Mitigations

8.1 Grid Design, Operations, and Maintenance

8.1.1 Overview

LSPG-CA does not have a service territory or any currently operating assets. Grid Design, Operations, and Maintenance objectives are focused on the near-term transition from construction to operation of the first facility and the implementation of robust company operating practices. Longer-term objectives are to mature and improve upon initial operating practices which will be feasible once LSPG-CA gains additional experience and operating history.

The initiatives chosen were selected to reduce risk of ignition during construction and establish robust ongoing operating practices from the first day of operation. Initiatives related to design were not pursued because the initial design of the assets and the nature of substation-only facilities results in LSPG-CA's equipment being significantly hardened against wildfire risk.

8.1.1.1 Objectives

A summary of objectives in the area of Grid Design, Operations, and Maintenance is provided in Table 8-1 for the 3-year plan and Table 8-2 for the 10-year plan.

8.1.1.2 Targets

The Orchard Substation is currently projected to be in-service in mid-2024, while the Fern Road Substation is expected to be in-service later in 2024. Because LSPG-CA has only two facilities, both of which are under construction in 2023, and other program objectives relate to enhancing work procedures that are difficult to tie to quantifiable targets, quantifiable targets for Grid Design, Operations, and Maintenance are related to longer-term objectives and are identified in Table 8-3. LSPG-CA's initiative targets for inspections are shown below in Table 8-4.

8.1.1.3 Performance Metrics Identified by the Electrical Corporation

LSPG-CA is a new a California Electrical Corporation in 2023 and has no past performance data. Utility-related ignitions, outages not caused by vegetation, and grid inspection findings will be tracked to gauge performance in the area of Grid Design, Operations, and Maintenance. LSPG-CA will not have any energized equipment in 2023, and as such, will not have outage events or grid inspections. Any ignitions related to construction activities in 2023 will be reported as utility-related ignitions.

These performance metrics will be tracked and verified within LSPG-CA's QDRs (Table 8-5).

Table 8-1. Grid Design, Operations, and Maintenance Objectives (3-Year Plan)

Objectives for 3 Years (2023–2025)	**Applicable Initiative(s), Tracking ID(s)**	**Applicable Regulations, Codes, Standards, and Best Practices (See Note)**	**Method of Verification (i.e., program)**	**Completion Date**	**Reference (Section & Page #)**
Enhance work procedures in HFTD areas.	Implement Hot Work Programs during construction and maintenance activities, LSP-01	• Occupational Safety and Health Administration (OSHA) 1910.269	• Updated WEAP training program	April 2023	Section 8.1.1.2, Page 99
Safely transition from construction to operating utility.	Implement Substation Inspection Program, LSP-02	• California Fire Code, Title 24, Part 9 • PRC 4291	• Monthly inspection reports	June 2024	Section 8.2, Page 117

Table 8-2. Grid Design, Operations, and Maintenance Objectives (10-Year Plan)

Objectives for 10 Years (2026–2032)	**Applicable Initiative(s), Tracking ID(s)**	**Applicable Regulations, Codes, Standards, and Best Practices (See Note)**	**Method of Verification (i.e., program)**	**Completion Date**	**Reference (Section & Page #)**
Incorporate enterprise asset management system into maintenance program to ensure system reliability and public safety.	Enhance use of Computer Maintenance Management Systems (CMMS)/automation into LSPG-CA maintenance work orders, LSP-03	None	Evidence of opening, action, and closing of maintenance work order in CMMS	2026	Section 8.1.7, Page 108

Table 8-3. Grid Design, Operations, and Maintenance Targets by Year

Initiative Activity	Tracking ID	2023 Target & Unit	x% Risk Impact 2023	2024 Target & Unit	x% Risk Impact 2024	2025 Target & Unit	x% Risk Impact 2025	Method of Verification
Enhance use of Computer Maintenance Management Systems (CMMS)/Automation into LSPG-CA Maintenance Work Orders	LSP-03	N/A	N/A	N/A	N/A	100% of major assets residing in CMMS database	Section 7.2.2	CMMS database export

Table 8-4. Asset Inspections Targets by Year

Initiative Activity	Tracking ID	Target End of Q2 2023 & Unit	Target End of Q3 2023 & Unit	End of Year Target 2023 & Unit	x% Risk Impact 2023	Target End of Q2 2024 & Unit	Target End of Q3 2024 & Unit	End of Year Target 2024 & Unit	x% Risk Impact 2024	Target 2025 & Unit	x% Risk Impact 2025	Method of Verification
Implement Inspection Program	LSP-02	0	0	0	0	0	3 inspections	6 inspections	Section 7.2.2	24 inspections	Section 7.2.2	Inspection Reports

Table 8-5. Grid Design, Operations, and Maintenance Performance Metrics Results by Year

Performance Metrics	2020	2021	2022	2023 Projected	2024 Projected	2025 Projected	Method of Verification (e.g., Third-Party Evaluation, QDR)
Number of utility-related ignitions	N/A	N/A	N/A	0	0	0	QDR
Number of outage events not caused by contact with vegetation	N/A	N/A	N/A	N/A	0	0	QDR
Grid inspection findings (any level)	N/A	N/A	N/A	N/A	0	2	QDR

8.1.2 Grid Design and System Hardening

LSPG-CA designs its assets with safety and wildfire mitigation in mind. Because LSPG-CA is a new a California Electrical Corporation with no existing transmission or distribution equipment, there are no opportunities to retrofit or harden existing assets. Regarding the in-progress Fern Road and Orchard Substations, several aspects of the current designs will reduce wildfire-related risks. Because both projects are currently being executed and are already significantly hardened based on current design specs, no Grid Design and System Hardening initiatives are being pursued at this time. Discussion of wildfire risk mitigating factors in the existing design is listed below:

1. Covered conductor installation
    a. N/A: LSPG-CA has no overhead lines.
2. Undergrounding of electric lines and/or equipment
    a. N/A: LSPG-CA has no overhead lines or other equipment appropriate for undergrounding.
3. Distribution pole replacements and reinforcements
    a. N/A: LSPG-CA is a transmission-only company and will not own distribution equipment.
4. Transmission pole/tower replacements and reinforcements
    a. N/A: LSPG-CA has no existing poles/towers to replace or reinforce.
5. Traditional overhead hardening
    a. N/A: LSPG-CA has no overhead lines.
6. Emerging grid hardening technology installations and pilots.
    a. STATCOM converter modules at Orchard and Fern Road utilize flame retardant, self-extinguishing, drip-free plastic material that meets UL-94 V0 standards.
7. Microgrids
    a. N/A: LSPG-CA is a transmission-only company that does not generate electricity or serve customers.
8. Installation of system automation equipment
    a. LSPG-CA substations and their interconnections to the existing transmission system will be fully remotely monitored 24 hours per day and controllable by the TSOs in LSPG-CA's control center. The STATCOM facilities will operate automatically to

maintain appropriate system voltages and will feature automatic shutdown capability in the event of emergency or malfunction.

9. Line removal (in the HFTD)
    a. N/A: LSPG-CA has no electric transmission or distribution lines.
10. Other grid topology improvements to minimize risk of ignitions
    a. The LSPG-CA Fern Road Substation will feature gas-insulated switchgear (GIS), which will be enclosed in a building. The STATCOM equipment for both Fern Road and Orchard Substations will also be enclosed in separate buildings. These structures will have fire detection capability and will reduce risks of both causing an ignition outside of a substation and sustaining damage to equipment from a fire originating outside of a substation.
11. Other grid topology improvements to mitigate or reduce PSPS events
    a. None: LSPG-CA does not serve customers or have lines and does not foresee a scenario in which PSPS would be beneficial.
12. Other technologies and systems not listed above
    a. None

8.1.3 Asset Inspections

Table 8-6. Substation Inspection Program

Type	**Inspection Program**	**Frequency or Trigger**	**Method of Inspection**	**Governing Standards & Operating Procedures**
Substation	Facility and Equipment Inspection	Monthly and ahead of Red Flag Warning (RFW) conditions	Patrol	• California Fire Code Title 24, Part 9 • PRC 4291 • General Industry Safety Orders, Group 3, Articles 12, 13, 36, 37, and 38 • CPUC General Order (GO) 165 • Occupational Safety and Health

Type	Inspection Program	Frequency or Trigger	Method of Inspection	Governing Standards & Operating Procedures
				Administration (OSHA) 1910.269

Transmission line and distribution asset inspections do not apply to LSPG-CA.

8.1.3.1 Facility and Equipment Inspections for Fern Road and Orchard Substations

Process

LSPG-CA Field Operations personnel and qualified contractors will perform patrol inspections by visually inspecting applicable utility equipment and structures. Inspections will be conducted by experienced and trained individuals. The monthly patrol is designed to visually inspect major substation equipment and miscellaneous equipment, including breakers, switches, current transformers, rigid bus, strain bus, fence, yard condition, foundations, etc. This process complies with California Fire Code Title 24, Part 9 and PRC 4291, and inspections will comply with General Industry Safety Orders 12, 13, 36, 37, and 38. PRC 4292 and 4293 do not apply to an ITO since there are no distribution lines. Inspectors will document their findings and submit them to LSPG-CA management.

Frequency or Trigger

Inspections of the facility and equipment will occur monthly. Additional inspections will occur prior to extreme weather events indicated by issuance of Red Flag Warnings (RFWs) or other warnings such as fire weather watches, high wind advisories, and fuels and fire behavior advisories for the area in which the substations are located.

Accomplishments, Roadblocks, and Updates

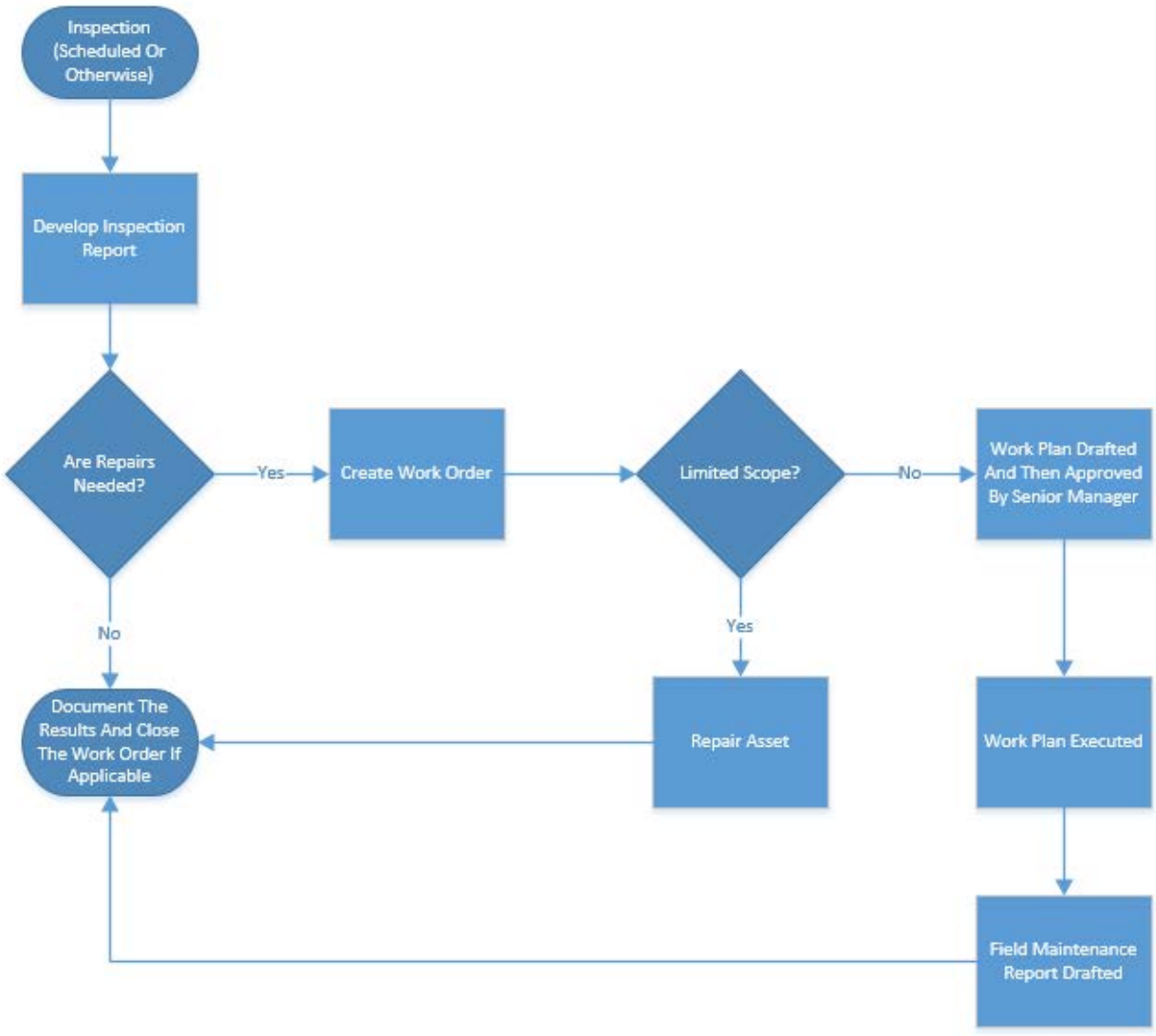
LSPG-CA was not a California Electrical Corporation prior to 2023 and thus did not have a WMP in the 2020–2022 cycle.

8.1.4 Equipment Maintenance and Repair

In addition to the inspections described in Section 8.1.3, *Asset Inspections*, LSPG-CA will perform in-depth testing and analysis on major substation equipment based on industry best practices and manufacturer recommendations. For most equipment, LSPG-CA uses the results of maintenance testing and operational history to inform the ultimate decisions regarding

repair or replacement of equipment (Figure 8-1). Given that LSPG-CA will be installing new assets, it will likely be many years before the need to replace equipment due to age.

Figure 8-1. Asset Management and Inspections Workflow



Once operational, LSPG-CA's maintenance practices for major equipment are described below:

- Capacitors
  - N/A: LSPG-CA does not own any capacitors.
- Circuit breakers
  - Circuit breakers are inspected visually as part of the substation monthly inspection. Visual assessments are compared with previous inspections to alert maintenance personnel of any health degradation. Measurable items such as gas pressure,

operations counts, and gas levels are also recorded and compared against acceptable values. A corrective plan is established in the event of deviations.

- Manufacturer recommended preventive maintenance is performed every 5 years. Including the assessments performed in the monthly inspection, this also includes resistance tests, hardware tightness, cleaning, operating mechanism maintenance, and gas testing. The results of these tests will inform if additional internal inspections are warranted. A holistic review of circuit breaker condition based on inspections and operating history will inform decisions on breaker repair or replacement.

- Connectors, including hotline clamps
  - Connectors and clamps are inspected visually as part of the substation monthly inspection. Visual assessments are compared with previous inspections to alert maintenance personnel of any health degradation. Equipment repair or replacement decisions are condition-based.
- Conductor, including covered conductor
  - Substation conductors, including rigid bus and strain bus, are inspected visually as part of the substation monthly inspection. Visual assessments are compared with previous inspections to alert maintenance personnel of any health degradation. Equipment replacement decisions are condition-based.
- Fuses, including expulsion fuses
  - N/A: LSPG-CA does not own any fuses.
- Distribution poles
  - N/A: LSPG-CA does not own any distribution equipment.
- Surge Arresters
  - Substation surge arresters are visually inspected as part of the monthly substation inspection. This includes checking bushings as well as the connections to jumpers and grounds. Every 10 years, surge arrester testing is performed to evaluate the integrity of the arrester. Equipment repair or replacement decisions are condition-based.
- Reclosers
  - N/A: LSPG-CA does not own any reclosers.
- Splices
  - N/A: LSPG-CA does not own any splices.

- Transmission poles/towers
    - LSPG-CA has no transmission line poles or towers. Substation structures, including bus supports and line conductor structures located within the substation perimeter, are visually inspected as part of the monthly substation inspections. Visual assessments are compared with previous inspections to alert maintenance personnel of any health degradation. Equipment repair or replacement decisions are condition-based.
- Transformers
    - Transformers are inspected visually as part of the substation monthly inspection. Visual assessments are compared with previous inspections to alert maintenance personnel of any health degradation. Measurable items such as oil levels, temperature, dissolved concentration gas, moisture, and humidity are also recorded and compared against acceptable values. A corrective plan is established in the event of deviations.
    - A dissolved gas analysis test is performed annually. The results of this test can indicate a wide range of conditions and malfunctions which could result in equipment damage if left unchecked.
    - Complete transformer testing is performed every 5 years to assess the transformer windings for abnormalities and to evaluate the general operation of the transformer.
    - Every 25 years, transformer oil tanks are emptied to perform an internal winding inspection. Equipment repair or replacement decisions are condition-based.
- Other equipment not listed
    - Fern Road and Orchard Substations both feature dual static synchronous compensators (STATCOMs). In addition to the monthly visual inspections performed by LSPG-CA personnel, LSPG-CA has entered into a long-term maintenance contract with the manufacturer. On an annual basis, the manufacturer will perform a detailed inspection of the facilities, including control systems, cooling systems, capacitors, reactors, switches, and building.

8.1.5 Asset Management and Inspection Enterprise System(s)

Once operational, LSPG-CA intends to utilize an enterprise asset management (EAM) system to track substation maintenance. The EAM system will contain major substation equipment information and nameplate data such as manufacturer, model, serial number, and year manufactured. The system stores preventative maintenance schedules and is used to plan,

schedule, and execute planned maintenance tasks. Integrated with the EAM system will be commercial off-the-shelf maintenance applications that will be used primarily by field operations personnel to input testing and inspection information. Ultimately, the system is planned to be linked to a facility ratings database and supply chain/accounting systems for tracking of cost data related to maintenance activities. Formal internal procedures are in development, as LSPG is actively working to expand use of this EAM system at other transmission-owning affiliates.

8.1.6 Quality Assurance and Quality Control

When LSPG-CA becomes operational (mid-2024), qualified field personnel or trusted contractors will thoroughly document the results of monthly substation inspections using reporting templates similar to those in use at other LSPG-CA affiliates. On an annual basis, the Senior Manager of Field Operations, or a qualified designee, will perform a field audit of a substation inspection for any sites located in an HFTD (Table 8-7). For any sites located outside of an HFTD, a similar field audit will be performed at least once during each 3-year WMP cycle. Issues found or lessons learned as a result of an audit will be incorporated into work procedures as applicable.

Before commencing operations, LSPG-CA will become a party to the CAISO Transmission Control Agreement and as such will be required to submit its maintenance practices to CAISO for approval. The LSPG-CA maintenance practices will then be subject to annual review by CAISO personnel, including field visits. Issues found or lessons learned as a result of the CAISO review will be incorporated into work procedures as applicable.

Table 8-7. Grid Design and Maintenance Quality Assurance and Quality Control Program

Activity Being Audited	**Sample Size**	**Type of Audit**	**Audit Results 2022**	**Yearly Target Pass Rate for 2023–2025**
Substation inspections	100% in HFTD	Field	N/A	100%

8.1.7 Open Work Orders

A summary of procedures related to the processing of LSPG-CA maintenance work orders is described below:

- Formal procedures related to LSPG-CA's ongoing expansion of its EAM system (see Section 8.1.5, *Asset Management and Inspection Enterprise System(s)*, of this WMP) across its transmission platform are currently under development. When LSPG-CA becomes

operational, the EAM system will be used by field operations personnel to open maintenance work orders, assign priority, and schedule corrective actions. The EAM system will interface with LSPG-CA field operations supervision, work planning, and supply chain departments to ensure successful and timely close out of maintenance work orders.

A description of how work orders are prioritized based on risk is described below.

- As deficiencies are identified during inspection activities, field operations personnel will assign a priority to each work order consistent with the requirements of the CAISO maintenance procedures and CPUC General Order (GO) 95.

LSPG-CA's expected prioritization matrix is shown below:

Priority	**Risk Level**	**Response**
1	Immediate safety, reliability, or fire risk with potential for significant impact	Address immediately
2	Moderate to low safety or reliability risk	Address within 3 months
3	Low impact or acceptable, non-emergency condition	Address or reevaluate within 12 months

A description of the plan for eliminating any backlog of work orders (i.e., open work orders that have passed remediation deadlines), if applicable, is described below:

- Because of the limited scope and scale of LSPG-CA's assets, there is not expected to be a backlog of open work orders. Any work orders not addressed within deadlines will be escalated to the attention of the Senior Manager of Field Operations.

A discussion of trends with respect to open work orders is described below:

- LSPG-CA has not yet had any open maintenance work orders.

Because LSPG-CA has no operational history, Table 8-8 regarding historical data related to maintenance work orders is not applicable.

Table 8-8. Number of Past Due Asset Work Orders Categorized by Age

HTFD Area	0–30 Days	31–90 Days	91–180 Days	181+ Days
Non-HFTD	N/A	N/A	N/A	N/A
HFTD Tier 2	N/A	N/A	N/A	N/A
HFTD Tier 3	N/A	N/A	N/A	N/A

Note: This table will be updated in future WMP documents as relevant for assets.

8.1.8 Grid Operations and Procedures

8.1.8.1 Equipment Settings to Reduce Wildfire Risk

LSPG-CA intends to operate its system in a manner that minimizes overall wildfire risk. Because the company is an ITO without operational history, items such as recloser settings, circuit settings, and historical effectiveness are not currently applicable.

LSPG-CA will operate the Fern Road and Orchard Substations using proven extra high voltage (EHV) system protection philosophies and equipment for its 500 kV transmission equipment as well as the lower voltage STATCOM equipment. This includes:

- 500 kV circuit breakers between LSPG-CA's substations and interconnecting utility equipment leaving the substations. Breakers are equipped with single pole operation for high-speed ground fault interruption.
- Breaker failure relaying with redundant direct transfer trip.
- High-speed communication-assisted transmission line protection with dual redundant protection systems and dual communication paths.
- STATCOM internal protection/control systems that will alarm, shut down, or disconnect equipment in case of emergency or malfunction.
- 500 kV/low-voltage dual transformer differential protective relaying, including temperature monitoring.

The protective equipment described above will be monitored 24/7 by LSPG-CA System Operations via its Energy Management System (EMS) through supervisory control and data acquisition (SCADA). Grid-connected protection systems will operate automatically and do not require manual TSO intervention. Protection system settings will adhere to NERC Reliability Standards and good utility practice.

8.1.8.2 Grid Response Procedures and Notifications

LSPG-CA maintains an Emergency Operations Plan to detail the steps that the company takes to ensure public safety while quickly and efficiently restoring its transmission system in the event of a grid emergency, such as a fault or ignition. With LSPG-CA as an ITO owning no transmission line assets during this WMP cycle, locations of issues are immediately known via video and SCADA communication connections to the transmission control center.

In the event of a grid emergency, the LSPG-CA TSO will notify field personnel who will respond to the substation site within approximately 2 hours to assess the severity of the event. The event will be classified based on estimated restoration time as a Level 1 (restoration can be completed within 24 hours), Level 2 (restoration can be completed within 72 hours), or Level 3 (greater than 72 hours to restore) event, with corresponding increases in the scope and scale of the response for each level. For Level 2 and 3 events, an Emergency Response Commander (ERC) will direct the overall emergency operations activities. The ERC will lead efforts to safely restore power and may take the following actions if necessary:

- Assign a communications coordinator to notify local officials
- Notify master service agreement contractors
- Mobilize field staff
- Engage engineering support
- Engage environmental support
- Notify the Supply Chain Manager
- Notify the Safety Manager

Upon restoration of a system outage or emergency, all record documentation of the response will be stored and updated as necessary and per the LSPG Change Management Policy.

8.1.8.3 Personnel Work Procedures and Training in Conditions of Elevated Fire Risk

LSPG-CA develops site-specific CFPPs. The Orchard Substation CFPP is completed, and the Fern Road Substation CFPP is in progress with expected completion in Quarter 2 of 2023. The CFPP details project fire risks, mitigation measures, any agency-specific requirements, work procedures, and communication protocols for work performed at a specific site.

Prior to starting any work at a Substation site, each worker will participate in training on Wildland Fire Prevention and Safety. This training will be provided as part of the WEAP training and will include a discussion of:

- Fire prevention procedures
- Fire detection and reporting
- Extinguishment tools and methods
- Fire response procedures
- Overview of the CFPP

At the Orchard Substation, which is located outside of the HFTD, upon issuance of an RFW, LSPG-CA and its contractors will cease work in areas where vegetation would be susceptible to accidental ignition by project activities. In areas where no vegetation is present, project work areas may proceed; however, hot work may be limited or suspended during RFW conditions. The Project Manager and Construction Supervisors are responsible for ensuring receipt of RFWs and communicating the relevant details to field crews. All field personnel will be provided with radio and/or telephone access that is operational in all work areas to allow for immediate reporting of fires.

During periods of extreme fire risk, work restrictions may be imposed. Unfinished work, repairs, or vegetation management may be allowed to continue if they pose a greater fire risk if left in their current state. LSPG-CA will consult with local fire agencies in these situations.

8.1.9 Workforce Planning

Field personnel dedicated to the LSPG-CA substation assets will be the primary resources supporting asset inspections, grid hardening activities, and risk event inspections. Because only substation personnel will be required, the following job titles are expected to be filled:

- Substation Operator
- Relay Technician

Additional LS Power shared services personnel will support LSPG-CA grid design, operations, and maintenance activities as needed. This includes, but is not limited to, the following job titles:

- Project Engineer
- Senior Manager, Field Operations
- Supervisor, Field Operations
- Senior Manager, System Protection
- Transmission System Operator (TSO)

- Senior Manager, Transmission Operations
- Manager, Health, Safety, and Environmental
- Cyber Security Admin
- Network Security Engineer
- Supervisor, OT Security Operations
- Operations Engineer

Dedicated field personnel hires will take place ahead of energization of the Orchard Substation and are expected in late 2023 and early 2024. All employees and contractors performing on-site work for LSPG-CA are required to complete WEAP training, which will include a discussion of the following topics specific to each site:

- Fire prevention procedures
- Fire detection and reporting
- Extinguishment tools and methods
- Fire response procedures
- Overview of any project-specific fire plans for major construction activities

Tables 8-9, 8-10, and 8-11 outline the qualifications for LSPG-CA's substation personnel. Because these individuals are not yet hired, data related to their qualifications is listed as to be determined (TBD). Due to the limited scope and scale of LSPG's assets, it is anticipated that both roles listed above will support asset inspections, grid hardening, and risk event inspections.

Table 8-9. Workforce Planning, Asset Inspections

Worker Title	**Minimum Qualifications for Target Role**	**Special Certification Requirements**	**Electrical Corporation % FTE Minimum Qualifications**	**Electrical Corporation % Special Certifications**	**Contractor % FTE Minimum Qualifications**	**Contractor % Special Certifications**	**Reference to Electrical Corporation Training / Qualification Programs**
Substation Operator	• Requires completion of a technical or vocational training program as a substation or relay technician • Relevant prior experience with an electric utility or testing services contractor • Knowledge of substation equipment maintenance tasks • Familiarity of specialized technical software and test equipment utilized for substation maintenance activities	• N/A	TBD	TBD	TBD	TBD	• LSPG Hazard Communication • LSPG Portable Fire Extinguishers • LSPG Emergency Action Plan
Relay Technician	• Requires completion of a technical or vocational training program as a substation or relay technician • 5+ years of relevant experience with an electric utility or testing services contractor • Knowledge of substation equipment maintenance tasks • Familiarity of specialized technical software and test equipment utilized for substation maintenance activities • Thorough understanding of protective relaying, communication, metering, and SCADA systems	• N/A	TBD	TBD	TBD	TBD	• LSPG Hazard Communication • LSPG Portable Fire Extinguishers • LSPG Emergency Action Plan

Note: FTE = full-time employee

Table 8-10. Workforce Planning, Grid Hardening

Worker Title	**Minimum Qualifications for Target Role**	**Special Certification Requirements**	**Electrical Corporation % FTE Minimum Qualifications**	**Electrical Corporation % Special Certifications**	**Contractor % FTE Minimum Qualifications**	**Contractor % Special Certifications**	**Reference to Electrical Corporation Training / Qualification Programs**
Substation Operator	• Requires completion of a technical or vocational training program as a substation or relay technician • Relevant prior experience with an electric utility or testing services contractor • Knowledge of substation equipment maintenance tasks • Familiarity of specialized technical software and test equipment utilized for substation maintenance activities	• N/A	TBD	TBD	TBD	TBD	• LSPG Hazard Communication • LSPG Portable Fire Extinguishers • LSPG Emergency Action Plan
Relay Technician	• Requires completion of a technical or vocational training program as a substation or relay technician • 5+ years of relevant experience with an electric utility or testing services contractor • Knowledge of substation equipment maintenance tasks • Familiarity of specialized technical software and test equipment utilized for substation maintenance activities • Thorough understanding of protective relaying, communication, metering, and SCADA systems	• American National Standard Institute/InterNational Electrical Testing Association (ANSI/NETA) Standard for the Certification of Electrical Testing Technicians	TBD	TBD	TBD	TBD	• LSPG Hazard Communication • LSPG Portable Fire Extinguishers • LSPG Emergency Action Plan

Note: FTE = full-time employee

Table 8-11. Workforce Planning, Risk Event Inspection

Worker Title	**Minimum Qualifications for Target Role**	**Special Certification Requirements**	**Electrical Corporation % FTE Minimum Qualifications**	**Electrical Corporation % Special Certifications**	**Contractor % FTE Minimum Qualifications**	**Contractor % Special Certifications**	**Reference to Electrical Corporation Training / Qualification Programs**
Substation Operator	• Requires completion of a technical or vocational training program as a substation or relay technician • Relevant prior experience with an electric utility or testing services contractor • Knowledge of substation equipment maintenance tasks • Familiarity of specialized technical software and test equipment utilized for substation maintenance activities	• N/A	TBD	TBD	TBD	TBD	• LSPG Hazard Communication • LSPG Portable Fire Extinguishers • LSPG Emergency Action Plan
Relay Technician	• Requires completion of a technical or vocational training program as a substation or relay technician • 5+ years of relevant experience with an electric utility or testing services contractor • Knowledge of substation equipment maintenance tasks • Familiarity of specialized technical software and test equipment utilized for substation maintenance activities • Thorough understanding of protective relaying, communication, metering, and SCADA systems	• American National Standard Institute/InterNational Electrical Testing Association (ANSI/NETA) Standard for the Certification of Electrical Testing Technicians	TBD	TBD	TBD	TBD	• LSPG Hazard Communication • LSPG Portable Fire Extinguishers • LSPG Emergency Action Plan

Note: FTE = full-time employee

8.2 Vegetation Management and Inspections

8.2.1 Overview

The following outlines LSPG-CA's 3-year and 10-year plan for vegetation management and inspections. The plan includes objectives of vegetation management, the work order process, quality assurance and quality control measures, and tracking initiatives.

8.2.1.1 Objectives

Table 8-12 summarizes the 3-year objectives and Table 8-13 summarize the 10-year objectives for vegetation management and routine inspections. Vegetation management will be part of substation inspections that occur monthly and ahead of extreme weather events, such as an RFW. Vegetation management in the buffer zone will meet or exceed PRC 4291 requirements. Inspections and work completed will be summarized and tracked via a report.

8.2.1.2 Targets

Table 8-14 shows the vegetation management targets for the next 3 years.

8.2.1.3 Performance Metrics Identified by the Electrical Corporation

LSPG-CA was not a California Electrical Corporation prior to 2023 and thus did not have a WMP in the 2020–2022 cycle. Table 8-16 identifies the performance metrics that will be evaluated in the project's quarterly and annual data report. The report will list the total number of vegetation-caused ignitions, vegetation-caused outages, and open vegetation work orders.

Table 8-12. Vegetation Management Implementation Objectives (3-Year Plan)

Objectives for 3 Years (2023–2025)	**Applicable Initiative(s), Tracking ID(s)**	**Applicable Regulations, Codes, Standards, and Best Practices (See Note)**	**Method of Verification (i.e., program)**	**Completion Date**	**Reference (Section & Page #)**
Establish and maintain a vegetation management program to reduce the risk of vegetation contact and potential wildfire spread.	Establish risk-based buffer zones and implement monthly substation inspection program once operational (LSP-04)	• CPUC GO 95, Rule 35, Tree Trimming Guidance • PRC 4291 • California Fire Code, Title 24, Part 9 • Occupational Safety and Health Administration (OSHA) 1910.269	• WMP Implementation • Inspection Report	Established once operational; ongoing maintenance through 2025	Section 7.2.1, Page 93

Table 8-13. Vegetation Management Implementation Objectives (10-Year Plan)

Objectives for 10 Years (2026–2032)	**Applicable Initiative(s), Tracking ID(s)**	**Applicable Regulations, Codes, Standards, and Best Practices (See Note)**	**Method of Verification (i.e., program)**	**Completion Date**	**Reference (Section & Page #)**
Same as 3-year plan	Same as 3-year plan	Same as 3-year plan	Same as 3-year plan	Ongoing maintenance through 2032	Same as 3-year plan

Table 8-14. Vegetation Management Initiative Targets by Year

Initiative Activity	Tracking ID	2023 Target & Unit	x% Risk Impact 2023	2024 Target & Unit	x% Risk Impact 2024	2025 Target & Unit	x% Risk Impact 2025	Method of Verification
Vegetation Inspection	LSP-04	N/A	N/A	• Monthly and ahead of extreme weather events (RFW) • Removal of all vegetation greater than 3” in buffer zone • Ensuring no vegetation/ substation contact	Section 7.2.2	• Monthly and ahead of extreme weather events (RFW) • Removal of all vegetation greater than 3” in buffer zone • Ensuring no vegetation/ substation contact	Section 7.2.2	Performance metrics will be recorded in the quarterly and annual data report.

Table 8-16. Vegetation Management and Inspection Performance Metrics Results by Year

Performance Metrics	2023 Projected	2024 Projected	2025 Projected	Method of Verification (e.g., Third-Party Evaluation, QDR)
Vegetation-caused ignitions	N/A	0	0	Quarterly and annual data report
Vegetation-caused outages	N/A	0	0	Quarterly and annual data report
Open vegetation work orders	N/A	1	2	Quarterly and annual data report

8.2.2 Vegetation Management Inspections

Table 8-17. Vegetation Inspection Program

Type	Inspection Program	Frequency or Trigger	Method of Inspection	Governing Standards & Operating Procedures
Substation	Vegetation Inspection	Monthly and ahead of RFW conditions	Patrol	• California Fire Code, Title 24, Part 9 • PRC 4291 • General Industry Safety Orders, Group 3, Articles 12, 13, 36, 37, and 38 • Occupational Safety and Health Administration (OSHA) 1910.269

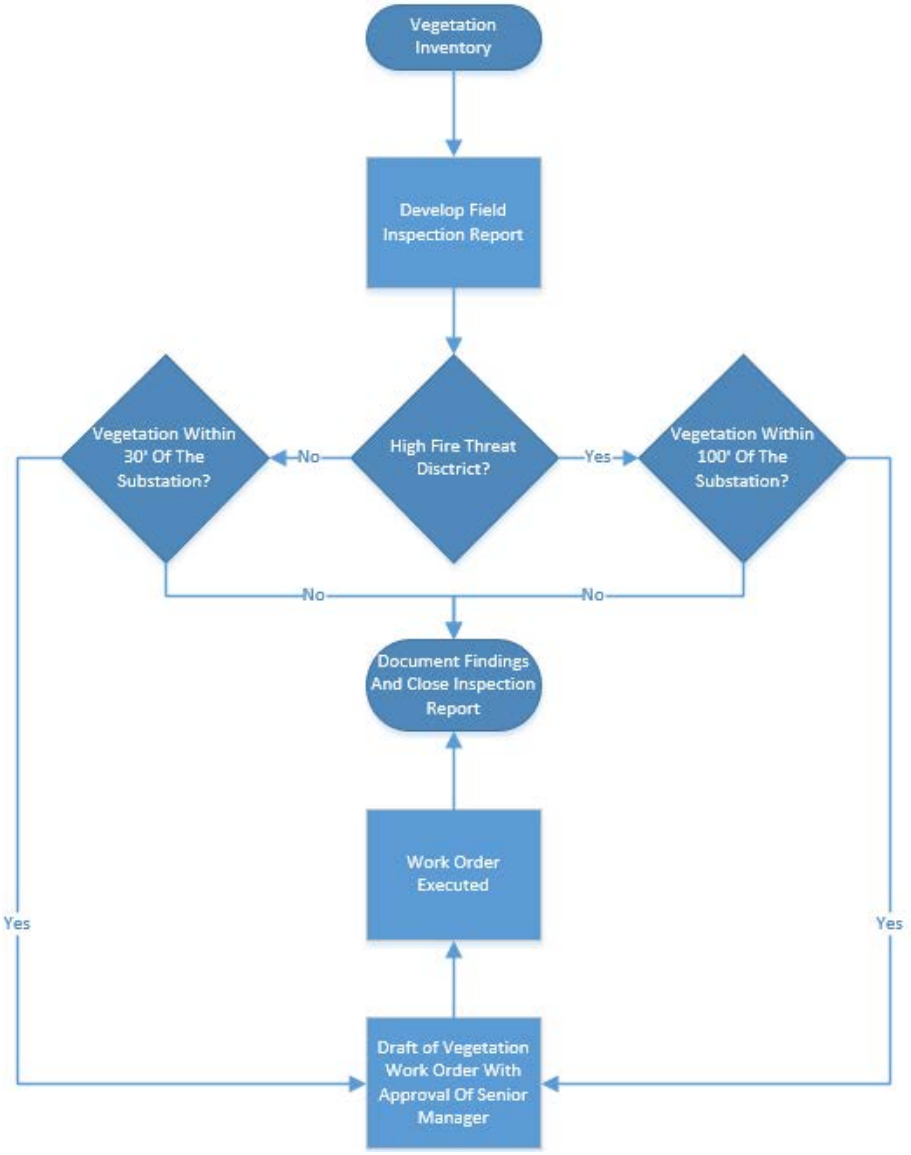
Transmission and distribution vegetation inspections do not apply to this project because LSPG-CA is an ITO without end users.

8.2.2.1 Vegetation Inspections for Fern Road and Orchard Substation Projects

Process

Operations personnel and qualified contractors will perform patrol inspections by visually inspecting vegetation around the facility and equipment. The inspection is designed to identify vegetation encroachment or contact with electric equipment, which can cause utility-caused ignition. This process complies with the California Fire Code Title 24 Part 9 and PRC 4291. Inspections will also comply with General Industry Safety Orders 12, 13, 36, 37, and 38. PRC 4292 and 4293 do not apply to ITO since there are no distribution lines. Inspectors will document their findings and submit them to LSPG-CA. Inspection activities will be included in the quarterly and annual maintenance report as required by CPUC GO 165. An example inspection process overview is illustrated in Figure 8-2.

Figure 8-2. Vegetation Management Inspection Overview



Frequency or Triggers

Vegetation inspections will occur monthly. Additional inspections will occur prior to extreme weather events indicated by RFWs, fire weather watches, high wind advisories, and fuels and fire behavior advisories for the area in which the substations are located.

Accomplishments, Roadblocks, and Updates

LSPG-CA was not a California Electrical Corporation prior to 2023 and thus did not have a WMP in the 2020–2022 cycle. As LSPG-CA gains more operational experience, it will evaluate making appropriate changes to its vegetation inspections procedures.

8.2.3 Vegetation and Fuels Management

The following details the vegetation management metrics and process overview; certain subsections do not apply as LSPG-CA assets only include substations.

8.2.3.1 Pole Clearing

Section 8.2.3.1 does not apply to LSPG-CA as there are no poles.

8.2.3.2 Wood and Slash Management

Any generated slash from vegetation management activities (mowing, weed trimming, grubbing, cutting, bucking) will be removed from the substation site to effectively comply with PRC 4291. The vegetation management buffer zone will have all vegetation removed or reduced to 3 inches or less for effective mitigation of fire spread.

8.2.3.3 Clearance

CPUC GO 95 does not apply to LSPG-CA as there are no overhead transmission lines or poles. Vegetation clearance around substations will meet or exceed California Fire Code Title 24, Part 9 and PRC 4291. Activities such as mowing, weed trimming, grubbing, cutting, bucking, or herbicide application may occur.

8.2.3.4 Fall-In Mitigation

During monthly inspections or ahead of extreme weather events, assets located in areas with trees and other woody vegetation that may make contact with the substation will have a component focused on tree assessment. This tree assessment will note tree age, health, species, and condition to identify if it poses a hazard to failing, fracturing, or otherwise striking the substation. If so, the work order process will begin immediately to remedy the hazard tree.

8.2.3.5 Substation Defensible Space

Substations will meet or exceed defensible space requirements pursuant to California Fire Code Title 24, Part 9 and PRC 4291. Assets in HFTD areas will have increased defensible space measures for vegetation management to further reduce wildfire risk from both the electrical equipment and outside ignition sources.

8.2.3.6 High-Risk Species

Vegetation removal within established buffer zones will not discriminate between vegetation species. Tree species will be taken into consideration during tree assessments as noted in Section 8.2.3.4, *Fall-In Mitigation*, as some are more prone to failure or fracture.

8.2.3.7 Fire-Resilient Right-of-Ways

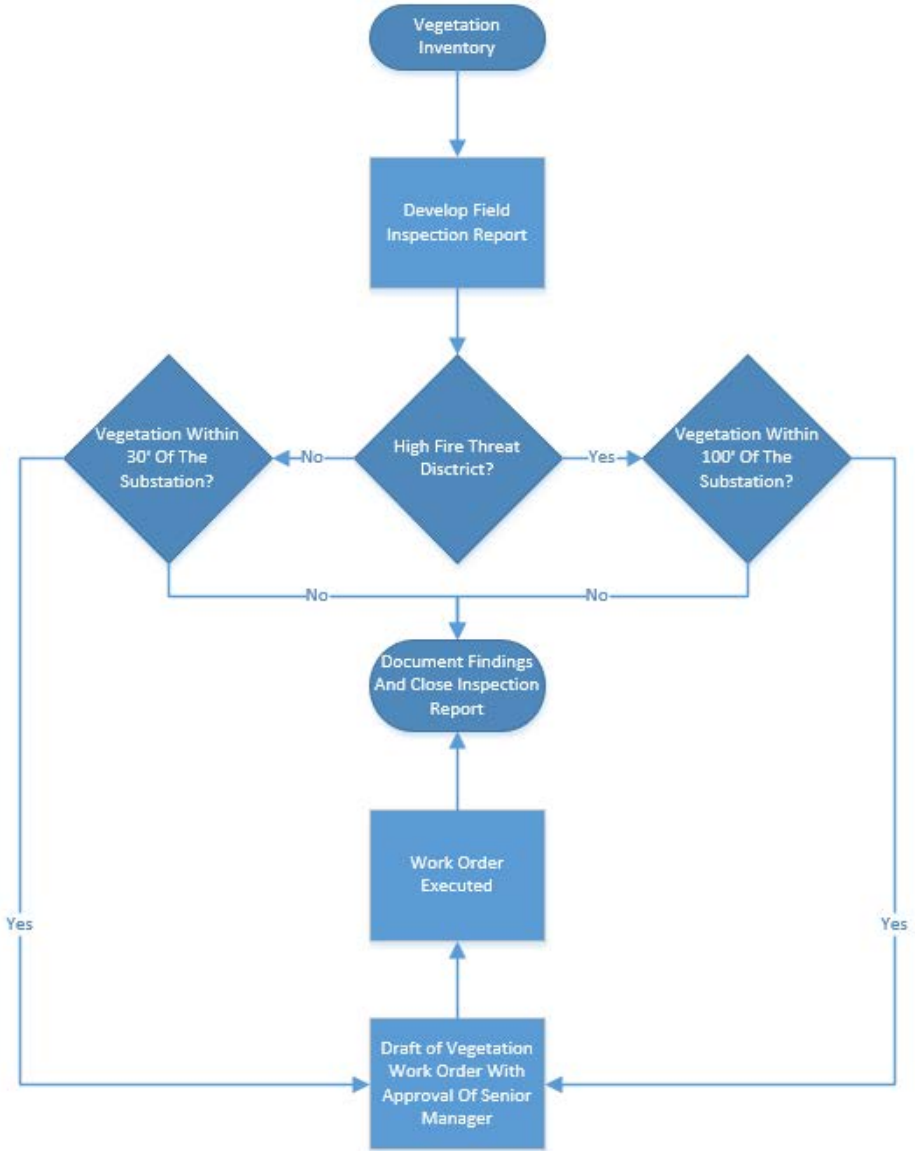
LSPG-CA is not responsible for any transmission line rights-of-way associated with the substations. Vegetation will be cleared within the substations and removed or maintained at 3 inches or less within the applicable substation buffer zones to mitigate fire spread to or from substations.

8.2.3.8 Emergency Response Vegetation Management

Monthly inspections will be supplemented by inspections in advance of extreme weather conditions, such as issued RFWs or high wind events, as conditions allow for safety and execution. The focus of these supplemental inspections will be on vegetation that may make contact with the substation or that is out of compliance in between routine inspections. The vegetation removal workflow is illustrated in Figure 8-3; it is the same process as outlined in Section 8.2.2.1 because there are no transmission lines.

Post-fire vegetation management will be divided into two categories: fires that directly impacted the substation and fires that threatened the substation. For fires that directly impacted the substation, a comprehensive assessment of electrical equipment and vegetation of the substation site will be documented to track changed conditions post-fire. The comprehensive assessment will occur as soon as it is safe and allowable for LSPG-CA or contractor personnel to enter the area. A follow-up inspection will occur at the next planned monthly inspection or extreme weather event, whichever occurs first. It is anticipated that removal of new hazard trees will be the only vegetation management required post-fire. For fires that threatened the substation, the protocol will be the same as above, with a focus on any existing vegetation that may not be compliant and lend itself to wildfire spread.

Figure 8-3. Vegetation Removal Workflow



8.2.4 Vegetation Management Enterprise System

LSPG-CA and contractor personnel will perform patrol inspections by visually inspecting applicable utility equipment and structures and vegetation management condition on a monthly schedule. Inspections will be conducted by experienced and trained individuals. This process complies with California Fire Code Title 24, Part 9 and PRC 4291. Inspections will comply with General Industry Safety Orders 12, 13, 36, 37, and 38. PRC 4292 and 4293 do not apply to an ITO since there are no distribution lines. Field Operations personnel will document their findings and submit them to LSPG-CA management.

8.2.5 Quality Assurance and Quality Control

When LSPG-CA becomes operational (mid-2024), qualified field personnel or trusted contractors will thoroughly document the results of monthly substation and vegetation management condition inspections using reporting templates currently in use at other LSPG affiliates. On an annual basis, the Senior Manager of Field Operations, or a qualified designee, will perform a field audit of a substation inspection for any sites located in an HFTD (Table 8-18). For any sites located outside of an HFTD, a similar field audit will be performed at least once during each 3-year WMP cycle. Issues found or lessons learned as a result of an audit will be incorporated into work procedures as applicable.

Before commencing operations, LSPG-CA will become a party to the CAISO Transmission Control Agreement and as such will be required to submit its maintenance practices to CAISO for approval. The LSPG-CA maintenance practices will then be subject to annual review by CAISO personnel, including field visits. Issues found or lessons learned as a result of the CAISO review will be incorporated into work procedures as applicable.

Table 8-17. Vegetation Management Quality Assurance and Quality Control Program

Activity Being Audited	**Sample Size**	**Type of Audit**	**Audit Results 2022**	**Yearly Target Pass Rate for 2023–2025**
Vegetation management buffer	100% in HFTD annually; 3-year WMP cycle for non-HFTD assets	Field	N/A	95%

8.2.6 Open Work Orders

A summary of procedures related to the processing of LSPG-CA maintenance work orders is described below:

- Formal procedures related to LSPG-CA's ongoing expansion of its EAM system (see Section 8.1.5, *Asset Management and Inspection Enterprise System(s)* of this WMP) across its transmission platform are currently under development. When LSPG-CA becomes operational, the EAM system will be used by field personnel to open maintenance work orders, assign priority, and schedule corrective actions. The EAM system will interface with LSPG-CA field operations supervision, work planning, and supply chain departments to ensure successful and timely close out of maintenance work orders.

A description of how work orders are prioritized based on risk is described below:

- As deficiencies are identified during inspection activities, field operations personnel will assign a priority to each work order consistent with the requirements of the CAISO maintenance procedures and CPUC GO 95.

LSPG-CA's expected prioritization matrix is shown below:

Priority	**Risk Level**	**Response**
1	Immediate safety, reliability, or fire risk with potential for significant impact	Address immediately
2	Moderate to low safety or reliability risk	Address within 3 months
3	Low impact or acceptable, non-emergency condition	Address or re-evaluate within 12 months

A description of the plan for eliminating any backlog of work orders (i.e., open work orders that have passed remediation deadlines), if applicable, is described below:

- Because of the limited scope and scale of LSPG-CA's assets, there is not expected to be a backlog of open work orders. Per the LSPG Maintenance Plan, maintenance tasks can be deferred for up to 25% of the time interval beyond the due date in extraordinary circumstances due to system conditions or other factors with management approval. Any work orders not addressed within deadlines will be escalated to the attention of the Senior Manager of Field Operations.

LSPG-CA has not yet had any open maintenance work orders (Table 8-19).

Table 8-19. Number of Past Due Vegetation Management Work Orders Categorized by Age

HTFD Area	**0-30 Days**	**31-90 Days**	**91-180 Days**	**181+ Days**
Non-HFTD	N/A	N/A	N/A	N/A
HFTD Tier 2	N/A	N/A	N/A	N/A
HFTD Tier 3	N/A	N/A	N/A	N/A

Note: This table will be updated in future WMP documents as relevant for assets.

8.2.7 Workforce Planning

Field personnel dedicated to the LSPG-CA substation assets will be the primary resources supporting asset inspections, vegetation management conditions, and risk event inspections. Because only substation personnel will be required, the following job titles are expected to be filled (Table 8-20):

- Substation Operator
- Relay Technician

Additional LS Power shared services personnel will support LSPG-CA substation vegetation management activities as needed. This includes, but is not limited to, the following job titles:

- Arborist
- Manager, Vegetation Management

Dedicated field personnel hires will occur ahead of energization of the Orchard Substation and are expected in late 2023 and early 2024. All employees as well as contractors performing work for LSPG-CA are required to complete WEAP training, which will include a discussion of the following topics specific to each site:

- Vegetation management standards
- Hazard tree identification
- Fire prevention procedures
- Fire detection and reporting
- Extinguishment tools and methods
- Fire response procedures
- Overview of any project-specific fire plans for major construction activities

Table 8-20. Vegetation Management Qualifications and Training

Worker Title	**Minimum Qualifications for Target Role**	**Special Certification Requirements**	**Electrical Corporation % FTE Min Quals**	**Electrical Corporation % Special Certifications**	**Contractor % FTE Min Quals**	**Contractor % Special Certifications**	**Reference to Electrical Corporation Training / Qualification Programs**
Substation Operator	• Requires completion of a technical or vocational training program as a substation or relay technician • Relevant prior experience with an electric utility or testing services contractor • Knowledge of substation equipment maintenance tasks • Knowledge of vegetation in the region • Knowledge and understanding of general fire hazards and fire suppression procedures	• N/A	N/A	N/A	N/A	N/A	• LSPG Hazard Communication • LSPG Portable Fire Extinguishers • LSPG Emergency Action Plan • WEAP
Relay Technician	• Requires completion of a technical or vocational training program as a substation or relay technician • 5+ years of relevant experience with an electric utility or testing services contractor • Knowledge of substation equipment maintenance tasks • Thorough understanding of protective relaying, communication, metering, and SCADA systems • Knowledge of vegetation in the region • Knowledge and understanding of general fire hazards and fire suppression procedures	• American National Standard Institute/InterNational Electrical Testing Association (ANSI/NETA) Standard for the Certification of Electrical Testing Technicians	N/A	N/A	N/A	N/A	• LSPG Hazard Communication • LSPG Portable Fire Extinguishers • LSPG Emergency Action Plan • WEAP

Note: This table will be updated in future WMP documents as relevant for assets.

8.3 Situational Awareness and Forecasting

8.3.1 Overview

As LSPG-CA transitions from construction to operations, a variety of features enhancing situational awareness and forecasting are being pursued as described in the subsections below.

8.3.1.1 Objectives

Table 8-21 summarizes the 3-year objectives and Table 8-22 summarizes the 10-year objectives for LSPG-CA's planned situational awareness and forecasting.

8.3.1.2 Targets

As part of LSPG-CA's commissioning of the Fern Road and Orchard Substations during the current WMP cycle, live video surveillance cameras will be installed at both sites. These cameras will increase situational awareness by allowing TSOs the ability to remotely view indoor and outdoor areas of the substations 24/7. Because LSPG-CA's assets have not entered operations and there is no baseline risk level associated with these sites, a quantifiable risk impact calculation was not performed. Table 8-23 provides details of situational awareness targets.

8.3.1.3 Performance Metrics Identified by the Electrical Corporation

LSPG-CA is a new California Electrical Corporation in 2023 and has no past performance data. Utility-related ignitions will be tracked to gauge performance in the area of Situational Awareness and Forecasting. Any ignitions related to construction activities in 2023 will be reported as utility-related ignitions. Table 8-24 identifies the performance metrics that will be evaluated.

Table 8-21. Situational Awareness Initiative Objectives (3-Year Plan)

Objectives for 3 Years (2023–2025)	**Applicable Initiative(s), Tracking ID(s)**	**Applicable Regulations, Codes, Standards, and Best Practices (See Note)**	**Method of Verification (i.e., program)**	**Completion Date**	**Reference (Section & Page #)**
Establish and maintain an environmental monitoring and weather forecasting program to reduce the risk of wildfires from environmental or weather-related conditions.	• Integrate StormGeo, a weather forecasting support tool, LSP-05 • Install substation cameras, LSP-06	NERC CIP-006	Update work procedures and site commissioning documentation	December 2024	Section 8.3.2, Page 132

Table 8-22. Situational Awareness Initiative Objectives (10-Year Plan)

Objectives for 10 Years (2026–2032)	**Applicable Initiative(s), Tracking ID(s)**	**Applicable Regulations, Codes, Standards, and Best Practices (See Note)**	**Method of Verification (i.e., program)**	**Completion Date**	**Reference (Section & Page #)**
Evaluate operational maturity related to use of live video.	• Evaluate and enhance use of live video, LSP-07		Updated work procedures	December 2028	Section 8.3.2, Page 132

Table 8-23. Situational Awareness Initiative Targets by Year

Initiative Activity	Tracking ID	2023 Target & Unit	x% Risk Impact 2023	2024 Target & Unit	x% Risk Impact 2024	2025 Target & Unit	x% Risk Impact 2025	Method of Verification
Install cameras at Orchard/Fern Road	LSP-06	0	0%	64 cameras installed	N/A	0	0%	QDR
Integrate StormGeo, a weather forecasting support tool	LSP-05	0	0%	Full integration	0%	Continued Integration	0%	QDR

Table 8-24. Situational Awareness and Forecasting Performance Metrics Results by Year

Performance Metrics	2020	2021	2022	2023 Projected	2024 Projected	2025 Projected	Method of Verification (e.g., Third-Party Evaluation, QDR)
Number of utility-related ignitions	N/A	N/A	N/A	0	0	0	QDR

Note: This table will be updated in future WMP documents as relevant for assets.

8.3.2 Environmental Monitoring Systems

LSPG-CA is beginning construction activities in 2023 and is expected to be operational in 2024. Narratives in the subsections below will generally refer to both phases.

8.3.2.1 Existing Systems, Technologies, and Procedures

LSPG-CA is a new California Electrical Corporation and has no existing weather monitoring systems currently in use. During the construction phase, LSPG-CA and/or its contracted personnel will be present on site with security surveillance at all times to assist in monitoring weather conditions in real time and receive weather alerts in order to implement mitigation measures per the CFPP if necessary or report an emergency during non-work hours (Table 8-25).

Table 8-25. Environmental Monitoring Systems

System	Measurement/ Observation	Frequency	Purpose and Integration
Human intel/ weather alerts	Receipt of RFWs and other extreme weather events, visual observance of conditions and work performed	24/7 site observation	Construction phase supervision, safety, and security monitoring will be present at site

8.3.2.2 Evaluation and Selection of New Systems

LS Power currently subscribes to a weather forecasting and intelligence service that has been successfully used to support System Operations in other regions. This system will be integrated with the locations of the Fern Road and Orchard Substations. Once operational, LSPG-CA will evaluate the need for additional equipment at its substation locations.

8.3.2.3 Planned Improvements

Once operational, LSPG-CA will integrate its substation site locations into LS Power's weather forecasting and intelligence service (Table 8-26). This will allow System Operations and field personnel to automatically receive relevant weather notifications to inform operational decisions. Because LSPG-CA's assets have not entered operations and there is no baseline risk level associated with these sites and a quantifiable risk impact calculation was not performed.

Table 8-26. Planned Improvements to Environmental Monitoring Systems

System	Description	Impact	x% Risk Impact	Implementation Schedule
StormGeo	Integrate weather forecasting system into operational decision-making		N/A	June–December 2024

8.3.2.4 Evaluating Mitigation Initiatives

Once operational, LSPG-CA management will solicit feedback from its TSOs and field personnel in order to evaluate the effectiveness of its environmental monitoring capabilities.

8.3.3 Grid Monitoring Systems

8.3.3.1 Existing Systems, Technologies, and Procedures

LSPG-CA has no existing grid monitoring systems. As described in Section 8.1.8.1, *Equipment Settings to Reduce Wildfire Risk*, LSPG-CA will operate the Fern Road and Orchard Substations using proven EHV system protection philosophies and equipment for its 500 kV transmission equipment as well as the lower voltage STATCOM equipment. Grid equipment, including the transmission transformers and STATCOMs will be monitored 24/7 by LSPG-CA System Operations via its energy management system (SCADA). Control room alarms will be triggered for various operating scenarios, including STATCOM equipment malfunction and unexpected equipment operation due to fault.

Table 8-27. Grid Operation Monitoring Systems

System	Measurement/ Observation	Frequency	Purpose and Integration
None			

Note: This table will be updated in future WMP documents as relevant for assets.

8.3.3.2 Evaluation and Selection of New Systems

Once operational, LSPG-CA management will solicit feedback from its TSOs and field personnel in order to evaluate the effectiveness of its grid monitoring capabilities.

8.3.3.3 Planned Improvements

Due to the limited scope and scale of its substation assets under development, LSPG-CA does not currently have any plans to implement additional grid monitoring systems beyond those included in the current designs of the Fern Road and Orchard Substations, which will include real-time monitoring of major station components such as transformers and STATCOMs.

Table 8-28. Planning Improvements to Grid Operation Monitoring Systems

System	Description	Impact	x% Risk Impact	Implementation Schedule
None				

Note: This table will be updated in future WMP documents as relevant for assets.

8.3.3.4 Evaluating Mitigation Initiatives

Once operational, LSPG-CA management will solicit feedback from its TSOs and field personnel in order to evaluate the effectiveness of its grid monitoring capabilities.

8.3.3.5 Enterprise System for Grid Monitoring

LSPG-CA has no current plans for specialized grid monitoring equipment and as such will not have additional data to manage in its EAM system. Substation equipment data, including maintenance history, will be stored in the EAM system as described in Section 8.1.5, *Asset Management and Inspection Enterprise System(s)*.

8.3.4 Ignition Detection Systems

8.3.4.1 Existing Ignition Detection Sensors and Systems

LSPG-CA is a new California Electrical Corporation and has no existing ignition detection systems currently in use. During the construction phase, LSPG-CA and/or its contracted personnel will be present on-site at all times to monitor site conditions in real time and report any ignition emergency during non-work hours (Table 8-29).

Table 8-29. Fire Detection Systems Currently Deployed

Detection System	Capabilities	Companion Technologies	Contribution to Fire Detection and Confirmation
Human intelligence	Manned construction sites	N/A	Construction and security personnel will report any ignitions

8.3.4.2 Evaluation and Selection of New Detection Systems

Once operational, LSPG-CA management will solicit feedback from its TSOs and field personnel in order to evaluate the effectiveness of its ignition detection capabilities.

8.3.4.3 Planned Integration of New Ignition Detection Technologies

Upon commencing operations at each substation site, LSPG-CA will implement 24/7 video surveillance capability, which will allow TSOs to receive alarms related to ignitions and incipient stage fires remotely (LSP-06). The STATCOM buildings at the Fern Road and Orchard Substations will contain integrated ignition detection systems that will alarm the LSPG-CA control center (Table 8-30). The detection system can be triggered via smoke detectors, heat cables, or manually.

Table 8-30. Planning Improvements to Fire Detection and Alarm Systems

System	Description	Impact	x% Risk Impact	Implementation Schedule
STATCOM fire detection	Integrated building detection system	Create baseline capability for detection during operational phase	N/A	June–December 2024
High-definition cameras	Installation of high-definition cameras at substation sites	Create baseline capability for detection during operational phase	N/A	June–December 2024

8.3.4.4 Evaluating Mitigation Initiatives

Once operational, LSPG-CA management will solicit feedback from its TSOs and field personnel in order to evaluate the effectiveness of its ignition detection capabilities and assess the need for any new initiatives.

8.3.4.5 Enterprise System for Ignition Detection

Section 8.3.4.5 does not apply as LSPG-CA currently has no plans to integrate ignition detection data into its EAM system.

8.3.5 Weather Forecasting

8.3.5.1 Existing Modeling Approach

LSPG-CA does not currently have any weather modeling capability. With no service territory and an extremely limited footprint of only two substation locations under development, LSPG-CA expects to rely on external weather forecasting data in the near term. RAWS and platforms such as FireFamilyPlus provide daily, monthly, and annual weather metrics with the capability to determine percentiles and trends. Initiatives listed in Table 8-31 will supplement open source weather forecasting data.

8.3.5.2 Known Limitations of Existing Approach

Section 8.3.5.2 does not apply as LSPG-CA does not plan to implement weather forecast modeling at this time.

8.3.5.3 Planned Improvements

Section 8.3.5.3 does not apply as LSPG-CA does not plan to implement weather forecast modeling at this time.

Table 8-31. Planned Improvements to Weather Forecasting Systems

System	Description	Impact	x% Risk Impact	Implementation Schedule
None				

Note: This table will be updated in future WMP documents as relevant for assets.

8.3.5.4 Evaluating Mitigation Initiatives

Section 8.3.5.4 does not apply as LSPG-CA does not plan to implement weather forecast modeling at this time.

8.3.5.5 Enterprise System for Weather Forecasting

Section 8.3.5.5 does not apply as LSPG-CA does not plan to implement weather forecast modeling at this time.

8.3.6 Fire Potential Index

8.3.6.1 Existing Calculation Approach and Use

LSPG-CA does not currently calculate a fire potential index (FPI). During the construction phase, RFWs and other extreme weather events issued by the National Weather Service will be used to inform project fire risks and mitigation measures per the CFPPs. If a FPI calculation is needed for future situations, LSPG-CA will utilize the real-time Wildland Fire Assessment - Program Severe Fire Danger Mapping System.[16]

Table 8-32 provides a template for the required information.

[16] Wildland Fire Assessment - Program Severe Fire Danger Mapping System. <https://m.wfas.net/>. Accessed February 2023.

Table 8-32. Fire Potential Features

Feature Group	Feature	Altitude	Description	Source	Update Cadence	Spatial Granularity	Temporal Granularity
N/A							
N/A							

Note: This table will be updated in future WMP documents as relevant for assets.

8.3.6.2 Known Limitations of Existing Approach

Reliance on human intelligence and RFWs during the construction phase is not sustainable when the sites become unmanned (operational).

8.3.6.3 Planned Improvements

The planned integration of StormGeo into operational practices will allow LSPG-CA to utilize their proprietary forecasts for active fire risk, fire danger, and PSPS risk to inform decision-making.

8.4 Emergency Preparedness

8.4.1 Overview

LSPG-CA is currently drafting plans that address emergency preparedness in both the construction and operational phases. Site Safety Plans are being drafted in conjunction with LSPG-CA's construction contractors to support major construction activities at the Fern Road and Orchard Substations. These plans will supplement the material in the CFPPs, which also address emergency response at a high-level.

A company-level Emergency Operations Plan is in progress that will address general emergency preparedness as well as wildfire preparedness. Objectives supporting the development of this plan are identified below.

8.4.1.1 Objectives

LSPG-CA's objectives supporting the implementation of its emergency preparedness posture focuses on identifying and establishing relationships with local agencies and officials near its substation sites in the near term. As construction begins at new sites, LSPG-CA site supervisory personnel will work with local officials to ensure local first responders have relevant project information including, but not limited to establishing site addresses if needed, exchanging contact information, and discussing project activities and timelines. Emergency protocols for site construction personnel are memorialized in site-specific safety plans.

LSPG-CA will complete and formalize its Emergency Preparedness Plan per Public Utilities Code Section 768.6 ahead of the commercial operation of the Orchard Substation. Upon establishment of this plan, a continuous improvement process will begin as the company gains operational maturity.

Objectives for implementing and improving LSPG-CA's emergency preparedness are described below in Table 8-32 for the 3-year plan and Table 8-33 for the 10-year plan.

Table 8-33. Emergency Preparedness Initiative Objectives (3-Year Plan)

Objectives for Three Years (2023–2025)	**Applicable Initiative(s), Tracking ID(s)**	**Applicable Regulations, Codes, Standards, and Best Practices (See Note)**	**Method of Verification (i.e., program)**	**Completion Date**	**Reference (Section & Page #)**
Establish and implement fire safe construction practices to reduce the risk of ignition.	N/A	Occupational Safety and Health Administration requirements	Site-specific safety plans	October 2023	Section 8.3.4, Page 134
Establish contact with local public safety and fire agencies and ensure site locations and access information are integrated into relevant dispatch systems.	• Integrate into local dispatch systems, LSP-8 • Establish annual contact with local fire agencies, LSP-9	Emergency Preparedness Plan	Emergency Plan; records of meetings with local agencies	June 2024	Section 8.4.3, Page 154 Section 8.5.4, Page 176

Table 8-34. Emergency Preparedness Initiative Objectives (10-Year Plan)

Objectives for 10 Years (2026–2032)	**Applicable Initiative(s), Tracking ID(s)**	**Applicable Regulations, Codes, Standards, and Best Practices (See Note)**	**Method of Verification (i.e., program)**	**Completion Date**	**Reference (Section & Page #)**
Establish continuous improvement of emergency plan and procedures	Formalized review with benchmarking, LSP-10	Emergency Preparedness Plan	Updates to Emergency Plan	December 2027	Section 8.4.2, Page 143

8.4.1.2 Targets

LSPG-CA will utilize the tracking and documenting of contact with local agencies near its substation sites in order to show quantifiable progress towards meeting emergency preparedness objectives.

Table 8-35 outlines the targets for the current WMP cycle.

Table 8-35. Emergency Preparedness Initiative Targets by Year

Initiative Activity	**Tracking ID**	**2023 Target & Unit**	**x% Risk Impact 2023**	**2024 Target & Unit**	**x% Risk Impact 2024**	**2025 Target & Unit**	**x% Risk Impact 2025**	**Method of Verification**
Meetings with local agencies	LSP-9	2	N/A	2	N/A	2	N/A	Meeting minutes/records

Note: This table will be updated in future WMP documents as relevant for assets.

8.4.1.3 Performance Metrics Identified by the Electrical Corporation

LSPG-CA is a new California Electrical Corporation in 2023 and has no past performance data. Utility-related ignitions will be tracked to gauge performance in the area of Emergency Preparedness. Any ignitions related to construction activities in 2023 will be reported as utility-related ignitions. Table 8-36 contains LSPG-CA's performance metrics.

Table 8-36. Emergency Preparedness Performance Metrics Results by Year

Performance Metrics	**2020**	**2021**	**2022**	**2023 Projected**	**2024 Projected**	**2025 Projected**	**Method of Verification (e.g., Third-Party Evaluation, QDR)**
Number of utility-related ignitions	N/A	N/A	N/A	0	0	0	QDR

Note: This table will be updated in future WMP documents as relevant for assets.

8.4.2 Emergency Preparedness Plan

LSPG-CA is currently evaluating its wildfire emergency preparedness strategies, practices, policies, and procedures in support of the development of an Emergency Preparedness Plan. LSPG-CA's plan will comply with CPUC GO 166 requirements as may be applicable ITO's not serving retail customers.

Relevant documents currently governing LSPG-CA's emergency preparedness include:

- Construction Fire Prevention Plan, Gates 500 kV Dynamic Reactive Support Project, Orchard Substation, dated August 17, 2022
- Project Specific Safety Plan, LSPOWER Orchard Substation Project, dated January 5, 2023

Additional plans specific to the Fern Road Substation project are also in development.

8.4.2.1 Overview of Wildfire and PSPS Emergency Preparedness

LSPG-CA expects to commence operations in mid-2024 and is currently developing an Emergency Preparedness Plan that is expected to include the following:

- Purpose and scope of the plan.
- Overview of protocols, policies, and procedures for responding to and recovering from a wildfire or PSPS event.
- Key personnel, qualifications, and training.
- Resource planning and allocation.
- Drills, simulations, and tabletop exercises.
- Coordination and collaboration with public safety partners.
- Improvements/updates made since the last WMP submission.

Because LSPG-CA's plan is still under development, Table 8-37 is not yet applicable.

Table 8-37. Key Gaps and Limitations in Integrating Wildfire- and PSPS-Specific Strategies into Emergency Plan

Gap or Limitation Subject	Remedial Brief Description	Remedial Action Plan
N/A		• **Strategy:** Establish a community advisory panel in collaboration with local government and non-governmental organizations. • **Target timeline:** Develop a process for establishing a community advisory panel, including policies and procedures, by the end of 2023. Convene the advisory panel to review and provide feedback on the emergency preparedness plan for 50% of communities by end of 2024.

Note: This table will be updated in future WMP documents as relevant for assets.

8.4.2.2 Key Personnel, Qualifications, and Training

LSPG-CA's Emergency Preparedness Plan is currently under development. It is expected that the plan will be finalized and details around key personnel, qualifications, and training will be include in the next WMP update and ahead of any commercial operation.

Please refer to Section 8.1.8.3 *Personnel Work Procedures and Training in Conditions of Elevated Fire Risk* and Section 8.1.9 *Workforce Planning* for details on worker qualifications and training known at the time of the 2023 WMP.

Table 8-38 is not yet applicable.

Table 8-38. Emergency Preparedness Staffing and Qualifications

Role	Incident Type	Responsibilities	Qualifications	No. of Dedicated Staff Required	No. of Dedicated Staff Provided	No. of Contract Workers Required	No. of Contract Workers Provided
TBD							

Note: This table will be updated in future WMP documents as relevant for assets.

Personnel Training

LSPG-CA's Emergency Preparedness Plan is currently under development.

External Contractor Training

LSPG-CA's Emergency Preparedness Plan is currently under development. Table 8-39 and Table 8-40 are not yet applicable.

Table 8-39. Electrical Corporation Personnel Training Program

Training Topic	Purpose and Scope	Training Method	Training Frequency	Position or Title of Personnel Required to Take Training	# Personnel Requiring Training	# Personnel Provided with Training	Form of Verification or Reference
TBD							

Note: This table will be updated in future WMP documents as relevant for assets.

Table 8-40. Contractor Training Program

Training Topic	Purpose and Scope	Training Method	Training Frequency	Position or Title of Personnel Required to Take Training	# Contractors Requiring Training	# Contractors Completed Training	Form of Verification or Reference
TBD							

Note: This table will be updated in future WMP documents as relevant for assets.

8.4.2.3 Drills, Simulations, and Tabletop Exercises

LSPG-CA's Emergency Preparedness Plan is currently under development. It is expected that the plan will be finalized and details around drills, simulations, and tabletop exercises will be included in the next WMP update and ahead of any commercial operation.

External Exercises

LSPG-CA's Emergency Preparedness Plan is currently under development.

Tables 8-41 and 8-42 are not yet applicable.

Table 8-41. Internal Drill, Simulation, and Tabletop Exercise Program

Category	Exercise Title and Type	Purpose	Exercise Frequency	Position or Title of Personnel Required to Participate	# Personnel Participation Required	# Personnel Participation Completed	Form of Verification or Reference
TBD							

Note: This table will be updated in future WMP documents as relevant for assets.

Table 8-42. External Drill, Simulation, and Tabletop Exercise Program

Category	Exercise Title and Type	Purpose	Exercise Frequency	Position or Title of Personnel Required to Participate	# Personnel Participation Required	# Personnel Participation Completed	Form of Verification or Reference
TBD							

Note: This table will be updated in future WMP documents as relevant for assets.

8.4.2.4 Schedule for Updating and Revising Plan

LSPG-CA expects to complete its Emergency Preparedness Plan by Q1 2024 ahead of the commercial operation date for Orchard Substation. Table 8-43 is not yet applicable.

Table 8-43. Wildfire-Specific Updates to the Emergency Preparedness Plan

ID #	Year of Updated Plan	Revision Type	Lesson Learned	Revision Description	Reference (Section & Page #)
N/A					

Note: This table will be updated in future WMP documents as relevant for assets.

8.4.3 External Collaboration and Coordination

8.4.3.1 Emergency Planning

LSPG-CA is creating and implementing project-specific CFPPs and safety plans. As part of the initial construction process, LSPG-CA will establish contact with local public safety and fire agencies and ensure site locations and access information are integrated into relevant dispatch systems including establishing site addresses if needed (LSP-8).

Once operational, LSPG-CA will conduct annual visits with fire agencies local to each site (LSP-9). In the long term, once an operational history has been established, a formalized review of emergency procedures with benchmarking will be performed (LSP-10).

Additional detail around emergency planning and coordination with local agencies will be known upon the completion of LSPG-CA's Emergency Preparedness Plan. Table 8-44 includes local agencies relevant to the Orchard and Fern Road Substation sites identified at the time of the 2023 WMP submission. Additional agencies are expected to be included as project construction begins. Because LSPG-CA has not previously developed a Wildfire Mitigation Plan or an Emergency Preparedness Plan, Table 8-45 is not yet applicable.

Table 8-44. State and Local Agency Collaboration(s)

Name of State or Local Agency	**Point of Contact and Information**	**Emergency Preparedness Plan Collaboration – Last Version of Plan Agency Collaborated**	**Emergency Preparedness Plan Collaboration – Collaborative Role**	**Memorandum of Agreement (MOA)?**	**Brief Description of MOA**
Fresno County Fire Protection District	Station 93 36421 Lassen Ave, Huron, CA 93234 (559) 945-9604	N/A	N/A	No	• N/A
Fresno County Sheriff	911 or (559)-600-3111 (non-emergency)	N/A	N/A	No	• N/A
Shasta County Fire	TBD	N/A	N/A	No	• N/A

Note: This table will be updated in future WMP documents as relevant for assets.

Table 8-45. Key Gaps and Limitations in Collaboration Activities with State and Local Agencies

Gap or Limitation Subject	Remedial Brief Description	Remedial Action Plan
N/A		

Note: This table will be updated in future WMP documents as relevant for assets.

8.4.3.2 Communication Strategy with Public Safety Partners

LSPG-CA's Emergency Preparedness Plan is under development and will further detail communication protocols with local public safety officials. LSPG-CA and its interconnecting electrical corporation are currently drafting operating procedures for the Orchard and Fern Road Substations to memorialize communication protocols and contact information between the two parties to support the areas of substation operations, facilities monitoring, access, energization procedures, and outages.

Once in-service, LSPG-CA's facilities will be placed under the operational control of the CAISO. LSPG-CA's TSOs will adhere to the CAISO Operating Procedures, including the CAISO Real-Time Communications Guidelines which require the TSO to inform the CAISO of any change or potential change in the operating or communications status of a transmission system element. LSPG-CA TSOs will comply with any CAISO operating instructions, including those to de-energize equipment in the event of a system emergency.

In preparation for the construction of the Orchard and Fern Road Substations, and to support the development of the Emergency Preparedness Plan, LSPG-CA is conducting initial investigation and outreach to public safety partners in the areas of the planned facilities at the time of this WMP submittal. Once the scope of the relevant public safety partners is determined and communications protocols are established, the details will be included in Tables 8-47 and 8-48.

Table 8-46. High-Level Communication Protocols, Procedures, and Systems with Public Safety Partners

Public Safety Partner Group	**Name of Entity**	**Point of Contact and Information**	**Key Protocols**	**Frequency of Prearranged Communication Review and Update**	**Communication Exercise(s): Date of Last Completed**	**Communication Exercise(s): Date of Planned Next**
In progress						

Note: This table will be updated in future WMP documents as relevant for assets.

Table 8-47. Key Gaps and Limitations in Communication Coordination with Public Safety Partners

Gap or Limitation Subject	Remedial Brief Description	Remedial Action Plan
N/A		

Note: This table will be updated in future WMP documents as relevant for assets.

8.4.3.3 Mutual Aid Agreements

Due to the limited scope and scale of LSPG-CA's assets under development, the company will supplement internal resources with trusted contractors in the event of emergency or operational need. LSPG-CA current has Emergency Response and Field Services Agreements with two entities experienced in the construction and maintenance of transmission equipment as described below in Table 8-48.

Table 8-48. High-Level Mutual Aid Agreement for Resources During a Wildfire or De-Energization Incident

Mutual Aid Partner	**Scope of Mutual Aid Agreement**	**Available Resources from Mutual Aid Partner**
MYR Transmission Services	As-needed labor and equipment for substation emergency response activities	Labor, equipment
Wilson Utility Construction	As-needed labor and equipment for substation emergency response activities	Labor, equipment

8.4.4 Public Emergency Communication Strategy

LSPG-CA does not have a service territory, nor will it serve electric customers, and the scope and scale of its facilities under development is very small. Because of these factors, LSPG-CA does not expect to develop protocols for communications with the general public. Emergency communications protocols for other stakeholder groups are as described in Section 8.4.3.2 *Communication Strategy with Public Safety Partners.*

Sections 8.4.4.1 *Protocols for Emergency Communications*, 8.4.4.2 *Messaging*, and 8.4.4.3 *Current Gaps and Limitations* are not applicable to LSPG-CA at the time of this WMP.

8.4.4.1 Protocols for Emergency Communications

This section and Table 8-49 are not applicable to LSPG-CA. Table 8-49 was intentionally left blank.

Table 8-49. Example of Protocols for Emergency Communication to Stakeholder Groups

Stakeholder Group	**Event Type**	**Method(s) for Communicating**	**Means to Verify Message Receipt**
General public	Wildfire		
General public	Wildfire-related outage		
General public	PSPS-related outage		
General public	Restoration of service		
Priority essential services	Wildfire		
Priority essential services	Wildfire-related outage		
Priority essential services	PSPS-related outage		
Priority essential services	Restoration of service		
AFN populations			
Populations with limited English proficiency			
Tribes			
People in remote areas			

Note: This table will be updated in future WMP documents as relevant for assets.

8.4.4.2 Messaging

This section is not applicable to LSPG-CA.

8.4.4.3 Current Gaps and Limitations

This section and Table 8-50 are not applicable to LSPG-CA.

Table 8-50. Example of Key Gaps and Limitations in Public Emergency Communication Strategy

Gap or Limitation Subject	**Remedial Brief Description**	**Remedial Action Plan**
Limited feedback on wildfire and PSPS emergency plan	Less than 10% of the state and local government stakeholders have been able to provide feedback and collaborate on review, development, and/or improvement of the emergency preparedness plan.	• **Strategy:** Convene a 1.5-day workshop with relevant state and local agencies to review the key elements of the electrical corporation's wildfire- and PSPS-specific emergency preparedness plan. Solicit verbal and written comments from the stakeholders. Assign a government liaison to conduct follow-up meetings to obtain and discuss any comments, proposed modifications, additions, etc. • **Target timeline**: Develop workshop scoping plan by June 2023 and convene workshop by end of 2023. Aim to host workshops with 50% of government stakeholders by end of 2025.

Note: This table will be updated in future WMP documents as relevant for assets.

8.4.5 Preparedness and Planning for Service Restoration

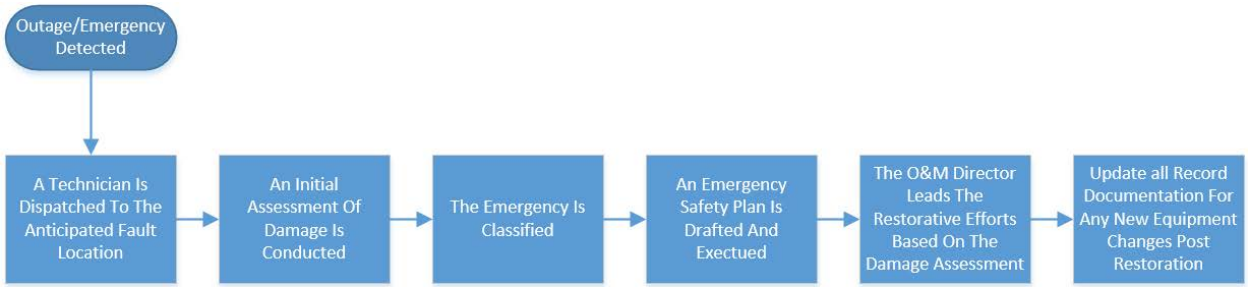
8.4.5.1 Overview of Service Restoration Plan

In the case of an outage due to wildfire or PSPS event, LSPG-CA will restore service as quickly as possible while providing for the safety of the employees, contractors, and the public. LSPG-CA includes the following objectives within its Emergency Operations Plan:

- Guide operating personnel in cases of major and prolonged outages
- Outline the duties of each employee to be utilized during such an emergency
- Provide easy access to information necessary to carry out the process of restoring service as quickly and efficiently as possible

Service restoration begins with assessing the cause of an outage (Figure 8-4). Once an outage is detected by the SCADA system, the maintenance supervisor will determine the anticipated fault location based on the outage information. The Operations Manager will dispatch the designated first responder (DFR) technician to complete a damage assessment. If the area is still dangerous, this evaluation can be performed from the air in a helicopter. This initial assessment will provide a general overview as to the extent of damage and to begin to determine the manpower, material, and equipment needed for the recovery plan. The findings of this assessment will be used to classify the situation as one of a few emergency scenarios detailed in the Emergency Operations Plan. Before any work begins the safety manager develops and executes the emergency safety plan. This plan ensures proper communication and that all safe work practices are followed. The O&M Director or an appropriate designee will lead the restoration efforts based on the initial damage assessment and the emergency classification. Once the appropriate restorative actions have occurred any changes to the line and/or equipment will be updated and documented and then disseminated to the entire company.

Figure 8-4. Service Restoration Process



8.4.5.2 Planning and Allocation of Resources

Whenever possible, LSPG-CA will take steps to anticipate and prepare for the impact of a disaster within the operating area. These preparations include but are not limited to the following areas:

- Monitor the system and report any significant changes in the system or in the area weather conditions and forecasts. This includes use of an advanced storm tracking and forecasting software to predict and track severe weather such as thunderstorms, lightning activity, ice storms, and high winds which could impact operations. Based upon on the forecasted conditions, push notifications can be sent to operating personnel in order to better position response teams for severe weather events.
- Contact neighboring utilities to determine the extent of the damage they have sustained from the weather conditions.
- Check and stage the DFR and additional support, along with generators, trucks, fuel supplies, equipment, and materials.

LSPG-CA will maintain a schedule of on-call personnel to respond to outages and service requests that occur after normal business hours. In the event of a major outage, additional personnel may be called in to assist.

Emergencies are classified and prioritized into the following three event types with ES Level 3 events being the top priority.

ES Level 1 Event

An ES-1 event is a short duration with restoration of service completed in less than 24 hours affecting isolated areas that can be handled by the normal work force of the organization.

ES Level 2 Event

An ES-2 event causes moderate damage that can be repaired and all service restored in less than 72 hours. Some emergency operating procedures will go into effect. The Operations & Maintenance Director will act as the Emergency Response Commander (ERC). The ERC will direct the overall emergency operations organization. Personnel from other departments will be required and possibly outside crews.

ES Level 3 Event

An ES-3 event causes severe damage requiring more than 72 hours to restore all electric service. The Operations & Maintenance Director will act as the ERC. The ERC will direct the

overall emergency operations organization. Outside crews and other department personnel will be required.

Effective communication is the cornerstone of any effective work plan and even more so during emergency conditions. The Emergency Response Commander (ERC) will establish daily conference calls with LS Power management, the Operations Manager, the Maintenance Manager, the Safety Director, and response work crews to facilitate robust internal communication. During these calls, an external communication plan will be established to inform local agencies and adjacent utilities as necessary. This is critical to ensure response effort is coordinated and the entire team is aware of numerous ongoing efforts and issues. The Response Work Crew, or Contractor depending on the severity of the event, is tasked with developing a Plan-of-the-Day (POD) and communicating with the team. The POD document outlines the work to be performed the next day highlighting challenges/opportunities and any safety concerns. The POD development will be a collaborative effort to include equipment and material deliveries as well as any unique landowner requirements. The POD's goal is to outline the current plan and determine the required tasks so services can be reestablished.

8.4.5.3 Drills, Simulations, and Tabletop Exercises

Discussion- and operational-based exercises enhance knowledge of plans, allow personnel to improve their own performance, and identify opportunities to improve capabilities to respond to wildfire- and PSPS-related service outages and other emergencies. LSPG-CA's parent company, LS Power Grid, maintains an Operations Training Process Manual which details company processes for analyzing, designing, developing, implementing, and evaluating initial and continuing training for TSOs and operations support personnel. This manual will be revised ahead of the commercial operation of the Orchard Substation to include LSPG-CA and will cover drills, simulations, and tabletop exercises.

Internal Exercises

LS Power Grid's System Operations department currently conducts a variety of internal exercises as outlined below in Table 8-51. Additional exercises specific to planned operations in California are currently under review and will be implemented as necessary.

External Exercises

LS Power Grid's System Operations department currently attends external training and exercises as outlined below in Table 8-52. Additional external events specific to planned operations in California are currently under review and will be implemented as necessary.

As LSPG-CA will not have operational facilities until mid-2024 emergency plan modifications and training exercises specific for wildfires are currently under development. Staffing plans are still currently in progress.

Table 8-51. Internal Drill, Simulation, and Tabletop Exercise Program for Service Restoration

Category	Exercise Title and Type	Purpose	Exercise Frequency	Position of Title of Personnel Required to Participate	Personnel Required	Personnel Completed	Form of Verification or Reference
Operational based	EOP Simulation Training	Emergency operations training in a low-risk, simulated environment	Annual	• TSOs	TBD	TBD	Participation will be documented by the Manager of Operations Training
Discussion based	SOTP Training Review Meetings	Discuss changes in procedures, tools, or system conditions may affect real-time, reliability-related tasks Address any training issues	Quarterly	• TSOs • System Operations management • Operations support personnel	TBD	TBD	Participation will be documented by the Manager of Operations Training
Discussion based	Annual SOTP Review Meeting	Review annual training program reports, review Operations Training Process Manual, discuss continuing training program for upcoming year	Annually	• TSOs • System Operations management • Operations support personnel	TBD	TBD	Participation will be documented by the Manager of Operations Training
Operational-based	Black Start Drills	Provide hands on training to ensure black start practices are well rehearsed	Annually	• TSOs • System Operations management • Operations support personnel	TBD	TBD	Participation will be documented by the Manager of Operations Training

Table 8-52. External Drill, Simulation, and Tabletop Exercise Program for Service Restoration

Category	**Exercise Title and Type**	**Purpose**	**Exercise Frequency**	**Position or Title of Personnel Required to Participate**	**Personnel Required**	**Personnel Completed**	**Form of Verification or Reference**
Discussion-based	TSO Training Seminars	• Learn system restoration best practices • Provide best practices for emergency scenarios	Variable	• TSOs • System Operations management	TBD	TBD	Participation will be documented by the Manager of Operations Training

8.4.6 Customer Support in Wildfire and PSPS Emergencies

Section 8.4.6 does not apply to LSPG-CA because it will not serve electric customers.

8.5 Community Outreach and Engagement

8.5.1 Overview

Because LSPG-CA will not serve customers as an ITO, community outreach and engagement efforts will focus on local governmental agencies and first responders as well as interconnecting utilities. Community outreach and engagement mitigation initiatives will include the following:

- Collaboration on local wildfire mitigation and planning
- Best practice sharing with other electrical corporations from within and outside of California

8.5.1.1 Objectives

Table 8-53 summarizes the 3-year plan and Table 8-54 summarizes the 10-year plan related to community outreach and engagement objectives.

8.5.1.2 Targets

Table 8-55 includes LSPG-CA's community outreach and engagement initiative targets.
Table 8-56 is not applicable because LSPG-CA does not serve customers.

8.5.1.3 Performance Metrics Identified by the Electrical Corporation

LSPG-CA is a new California Electrical Corporation in 2023 and has no past performance data. Utility-related ignitions will be tracked to gauge performance in the area of Community Outreach and Engagement. Any ignitions related to construction activities in 2023 will be reported as utility-related ignitions. Table 8-56 provides LSPG-CA's performance metrics related to community outreach and engagement.

Table 8-53. Community Outreach and Engagement Initiative Objectives (3-Year Plan)

Objectives for 3 Years (2023–2025)	**Applicable Initiative(s), Tracking ID(s)**	**Applicable Regulations, Codes, Standards, and Best Practices (See Note)**	**Method of Verification (i.e., program)**	**Completion Date**	**Reference (Section & Page #)**
Establish and maintain relationships with local agencies and officials.	• Establish annual contact with local fire agencies, LSP-9	Emergency Preparedness Plan	Emergency Plan; records of meetings with local agencies	June 2024	Section 8.4.1.1, Page 139 Section 8.5.4, Page 176

Table 8-54. Community Outreach and Engagement Initiative Objectives (10-Year Plan)

Objectives for 10 Years (2026–2032)	**Applicable Initiative(s), Tracking ID(s)**	**Applicable Regulations, Codes, Standards, and Best Practices**	**Method of Verification (i.e., program)**	**Completion Date**	**Reference (Section & Page #)**
Formalize mechanisms to share lessons learned among ITO peers.	• Best practice sharing, LSP-11		Documented instances of collaboration between the electrical corporation and outside entities, industry groups, or conferences	December 2029	Section 8.5.5, Page 178

Table 8-55. Community Outreach and Engagement Initiative Targets by Year

Initiative Activity	**Tracking ID**	**2023 Target & Unit**	**x% Risk Impact 2023**	**2024 Target & Unit**	**x% Risk Impact 2024**	**2025 Target & Unit**	**x% Risk Impact 2025**	**Method of Verification**
Meetings with local agencies	LSP-9	2 meetings	N/A	2 meetings	N/A	2 meetings	N/A	Meeting minutes/records

Table 8-56. PSPS Outreach and Engagement Initiative Targets by Year

Initiative Activity	**Tracking ID**	**Target End of Q2 2023 & Unit**	**Target End of Q3 2023 & Unit**	**End of Year Target 2023 & Unit**	**x% Risk Impact 2023**	**Target End of Q2 2024 & Unit**	**Target End of Q3 2024 & Unit**	**End of Year Target 2024 & Unit**	**x% Risk Impact 2024**	**Target 2025 & Unit**	**x% Risk Impact 2025**	**Method of Verification**
N/A												

Note: This table will be updated in future WMP documents as relevant for assets.

Table 8-56. Community Outreach and Engagement Performance Metrics Results by Year

Performance Metrics	**2020**	**2021**	**2022**	**2023 Projected**	**2024 Projected**	**2025 Projected**	**Method of Verification (e.g., Third-Party Evaluation, QDR)**
Number of utility-related ignitions	N/A	N/A	N/A	0	0	0	QDR

Note: This table will be updated in future WMP documents as relevant for assets.

8.5.2 Public Outreach and Education Awareness Program

LSPG-CA does not have a service territory and will not serve electric customers. Public outreach efforts will be focused on establishing relationships and regular contact with local agencies and the interconnecting utility.

Because LSPG-CA is an ITO and does not directly serve customers, it is anticipated that communities local to LSPG-CA's substation sites will receive communications directly from the utility covering the applicable service territory and local governmental agencies with which LSPG-CA will actively coordinate and communicate. As such, Table 8-58 does not apply to LSPG-CA.

To support its objective of establishing and maintaining relationships with local agencies and officials, LSPG-CA will implement an initiative to conduct regular meetings with applicable local agencies (LSP-9). Table 8-59 contains a list of community partners identified to support community outreach and engagement in the areas of the Orchard and Fern Road Substations. Additionally, LSPG-CA will create a dedicated Wildfire section on its public website to post its Wildfire Mitigation Plan as well as a link to CALFIRE's wildfire safety site as detailed in Table 8-60 to assist with public awareness.

Table 8-58. List of Target Communities

Target Community	**Interests or Concerns Before, During, and After Wildfire and PSPS Events**
N/A	

Note: This table will be updated in future WMP documents as relevant for assets.

Table 8-59. List of Community Partners

Community Partners	**County**	**City**
Fresno County Fire	Fresno	Local City
Shasta County Fire	Shasta	Local City
Local City Government	Local County	Local City

Table 8-60. Community Outreach and Education Programs

Core Activity	**Event Type**	**Period of Application (Before, During, After Incident)**	**Name of Outreach or Education Program**	**Description of Program**	**Target Audience**	**Reference/Link**
Website information	Wildfire	Before	General Wildfire Safety	Link to CALFIRE wildfire safety website	General public	http://lspgridcalifornia.com link to http://readyforwildfire.org

8.5.3 Engagement with Access and Functional Needs Populations

Section 8.5.3 does not apply to LSPG-CA because it does not serve customers.

8.5.4 Collaboration on Local Wildfire Mitigation Planning

As further described in Section 7.1.1 *Risk Evaluation Approach* and Section 8.4.1.1 *Emergency Preparedness Objectives*, LSPG-CA will collaborate with local agencies routinely in order to enhance the company's approach to wildfire risk evaluation, emergency preparedness, and ultimately the reduction of overall wildfire risk.

During the construction phase, LSPG-CA personnel will establish contact and working relationships with local fire and governmental agencies. This will be an opportunity to discuss project-specific risks, activities, and response procedures.

Once operational, LSPG-CA will maintain contact with local agencies (LSP-9) to enhance collaboration on wildfire mitigation and overall operation safety. At the time of the 2023 WMP, LSPG-CA is at the very beginning stages of contact and collaboration with local agencies and as such, has no history of collaboration to report on in Tables 8-61 and 8-62. The Shasta County Fire Safe Council has been identified as a local agency with which LSPG-CA intends to collaborate.

Table 8-61. Collaboration in Local Wildfire Mitigation Planning

Name of County, City, or Tribal Agency or Civil Society Organization (e.g., Nongovernmental Organization, Fire Safe Council)	**Program, Plan, or Document**	**Last Version of Collaboration**	**Level of Collaboration**
Shasta County Fire Safe Council	TBD	N/A	TBD

Note: This table will be updated in future WMP documents as relevant for assets.

Table 8-62. Key Gaps and Limitations in Collaborating on Local Wildfire Mitigation Planning

Subject of Gap or Limitation	**Brief Description of Gap or Limitation**	**Strategy for Improvement**
None		

Note: This table will be updated in future WMP documents as relevant for assets.

8.5.5 Best Practice Sharing with Other Electrical Corporations

Similar to its operating affiliates in other regions, LSPG-CA intends to collaborate and share best practices on an ongoing basis with other electrical corporations through its participation in the North American Transmission Forum (NATF) as well as other venues. Because LSPG-CA is not yet operational and has no existing WMP, no sharing of best practices related to its WMP program has occurred. Because LSPG-CA is constructing some fairly complex and less commonly installed equipment in its STATCOM devices, once some operational history and working knowledge is obtained, LSPG-CA will begin collaborating with other operators of similar equipment to share best practices and lessons learned (LSP-11) related to these devices and their fire risk.

Table 8-64 provides an overview of LSPG-CA's plans for sharing best practices.

Table 8-64. Best Practice Sharing with Other Electrical Corporations

Best Practice Subject	**Dates of Collaboration (YYYY–YYYY)**	**Technical or Programmatic**	**Electrical Corporation Partner(s)**	**Description of Best Practice Sharing or Collaborating**	**Outcome**
Wildfire risks and FACTS devices	Future	Technical	PGE, HWT	LSPG-CA's substations will feature STATCOMs, a type of FACTS device. PGE and HWT are current operators of FACTS devices and may have gained additional insight from operational history.	• TBD

9. Public Safety Power Shutoff

9.1 Overview

Sections 9.1 through 9.5 do not apply to LSPG-CA because LSPG-CA is an ITO without end users and does not own transmission lines.

9.1.1 Key PSPS Statistics

9.1.2 De-energized Circuits

9.1.3 Objectives

9.1.4 Targets

9.1.5 Performance Metrics Identified by the Electrical Corporation

9.2 Protocols on PSPS

9.3 Communication Strategy for PSPS

9.4 Key Personnel, Qualifications, and Training for PSPS

9.5 Planning and Allocation of Resources for Service Restoration due to PSPS

10. Lessons Learned

LSPG-CA is a new California Electrical Corporation and has no operational history. As such, it has no lessons learned related to wildfire mitigation initiatives or California operations. However, other LSPG-CA transmission-owning affiliates successfully and safely operate high voltage equipment in other jurisdictions. LSPG-CA affiliates strictly adhere to NERC Reliability Standards as well as state and regional regulatory requirements and actively participate in industry groups such as NATF to collaborate with and learn from industry peers.

The initiatives contained in this WMP represent the first wildfire mitigation initiatives for LSPG-CA and will be evaluated in the future to drive continuous improvement.

Table 10-1 provides an example of the minimum acceptable level of information.

Table 10-1. Lessons Learned

ID #	Year of Lesson Learned	Subject	Type or Source of Lesson Learned	Description of Lesson Learned	Proposed WMP Improvement	Timeline for Implementation	Reference
	N/A						
	N/A						

Note: This table will be updated in future WMP documents as relevant for assets.

11. Corrective Action Program

LSPG-CA is in the process of developing a Corrective Action Program related to its WMP. As the company has no construction or operating history, there have been no risk events, investigations, or findings from Energy Safety's Compliance Assurance Division. LSPG-CA will finalize the Corrective Action Program in 2023 and will include an overview of the program in the 2024 WMP Update which will be ahead of company commercial operation.

The program will track formal actions and activities undertaken to:

- Prevent recurrence of risk events
- Address findings from wildfire investigations (both internal and external)
- Address findings from Energy Safety's Compliance Assurance Division (i.e., audits and notices of defect and violation)
- Address areas for continued improvement identified by Energy Safety as part of the WMP evaluation

12. Notices of Violation and Defect

LSPG-CA is a new California Electrical Corporation and has no open compliance violations or defects.

Table 12-1. List of Open Compliance Violations and Defects

ID	Type	Severity	Date of Notice	Date of Response	Summary Description of Violation/Defect	Estimated Completion Date	Summary Description of Correction
None							

Note: This table will be updated in future WMP documents as relevant for assets.

Appendix A: Definitions

Glossary

	Catastrophic wildfire	Wildfire that results in significant losses to any or all of the ecological, social, or economical resource areas.
ANSI/ NETA	American National Standard Institute/International Electrical Testing Association	Standard for Maintenance Testing Specifications for Electrical Power Equipment and Systems
	Chain	A land surveying unit of measure equal to approximately 66 feet.
	Critical infrastructure	Facilities and infrastructure that are essential to public safety and that require additional assistance and advance planning to ensure resiliency during power outage events.
	Crown fire activity	Fire supported in the canopy/crown of trees or shrubs
	Ignition Risk	Defined as the culmination of all impacts from ignitions and wildfires at a specific location Calculated as a total of 1) ignition likelihood, 2) wildfire likelihood, and 3) wildfire consequence.
	Overall Utility Risk	Spatial landscape categorization; a weighted quantitative risk assessment categorizes a specific area as having a low, moderate, high, or extreme risk
	Project	Assets at different geographic locations
	Substation site	Substation project footprint (red boundary)
	Project area	Substation site and 2-mile buffer
	Relative humidity	moisture content (i.e., water vapor) of the atmosphere, expressed as a percentage of the amount of moisture that can be retained by the atmosphere (moisture-holding capacity) at

		a given temperature and pressure without condensation.
SVI	Social Vulnerability Index	Metric tracked by census data which helps emergency response planners and public health officials identify, map, and plan support for communities that will most likely need support before, during, and after a public health emergency
	Weighted risk assessment	Includes wildfire probability, wildfire behavior metrics, fire history, and values at risk (critical infrastructure) as inputs.
	Dead Fuel Moisture	The moisture content of dead organic fuels, expressed as a percentage, for different diameter size classes.
	Live Fuel Moisture	The moisture content of live herbaceous and woody organic fuels that are dictated by plant development stage. Trends vary widely annually and geographically.

Appendix B: Supporting Documentation for Risk Methodology and Assessment

The focus of this appendix is to provide additional information pertaining to the risk modeling approach used by the electrical corporation. This includes the following:

- Additional detail on the calculation of risk and risk components
- More detailed presentation of the risk findings
- Fire behavior modeling inputs and parameters

1. Summary Documentation for Risk Models

Various models were used to determine wildfire risk to the project site. Sources of inputs include the Interagency Fuel Treatment Decision Support System (IFTDSS), the Western Region Climate Center's (WRCC) data compilation of registered Remote Automated Weather Stations (RAWS), CAL FIRE FRAP, and LANDFIRE. Inputs and parameters for baseline fire behavior and modeling are included in Attachment A. LANDFIRE's nation-wide geo-spatial layers were used as the basis for fire behavior modeling and the quantitative risk assessment. RAWS data indices and percentiles were processed using FireFamilyPlus.

Equipment Ignition

Equipment ignition uses the inputs of wind speed, wind patterns, topography, and live and dead fuel moistures to determine the likelihood of ignition from electrical equipment operations and maintenance at a specific location.

Vegetation Contact

Vegetation contact looks at wind speed, wind patterns, topography, fuel models (vegetation type), and live and dead fuel moistures in IFTDSS and RAWs to determine likelihood.

Wildfire Consequence

Wildfire consequence uses the inputs of fire behavior, fire intensity, and topography in IFTDSS to determine wildfire impact (behavior and intensity) at a specific location.

Wildfire Likelihood

Wildfire likelihood uses the inputs of fire history, burn probability, and topography in IFTDSS, and to determine wildfire propagation at a specific location.

Ignition Likelihood

Ignition likelihood uses the inputs of equipment and vegetation contact to determine ignition likelihood.

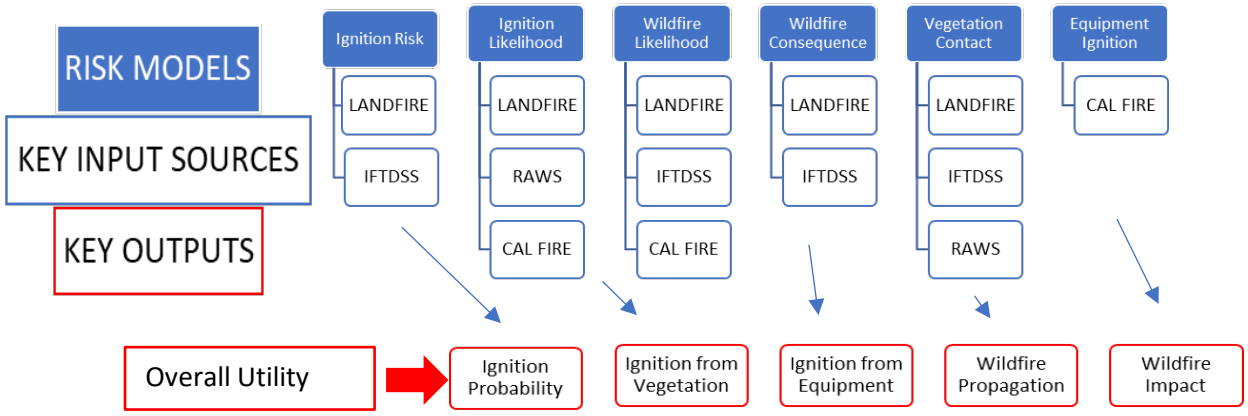
Ignition Risk

Ignition risk uses the input of ignition likelihood, wildfire likelihood, wildfire consequences to determine ignition risks at the project site.

Overall Utility Risk

Overall Utility Risk uses the input of ignition risk from fire behavior modeling and a quantitative risk analysis in IFTDSS, coupled with historic fire history data and RAWs data to get the ignition probability leading to a wildfire at the project site.

Figure B-1 Risk Methodology – Risk Models



Program Software Background

Interagency Fuel Treatment Decision Support System

Founded by the interagency Joint Fire Science Program (JFSP), the IFTDSS hosts complete reference data available for the entire U.S. including LANDFIRE fuels information, which was used to calculate fire behavior modeling and burn probability that informed ignition risk, wildfire likelihood, wildfire consequence, and vegetation contact (see Table 6-1 of WMP). Specific model inputs and parameters are included in Attachment A.

FireFamilyPlus

Comprehensive historic RAWS data and percentiles were populated using FireFamilyPlus, a software package that calculates fuel moistures and indices from the U.S. National Fire Danger Rating System as mandated for federal and state agencies for fire preparedness and response decisions.

Climate Toolbox

Climate Toolbox is a tool to project climate and hydrology data in a digestible, user-friendly interface. Data is acquired from various leading sources, depending on the topic. The climate analyses produced in Section 5. 4.3, were sourced from gridMET (METDATA), MACAv2-METADATA, TerraClimate, or a combination of, depending on the query. Each query and data source is automatically provided in the subscript of each query (See Section 5.4.3.2 Figures).

2. Model Substantiation

LSPG-CA is currently using industry-standard and best available modeling platforms and data sources for fire behavior analysis (IFTDSS), national Lidar data sets (LANDFIRE), weather compilation and percentile breakdown (FireFamilyPlus), seasonal vegetation conditions, indices, and analysis (RAWS and FireFamilyPlus) and vulnerability analysis (Cal OES). Several platforms, including LANDFIRE, IFTDSS, RAWS, and FireFamilyPlus, were designed to be integrated for a comprehensive approach and review. Assumptions and limitations of all models have been identified in the framework; the risk analysis framework approach is intended to be updated with each WMP cycle or when significant changed conditions on the landscape. The platforms and data sources used are regularly updated, most often on an annual basis. LANDFIRE currently captures vegetation and disturbances on the landscape through 2020; the national program plans to be on an annual cycle within the next two years.

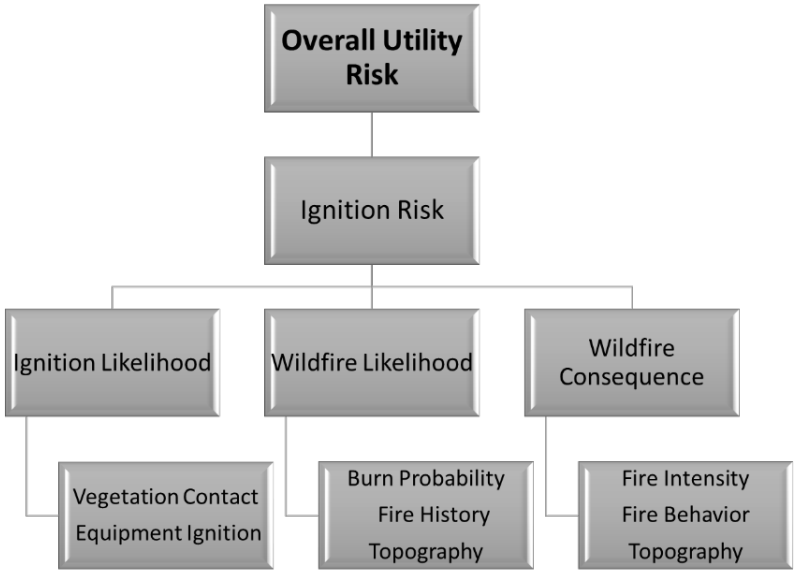
LSPG-CA does not currently have any weather modeling capability. With no service territory and an extremely limited footprint of only two substation locations under development, LSPG-CA expects to rely on external weather forecasting data in the near term. RAWS and platforms such as FireFamilyPlus provide daily, monthly, and annual weather metrics with the capability to determine percentiles, indices, and trends. LSPG-CA intends to incorporate real-time weather feeds (StormGeo) after assets are operational and baseline data is collected.

3. Calculation of Risk and Risk Components

Overall Utility Risk

The Overall Utility Risk is defined by a spatial landscape categorization; a weighted quantitative risk assessment categorizes a specific area as having a low, moderate, high, or extreme risk. The weighted risk assessment includes wildfire probability, wildfire behavior metrics, fire history, and values at risk (critical infrastructure) as inputs. All inputs were given an equal rating. Additional application of the weighted quantitative risk assessment is detailed in 6.4 Risk Analysis Results and Presentation. As an ITO, the risk components and analysis are not held to the CPUC's Risk Assessment and Mitigation Phase regulatory review and public-vetting process; however, this process does align with applicable CPUC decisions regarding disclosure of risks.

Figure B-2 Composition of Overall Utility Risk



Ignition Risk

The overall utility risk was defined by only ignition risk. Ignition Risk was calculated as a total of 1) ignition likelihood, 2) wildfire likelihood, and 3) wildfire consequence. To determine ignition likelihood, the current vegetation (type, flammability, condition) at the project area was assessed in combination with the type of equipment present. To determine wildfire likelihood, modeling was conducted to predict expected burn probability in the project area, incorporating fire history (number, size, location), historic weather data, and topography. To determine wildfire consequence, modeling was conducted to predict expected fire behavior in the project area. Fire behavior was classified by flame length, rate of spread, and crown fire activity. It is also influenced by topography.

Modeling, including the overall weighted risk assessment, was conducted using the IFTDSS, a web-based application designed for fuels treatment planning and analysis. It models fire behavior across an area of interest under a variety of weather conditions while including a spatial component. Comprehensive historic RAWS data and percentiles were populated using FireFamilyPlus, a software package that calculates fuel moistures and indices from the U.S. National Fire Danger Rating System as mandated for federal and state agencies for fire preparedness and response decisions.

Ignition Likelihood

Current vegetation at each project was acquired from LANDFIRE 2020 (LF 2.2.0). Vegetation was defined by major type according to the Society of American Foresters and by Scott and Burgan's fire behavior fuel models. Fuel models classify vegetation by the main carrier of fire and are used in fire spread and fire behavior modeling. Fuel models represent substrate that will not carry fire (e.g. bare ground) and that support a full range of fire spread. The type of vegetation present, the fuel model classification, and the condition of the vegetation all determine the likelihood of an ignition from a natural or man-made source. Vegetation condition was gathered from the closest remote automatic weather stations (RAWS). RAWS data for 1-hour, 10-hour, 100-hour, live herbaceous, and live woody fuel moisture determined the developmental stage of vegetation and thus it's combustibility. Specific fuel models also represent the flammability of vegetation; for instance, continuous grasses are typically a common carrier of fire as compared to western riparian vegetation.

Wildfire Likelihood

The main metric of wildfire likelihood is burn probability, which is the likelihood of a fire occurring under a set of fuel moisture and weather conditions. Burn probability is the number of times a specific area burns divided by the total number of ignitions. Fire history of the area also shows the likelihood of an ignition leading to a wildfire.

Wildfire Consequence

The main metrics of wildfire consequence are flame length, rate of spread (ROS), and crown fire activity. Crown fire activity is fire supported in the canopy/crown of trees or shrubs – it is indicative of more extreme fire behavior as compared to surface fire.

4. Key Assumptions and Limitations

A wildfire quantitative risk assessment was performed using industry standard modeling platforms, national data sources, and best available science. This risk modeling, including the

overall weighted risk assessment, was conducted using the IFTDSS, a web-based application designed for fuels treatment planning and analysis. It models fire behavior across an area of interest under a variety of weather conditions while including a spatial component. Comprehensive historic RAWS data and percentiles were populated using FireFamilyPlus, a software package that calculates fuel moistures and indices from the U.S. National Fire Danger Rating System as mandated for federal and state agencies for fire preparedness and response decisions.

As outlined in the WMP, Section 6, Table 6-2, the following key assumptions and limitations of the risk analysis framework should be noted:

- IFTDSS fire behavior modeling assumes 97th percentile weather conditions (fuel moistures, wind) from RAWS to capture extreme conditions. The limitation to this assumption is that the 97th percentile weather conditions are based on historic weather patterns (10-30 years based on RAWS in-service time). As environmental conditions change, trends may also change.
- IFTDSS fire behavior modeling uses gridded winds to account for complex topography and midflame wind speed to account for fire behavior at specific locations. Gridded winds used in modeling more accurately captures historic wind patterns; the limitation is that they do not predict probability of vegetation contact with equipment.
- IFTDSS fire behavior modeling uses current vegetation/fuels conditions in wildfire simulations with a limitation that as vegetation/fuels conditions change on the landscape, modeling may need updating if vegetation changes are meaningful.
- Data from LANDFIRE 2.2.0 captures disturbances and landscape conditions through 2020, with a limitation that modeling may need updating if LANDFIRE releases more current data layers.

5. Wind/Weather Analysis

Weather parameters for IFTDSS were set to the 97th percentile to capture worst-case conditions on a dynamic landscape and potential climate change trends (see Section 5.3.3.2). Modeling at the 97th percentile ensures mitigation measures are appropriate for extreme conditions. Wind was modeled using a gridded wind patterns to best capture the complex topography and diurnal wind patterns commonly experienced at project sites. As there are no overhead transmission lines, the use of 20-foot and midflame wind speeds was appropriate.

Report: Auto97th
Landfire Version: LF 2020
Landscape Name: lsPower_FernRd_LCP
Landscape Acres: 14,119 Area of Interest: fernroadaoi

Prepared for: Elisabeth Hitzfelder
1/13/2023, 1:01:01 PM

Model Parameters

Run Name: lsPower_FernRd_LCP - Auto97th

Model Type: Landscape Fire Behavior (Basic)

Run Date: Jan 13, 2023 10:12:29 AM

Wind Type: Gridded Winds

Wind Speed: 9 mph

Wind Direction: 270 deg

Crown Fire Method: Scott/Reinhardt

Foliar Moisture: 100

Fuel Model	1 Hr Fuel Moisture	10 Hr Fuel Moisture	100 Hr Fuel Moisture	Live Herbaceous Fuel Moisture	Live Woody Fuel Moisture
All	2	3	5	30	61

Conditioning: On - Extreme - Southern Cascades

Conditioning start: 1300, 7/13/2009

Conditioning end:1500, 7/17/2009

Run resolution: 30 m

Station Name: WHITMORE

Station Observation Start Date: Jun 19, 1993 12:00:00 AM

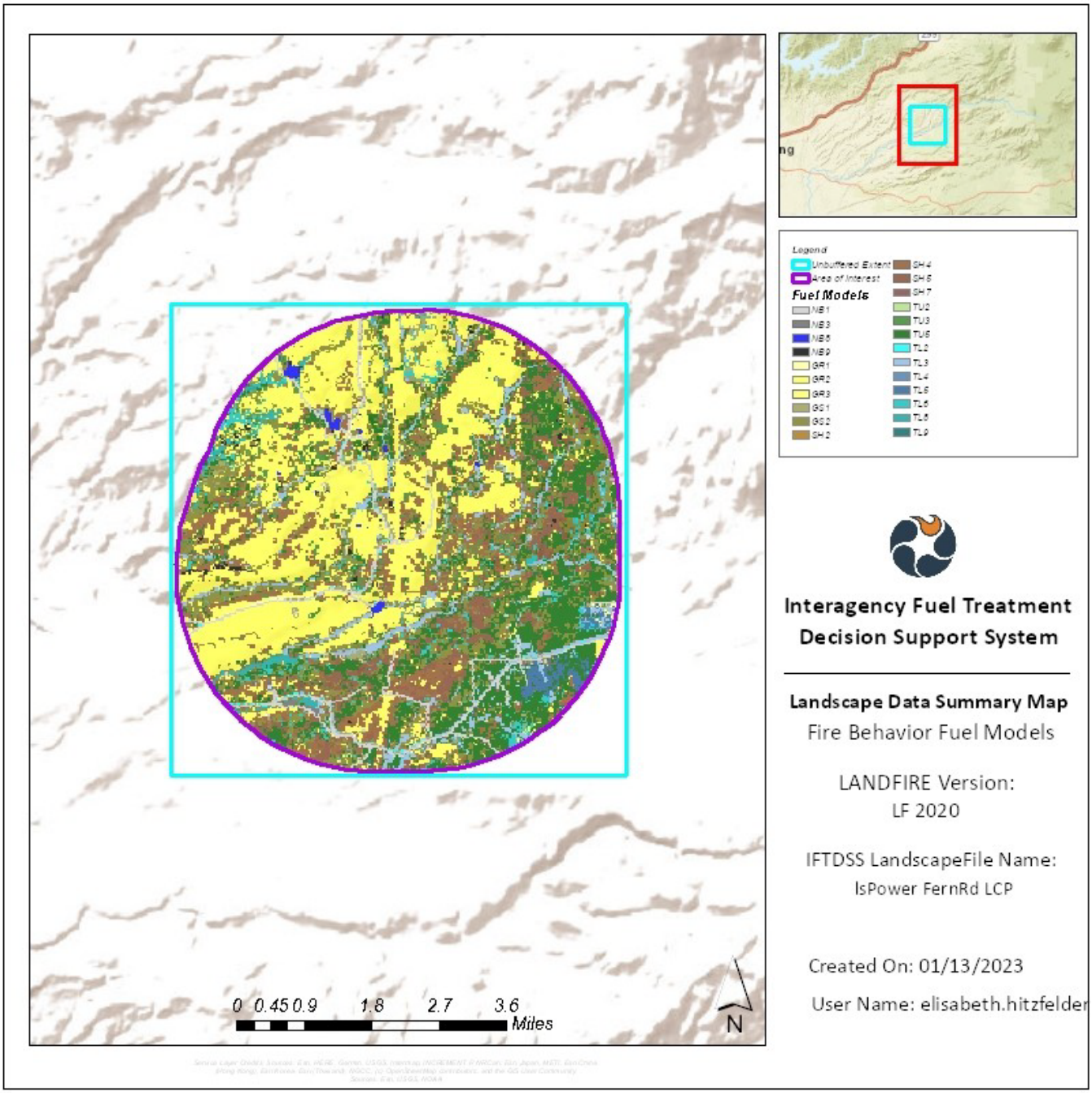
Station Observation End Date: Oct 4, 2016 12:00:00 AM

Station Elevation: 2450

Station Aspect: 7

Station Latitude: 40.6195

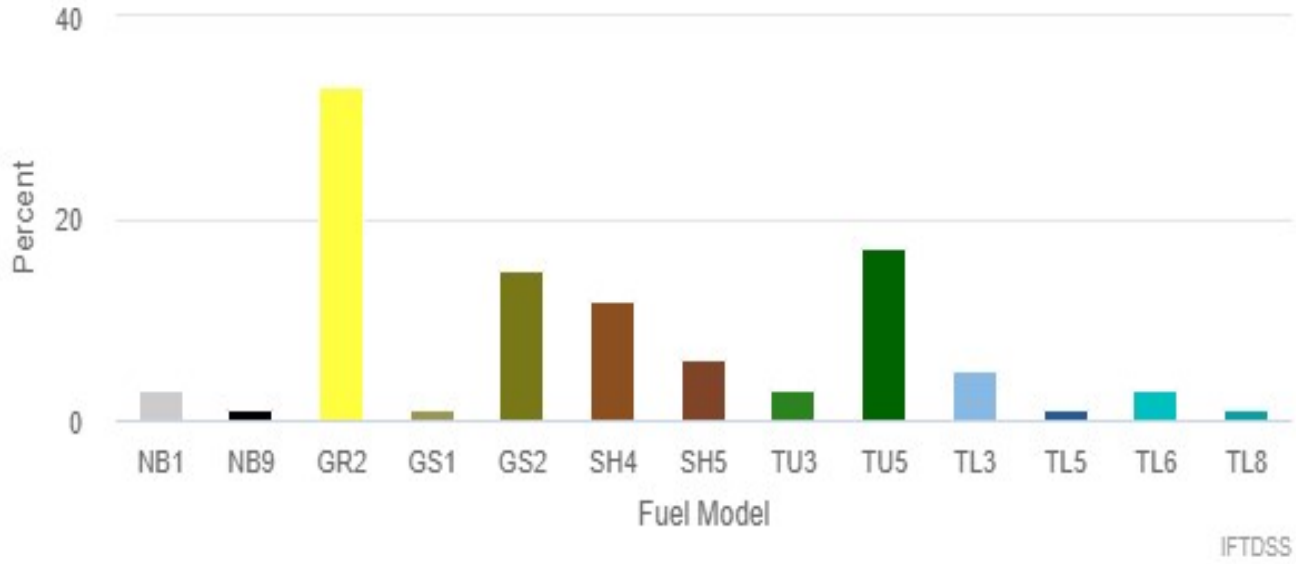
Station Longitude: 121.8995555



Fuel Model (FBFM)

Fuel Model Data Summary for Area of Interest "fernroadaoi" within "lsPower_FernRd_LCP" Landscape

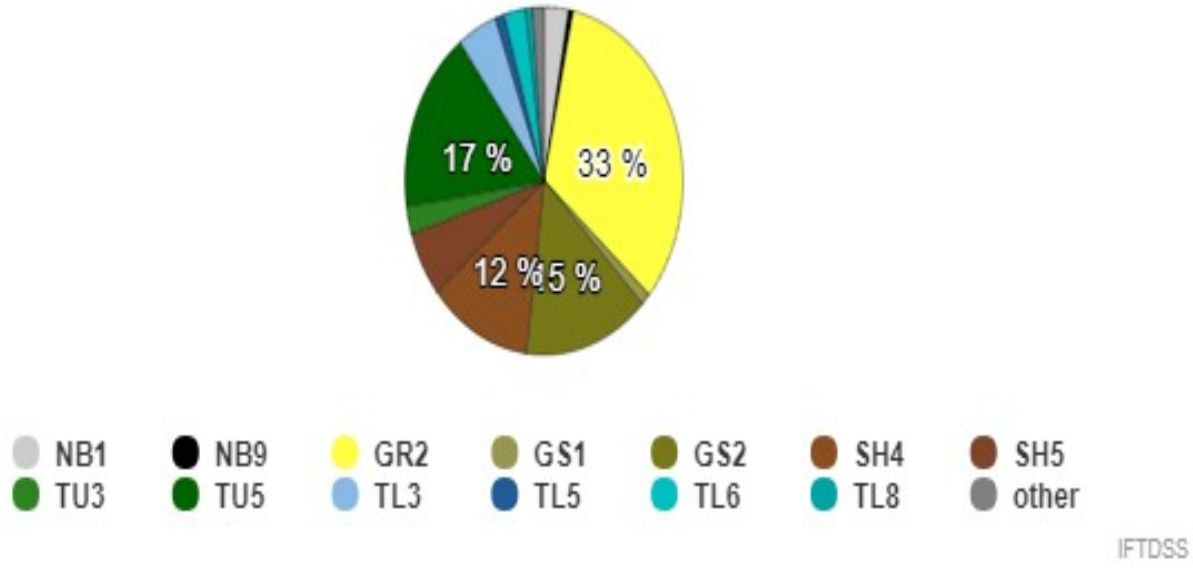
Landscape Name: lsPower_FernRd_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 14,119
Area of Interest Name: fernroadaoi
Area of Interest Acres: 10,920
Model Name: lsPower_FernRd_LCP - Auto97th
Distribution under 1% not shown



Fuel Model (FBFM)

Fuel Model Data Summary for Area of Interest "fernroadaoi" within "lsPower_FernRd_LCP" Landscape

Landscape Name: lsPower_FernRd_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 14,119
Area of Interest Name: fernroadaoi
Area of Interest Acres: 10,920
Model Name: lsPower_FernRd_LCP - Auto97th

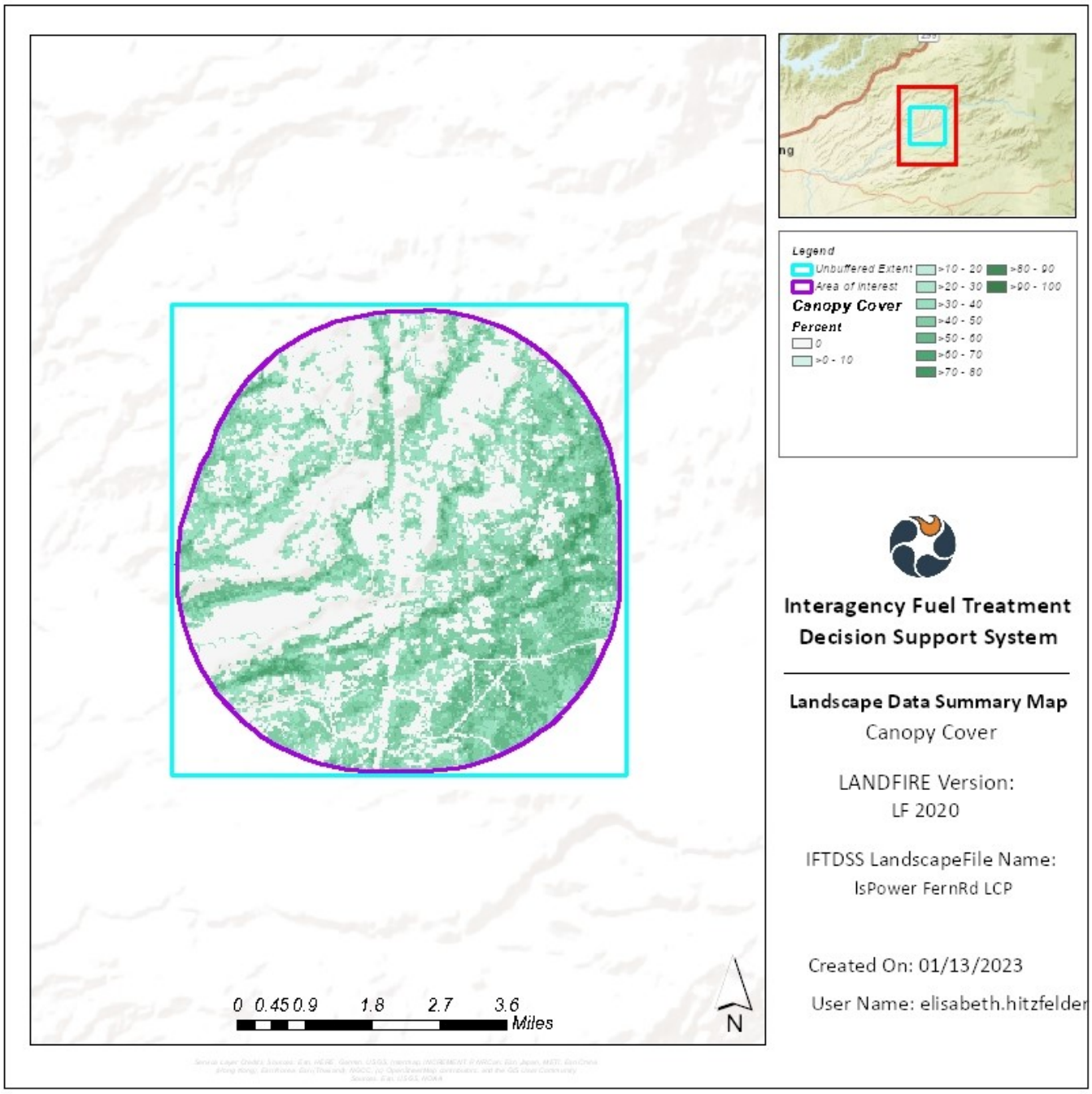


Fuel Model	Pixel Count (freq)	Acres In AOI	Percent In AOI
NB1 (91)	1406	313	3
NB3 (93)	40	9	0
NB8 (98)	164	36	0
NB9 (99)	260	58	1
GR1 (101)	200	44	0
GR2 (102)	16190	3601	33
GR3 (103)	66	15	0
GS1 (121)	576	128	1
GS2 (122)	7140	1588	15

Fuel Model (FBFM)

Fuel Model	Pixel Count (freq)	Acres In AOI	Percent In AOI
SH2 (142)	17	4	0
SH4 (144)	5872	1306	12
SH5 (145)	2986	664	6
SH7 (147)	3	1	0
TU2 (162)	12	3	0
TU3 (163)	1233	274	3
TU5 (165)	8385	1865	17
TL2 (182)	91	20	0
TL3 (183)	2273	506	5
TL4 (184)	13	3	0
TL5 (185)	515	115	1
TL6 (186)	1236	275	3
TL8 (188)	390	87	1
TL9 (189)	36	8	0

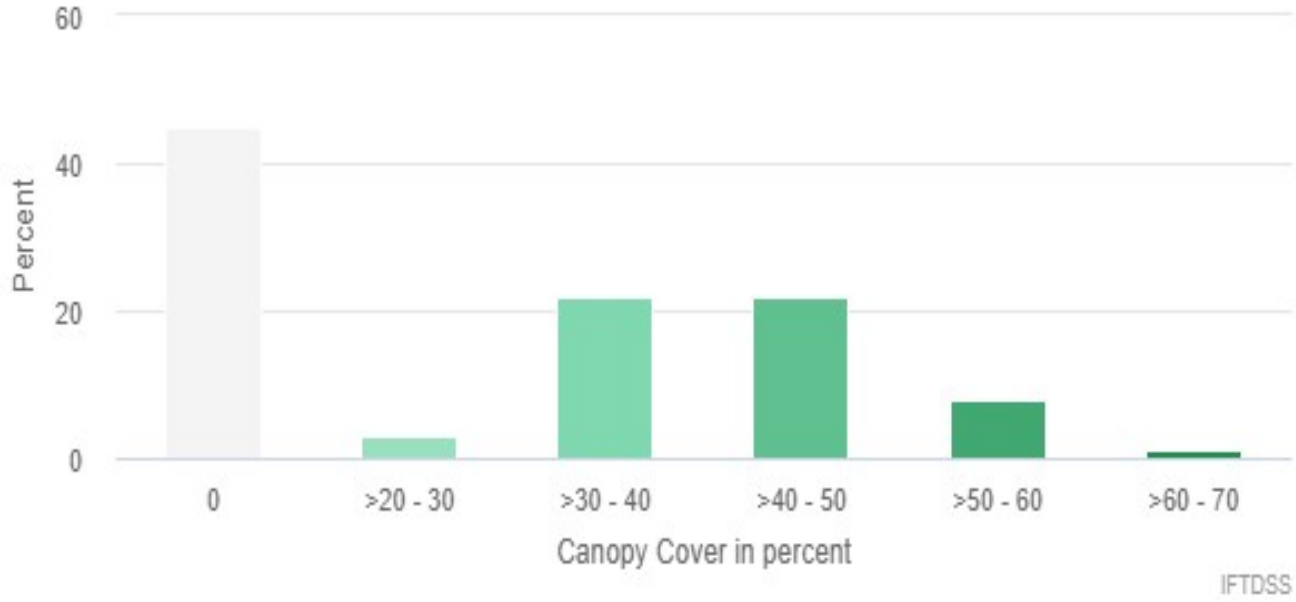
Canopy Cover



Canopy Cover

Canopy Cover (percent) Data Summary for Area of Interest "fernroadaoi" within "lsPower_FernRd_LCP" Landscape

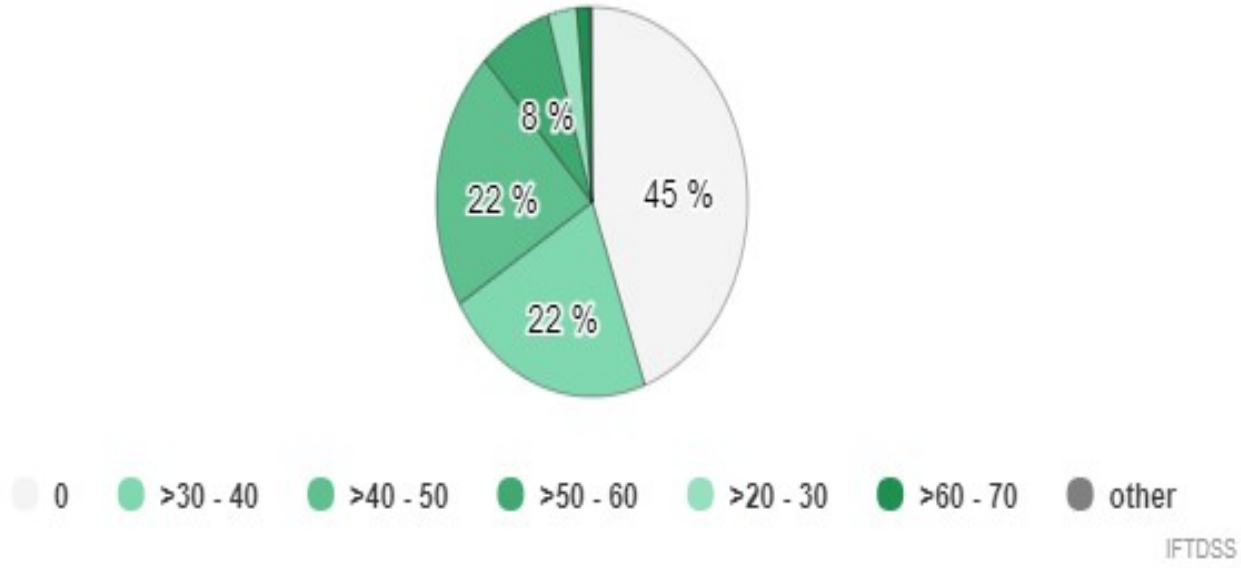
Landscape Name: lsPower_FernRd_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 14,119
Area of Interest Name: fernroadaoi
Area of Interest Acres: 10,920
Model Name: lsPower_FernRd_LCP - Auto97th



Canopy Cover

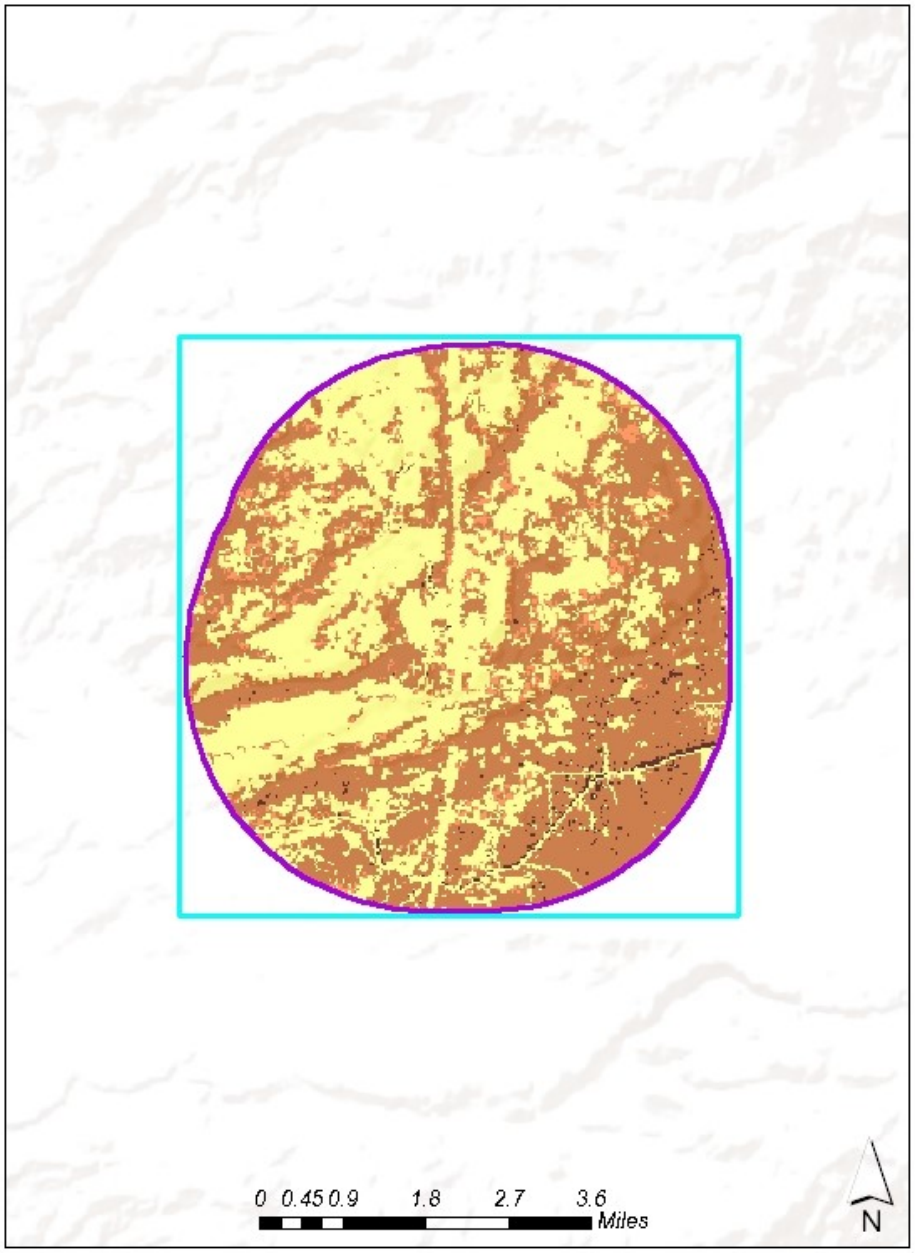
Canopy Cover (percent) Data Summary for Area of Interest "fernroadaoi" within "lsPower_FernRd_LCP" Landscape

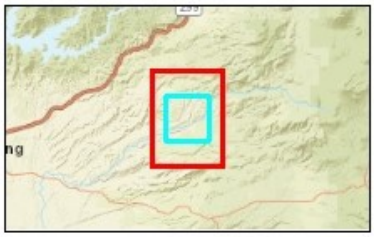
Landscape Name: lsPower_FernRd_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 14,119
Area of Interest Name: fernroadaoi
Area of Interest Acres: 10,920
Model Name: lsPower_FernRd_LCP - Auto97th

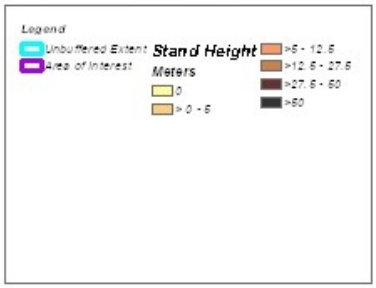


Canopy Cover (percent)	Pixel Count (freq)	Acres In AOI	Percent In AOI
0 (non-forested)	21857	4861	45
>10 - 20	75	17	0
>20 - 30	1456	324	3
>30 - 40	10679	2375	22
>40 - 50	10653	2369	22
>50 - 60	3692	821	8
>60 - 70	675	150	1
>70 - 80	17	4	0

Stand Height







Interagency Fuel Treatment Decision Support System

Landscape Data Summary Map

Stand Height

LANDFIRE Version:
LF 2020

IFTDSS LandscapeFile Name:
IsPower FernRd LCP

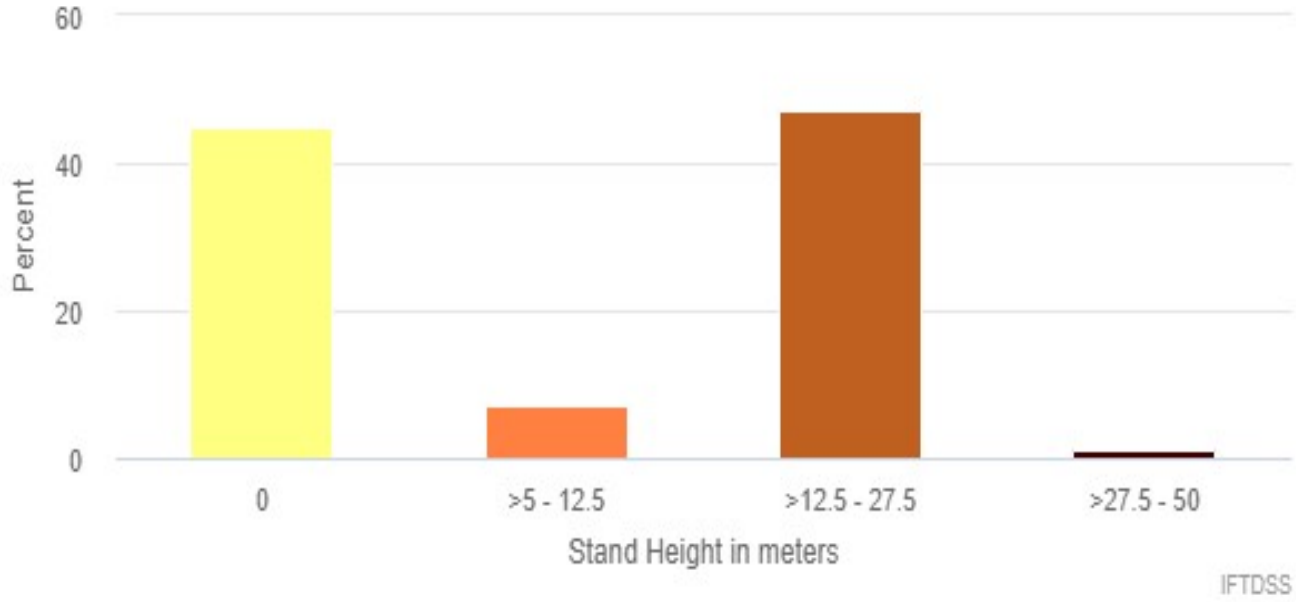
Created On: 01/13/2023

User Name: elisabeth.hitzfelder

Stand Height

Stand Height (meters) Data Summary for Area of Interest "fernroadaoi" within "lsPower_FernRd_LCP" Landscape

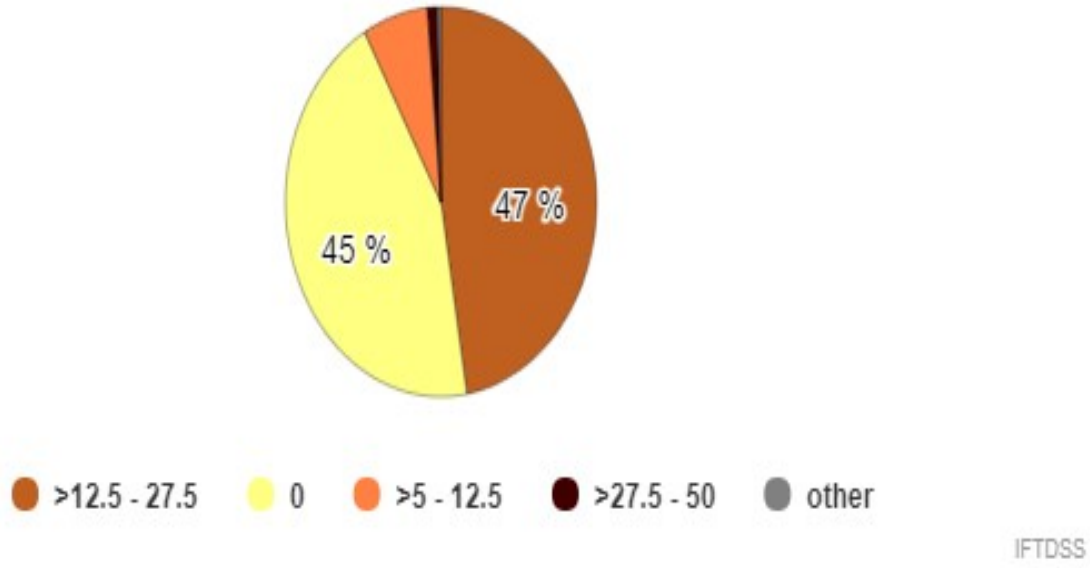
Landscape Name: lsPower_FernRd_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 14,119
Area of Interest Name: fernroadaoi
Area of Interest Acres: 10,920
Model Name: lsPower_FernRd_LCP - Auto97th



Stand Height

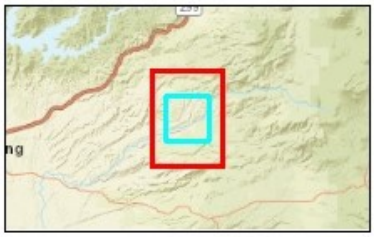
Stand Height (meters) Data Summary for Area of Interest "fernroadaoi" within "lsPower_FernRd_LCP" Landscape

Landscape Name: lsPower_FernRd_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 14,119
Area of Interest Name: fernroadaoi
Area of Interest Acres: 10,920
Model Name: lsPower_FernRd_LCP - Auto97th



Stand Height (meters)	Pixel Count (freq)	Acres In AOI	Percent In AOI
0 (non-forested)	21857	4861	45
>0 - 5	159	35	0
>5 - 12.5	3317	738	7
>12.5 - 27.5	23250	5171	47
>27.5 - 50	521	116	1

Canopy Base Height



Legend
Unbuffered Extent
Area of Interest
Canopy Base Height
Meters
0
>0 - 0.5
>0.5 - 1
>1 - 1.5
>1.5 - 2
>2 - 2.5
>2.5 - 3
>3 - 3.5
>3.5 - 4
>4 - 10
>10

Interagency Fuel Treatment Decision Support System

Landscape Data Summary Map

Canopy Base Height

LANDFIRE Version:
LF 2020

IFTDSS LandscapeFile Name:
IsPower FernRd LCP

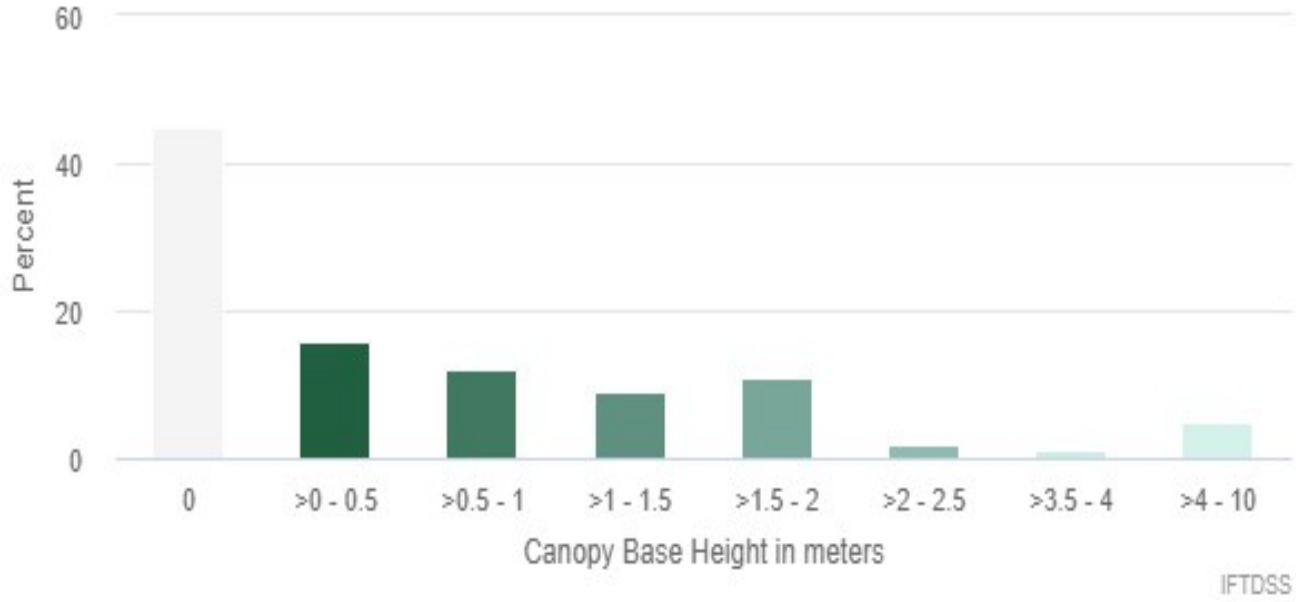
Created On: 01/13/2023

User Name: elisabeth.hitzfelder

Canopy Base Height

Canopy Base Height (meters) Data Summary for Area of Interest "fernroadaoi" within "lsPower_FernRd_LCP" Landscape

Landscape Name: lsPower_FernRd_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 14,119
Area of Interest Name: fernroadaoi
Area of Interest Acres: 10,920
Model Name: lsPower_FernRd_LCP - Auto97th



Canopy Base Height

Canopy Base Height (meters) Data Summary for Area of Interest "fernroadaoi" within "lsPower_FernRd_LCP" Landscape

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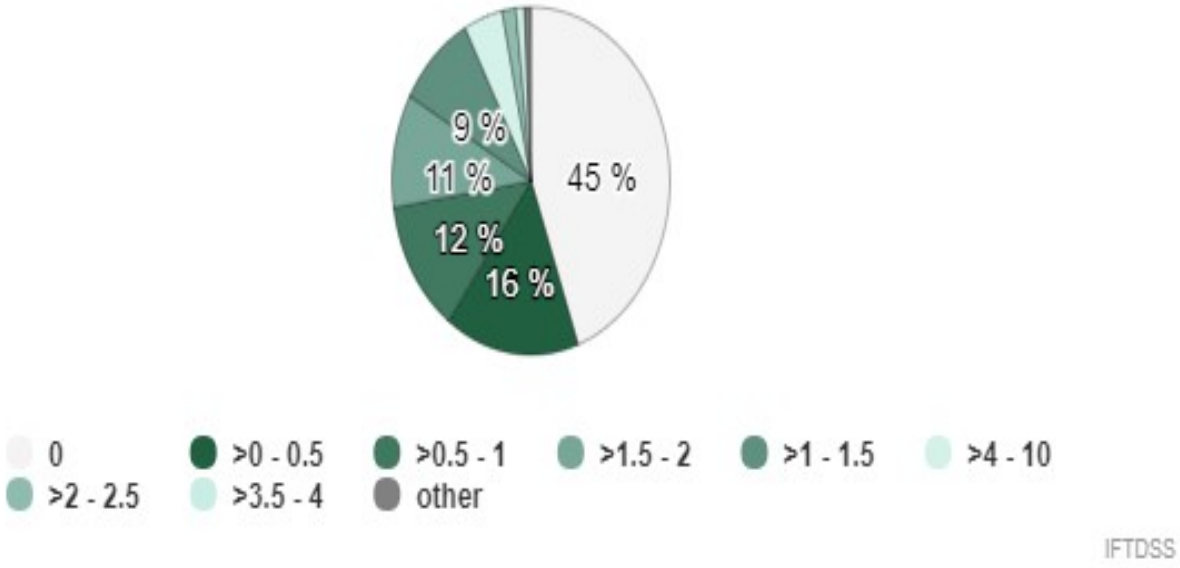
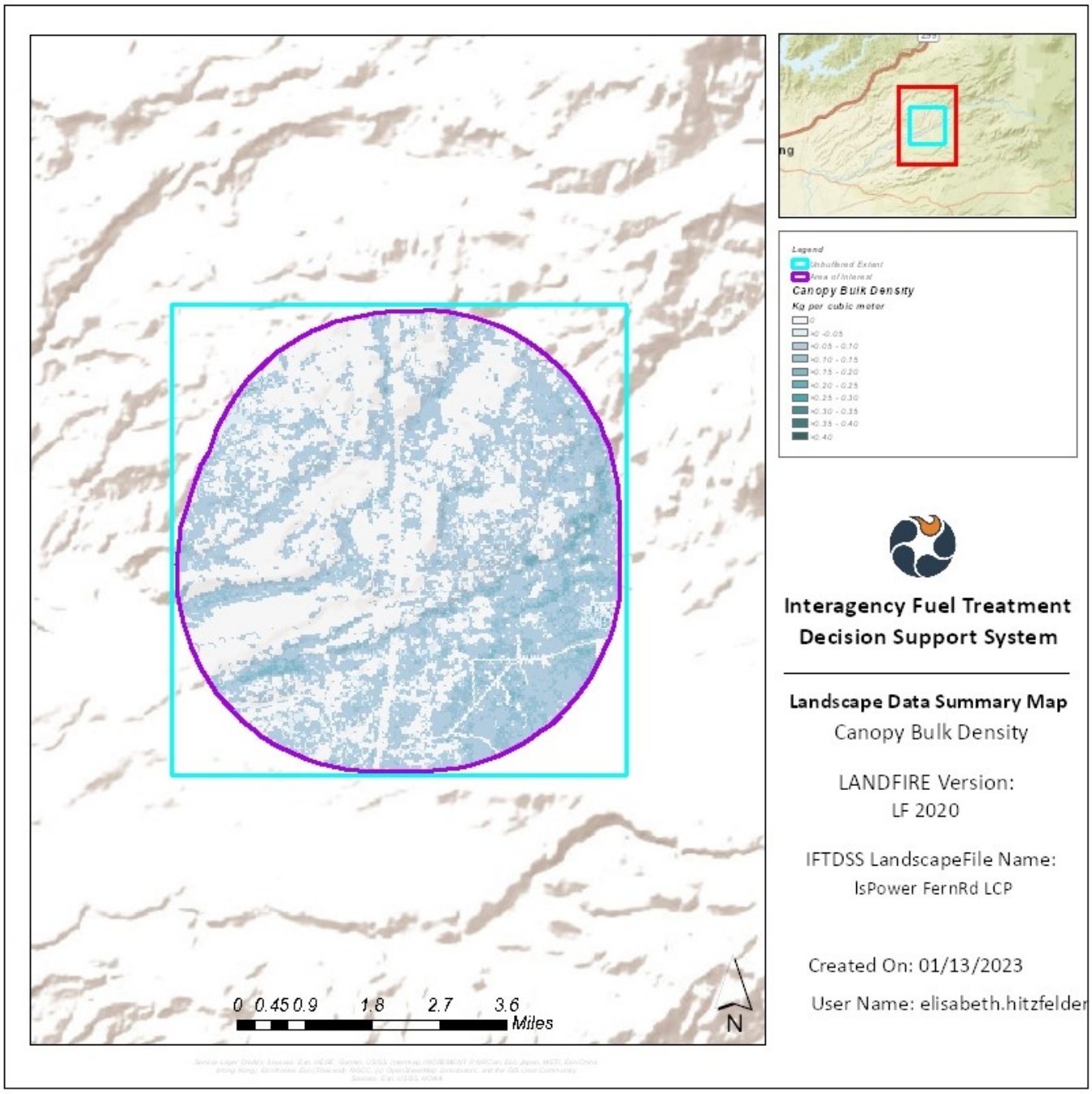


Canopy Base Height (meters)	Pixel Count (freq)	Acres In AOI	Percent In AOI
0 (non-forested)	21857	4861	45
>0 - 0.5	7667	1705	16
>0.5 - 1	6111	1359	12
>1 - 1.5	4423	984	9
>1.5 - 2	5188	1154	11
>2 - 2.5	769	171	2
>2.5 - 3	122	27	0
>3 - 3.5	231	51	0
>3.5 - 4	503	112	1
>4 - 10	2233	497	5

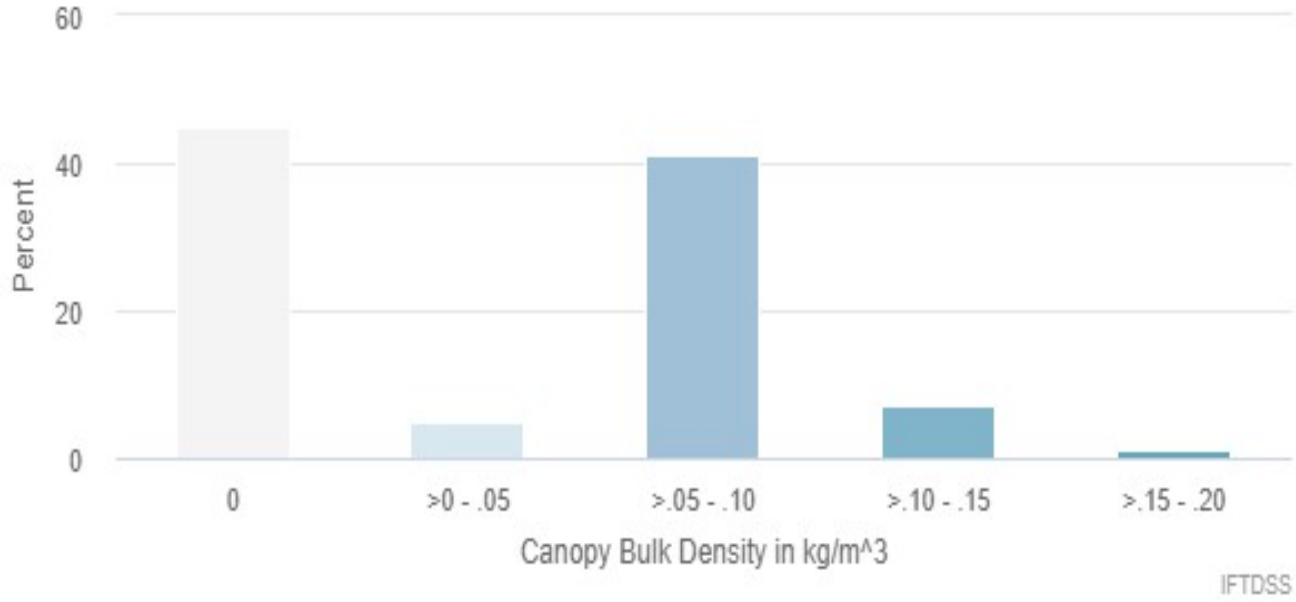
Canopy Bulk Density



Canopy Bulk Density

Canopy Bulk Density (kg/m^3) Data Summary for Area of Interest "fernroadaoi" within "lsPower_FernRd_LCP" Landscape

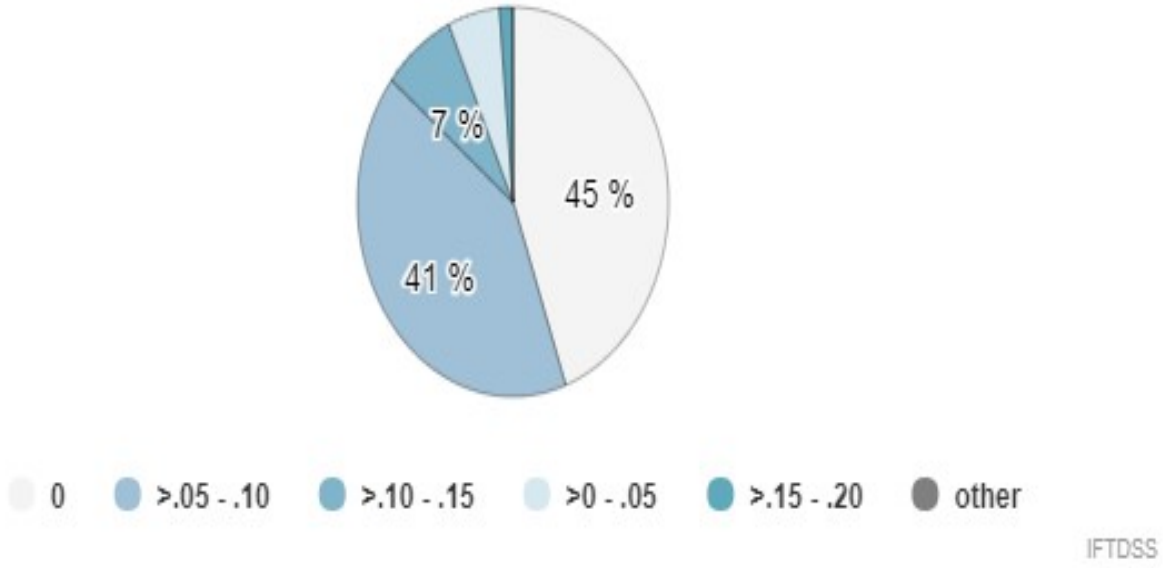
Landscape Name: lsPower_FernRd_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 14,119
Area of Interest Name: fernroadaoi
Area of Interest Acres: 10,920
Model Name: lsPower_FernRd_LCP - Auto97th



Canopy Bulk Density

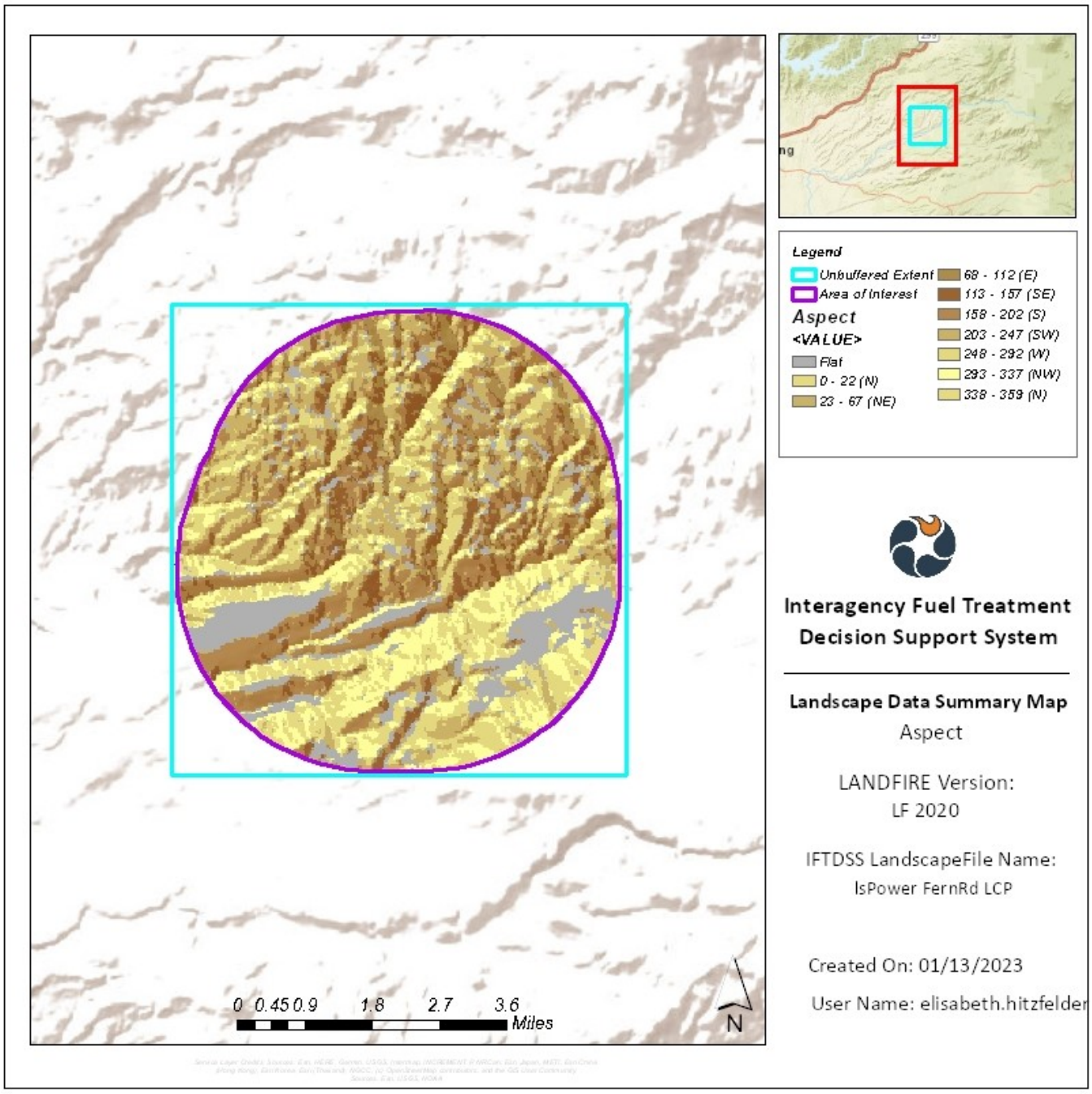
Canopy Bulk Density (kg/m^3) Data Summary for Area of Interest "fernroadaoi" within "lsPower_FernRd_LCP" Landscape

Landscape Name: lsPower_FernRd_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 14,119
Area of Interest Name: fernroadaoi
Area of Interest Acres: 10,920
Model Name: lsPower_FernRd_LCP - Auto97th



Canopy Bulk Density (kg/m^3)	Pixel Count (freq)	Acres In AOI	Percent In AOI
0 (non-forested)	21857	4861	45
>0 - .05	2636	586	5
>.05 - .10	20259	4505	41
>.10 - .15	3668	816	7
>.15 - .20	676	150	1
>.20 - .25	8	2	0

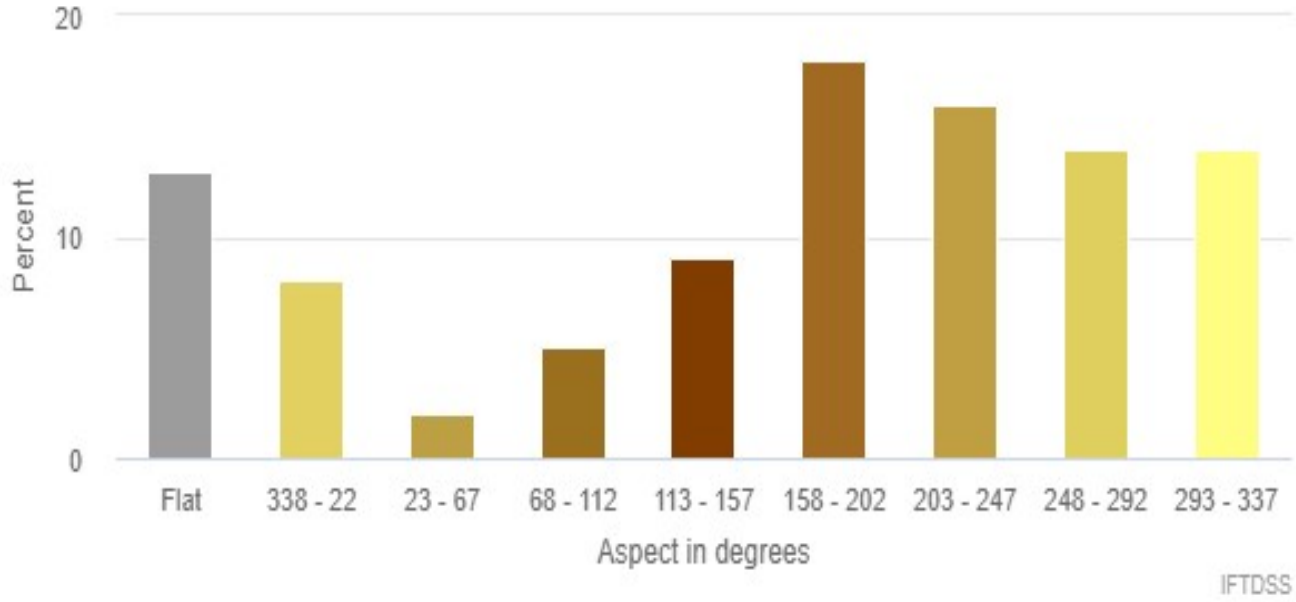
Aspect


Legend
Unbuffered Extent
Area of Interest
Aspect
<VALUE>
Flat
0 - 22 (N)
23 - 67 (NE)
68 - 112 (E)
113 - 157 (SE)
158 - 202 (S)
203 - 247 (SW)
248 - 292 (W)
293 - 337 (NW)
338 - 359 (N)
0 0.45 0.9 1.8 2.7 3.6
Miles
N
Interagency Fuel Treatment Decision Support System
Landscape Data Summary Map
Aspect
LANDFIRE Version:
LF 2020
IFTDSS LandscapeFile Name:
IsPower FernRd LCP
Created On: 01/13/2023
User Name: elisabeth.hitzfelder

Aspect

Aspect (degrees) Data Summary for Area of Interest "fernroadaoi" within "lsPower_FernRd_LCP" Landscape

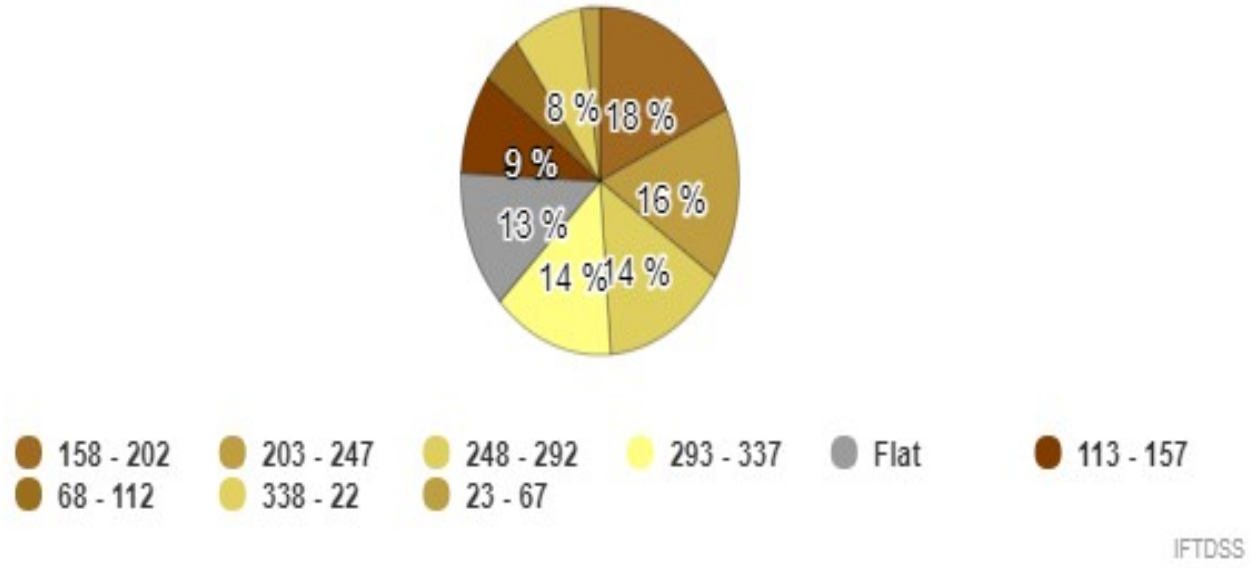
Landscape Name: lsPower_FernRd_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 14,119
Area of Interest Name: fernroadaoi
Area of Interest Acres: 10,920
Model Name: lsPower_FernRd_LCP - Auto97th



Aspect

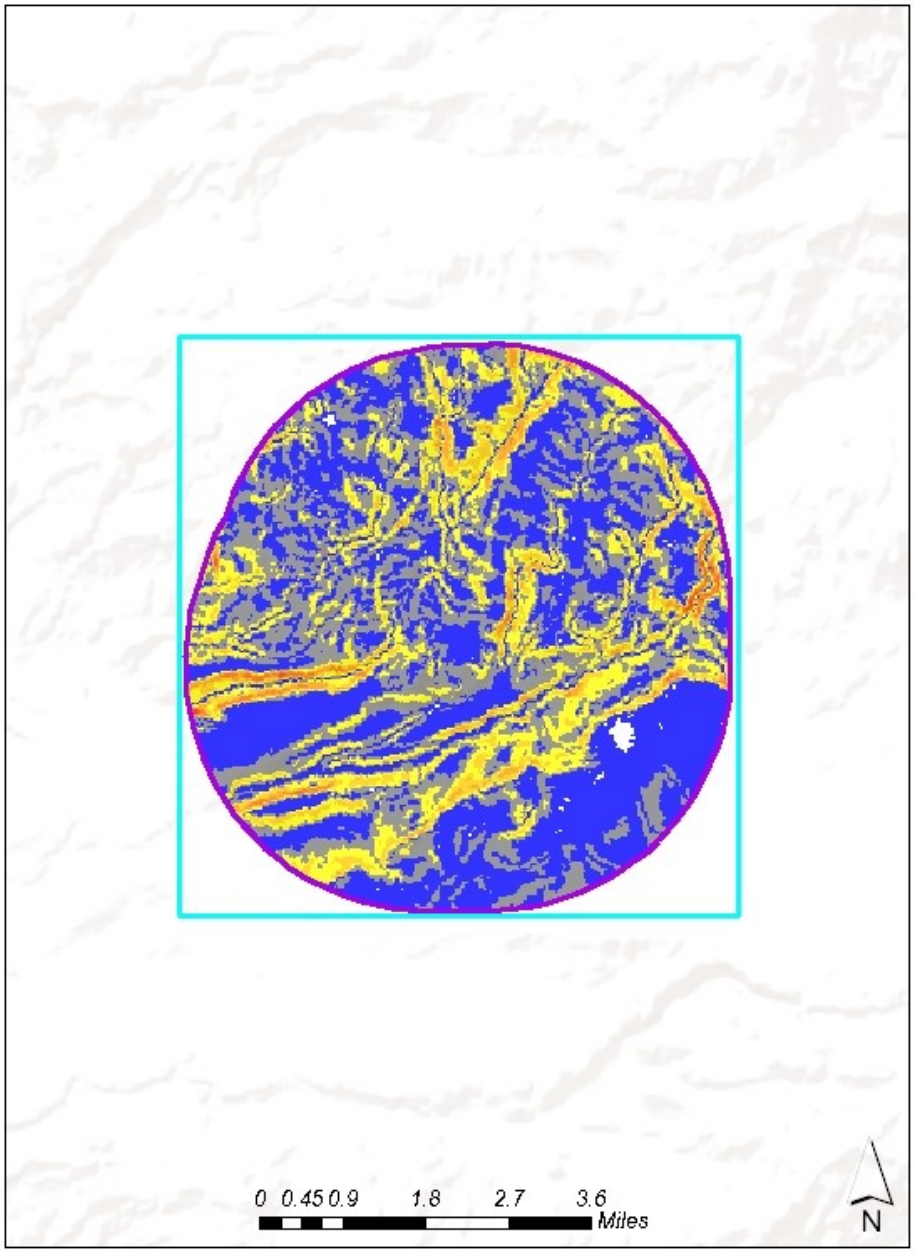
Aspect (degrees) Data Summary for Area of Interest "fernroadaoi" within "lsPower_FernRd_LCP" Landscape

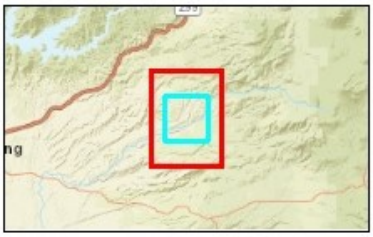
Landscape Name: lsPower_FernRd_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 14,119
Area of Interest Name: fernroadaoi
Area of Interest Acres: 10,920
Model Name: lsPower_FernRd_LCP - Auto97th



Aspect (degrees)	Pixel Count (freq)	Acres In AOI	Percent In AOI
Flat	6348	1412	13
338 - 22 (N)	3981	885	8
23 - 67 (NE)	1059	236	2
68 - 112 (E)	2281	507	5
113 - 157 (SE)	4583	1019	9
158 - 202 (S)	8964	1994	18
203 - 247 (SW)	7922	1762	16
248 - 292 (W)	7068	1572	14
293 - 337 (NW)	6898	1534	14

Slope





Legend
Unbuffered Extent
Area of Interest
Slope
Degrees
0
>0 - 5
>5 - 10
>10 - 15
>15 - 20
>20 - 25
>25 - 30
>30 - 35
>35 - 40
>40 - 45
>45

Interagency Fuel Treatment Decision Support System

Landscape Data Summary Map

Slope

LANDFIRE Version:
LF 2020

IFTDSS LandscapeFile Name:
IsPower FernRd LCP

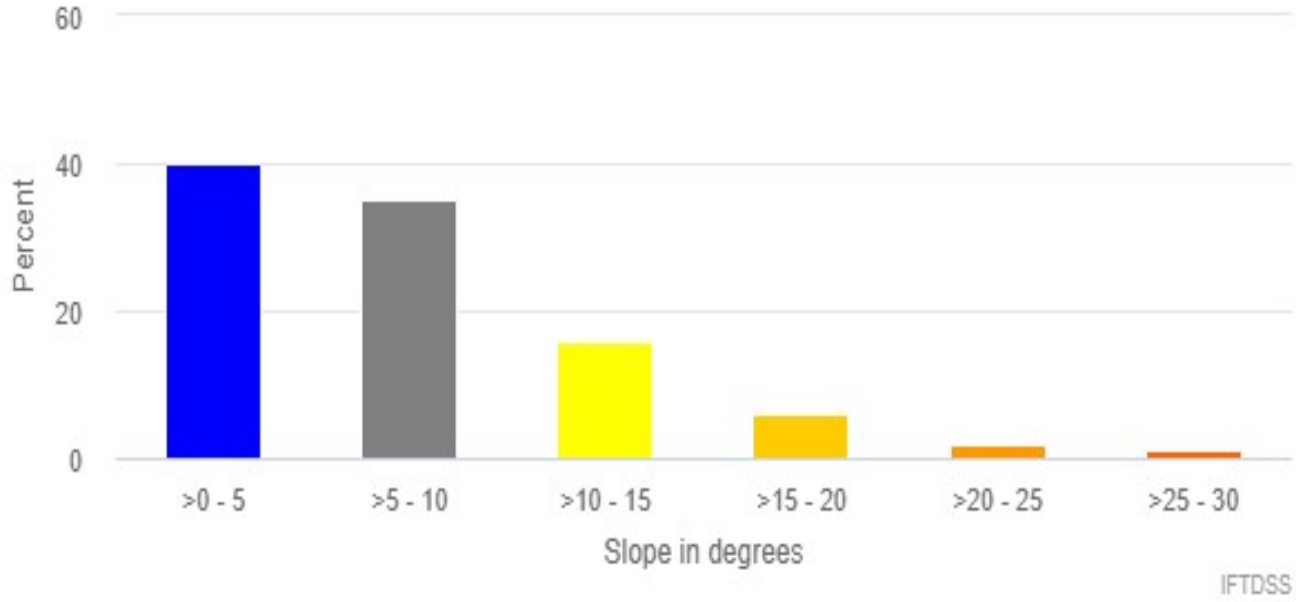
Created On: 01/13/2023

User Name: elisabeth.hitzfelder

Slope

Slope (degrees) Data Summary for Area of Interest "fernroadaoi" within "lsPower_FernRd_LCP" Landscape

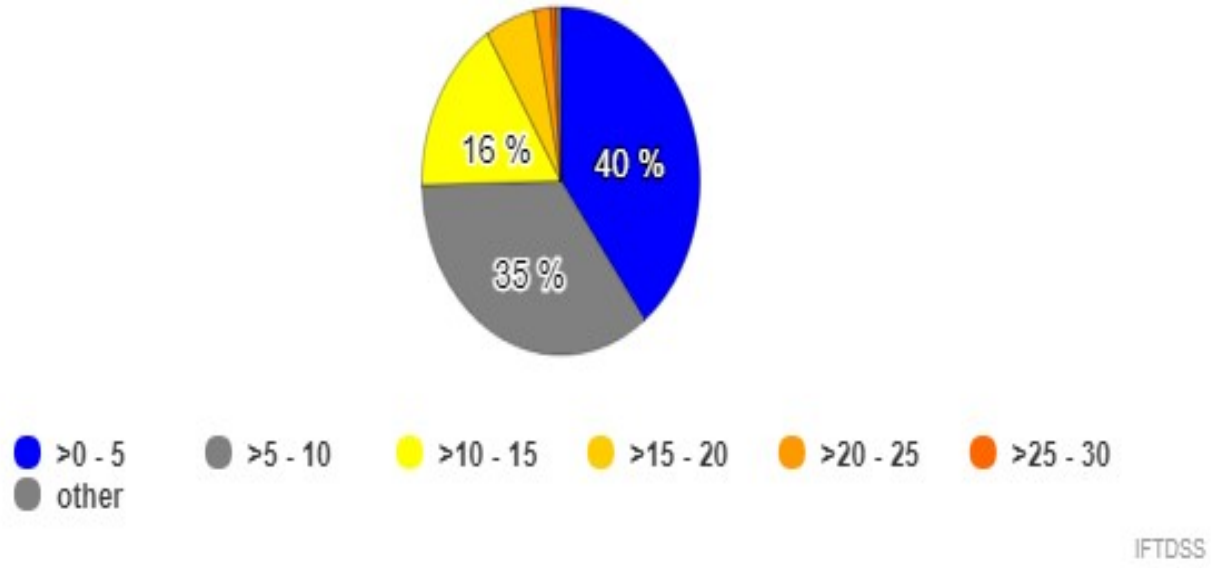
Landscape Name: lsPower_FernRd_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 14,119
Area of Interest Name: fernroadaoi
Area of Interest Acres: 10,920
Model Name: lsPower_FernRd_LCP - Auto97th



Slope

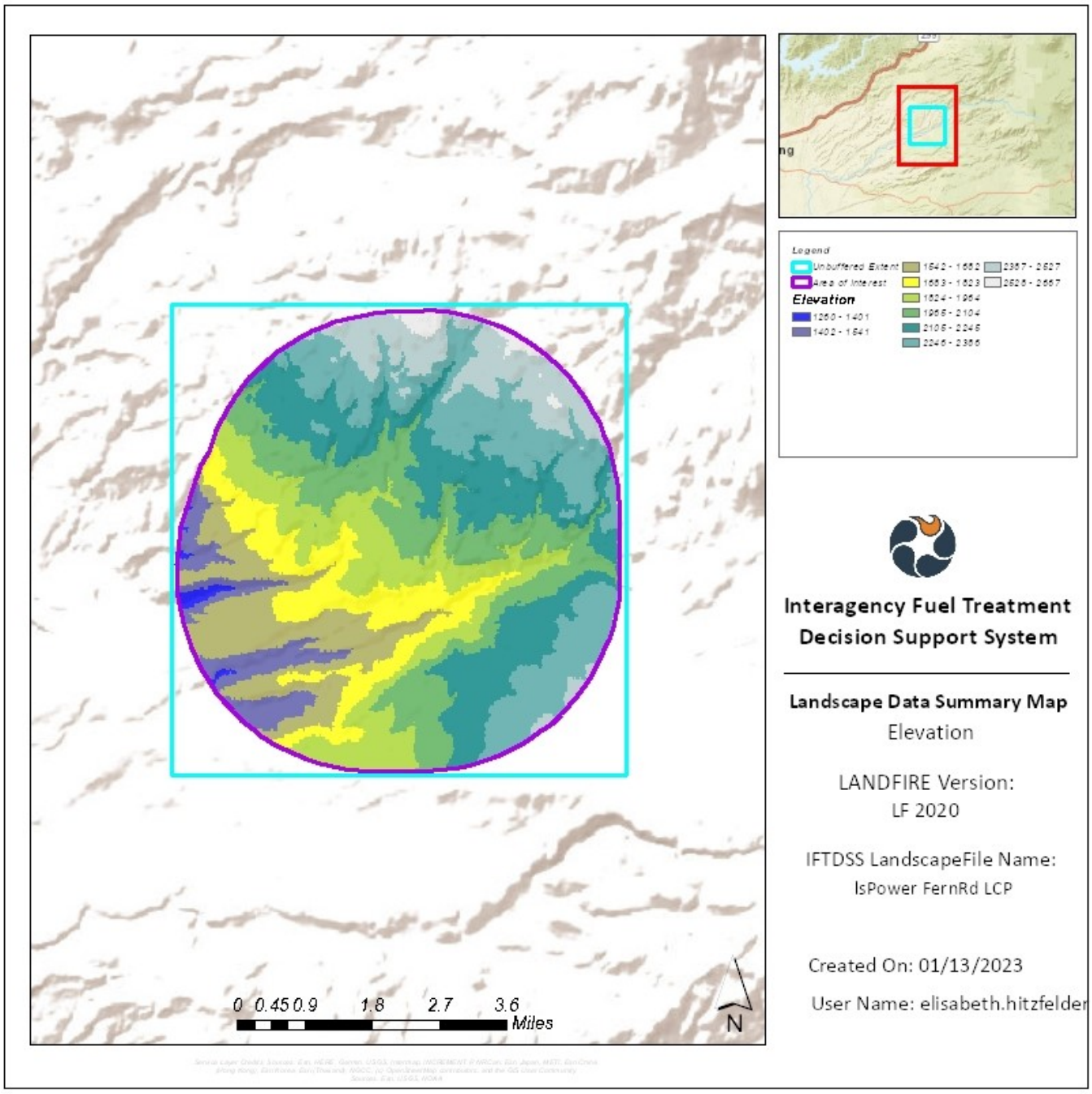
Slope (degrees) Data Summary for Area of Interest "fernroadaoi" within "lsPower_FernRd_LCP" Landscape

Landscape Name: lsPower_FernRd_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 14,119
Area of Interest Name: fernroadaoi
Area of Interest Acres: 10,920
Model Name: lsPower_FernRd_LCP - Auto97th



Slope (degrees)	Pixel Count (freq)	Acres In AOI	Percent In AOI
0	221	49	0
>0 - 5	19505	4338	40
>5 - 10	17150	3814	35
>10 - 15	8096	1801	16
>15 - 20	2832	630	6
>20 - 25	942	209	2
>25 - 30	298	66	1
>30 - 35	57	13	0
>35 - 40	3	1	0

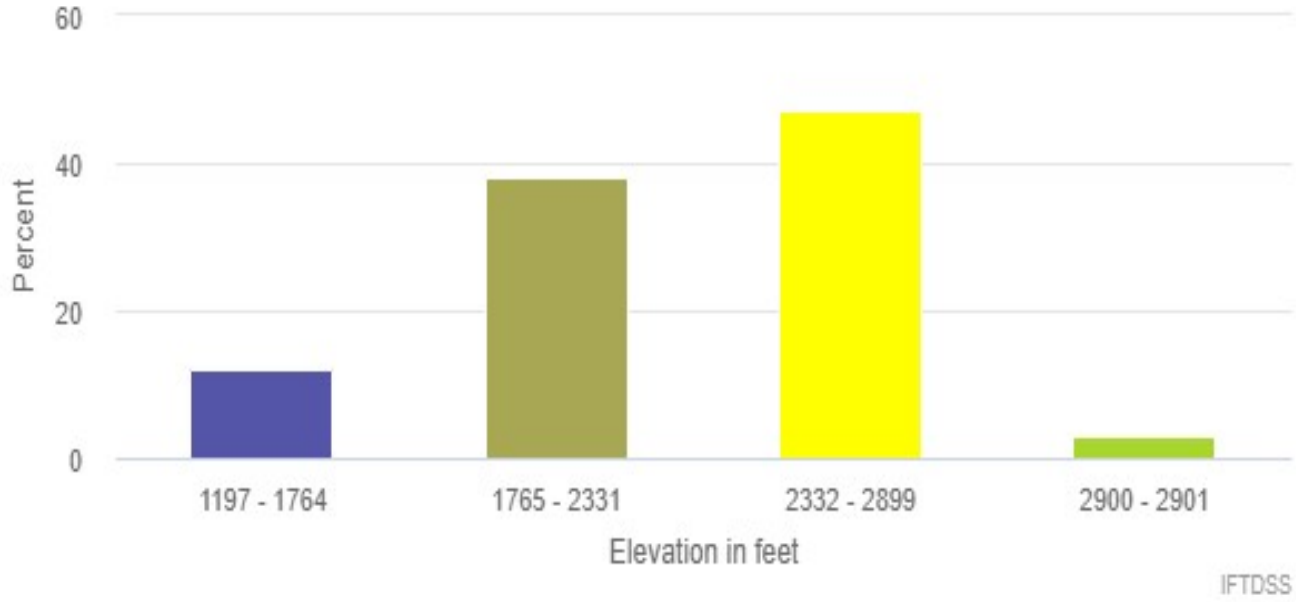
Elevation


Legend
Unbuffered Extent
Area of Interest
Elevation
1250 - 1401
1402 - 1641
1642 - 1662
1663 - 1823
1824 - 1964
1965 - 2104
2105 - 2245
2246 - 2386
2387 - 2627
2628 - 2667
0 0.45 0.9 1.8 2.7 3.6
Miles
N
Interagency Fuel Treatment Decision Support System
Landscape Data Summary Map
Elevation
LANDFIRE Version:
LF 2020
IFTDSS LandscapeFile Name:
IsPower FernRd LCP
Created On: 01/13/2023
User Name: elisabeth.hitzfelder

Elevation

Elevation (feet) Data Summary for Area of Interest "fernroadaoi" within "lsPower_FernRd_LCP" Landscape

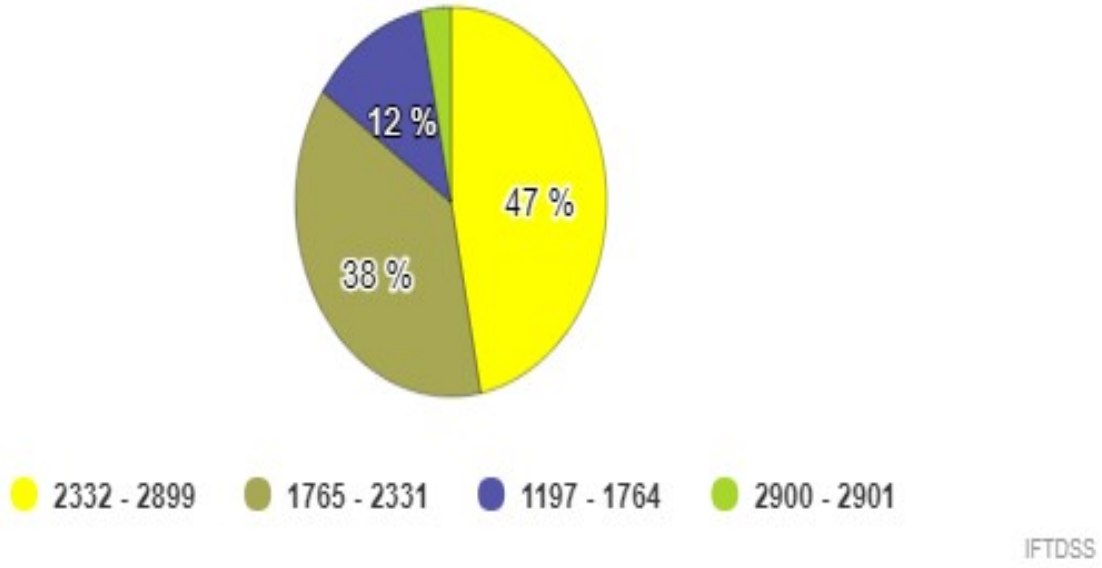
Landscape Name: lsPower_FernRd_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 14,119
Area of Interest Name: fernroadaoi
Area of Interest Acres: 10,920
Model Name: lsPower_FernRd_LCP - Auto97th



Elevation

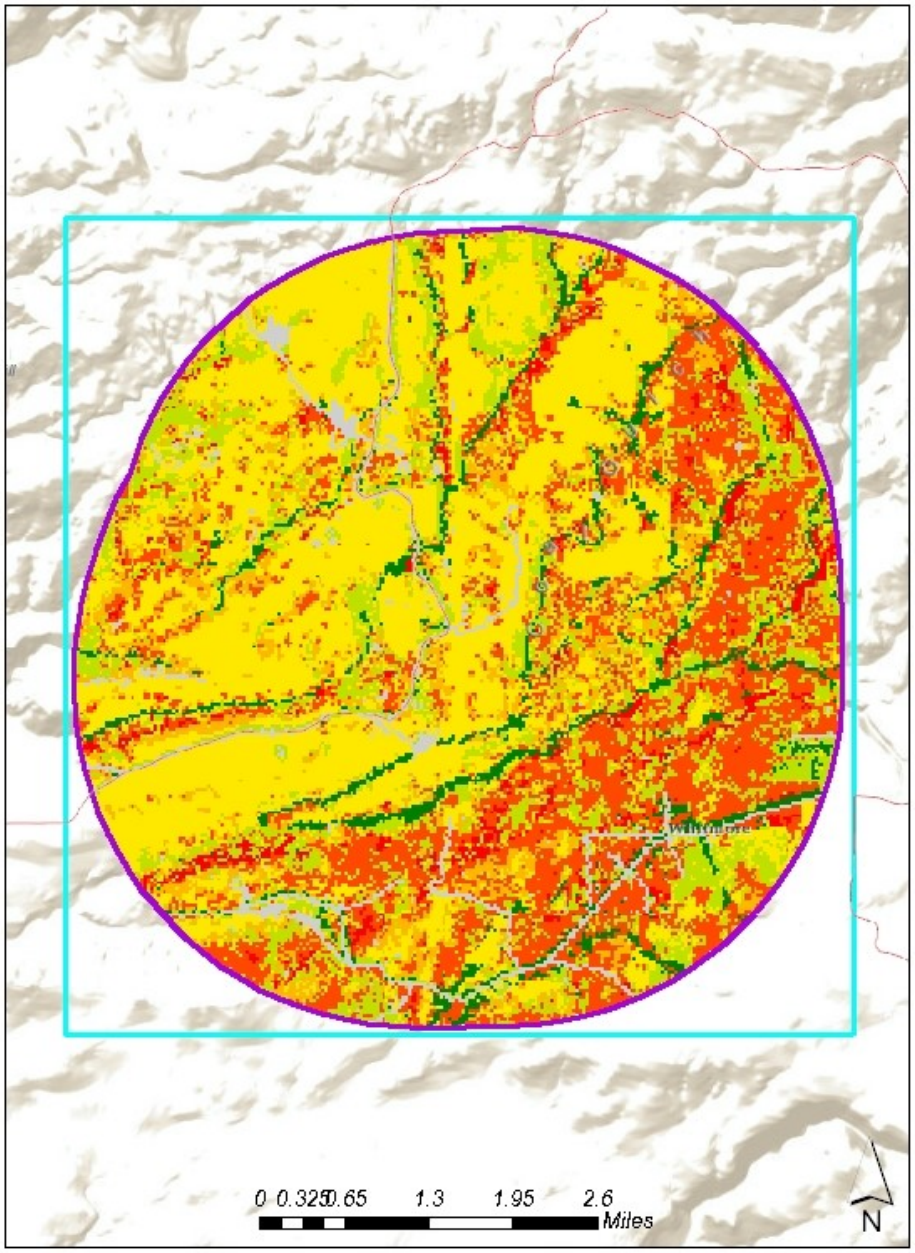
Elevation (feet) Data Summary for Area of Interest "fernroadaoi" within "lsPower_FernRd_LCP" Landscape

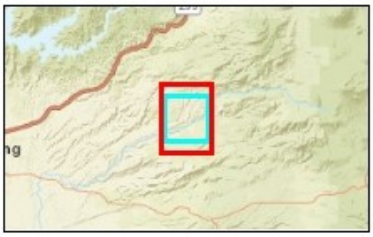
Landscape Name: lsPower_FernRd_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 14,119
Area of Interest Name: fernroadaoi
Area of Interest Acres: 10,920
Model Name: lsPower_FernRd_LCP - Auto97th



Elevation (feet)	Pixel Count (freq)	Acres In AOI	Percent In AOI
1197 - 1764	6032	1341	12
1765 - 2331	18483	4111	38
2332 - 2899	23063	5129	47
2900 - 2901	1526	339	3

Flame Length





Legend

Unbuffered Extent
Non-burnable
Area of Interest

Flame Length (ft)

>25
>11 - 25
>8 - 11
>4 - 8
>1 - 4
>0 -1

Interagency Fuel Treatment Decision Support System

Landscape Fire Behavior Summary

Flame Length

Analysis Details:

Date: 01/13/2023
LANDFIRE Version: LF 2020
IFTDSS Username: elisabeth.hitzfelder
LCP Name: IsPower FernRd LCP

Model Inputs:

Wind Type: Gridded Winds
Wind Speed: 9
Wind Direction: 270
Crown Fire Method: Scott/Reinhardt
Foliar Moisture: 100
Weather Station Used: WHITMORE
Initial Fuel Moisture:
- 1 hr FM: 2
- 10 hr FM: 3
- 100 hr FM: 5
- Herb FM: 30
- Woody FM: 61

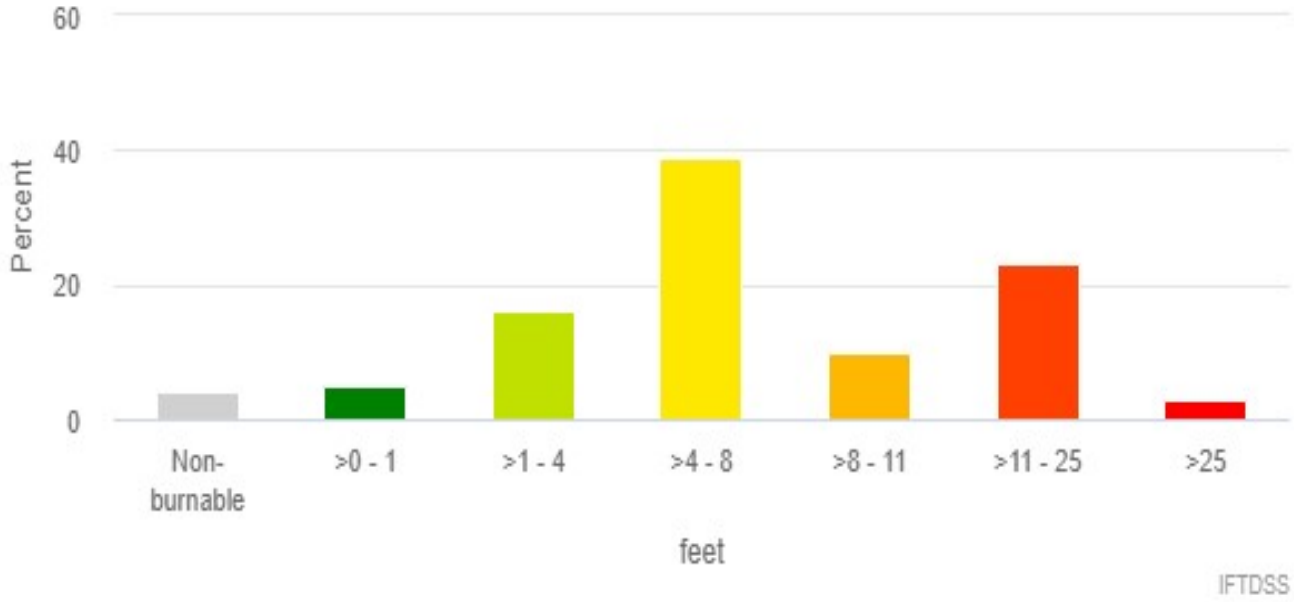
Conditioning Type: On - Extreme Southern Cascades

* Note: This analysis was run at the 97th percentile with auto-generated inputs.

Flame Length

Flame Length (feet) Data Summary for Area of Interest "fernroadaoi" within "lsPower_FernRd_LCP" Landscape

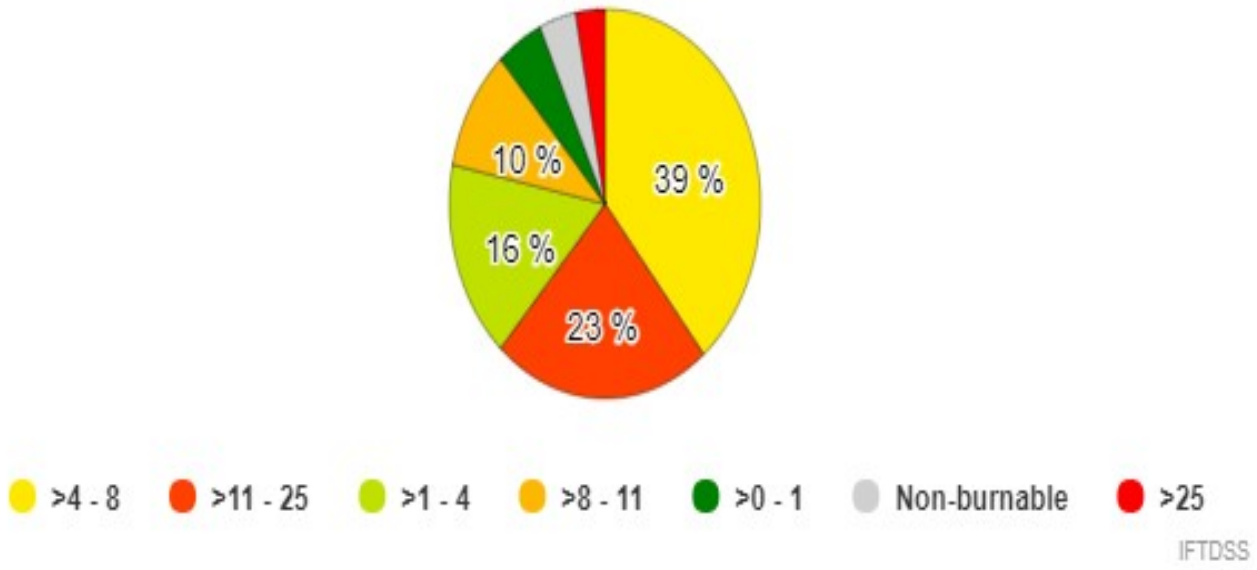
Landscape Name: lsPower_FernRd_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 14,119
Area of Interest Name: fernroadaoi
Area of Interest Acres: 10,920
Model Name: lsPower_FernRd_LCP - Auto97th



Flame Length

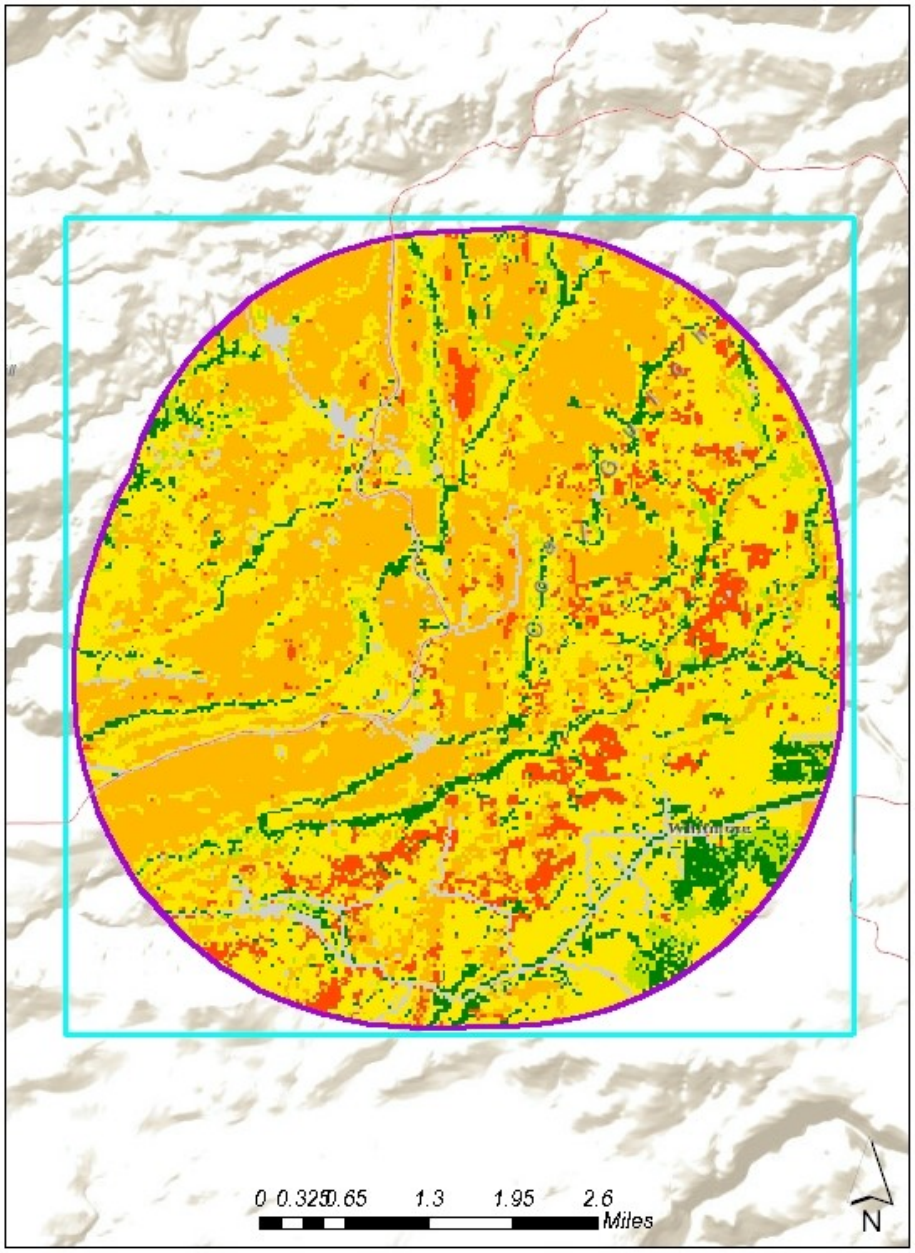
Flame Length (feet) Data Summary for Area of Interest "fernroadaoi" within "lsPower_FernRd_LCP" Landscape

Landscape Name: lsPower_FernRd_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 14,119
Area of Interest Name: fernroadaoi
Area of Interest Acres: 10,920
Model Name: lsPower_FernRd_LCP - Auto97th



Flame Length (feet)	Pixel Count (freq)	Acres In AOI	Percent In AOI
Non-burnable	1870	416	4
>0 - 1	2371	527	5
>1 - 4	8100	1801	16
>4 - 8	19182	4266	39
>8 - 11	4960	1103	10
>11 - 25	11134	2476	23
>25	1487	331	3

Spread Rate



Legend

- Unbuffered Extent
- Area of Interest

Rate of Spread (chains/hr)

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

Interagency Fuel Treatment Decision Support System

Landscape Fire Behavior Summary

Rate of Spread

Analysis Details:

Date: 01/13/2023
LANDFIRE Version: LF 2020
IFTDSS Username: elisabeth.hitzfelder
LCP Name: IsPower FernRd LCP

Model Inputs:

Wind Type: Gridded Winds
Wind Speed: 9
Wind Direction: 270
Crown Fire Method: Scott/Reinhardt
Foliar Moisture: 100
Weather Station Used: WHITMORE
Initial Fuel Moisture:
- 1 hr FM: 2
- 10 hr FM: 3
- 100 hr FM: 5
- Herb FM: 30
- Woody FM: 61

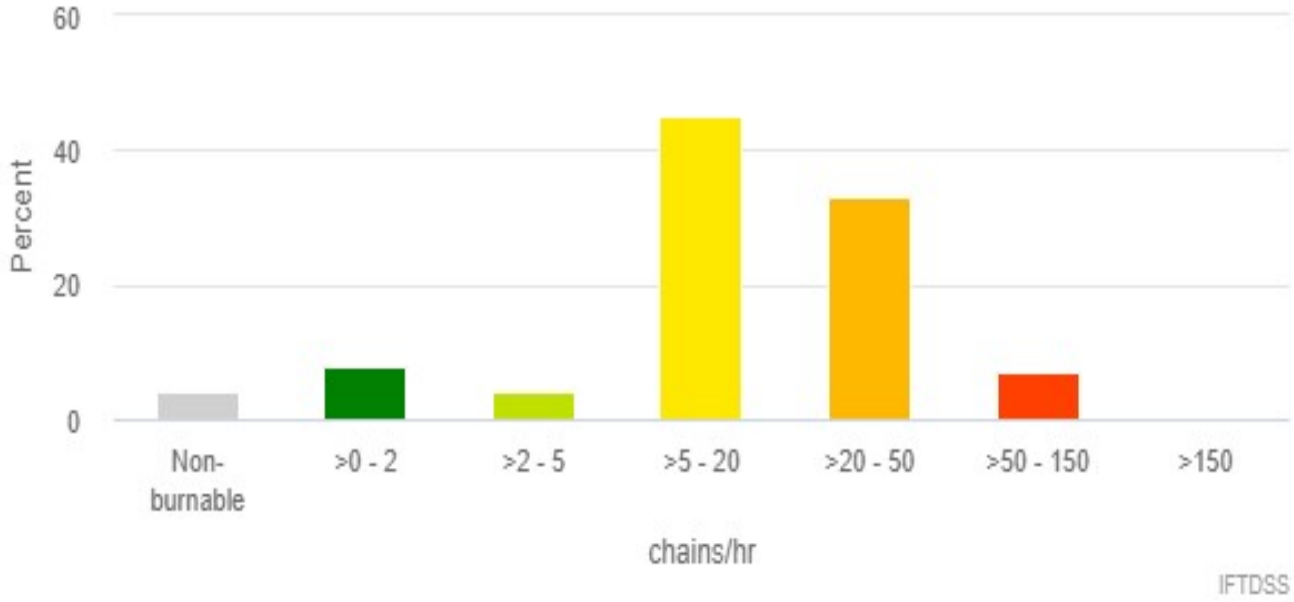
Conditioning Type: On - Extreme Southern Cascades

* Note: This analysis was run at the 97th percentile with auto-generated inputs.

Spread Rate

Rate of Spread (chains/hr) Data Summary for Area of Interest "fernroadaoi" within "lsPower_FernRd_LCP" Landscape

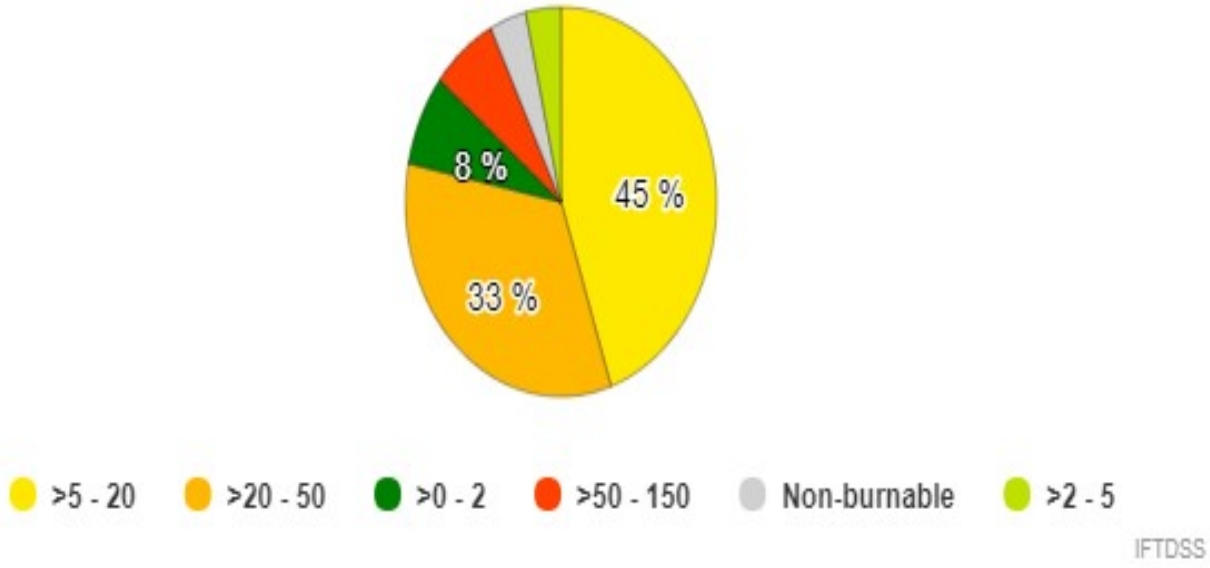
Landscape Name: lsPower_FernRd_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 14,119
Area of Interest Name: fernroadaoi
Area of Interest Acres: 10,920
Model Name: lsPower_FernRd_LCP - Auto97th



Spread Rate

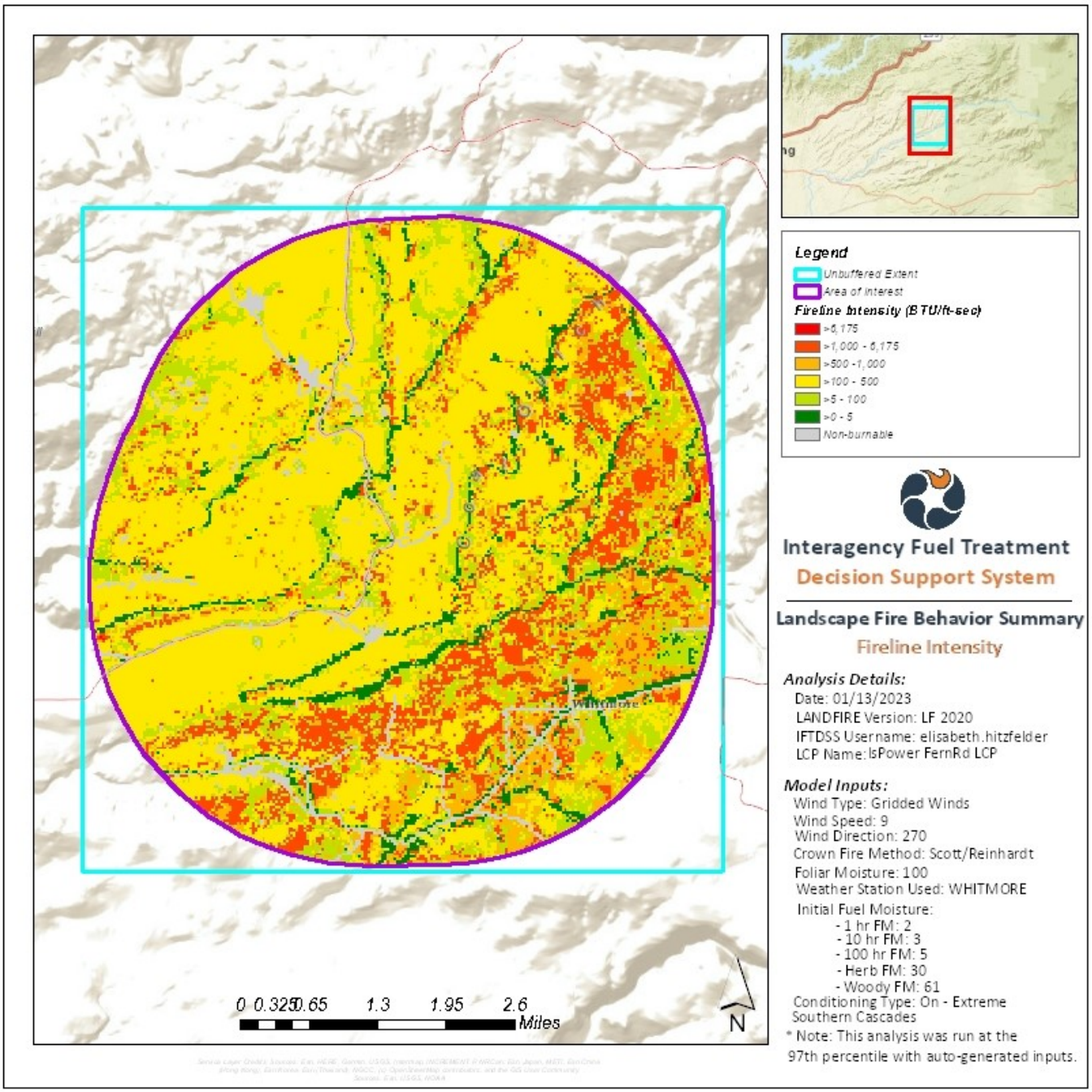
Rate of Spread (chains/hr) Data Summary for Area of Interest "fernroadaoi" within "lsPower_FernRd_LCP" Landscape

Landscape Name: lsPower_FernRd_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 14,119
Area of Interest Name: fernroadaoi
Area of Interest Acres: 10,920
Model Name: lsPower_FernRd_LCP - Auto97th



Rate of Spread (chains/hr)	Pixel Count (freq)	Acres In AOI	Percent In AOI
Non-burnable	1870	416	4
>0 - 2	3750	834	8
>2 - 5	1783	397	4
>5 - 20	21996	4892	45
>20 - 50	16387	3644	33
>50 - 150	3318	738	7
>150	0	0	0

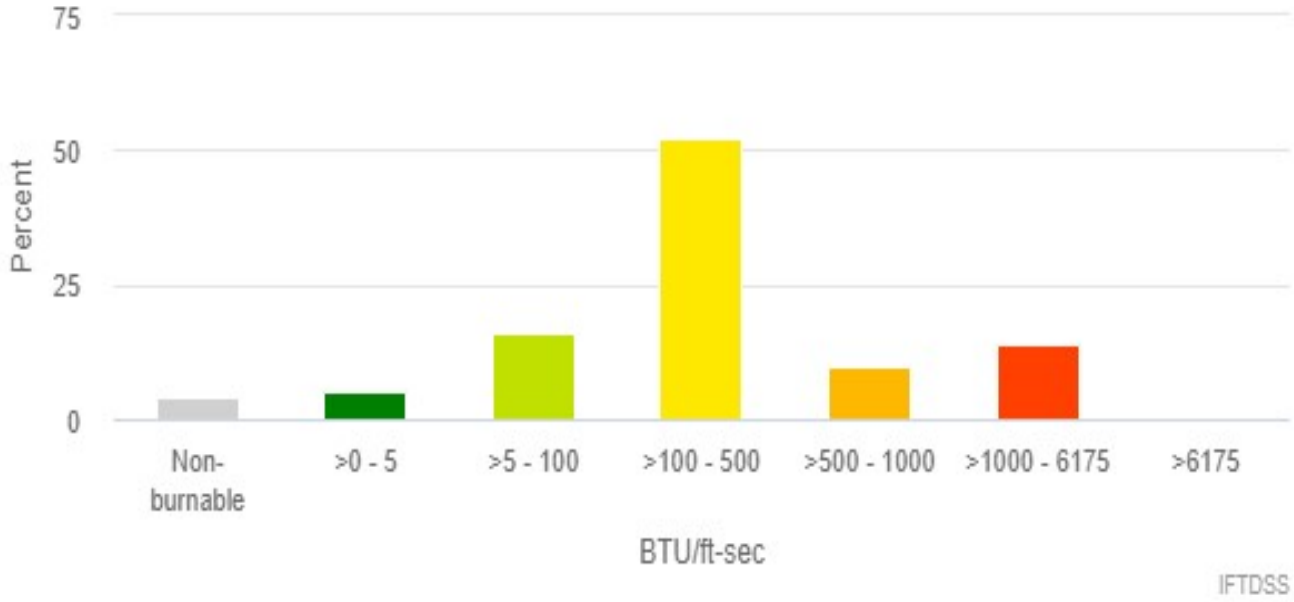
Intensity


Legend
Unbuffered Extent
Area of Interest
Fireline Intensity (BTU/ft-sec)
>6,175
>1,000 - 6,175
>500 -1,000
>100 - 500
>5 - 100
>0 - 5
Non-burnable
Interagency Fuel Treatment
Decision Support System
Landscape Fire Behavior Summary
Fireline Intensity
Analysis Details:
Date: 01/13/2023
LANDFIRE Version: LF 2020
IFTDSS Username: elisabeth.hitzfelder
LCP Name: IsPower FernRd LCP
Model Inputs:
Wind Type: Gridded Winds
Wind Speed: 9
Wind Direction: 270
Crown Fire Method: Scott/Reinhardt
Foliar Moisture: 100
Weather Station Used: WHITMORE
Initial Fuel Moisture:
- 1 hr FM: 2
- 10 hr FM: 3
- 100 hr FM: 5
- Herb FM: 30
- Woody FM: 61
Conditioning Type: On - Extreme Southern Cascades
* Note: This analysis was run at the 97th percentile with auto-generated inputs.
0 0.325 0.65 1.3 1.95 2.6
Miles
N

Intensity

Fireline Intensity (BTU/ft-sec) Data Summary for Area of Interest "fernroadaoi" within "lsPower_FernRd_LCP" Landscape

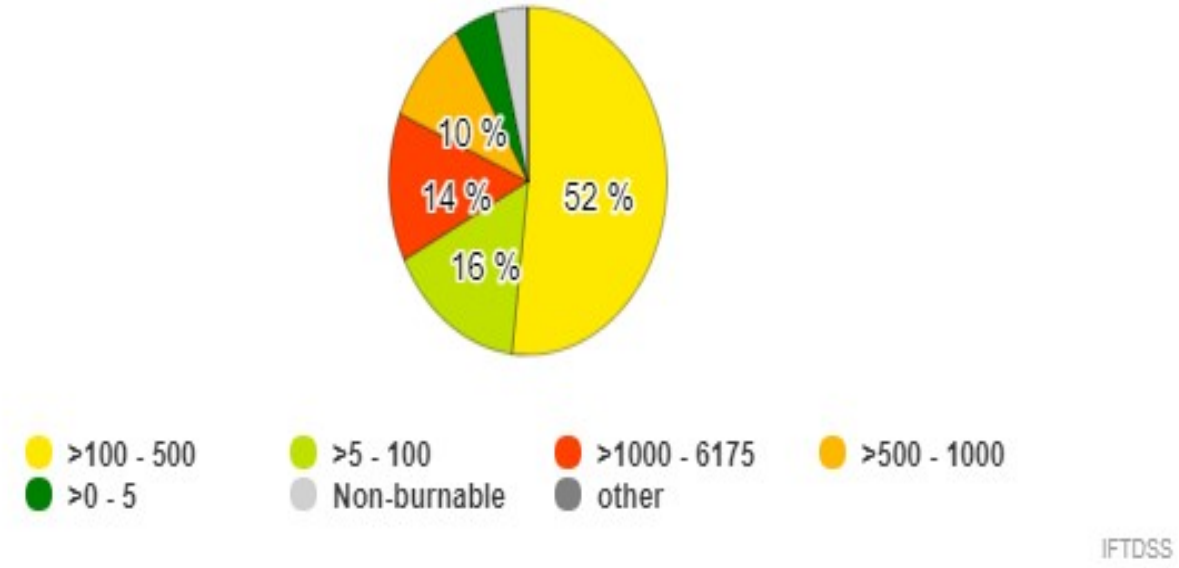
Landscape Name: lsPower_FernRd_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 14,119
Area of Interest Name: fernroadaoi
Area of Interest Acres: 10,920
Model Name: lsPower_FernRd_LCP - Auto97th



Intensity

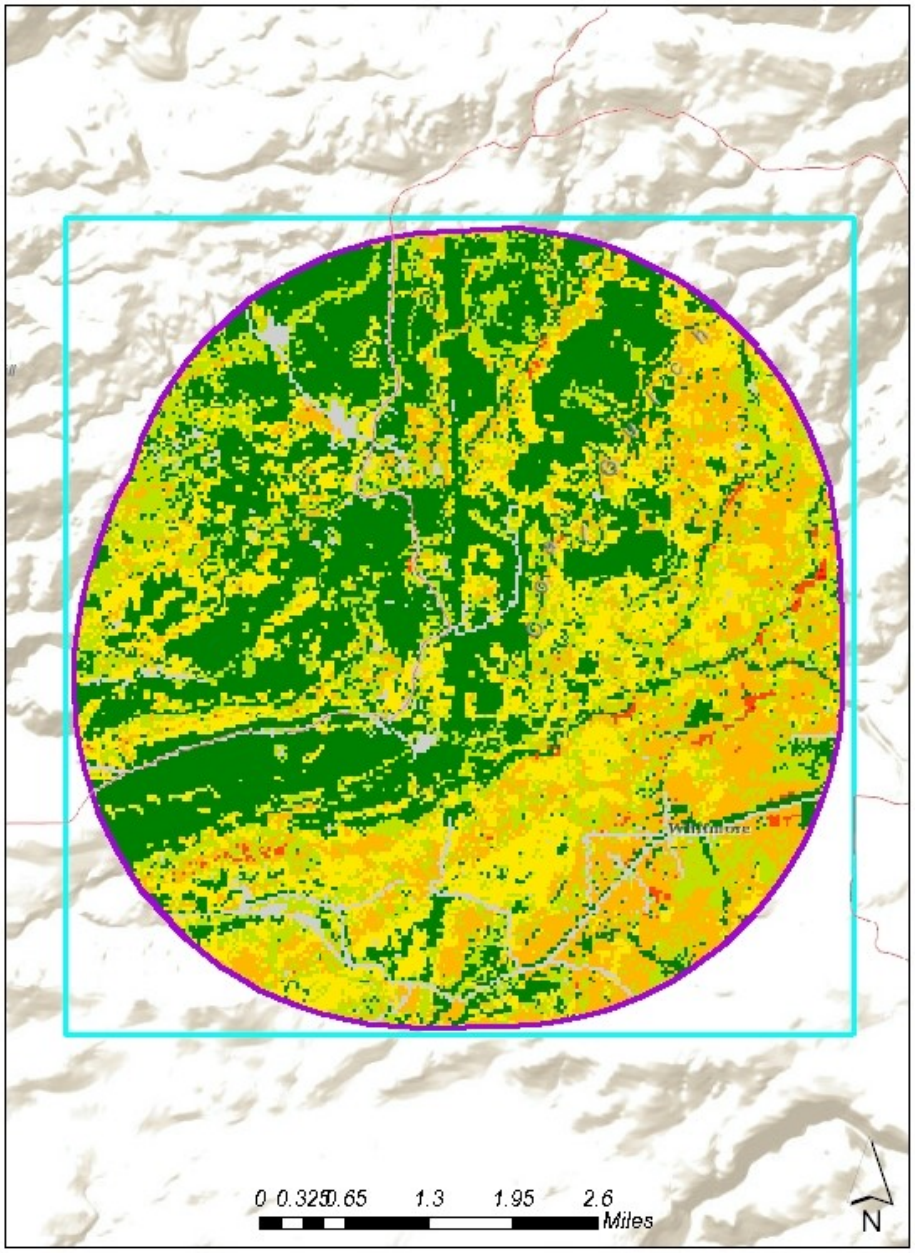
Fireline Intensity (BTU/ft-sec) Data Summary for Area of Interest "fernroadaoi" within "lsPower_FernRd_LCP" Landscape

Landscape Name: lsPower_FernRd_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 14,119
Area of Interest Name: fernroadaoi
Area of Interest Acres: 10,920
Model Name: lsPower_FernRd_LCP - Auto97th



Fireline Intensity (BTU/ft-sec)	Pixel Count (freq)	Acres In AOI	Percent In AOI
Non-burnable	1870	416	4
>0 - 5	2347	522	5
>5 - 100	7697	1712	16
>100 - 500	25468	5664	52
>500 - 1,000	4904	1091	10
>1,000 - 6,175	6779	1508	14
>6,175	39	9	0

Heat/Area



Legend

- Unbuffered Extent
- Area of Interest

Heat per Unit Area (BTU/ft^2)

- >10,000
- >6,000 - 10,000
- >3,000 - 6,000
- >1,000 - 3,000
- >300 - 1,000
- >0 - 300
- Non-burnable

Interagency Fuel Treatment Decision Support System

Landscape Fire Behavior Summary

Heat per Unit Area

Analysis Details:

Date: 01/13/2023
LANDFIRE Version: LF 2020
IFTDSS Username: elisabeth.hitzfelder
LCP Name: IsPower FernRd LCP

Model Inputs:

Wind Type: Gridded Winds
Wind Speed: 9
Wind Direction: 270
Crown Fire Method: Scott/Reinhardt
Foliar Moisture: 100
Weather Station Used: WHITMORE
Initial Fuel Moisture:
- 1 hr FM: 2
- 10 hr FM: 3
- 100 hr FM: 5
- Herb FM: 30
- Woody FM: 61

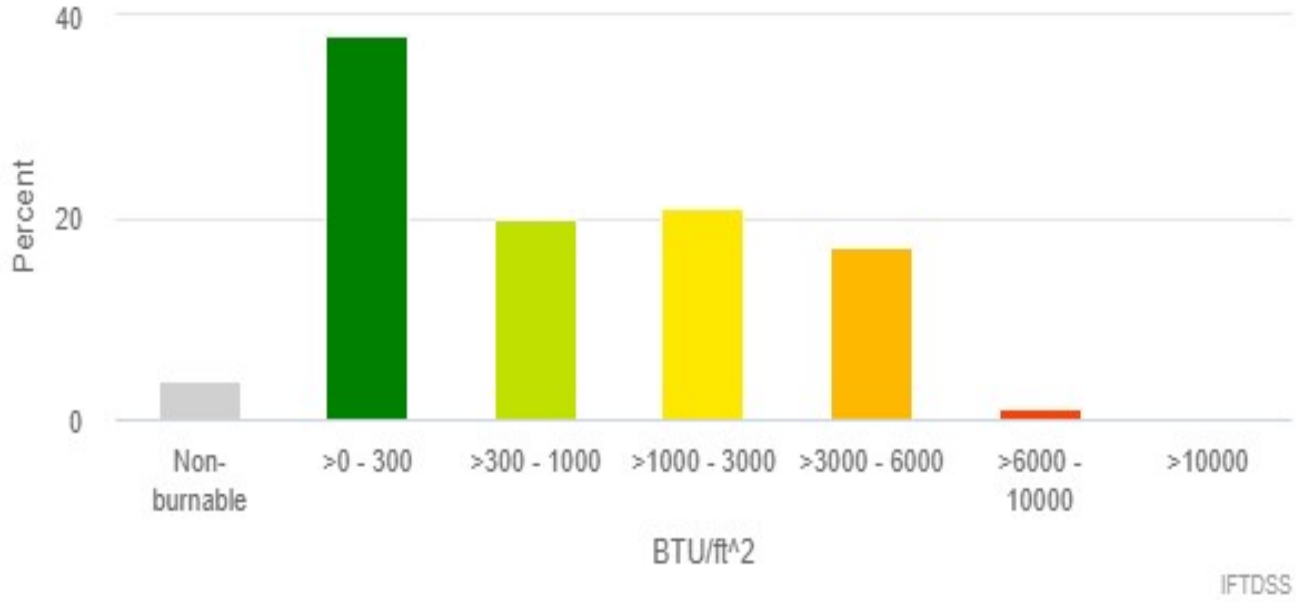
Conditioning Type: On - Extreme Southern Cascades

* Note: This analysis was run at the 97th percentile with auto-generated inputs.

Heat/Area

Heat per Unit Area (BTU/ft^2) Data Summary for Area of Interest "fernroadaoi" within "lsPower_FernRd_LCP" Landscape

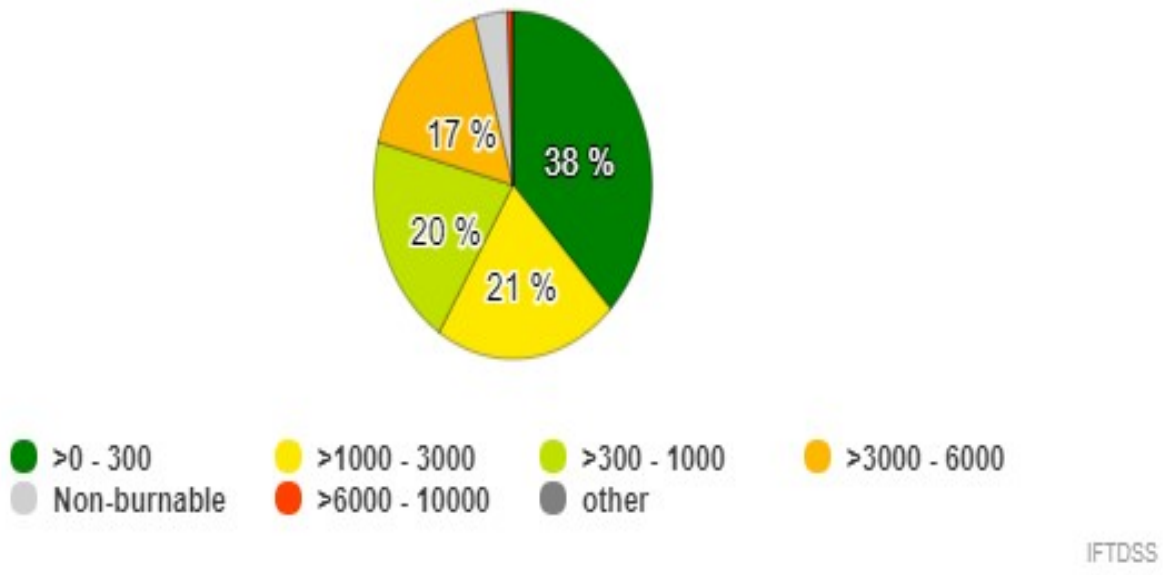
Landscape Name: lsPower_FernRd_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 14,119
Area of Interest Name: fernroadaoi
Area of Interest Acres: 10,920
Model Name: lsPower_FernRd_LCP - Auto97th



Heat/Area

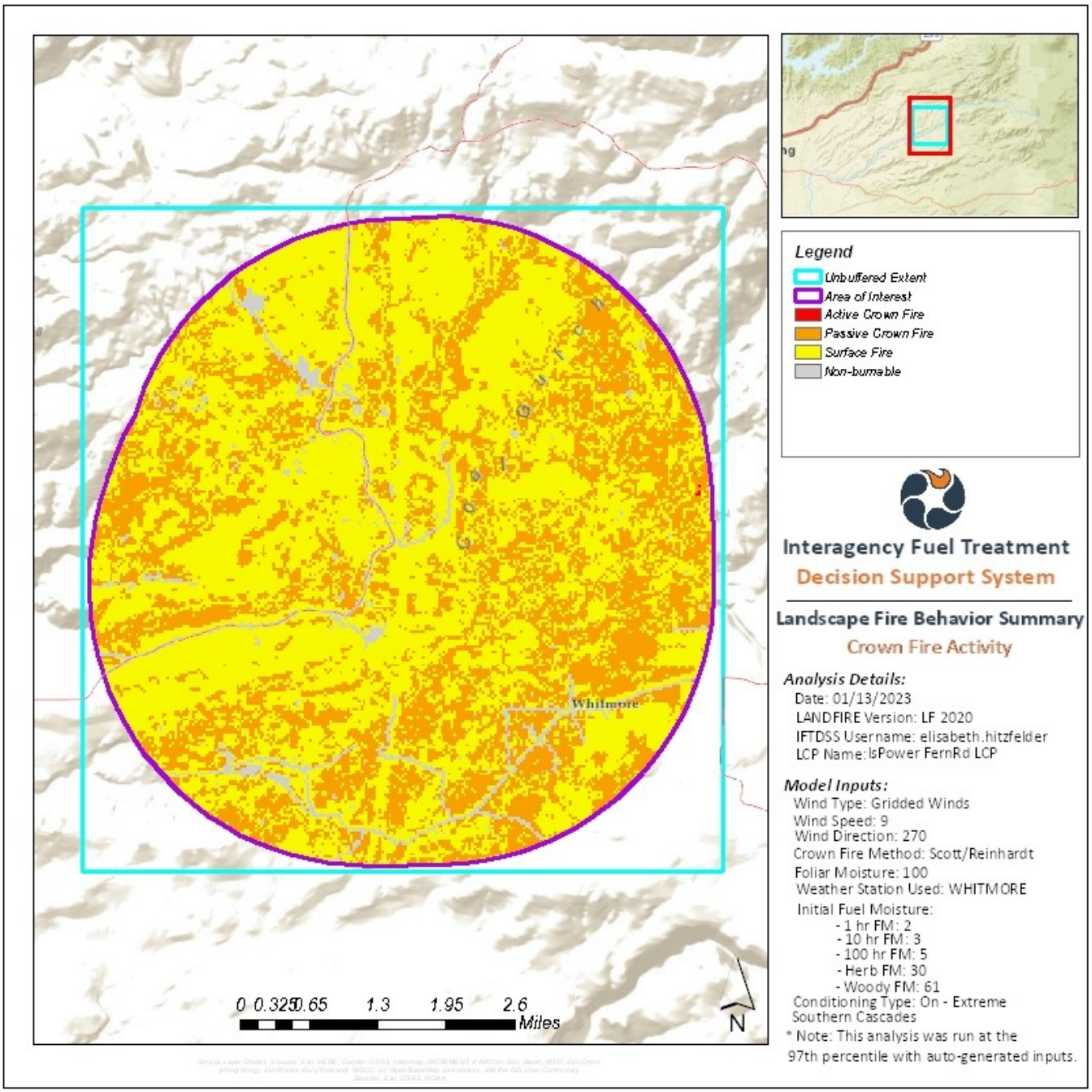
Heat per Unit Area (BTU/ft^2) Data Summary for Area of Interest "fernroadaoi" within "lsPower_FernRd_LCP" Landscape

Landscape Name: lsPower_FernRd_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 14,119
Area of Interest Name: fernroadaoi
Area of Interest Acres: 10,920
Model Name: lsPower_FernRd_LCP - Auto97th



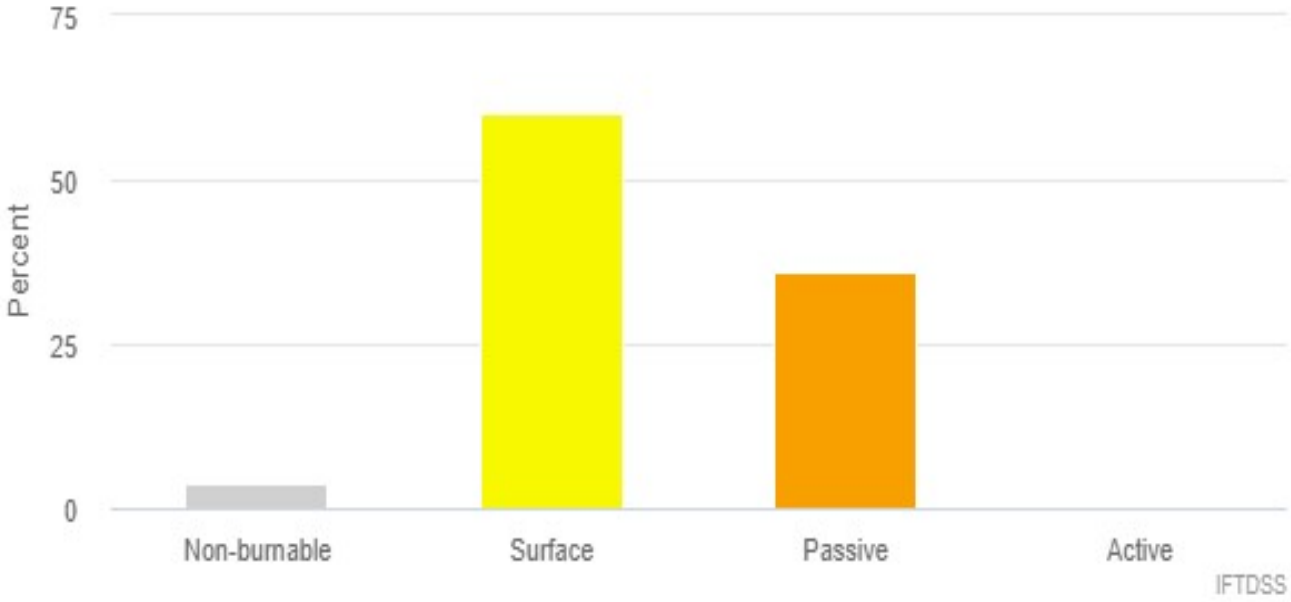
Heat per Unit Area (BTU/ft^2)	Pixel Count (freq)	Acres In AOI	Percent In AOI
Non-burnable	1870	416	4
>0 - 300	18469	4107	38
>300 - 1,000	9853	2191	20
>1,000 - 3,000	10465	2327	21
>3,000 - 6,000	8123	1807	17
>6,000 - 10,000	317	70	1
>10,000	7	2	0

Fuel Model (FBFM)



Crown Fire Activity Data Summary for Area of Interest "fernroadaoi" within "lsPower_FernRd_LCP" Landscape

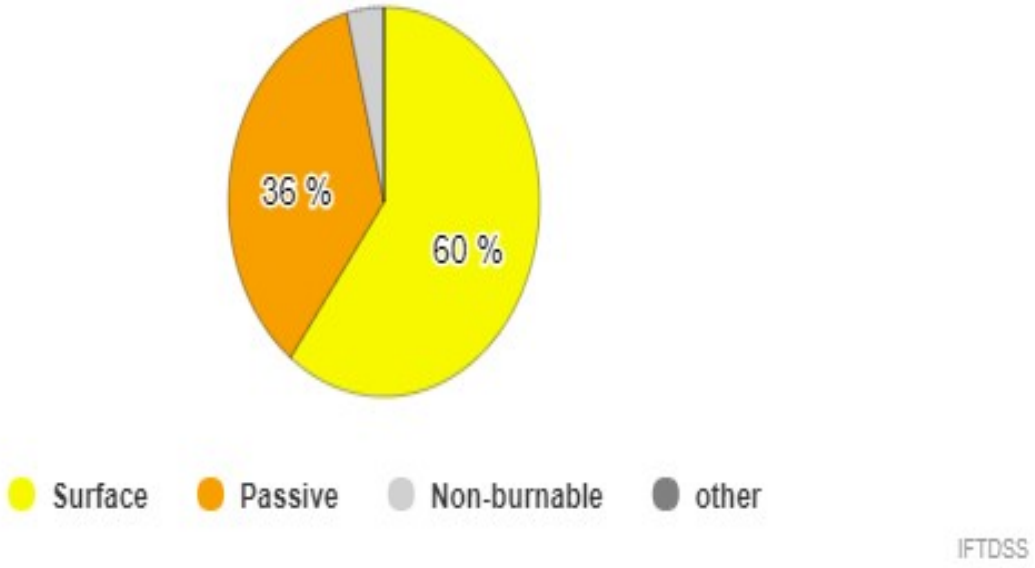
Landscape Name: lsPower_FernRd_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 14,119
Area of Interest Name: fernroadaoi
Area of Interest Acres: 10,920
Model Name: lsPower_FernRd_LCP - Auto97th



Fuel Model (FBFM)

Crown Fire Activity Data Summary for Area of Interest "fernroadaoi" within "lsPower_FernRd_LCP" Landscape

Landscape Name: lsPower_FernRd_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 14,119
Area of Interest Name: fernroadaoi
Area of Interest Acres: 10,920
Model Name: lsPower_FernRd_LCP - Auto97th



Crown Fire Activity	Pixel Count (freq)	Acres In AOI	Percent In AOI
Non-burnable	1870	416	4
Surface Fire	29603	6584	60
Passive Fire	17626	3920	36
Active Fire	5	1	0

Report: Auto97th
Landfire Version: LF 2020
Landscape Name: lsPower_Orchard_LCP
Landscape Acres: 13,071 Area of Interest: orchardaoi

Prepared for: Elisabeth Hitzfelder
1/13/2023, 1:00:45 PM

Model Parameters

Run Name: lsPower_Orchard_LCP - Auto97th

Model Type: Landscape Fire Behavior (Basic)

Run Date: Jan 13, 2023 10:15:19 AM

Wind Type: Gridded Winds

Wind Speed: 20 mph

Wind Direction: 0 deg

Crown Fire Method: Scott/Reinhardt

Foliar Moisture: 100

Fuel Model	1 Hr Fuel Moisture	10 Hr Fuel Moisture	100 Hr Fuel Moisture	Live Herbaceous Fuel Moisture	Live Woody Fuel Moisture
All	2	3	4	32	62

Conditioning: On - Extreme - South Central California Foothills and Coastal Mountains

Conditioning start: 1300, 7/9/2012

Conditioning end:1600, 7/12/2012

Run resolution: 30 m

Station Name: KETTLEMAN HILLS

Fuel Model (FBFM)

Station Observation Start Date: Feb 24, 1988 12:00:00 AM

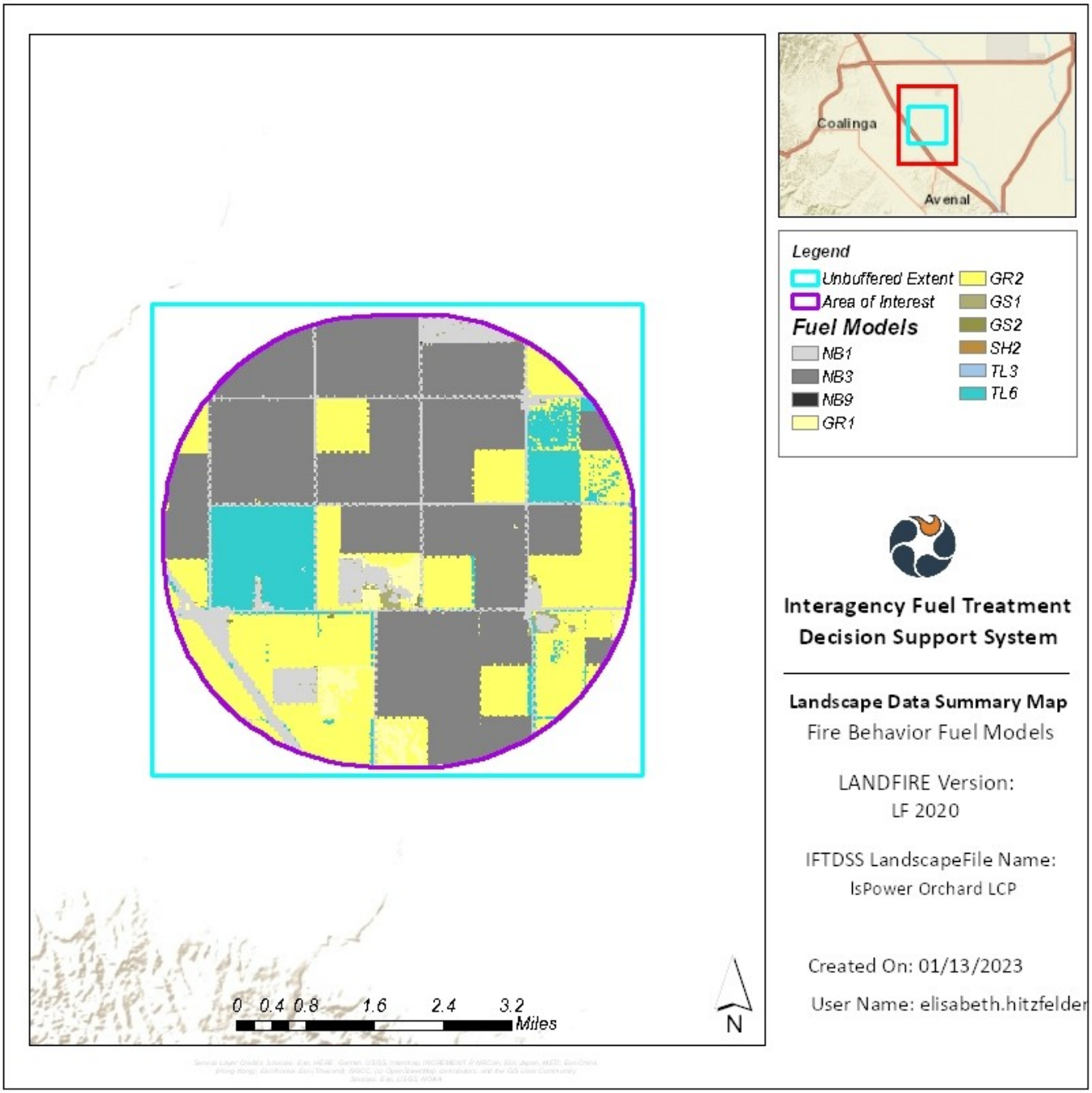
Station Observation End Date: Oct 4, 2016 12:00:00 AM

Station Elevation: 801

Station Aspect: 4

Station Latitude: 36.0333333

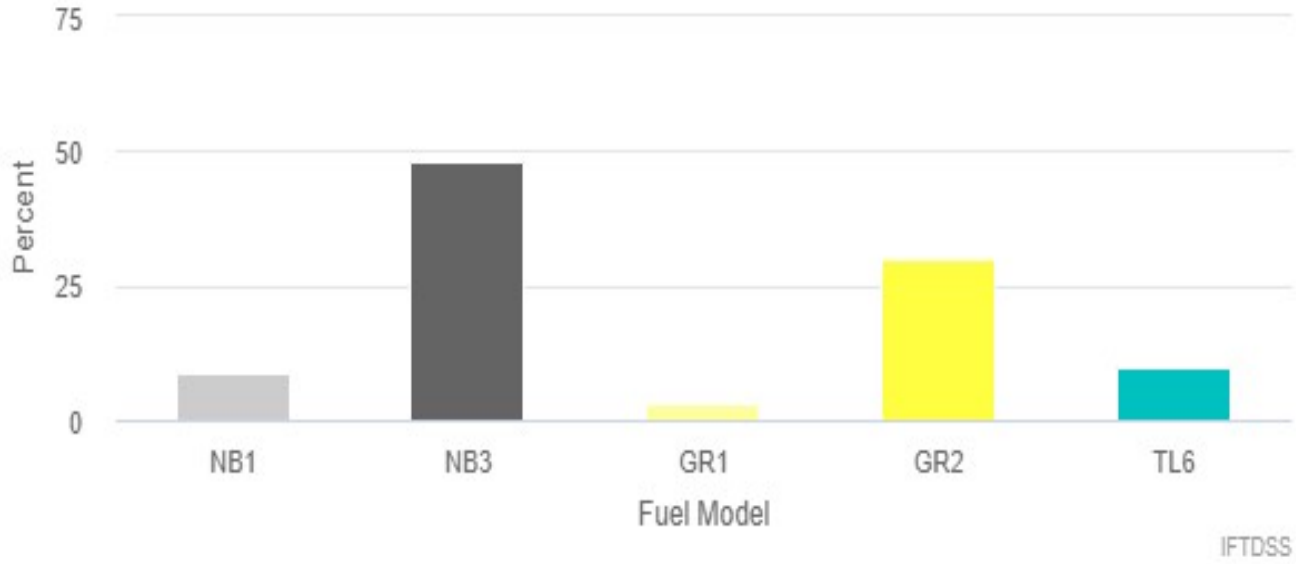
Station Longitude: 120.0569444



Fuel Model (FBFM)

Fuel Model Data Summary for Area of Interest "orchardaoi" within "lsPower_Orchard_LCP" Landscape

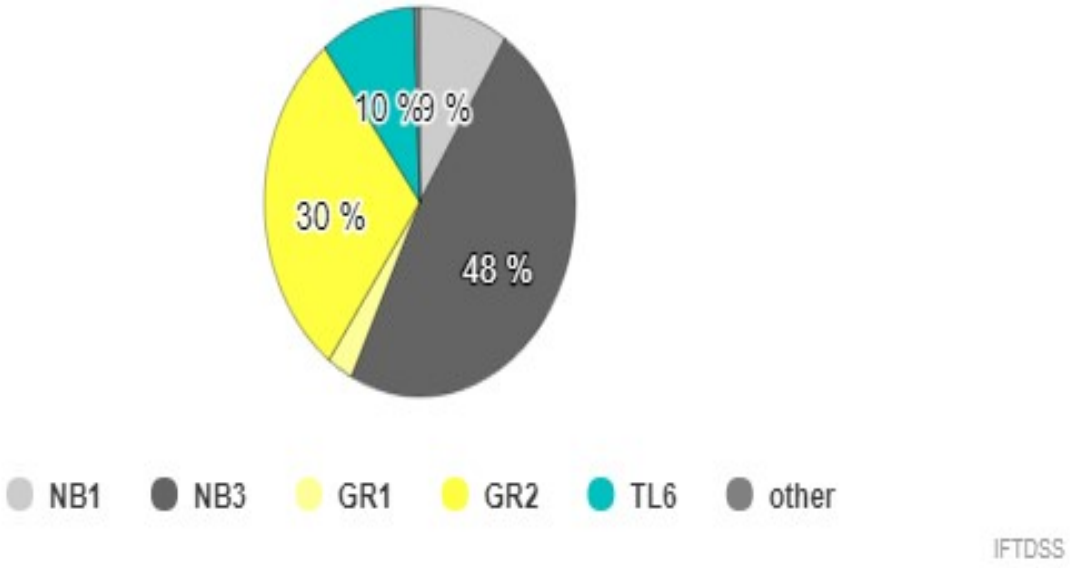
Landscape Name: lsPower_Orchard_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 13,071
Area of Interest Name: orchardaoi
Area of Interest Acres: 9,893
Model Name: lsPower_Orchard_LCP - Auto97th
Distribution under 1% not shown



Fuel Model (FBFM)

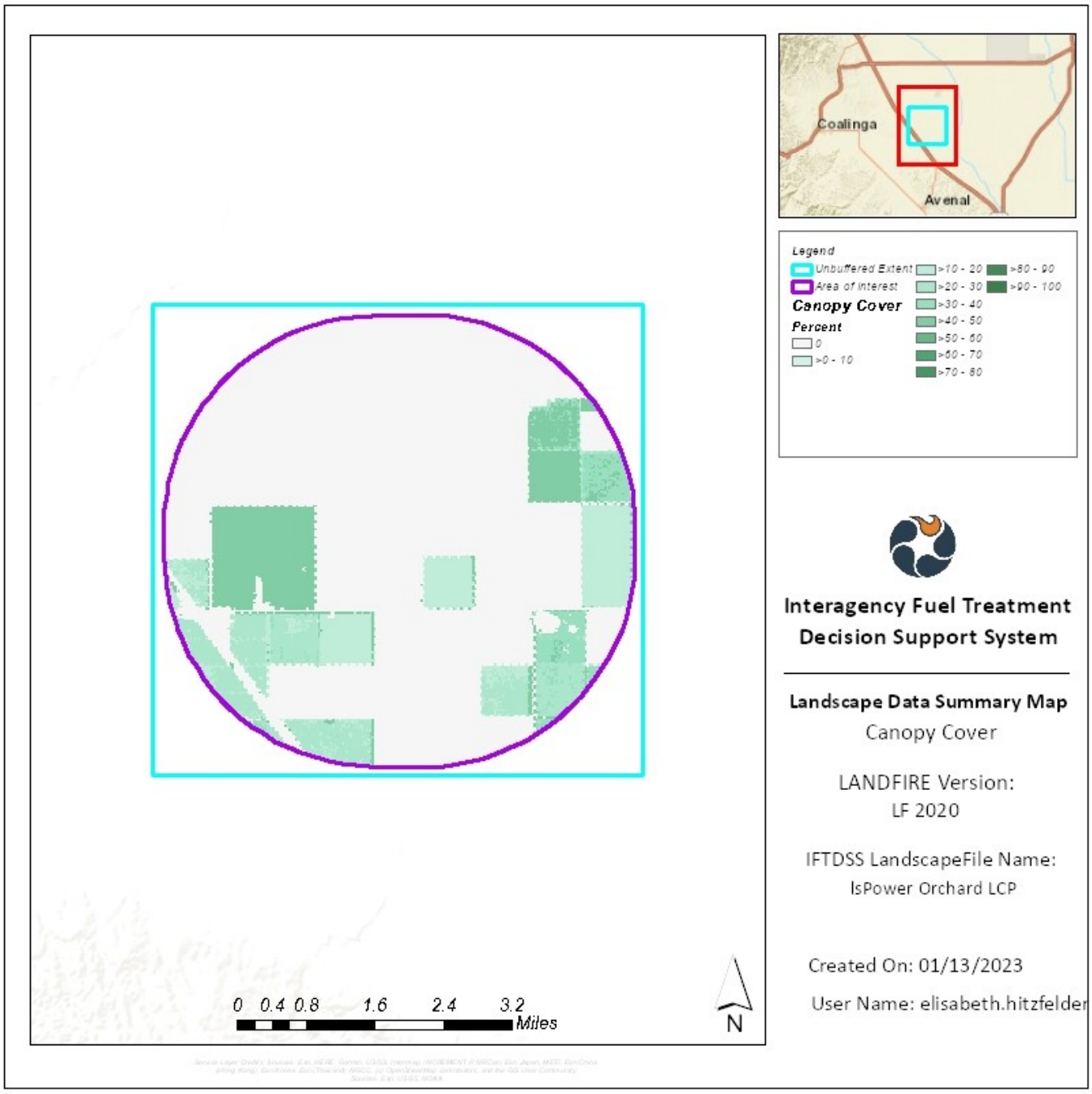
Fuel Model Data Summary for Area of Interest "orchardaoi" within "lsPower_Orchard_LCP" Landscape

Landscape Name: lsPower_Orchard_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 13,071
Area of Interest Name: orchardaoi
Area of Interest Acres: 9,893
Model Name: lsPower_Orchard_LCP - Auto97th



Fuel Model	Pixel Count (freq)	Acres In AOI	Percent In AOI
NB1 (91)	4099	912	9
NB3 (93)	21384	4756	48
NB9 (99)	2	0	0
GR1 (101)	1187	264	3
GR2 (102)	13158	2926	30
GS1 (121)	198	44	0
GS2 (122)	59	13	0
SH2 (142)	4	1	0
TL3 (183)	3	1	0
TL6 (186)	4389	976	10

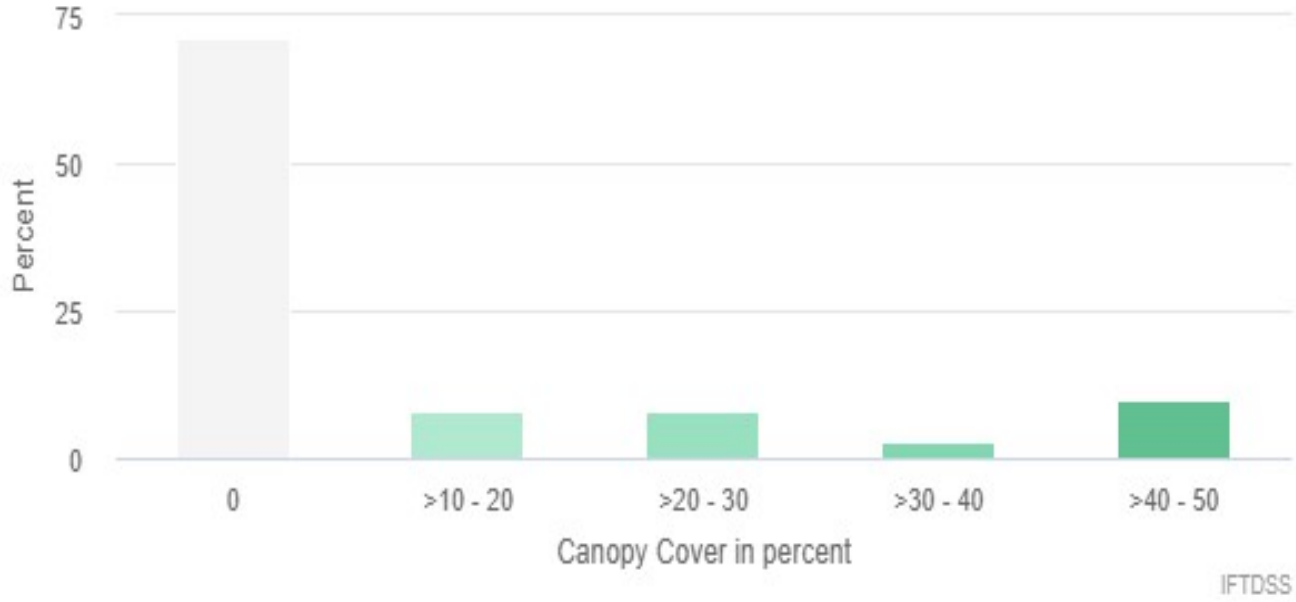
Canopy Cover



Canopy Cover

Canopy Cover (percent) Data Summary for Area of Interest "orchardaoi" within "lsPower_Orchard_LCP" Landscape

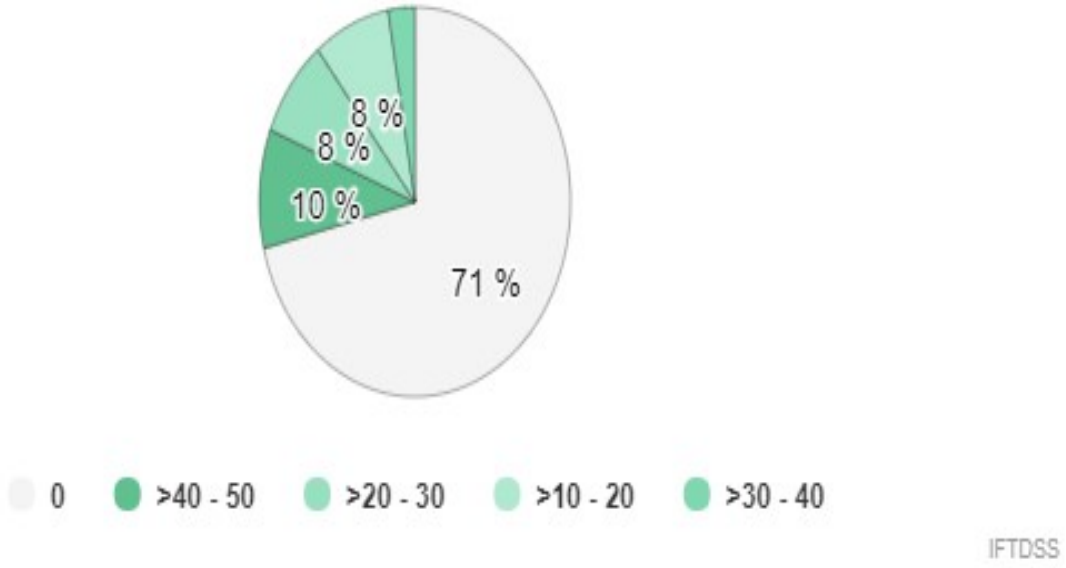
Landscape Name: lsPower_Orchard_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 13,071
Area of Interest Name: orchardaoi
Area of Interest Acres: 9,893
Model Name: lsPower_Orchard_LCP - Auto97th



Canopy Cover

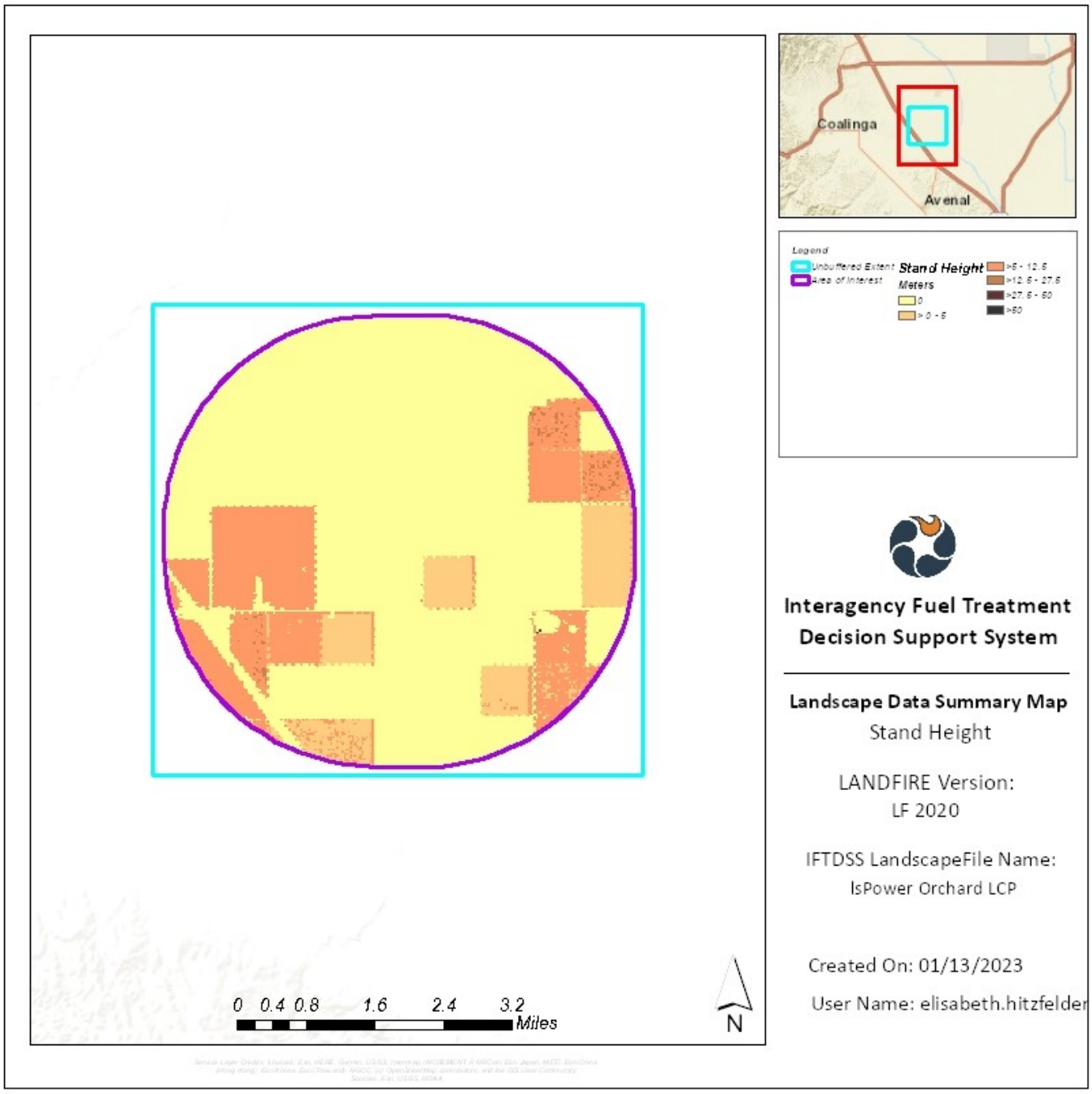
Canopy Cover (percent) Data Summary for Area of Interest "orchardaoi" within "lsPower_Orchard_LCP" Landscape

Landscape Name: lsPower_Orchard_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 13,071
Area of Interest Name: orchardaoi
Area of Interest Acres: 9,893
Model Name: lsPower_Orchard_LCP - Auto97th



Canopy Cover (percent)	Pixel Count (freq)	Acres In AOI	Percent In AOI
0 (non-forested)	31657	7040	71
>10 - 20	3534	786	8
>20 - 30	3669	816	8
>30 - 40	1231	274	3
>40 - 50	4392	977	10

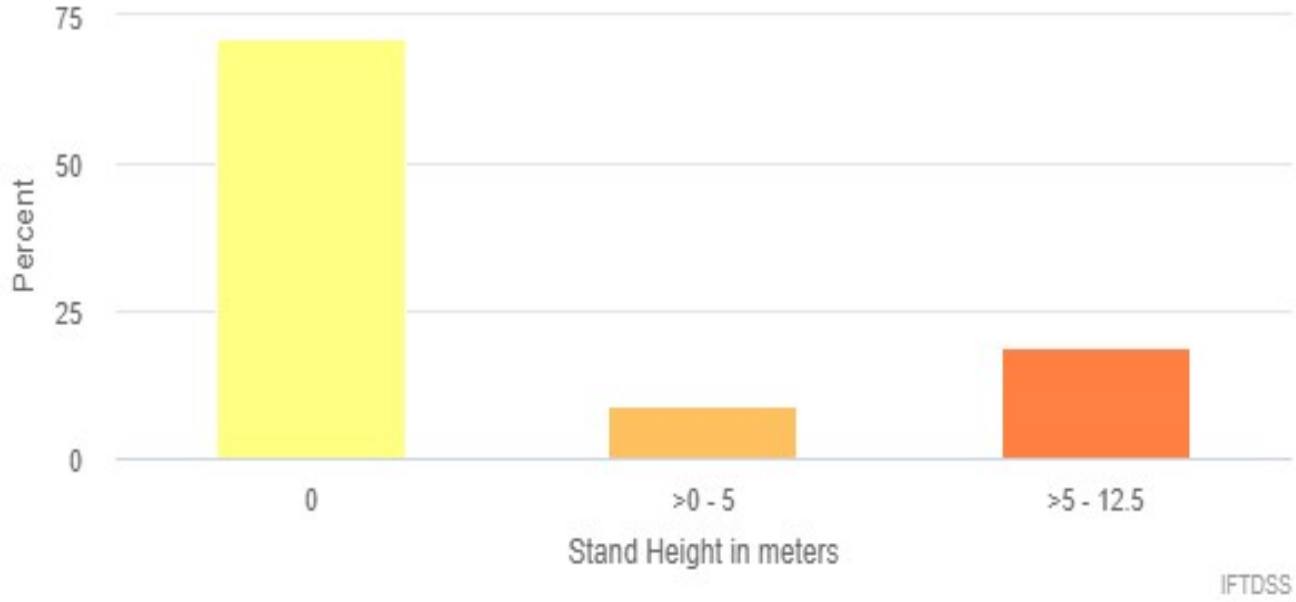
Stand Height



Stand Height

Stand Height (meters) Data Summary for Area of Interest "orchardaoi" within "IsPower_Orchard_LCP" Landscape

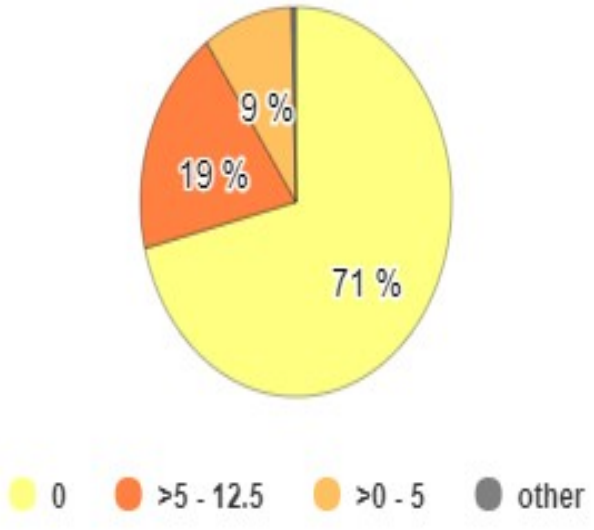
Landscape Name: IsPower_Orchard_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 13,071
Area of Interest Name: orchardaoi
Area of Interest Acres: 9,893
Model Name: IsPower_Orchard_LCP - Auto97th



Stand Height

Stand Height (meters) Data Summary for Area of Interest "orchardaoi" within "lsPower_Orchard_LCP" Landscape

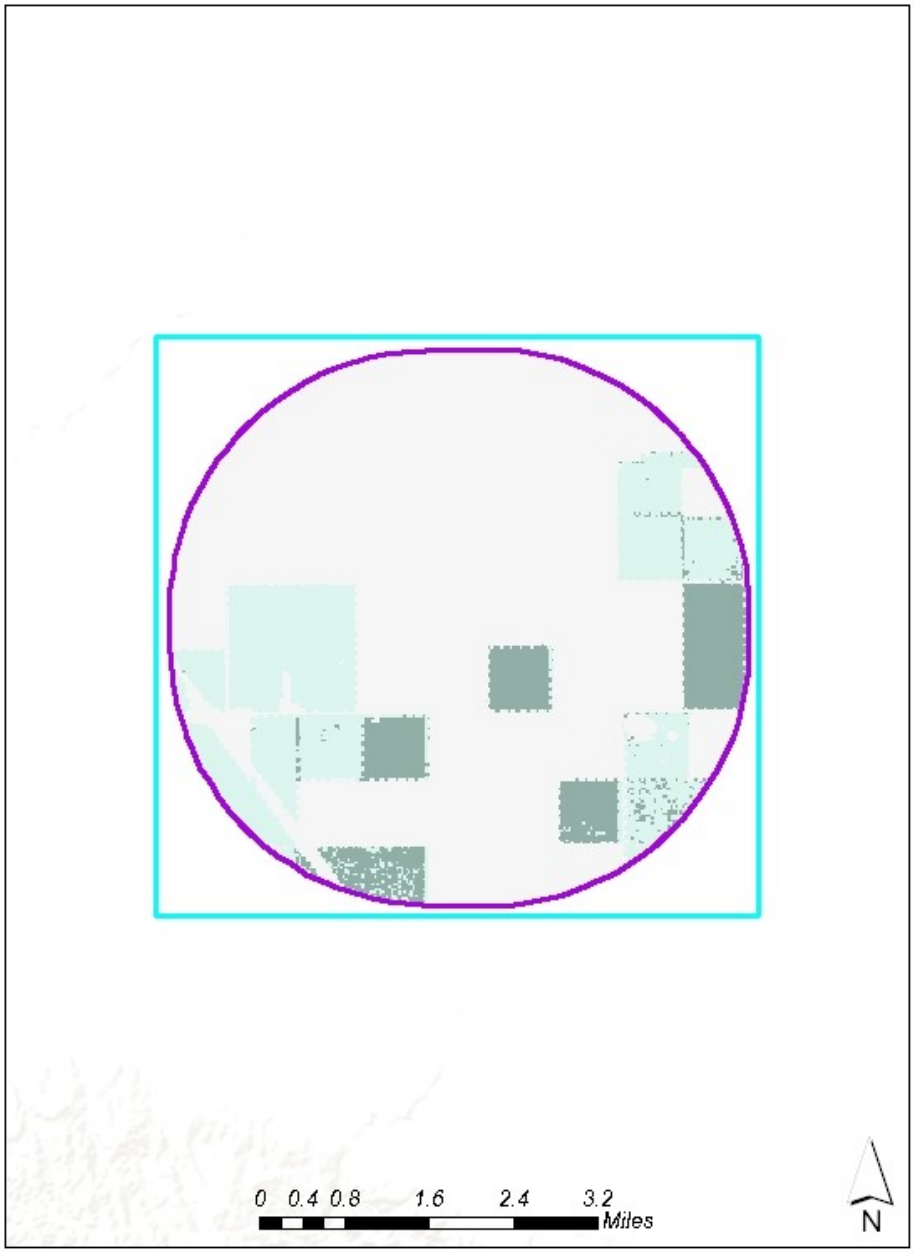
Landscape Name: lsPower_Orchard_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 13,071
Area of Interest Name: orchardaoi
Area of Interest Acres: 9,893
Model Name: lsPower_Orchard_LCP - Auto97th



IFTDSS

Stand Height (meters)	Pixel Count (freq)	Acres In AOI	Percent In AOI
0 (non-forested)	31657	7040	71
>0 - 5	4128	918	9
>5 - 12.5	8500	1890	19
>12.5 - 27.5	195	43	0
>27.5 - 50	3	1	0

Canopy Base Height



Legend
Unbuffered Extent
Area of Interest
Canopy Base Height
Meters
0
>0 - 0.5
>0.5 - 1
>1 - 1.5
>1.5 - 2
>2 - 2.5
>2.5 - 3
>3 - 3.5
>3.5 - 4
>4 - 10
>10

Interagency Fuel Treatment Decision Support System

Landscape Data Summary Map

Canopy Base Height

LANDFIRE Version:
LF 2020

IFTDSS LandscapeFile Name:
IsPower Orchard LCP

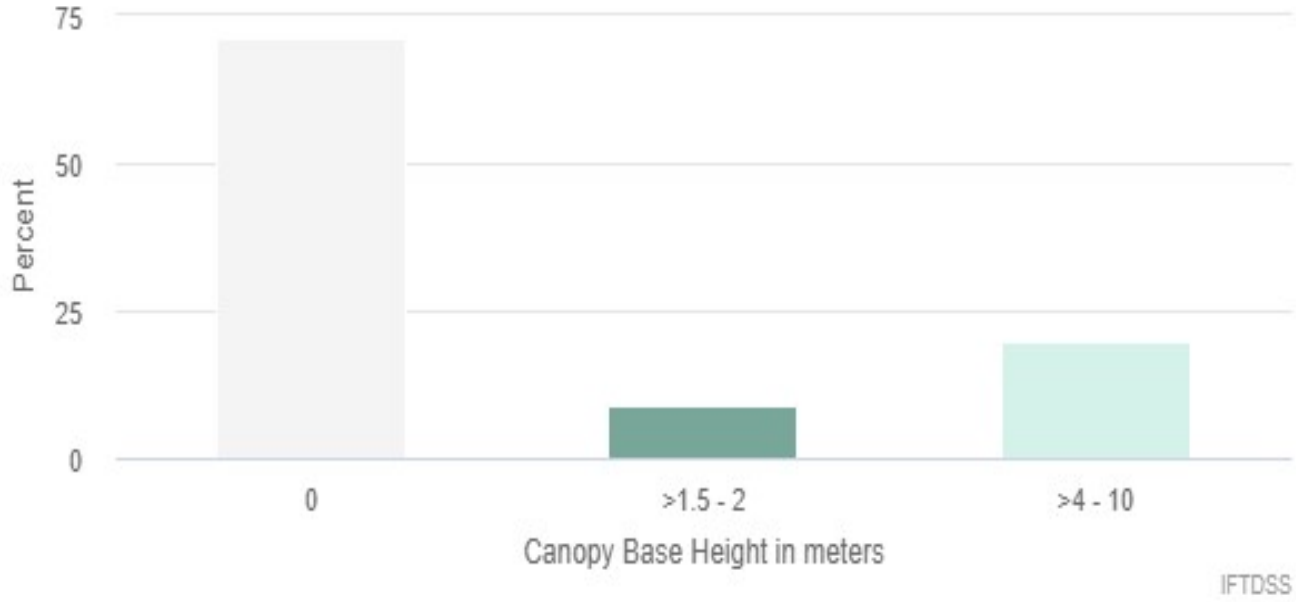
Created On: 01/13/2023

User Name: elisabeth.hitzfelder

Canopy Base Height

Canopy Base Height (meters) Data Summary for Area of Interest "orchardaoi" within "lsPower_Orchard_LCP" Landscape

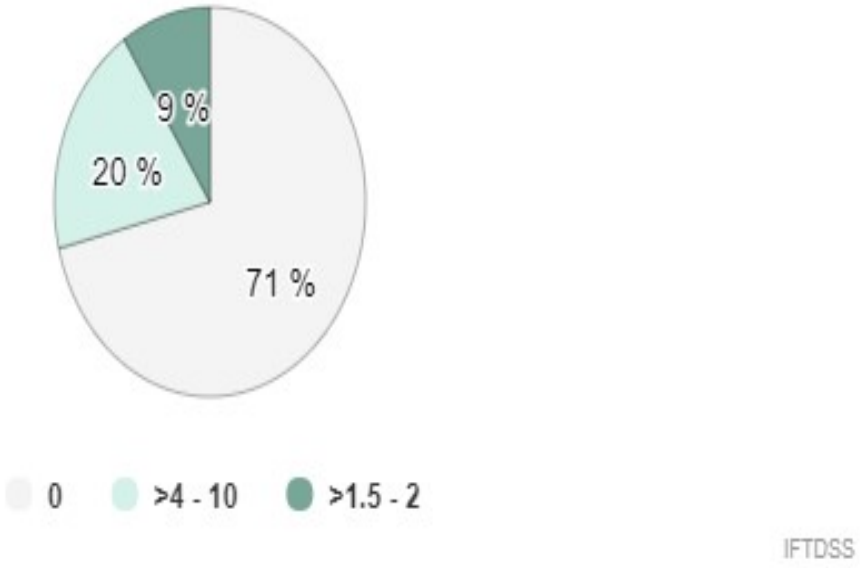
Landscape Name: lsPower_Orchard_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 13,071
Area of Interest Name: orchardaoi
Area of Interest Acres: 9,893
Model Name: lsPower_Orchard_LCP - Auto97th



Canopy Base Height

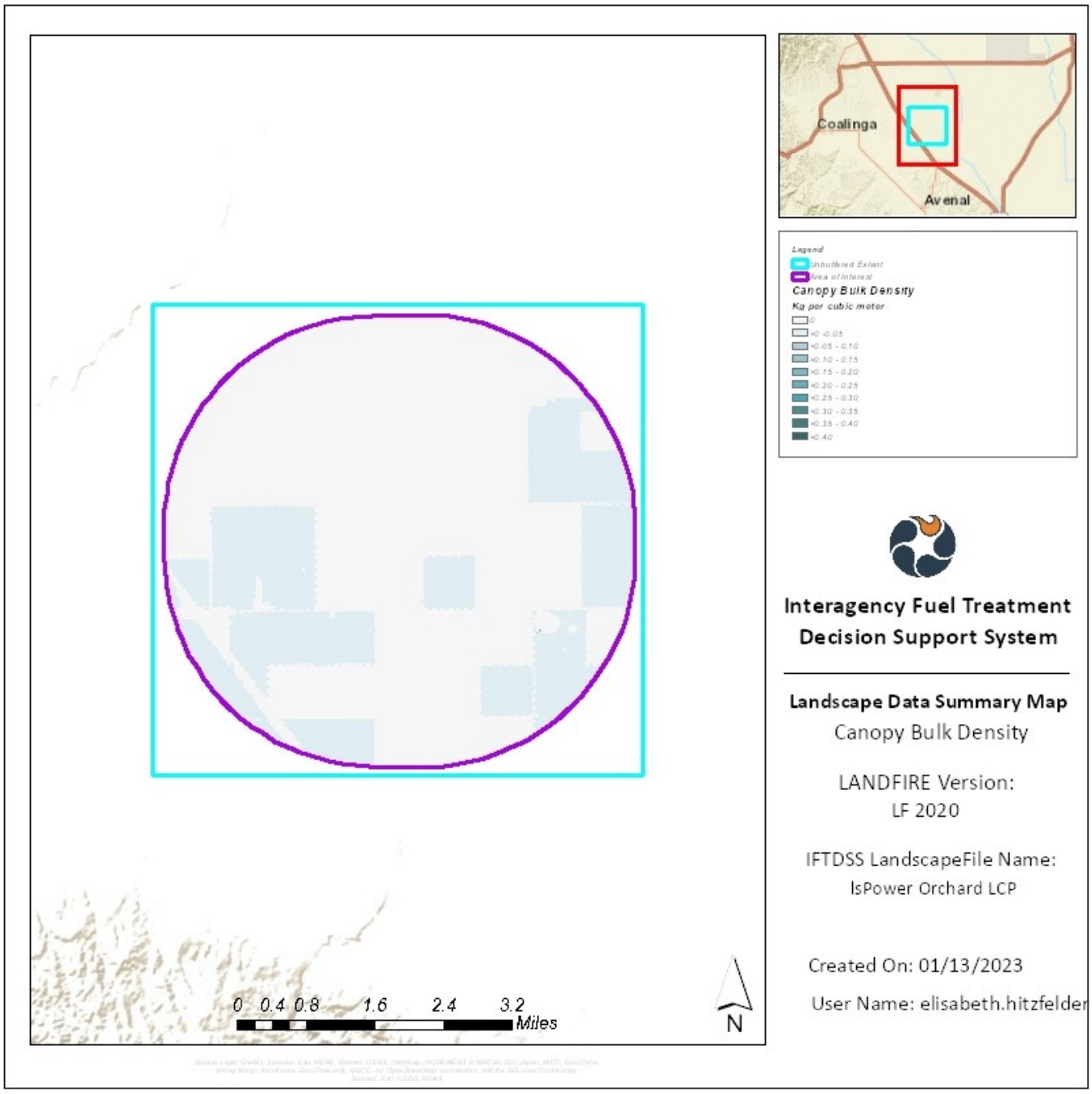
Canopy Base Height (meters) Data Summary for Area of Interest "orchardaoi" within "IsPower_Orchard_LCP" Landscape

Landscape Name: IsPower_Orchard_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 13,071
Area of Interest Name: orchardaoi
Area of Interest Acres: 9,893
Model Name: IsPower_Orchard_LCP - Auto97th



Canopy Base Height (meters)	Pixel Count (freq)	Acres In AOI	Percent In AOI
0 (non-forested)	31657	7040	71
>1.5 - 2	4131	919	9
>4 - 10	8695	1934	20

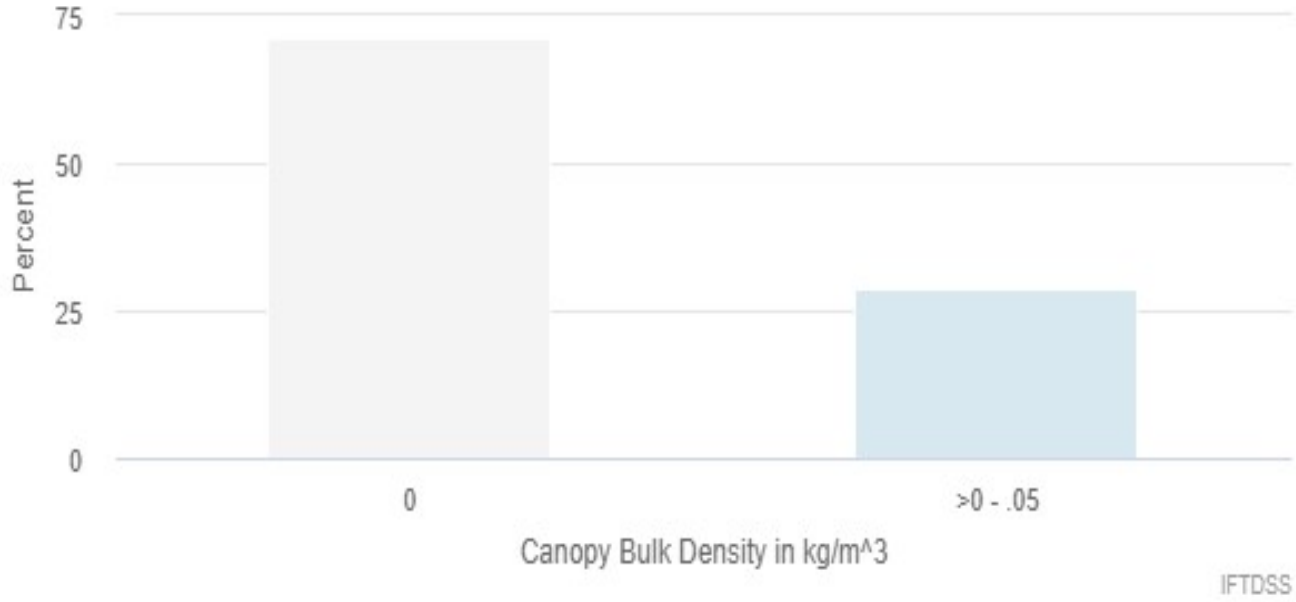
Canopy Bulk Density



Canopy Bulk Density

Canopy Bulk Density (kg/m^3) Data Summary for Area of Interest "orchardaoi" within "lsPower_Orchard_LCP" Landscape

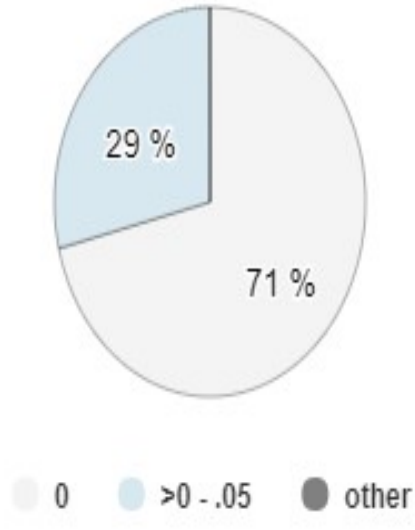
Landscape Name: lsPower_Orchard_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 13,071
Area of Interest Name: orchardaoi
Area of Interest Acres: 9,893
Model Name: lsPower_Orchard_LCP - Auto97th



Canopy Bulk Density

Canopy Bulk Density (kg/m^3) Data Summary for Area of Interest "orchardaoi" within "lsPower_Orchard_LCP" Landscape

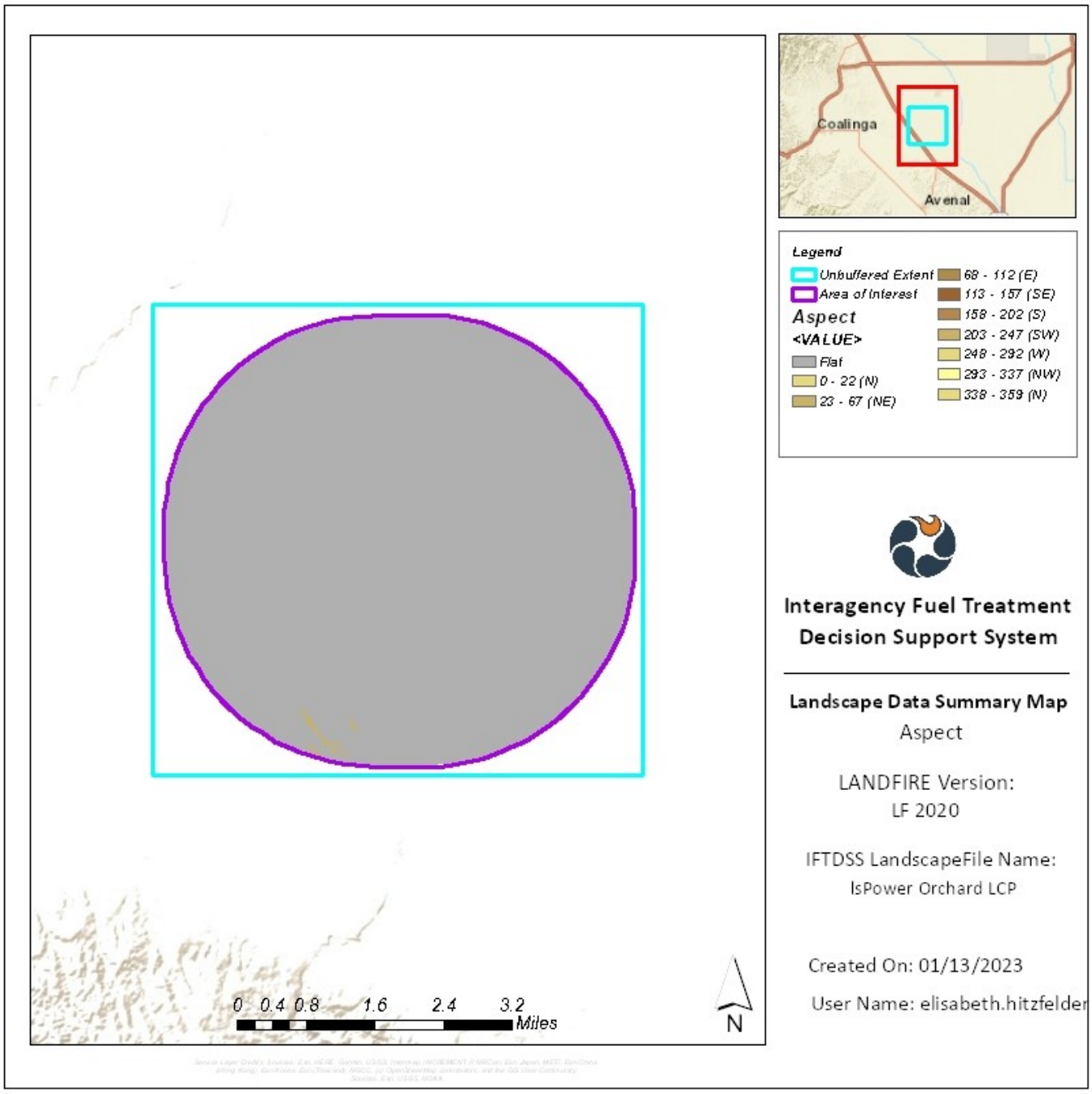
Landscape Name: lsPower_Orchard_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 13,071
Area of Interest Name: orchardaoi
Area of Interest Acres: 9,893
Model Name: lsPower_Orchard_LCP - Auto97th



IFTDSS

Canopy Bulk Density (kg/m^3)	Pixel Count (freq)	Acres In AOI	Percent In AOI
0 (non-forested)	31657	7040	71
>0 - .05	12823	2852	29
>.05 - .10	3	1	0

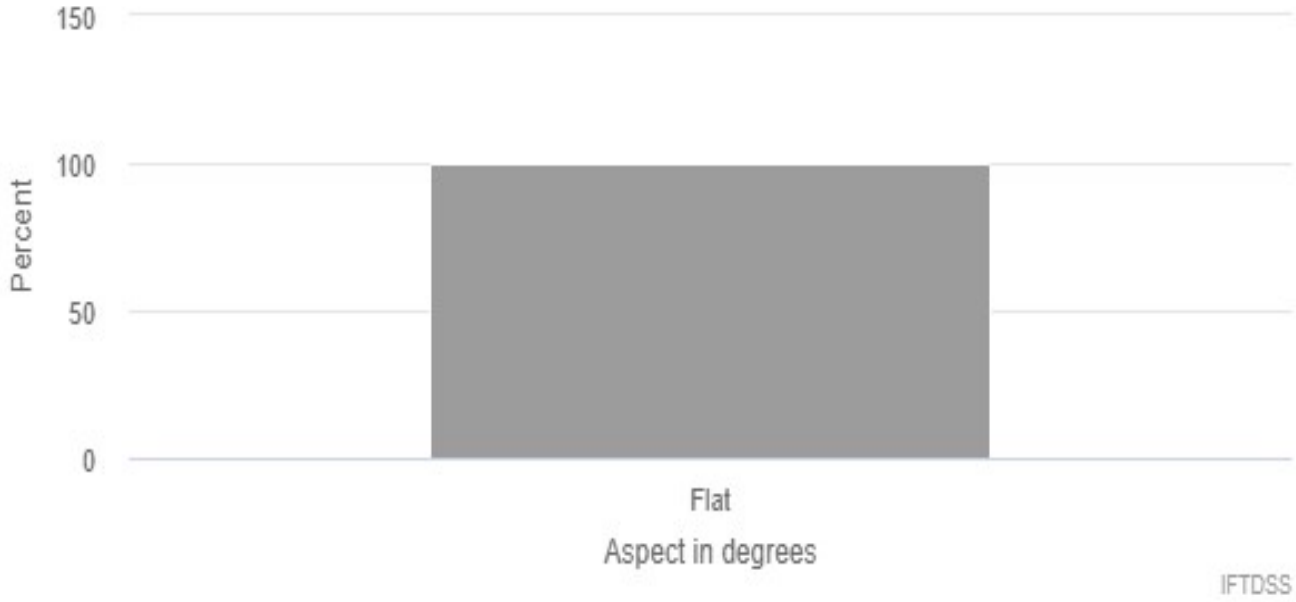
Aspect


Coalinga
Avenal
Legend
Unbuffered Extent
Area of Interest
Aspect
<VALUE>
Flat
0 - 22 (N)
23 - 67 (NE)
68 - 112 (E)
113 - 157 (SE)
158 - 202 (S)
203 - 247 (SW)
248 - 292 (W)
293 - 337 (NW)
338 - 359 (N)
0 0.4 0.8 1.6 2.4 3.2
Miles
N
Interagency Fuel Treatment Decision Support System
Landscape Data Summary Map
Aspect
LANDFIRE Version:
LF 2020
IFTDSS LandscapeFile Name:
IsPower Orchard LCP
Created On: 01/13/2023
User Name: elisabeth.hitzfelder

Aspect

Aspect (degrees) Data Summary for Area of Interest "orchardaoi" within "IsPower_Orchard_LCP" Landscape

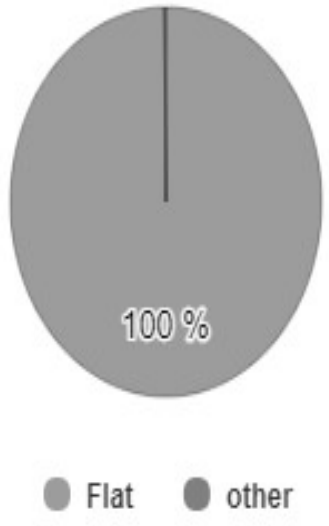
Landscape Name: IsPower_Orchard_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 13,071
Area of Interest Name: orchardaoi
Area of Interest Acres: 9,893
Model Name: IsPower_Orchard_LCP - Auto97th



Aspect

Aspect (degrees) Data Summary for Area of Interest "orchardaoi" within "lsPower_Orchard_LCP" Landscape

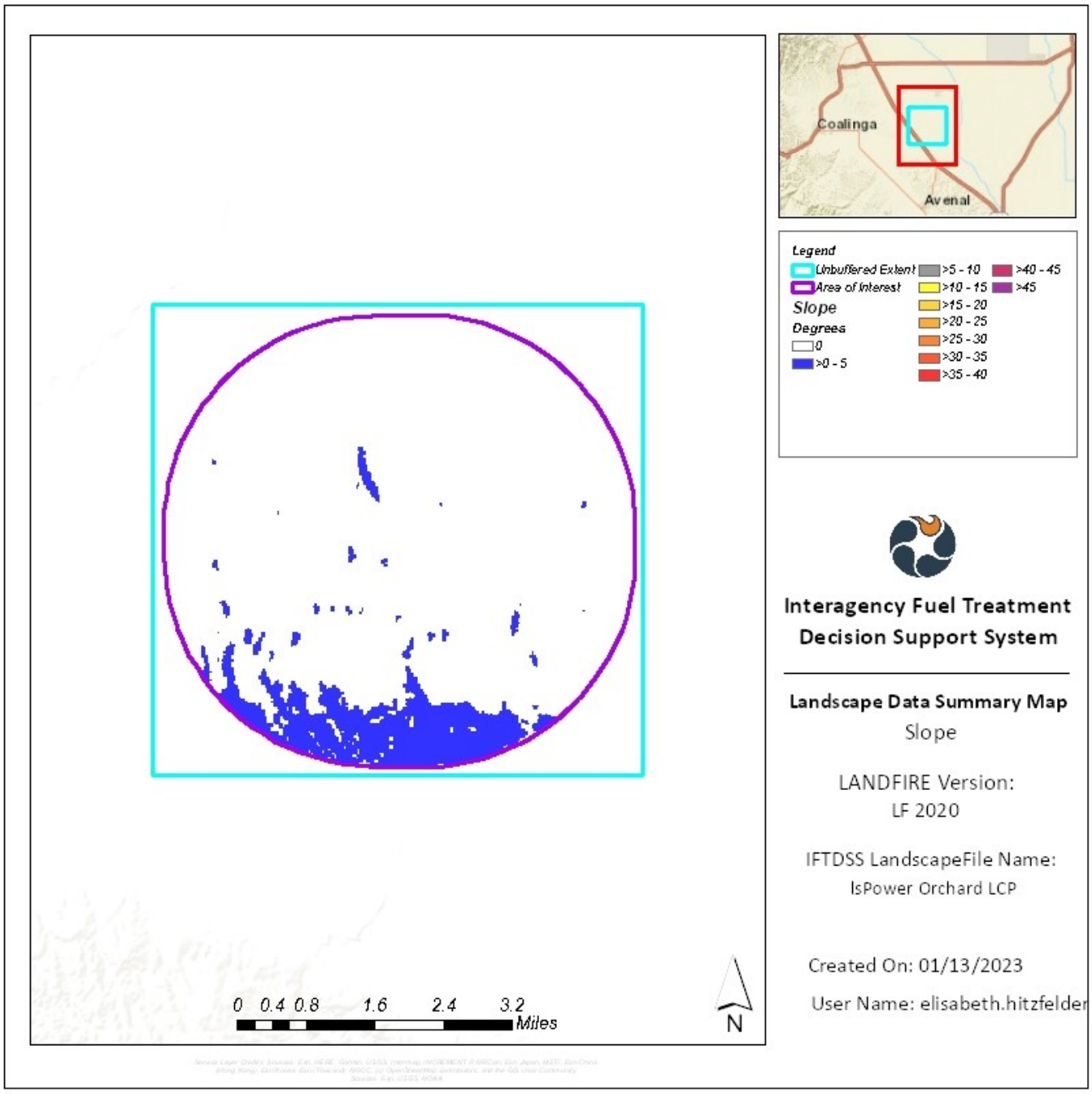
Landscape Name: lsPower_Orchard_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 13,071
Area of Interest Name: orchardaoi
Area of Interest Acres: 9,893
Model Name: lsPower_Orchard_LCP - Auto97th



IFTDSS

Aspect (degrees)	Pixel Count (freq)	Acres In AOI	Percent In AOI
Flat	44404	9875	100
23 - 67 (NE)	79	18	0

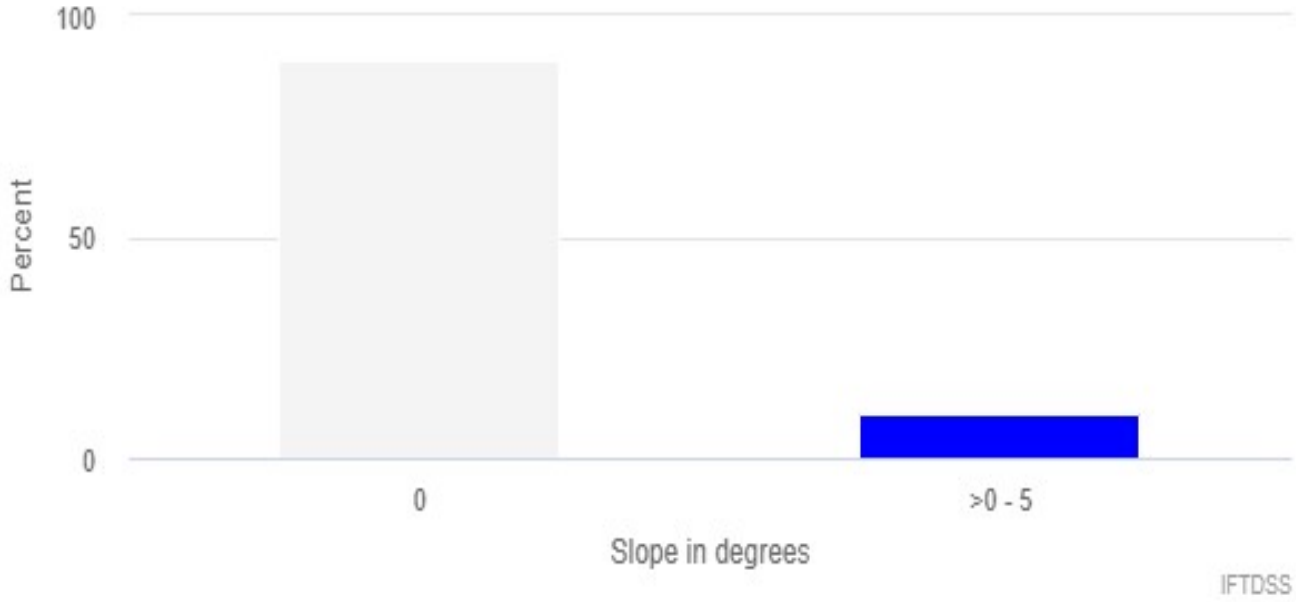
Slope


Coalinga
Avenal
Legend
Unbuffered Extent
Area of Interest
Slope
Degrees
0
>0 - 5
>5 - 10
>10 - 15
>15 - 20
>20 - 25
>25 - 30
>30 - 35
>35 - 40
>40 - 45
>45
0 0.4 0.8 1.6 2.4 3.2
Miles
N
Interagency Fuel Treatment Decision Support System
Landscape Data Summary Map
Slope
LANDFIRE Version:
LF 2020
IFTDSS LandscapeFile Name:
lsPower Orchard LCP
Created On: 01/13/2023
User Name: elisabeth.hitzfelder

Slope

Slope (degrees) Data Summary for Area of Interest "orchardaoi" within "lsPower_Orchard_LCP" Landscape

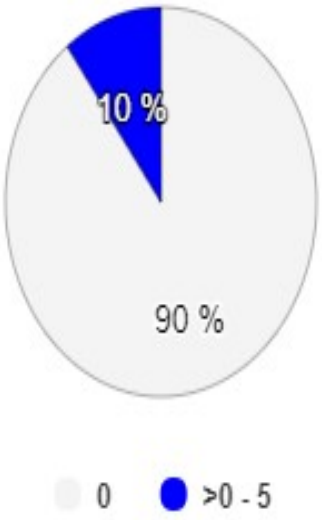
Landscape Name: lsPower_Orchard_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 13,071
Area of Interest Name: orchardaoi
Area of Interest Acres: 9,893
Model Name: lsPower_Orchard_LCP - Auto97th



Slope

Slope (degrees) Data Summary for Area of Interest "orchardaoi" within "IsPower_Orchard_LCP" Landscape

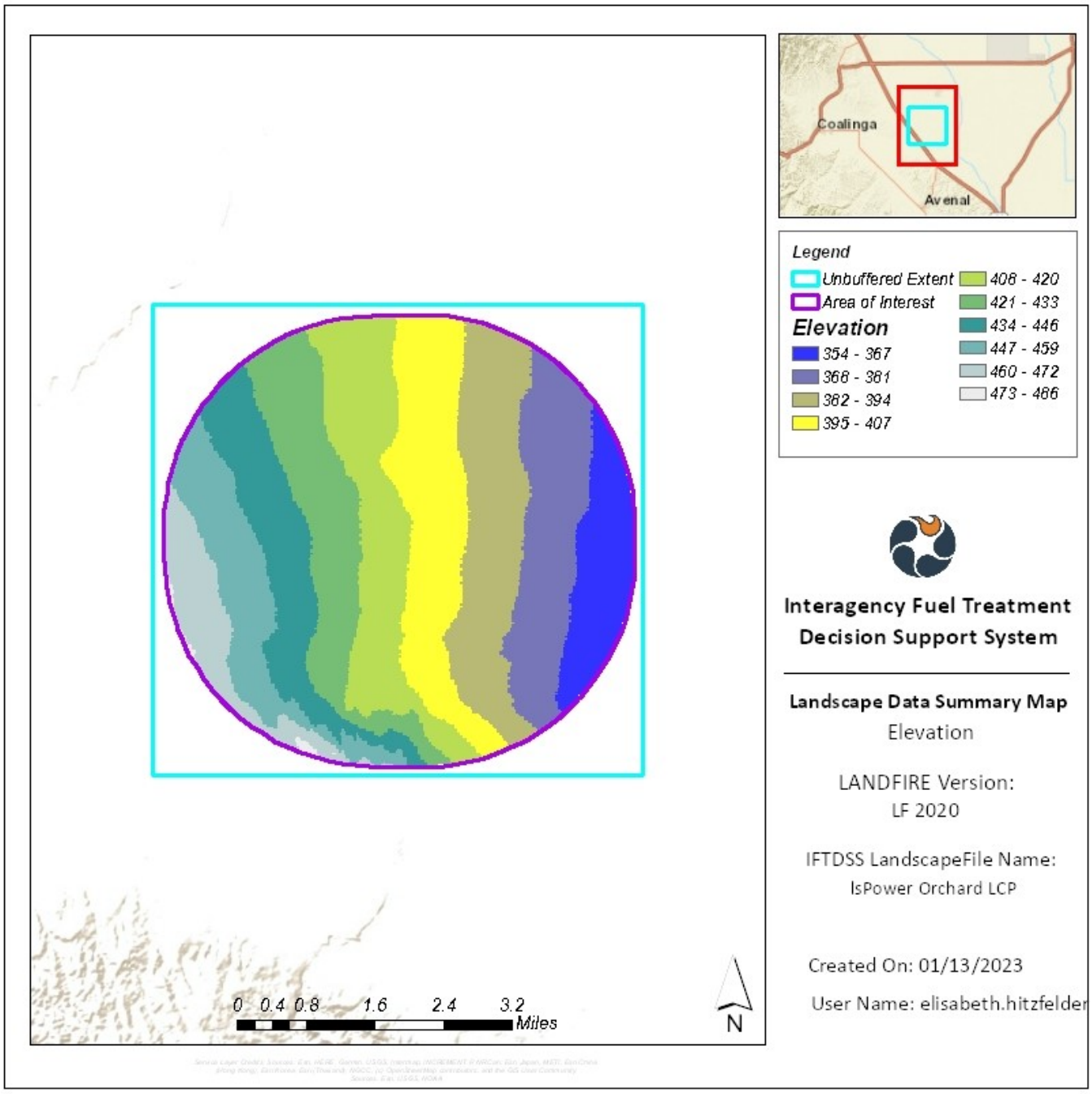
Landscape Name: IsPower_Orchard_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 13,071
Area of Interest Name: orchardaoi
Area of Interest Acres: 9,893
Model Name: IsPower_Orchard_LCP - Auto97th



IFTDSS

Slope (degrees)	Pixel Count (freq)	Acres In AOI	Percent In AOI
0	39915	8877	90
>0 - 5	4568	1016	10

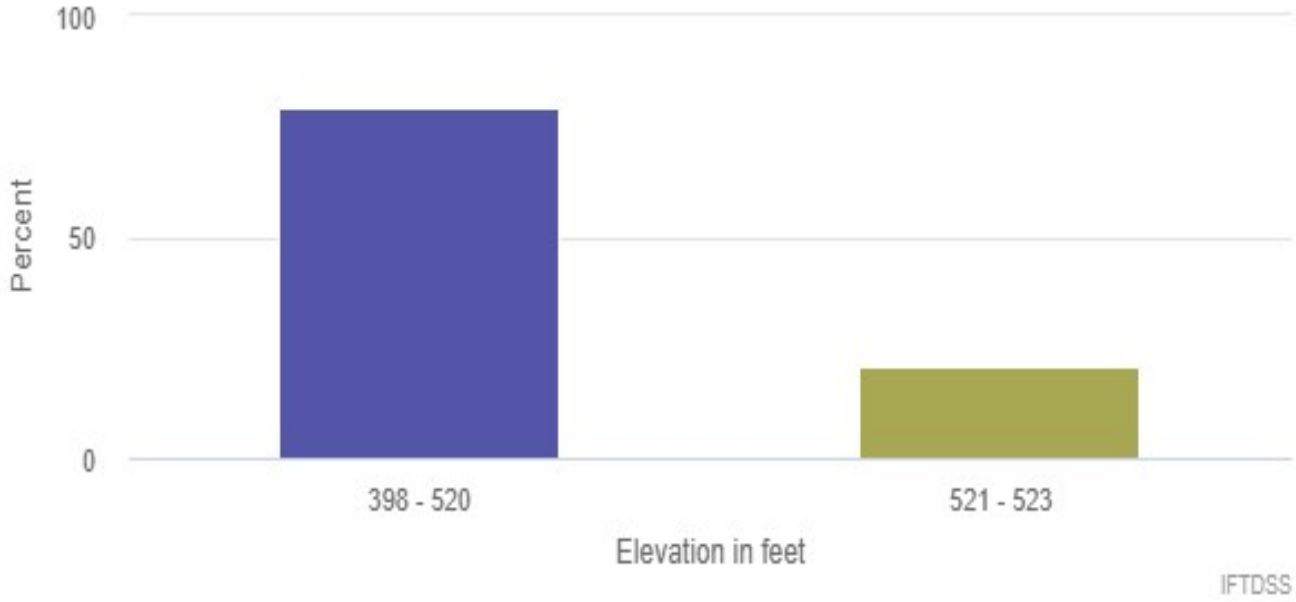
Elevation


Coalinga
Avenal
Legend
Unbuffered Extent
Area of Interest
Elevation
354 - 367
368 - 381
382 - 394
395 - 407
408 - 420
421 - 433
434 - 446
447 - 459
460 - 472
473 - 486
0 0.4 0.8 1.6 2.4 3.2
Miles
N
Interagency Fuel Treatment Decision Support System
Landscape Data Summary Map
Elevation
LANDFIRE Version:
LF 2020
IFTDSS LandscapeFile Name:
lsPower Orchard LCP
Created On: 01/13/2023
User Name: elisabeth.hitzfelder

Elevation

Elevation (feet) Data Summary for Area of Interest "orchardaoi" within "lsPower_Orchard_LCP" Landscape

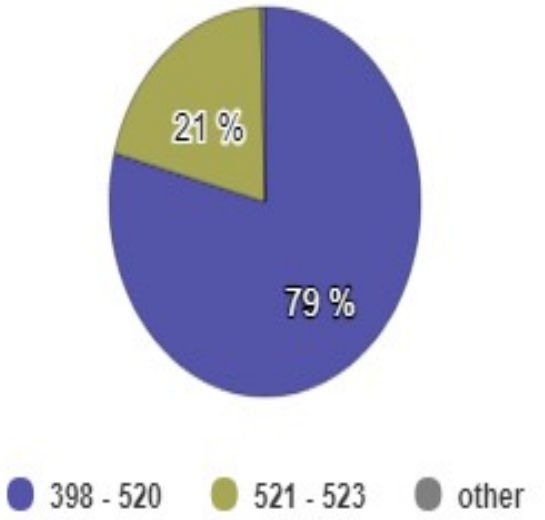
Landscape Name: lsPower_Orchard_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 13,071
Area of Interest Name: orchardaoi
Area of Interest Acres: 9,893
Model Name: lsPower_Orchard_LCP - Auto97th



Elevation

Elevation (feet) Data Summary for Area of Interest "orchardaoi" within "lsPower_Orchard_LCP" Landscape

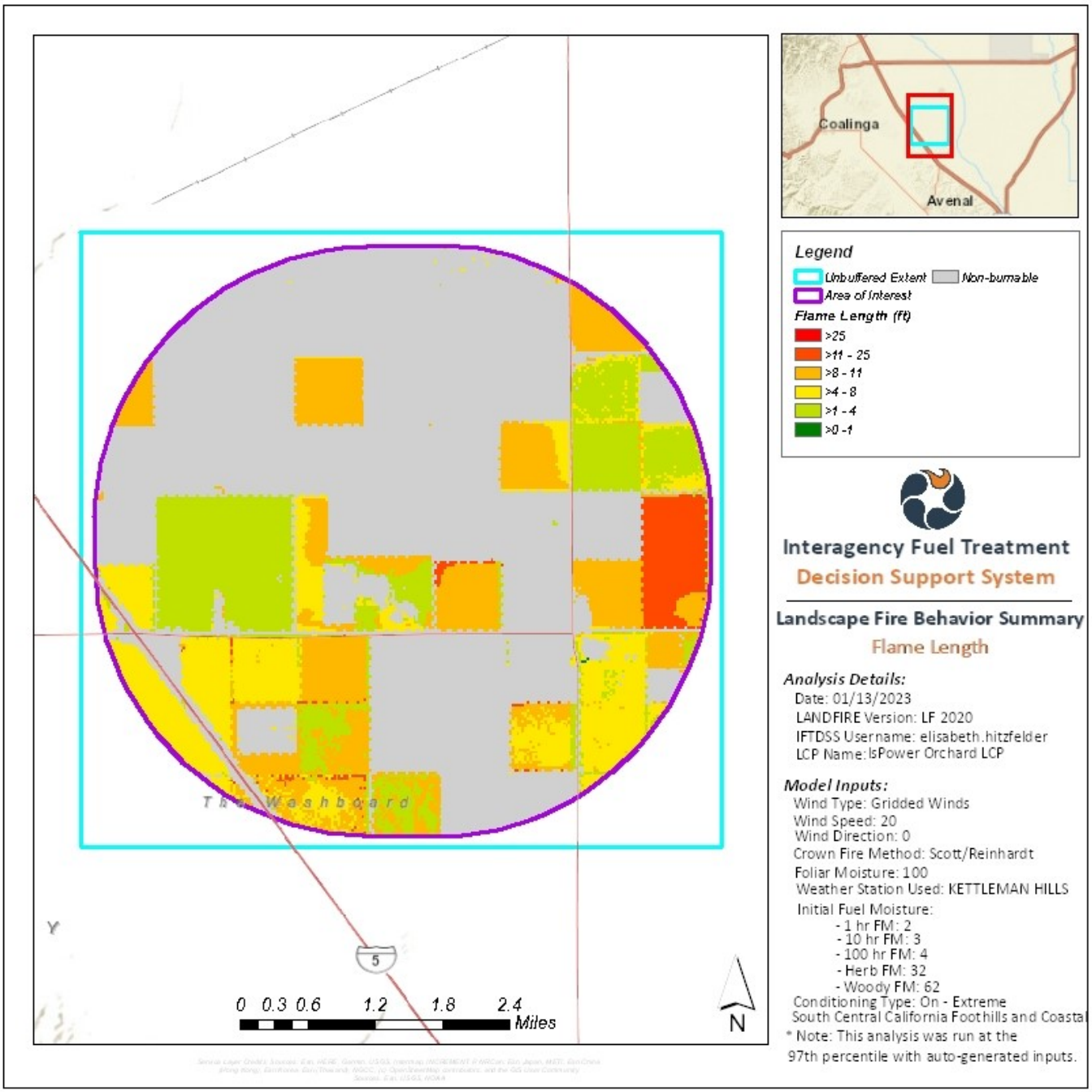
Landscape Name: lsPower_Orchard_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 13,071
Area of Interest Name: orchardaoi
Area of Interest Acres: 9,893
Model Name: lsPower_Orchard_LCP - Auto97th



IFTDSS

Elevation (feet)	Pixel Count (freq)	Acres In AOI	Percent In AOI
275 - 397	200	44	0
398 - 520	35160	7819	79
521 - 523	9123	2029	21

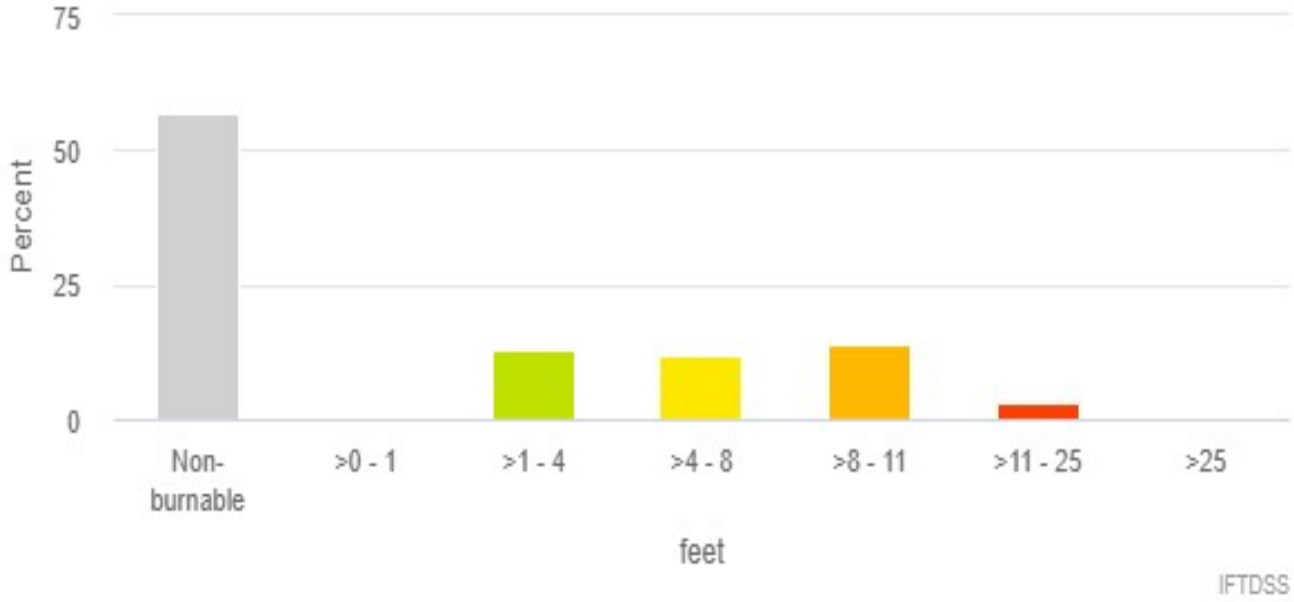
Flame Length



Flame Length

Flame Length (feet) Data Summary for Area of Interest "orchardaoi" within "IsPower_Orchard_LCP" Landscape

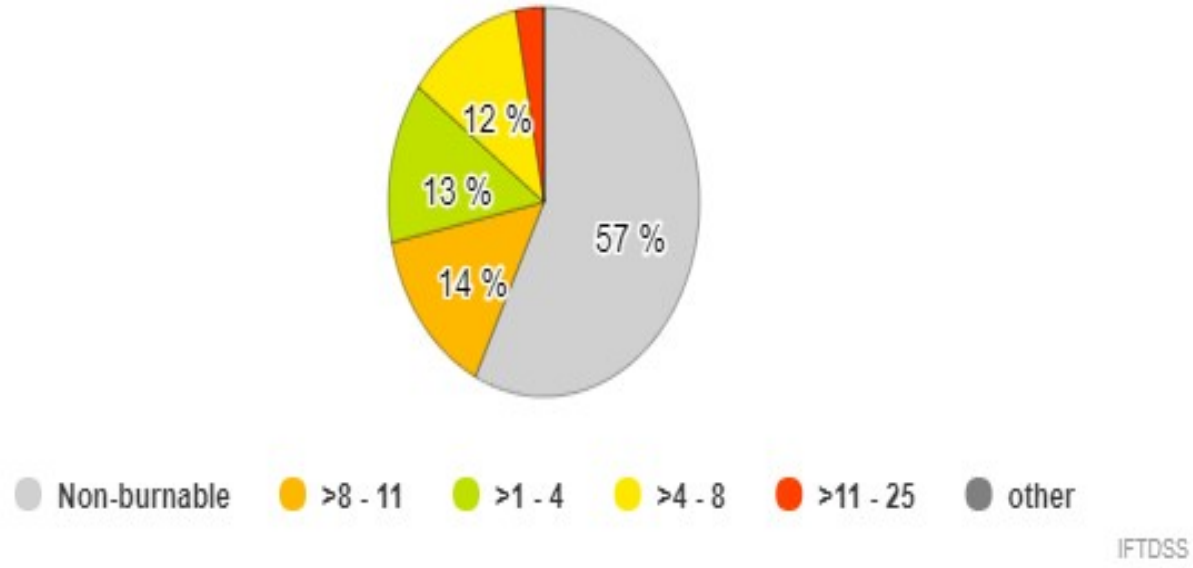
Landscape Name: IsPower_Orchard_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 13,071
Area of Interest Name: orchardaoi
Area of Interest Acres: 9,893
Model Name: IsPower_Orchard_LCP - Auto97th



Flame Length

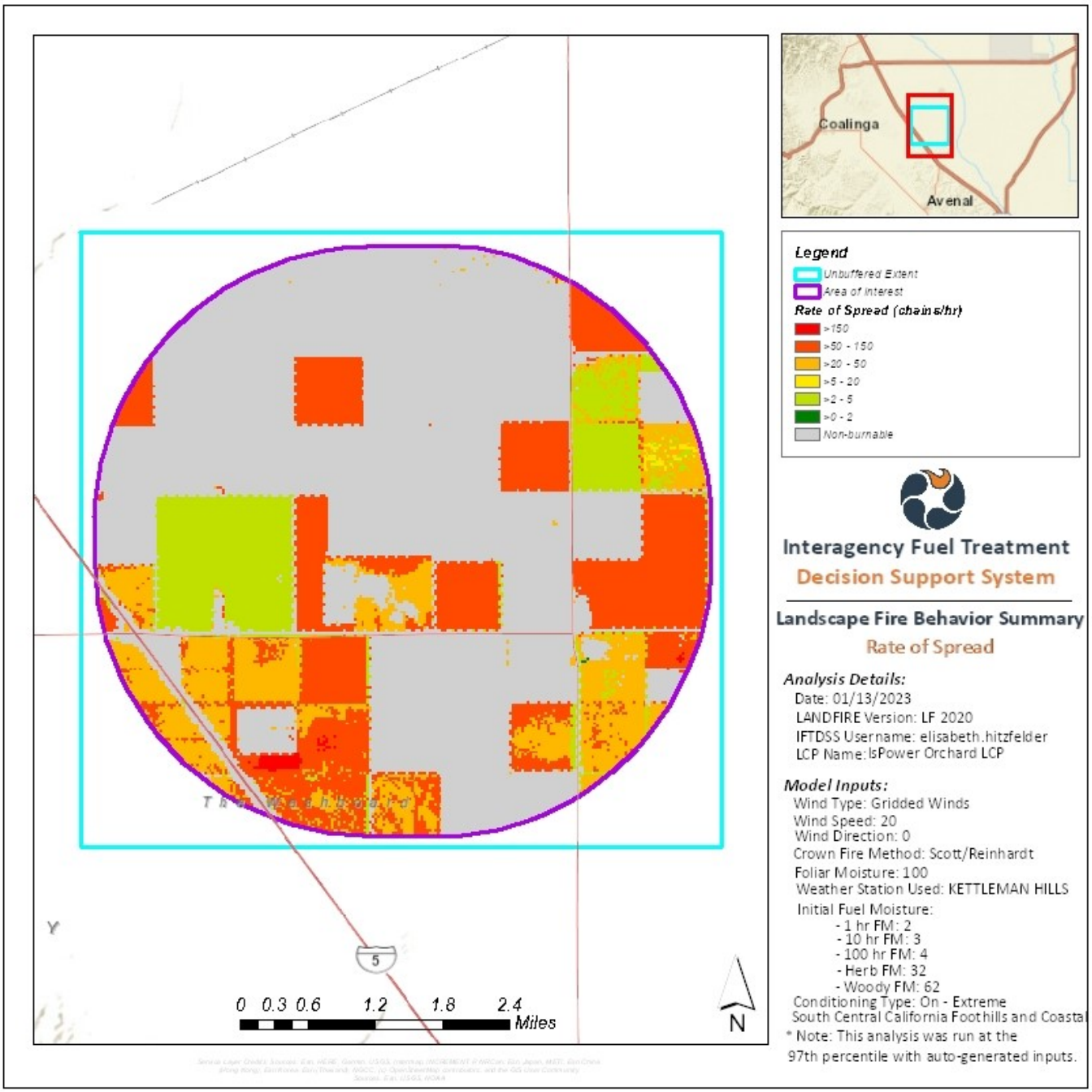
Flame Length (feet) Data Summary for Area of Interest "orchardaoi" within "IsPower_Orchard_LCP" Landscape

Landscape Name: IsPower_Orchard_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 13,071
Area of Interest Name: orchardaoi
Area of Interest Acres: 9,893
Model Name: IsPower_Orchard_LCP - Auto97th



Flame Length (feet)	Pixel Count (freq)	Acres In AOI	Percent In AOI
Non-burnable	25485	5668	57
>0 - 1	3	1	0
>1 - 4	5956	1325	13
>4 - 8	5354	1191	12
>8 - 11	6390	1421	14
>11 - 25	1295	288	3
>25	0	0	0

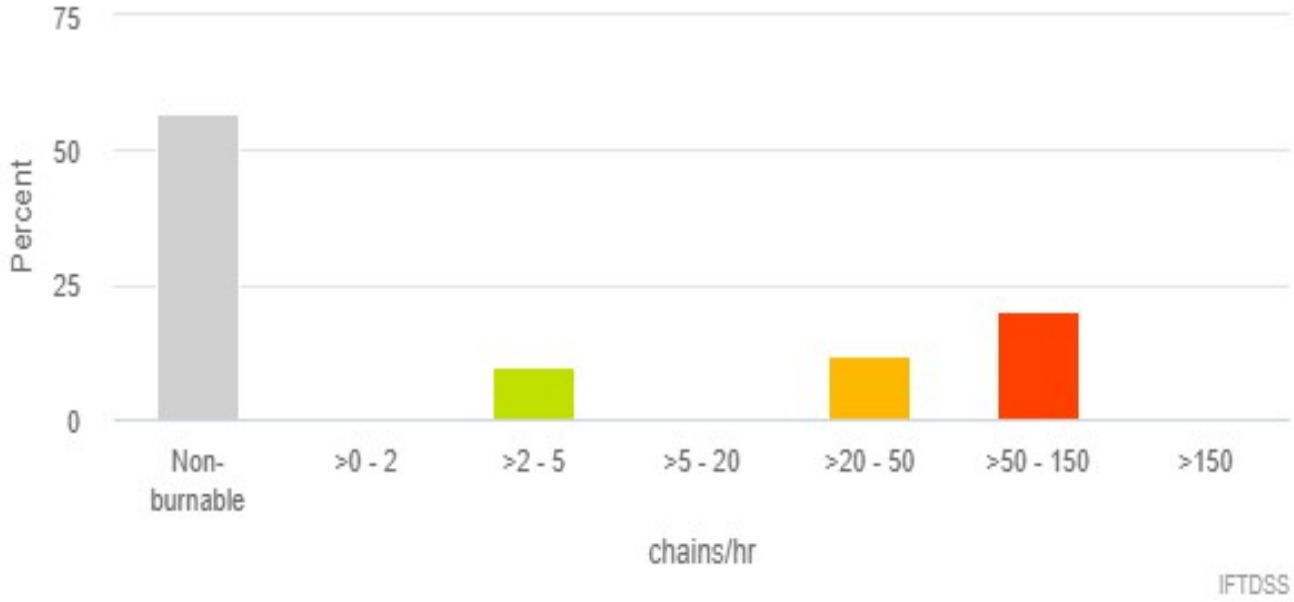
Spread Rate


Coalinga
Avenal
Legend
Unbuffered Extent
Area of Interest
Rate of Spread (chains/hr)
>150
>50 - 150
>20 - 50
>5 - 20
>2 - 5
>0 - 2
Non-burnable
0 0.3 0.6 1.2 1.8 2.4
Miles
N
Interagency Fuel Treatment
Decision Support System
Landscape Fire Behavior Summary
Rate of Spread
Analysis Details:
Date: 01/13/2023
LANDFIRE Version: LF 2020
IFTDSS Username: elisabeth.hitzfelder
LCP Name: IsPower Orchard LCP
Model Inputs:
Wind Type: Gridded Winds
Wind Speed: 20
Wind Direction: 0
Crown Fire Method: Scott/Reinhardt
Foliar Moisture: 100
Weather Station Used: KETTLEMAN HILLS
Initial Fuel Moisture:
- 1 hr FM: 2
- 10 hr FM: 3
- 100 hr FM: 4
- Herb FM: 32
- Woody FM: 62
Conditioning Type: On - Extreme
South Central California Foothills and Coastal M
* Note: This analysis was run at the
97th percentile with auto-generated inputs.

Spread Rate

Rate of Spread (chains/hr) Data Summary for Area of Interest "orchardaoi" within "lsPower_Orchard_LCP" Landscape

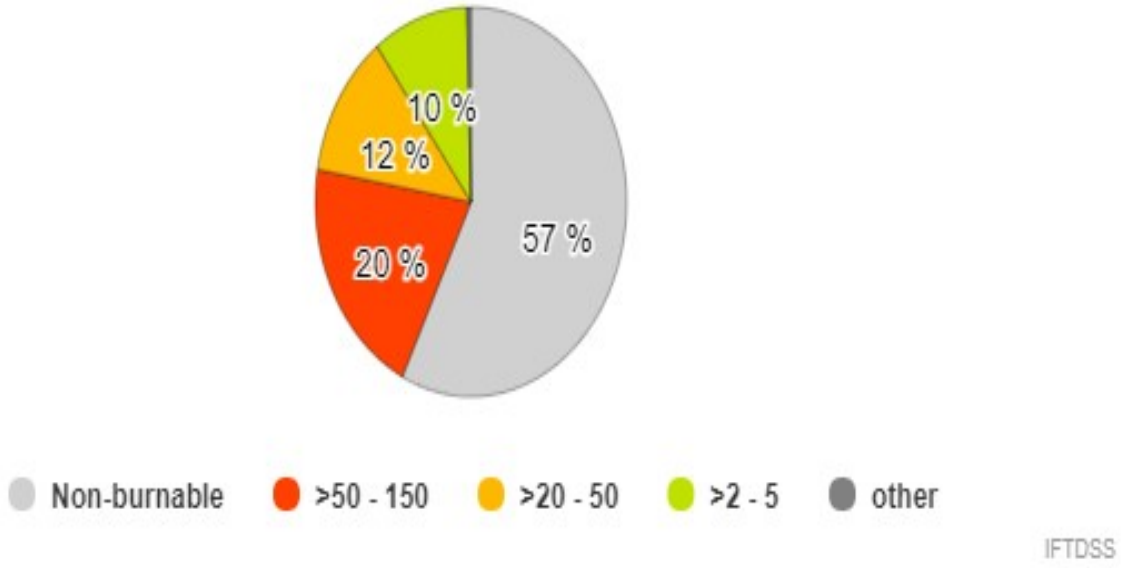
Landscape Name: lsPower_Orchard_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 13,071
Area of Interest Name: orchardaoi
Area of Interest Acres: 9,893
Model Name: lsPower_Orchard_LCP - Auto97th



Spread Rate

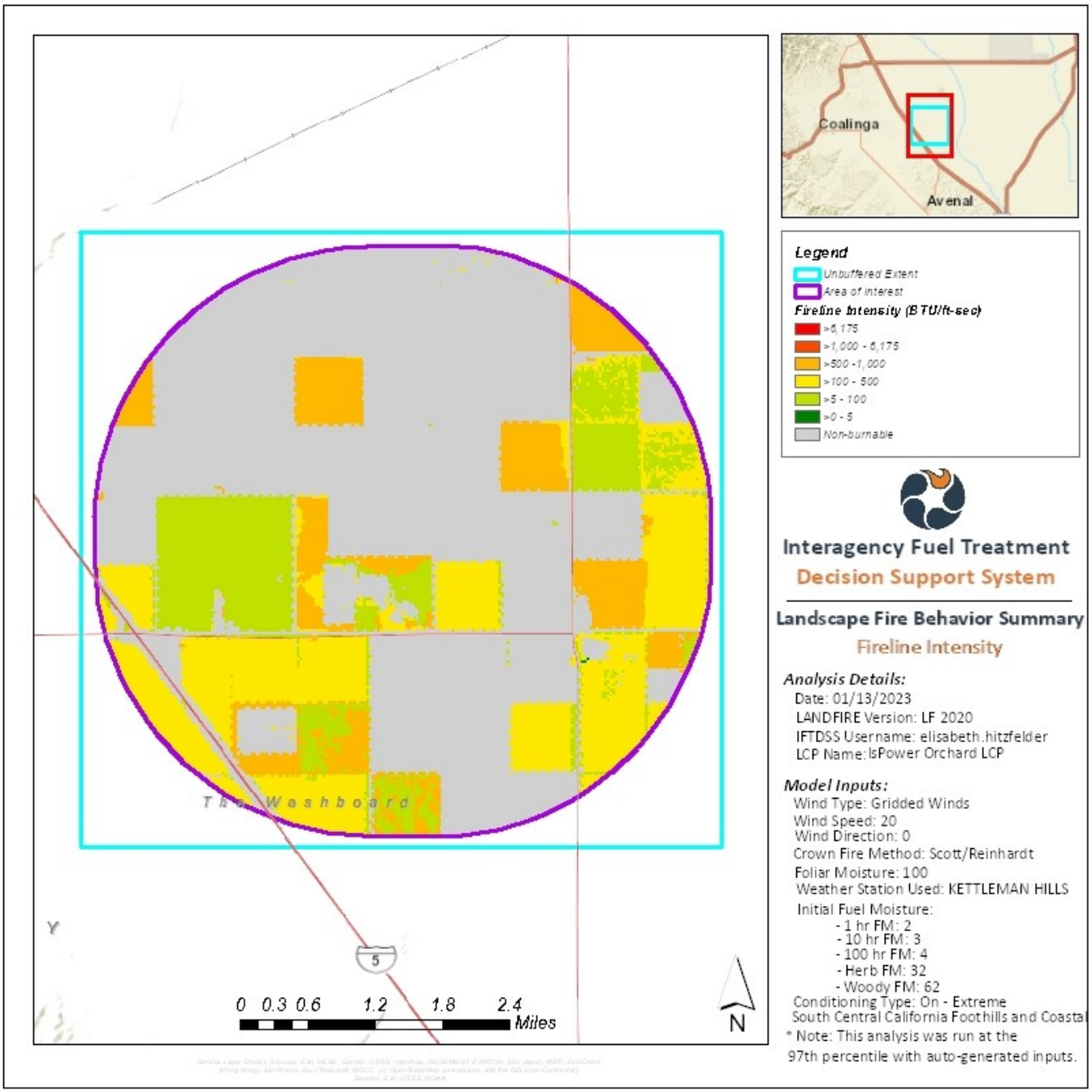
Rate of Spread (chains/hr) Data Summary for Area of Interest "orchardaoi" within "lsPower_Orchard_LCP" Landscape

Landscape Name: lsPower_Orchard_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 13,071
Area of Interest Name: orchardaoi
Area of Interest Acres: 9,893
Model Name: lsPower_Orchard_LCP - Auto97th



Rate of Spread (chains/hr)	Pixel Count (freq)	Acres In AOI	Percent In AOI
Non-burnable	25485	5668	57
>0 - 2	3	1	0
>2 - 5	4389	976	10
>5 - 20	72	16	0
>20 - 50	5352	1190	12
>50 - 150	9072	2018	20
>150	110	24	0

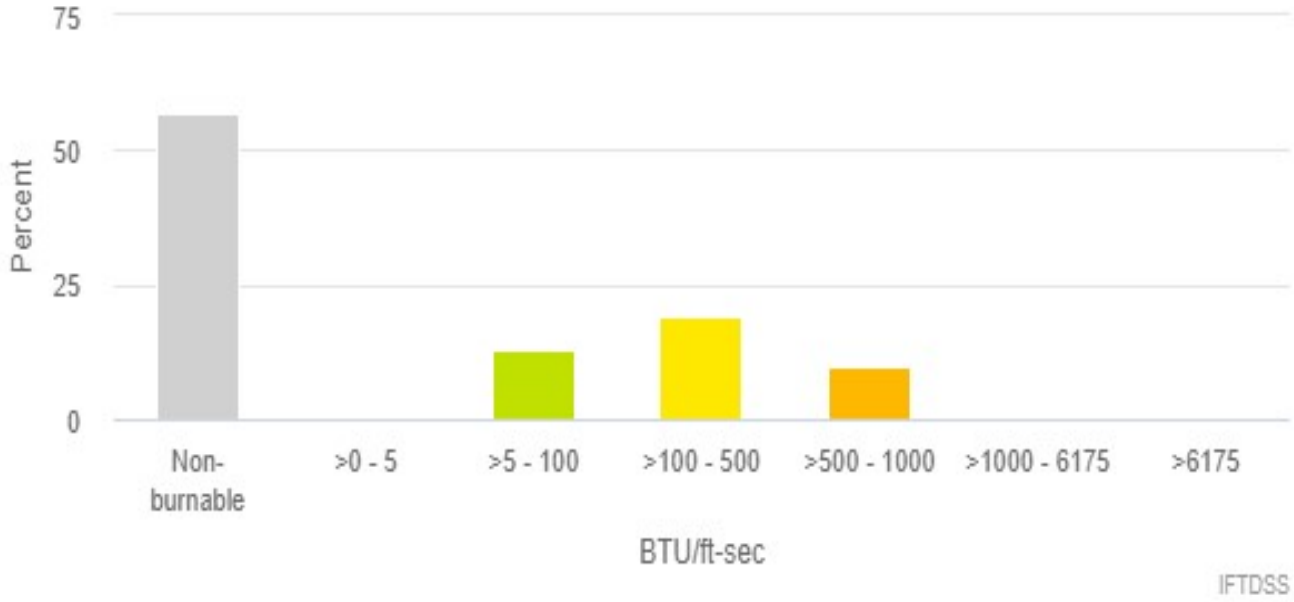
Intensity


Coalinga
Avenal
Legend
Unbuffered Extent
Area of Interest
Fireline Intensity (BTU/ft-sec)
>6,175
>1,000 - 6,175
>500 -1,000
>100 - 500
>5 - 100
>0 - 5
Non-burnable
The Washboard
5
0 0.3 0.6 1.2 1.8 2.4
Miles
N
Interagency Fuel Treatment
Decision Support System
Landscape Fire Behavior Summary
Fireline Intensity
Analysis Details:
Date: 01/13/2023
LANDFIRE Version: LF 2020
IFTDSS Username: elisabeth.hitzfelder
LCP Name: IsPower Orchard LCP
Model Inputs:
Wind Type: Gridded Winds
Wind Speed: 20
Wind Direction: 0
Crown Fire Method: Scott/Reinhardt
Foliar Moisture: 100
Weather Station Used: KETTLEMAN HILLS
Initial Fuel Moisture:
- 1 hr FM: 2
- 10 hr FM: 3
- 100 hr FM: 4
- Herb FM: 32
- Woody FM: 62
Conditioning Type: On - Extreme
South Central California Foothills and Coastal M
* Note: This analysis was run at the
97th percentile with auto-generated inputs.

Intensity

Fireline Intensity (BTU/ft-sec) Data Summary for Area of Interest "orchardaoi" within "IsPower_Orchard_LCP" Landscape

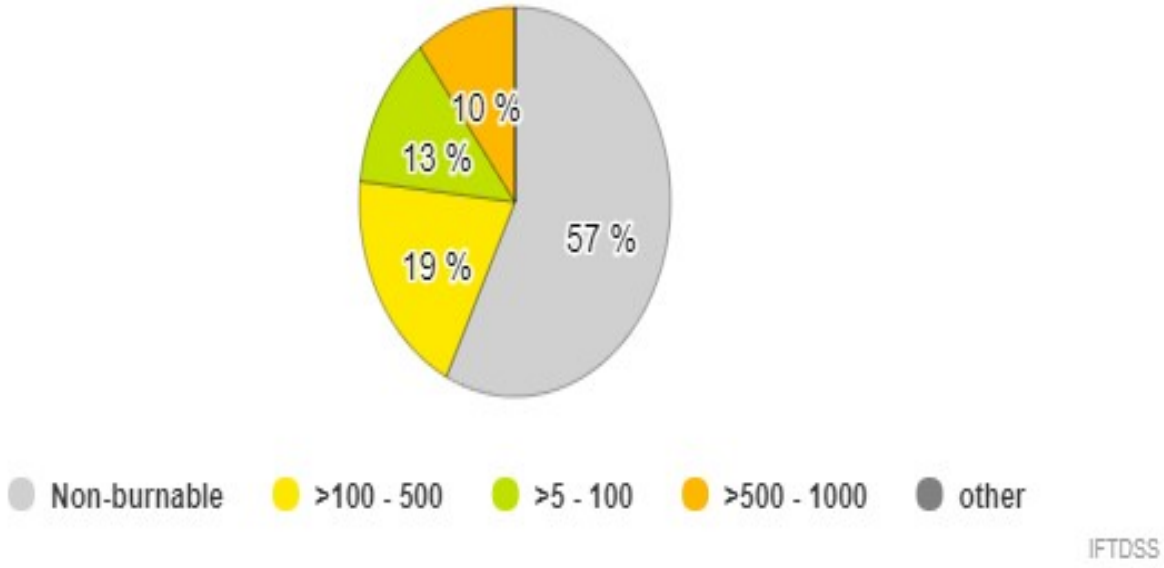
Landscape Name: IsPower_Orchard_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 13,071
Area of Interest Name: orchardaoi
Area of Interest Acres: 9,893
Model Name: IsPower_Orchard_LCP - Auto97th



Intensity

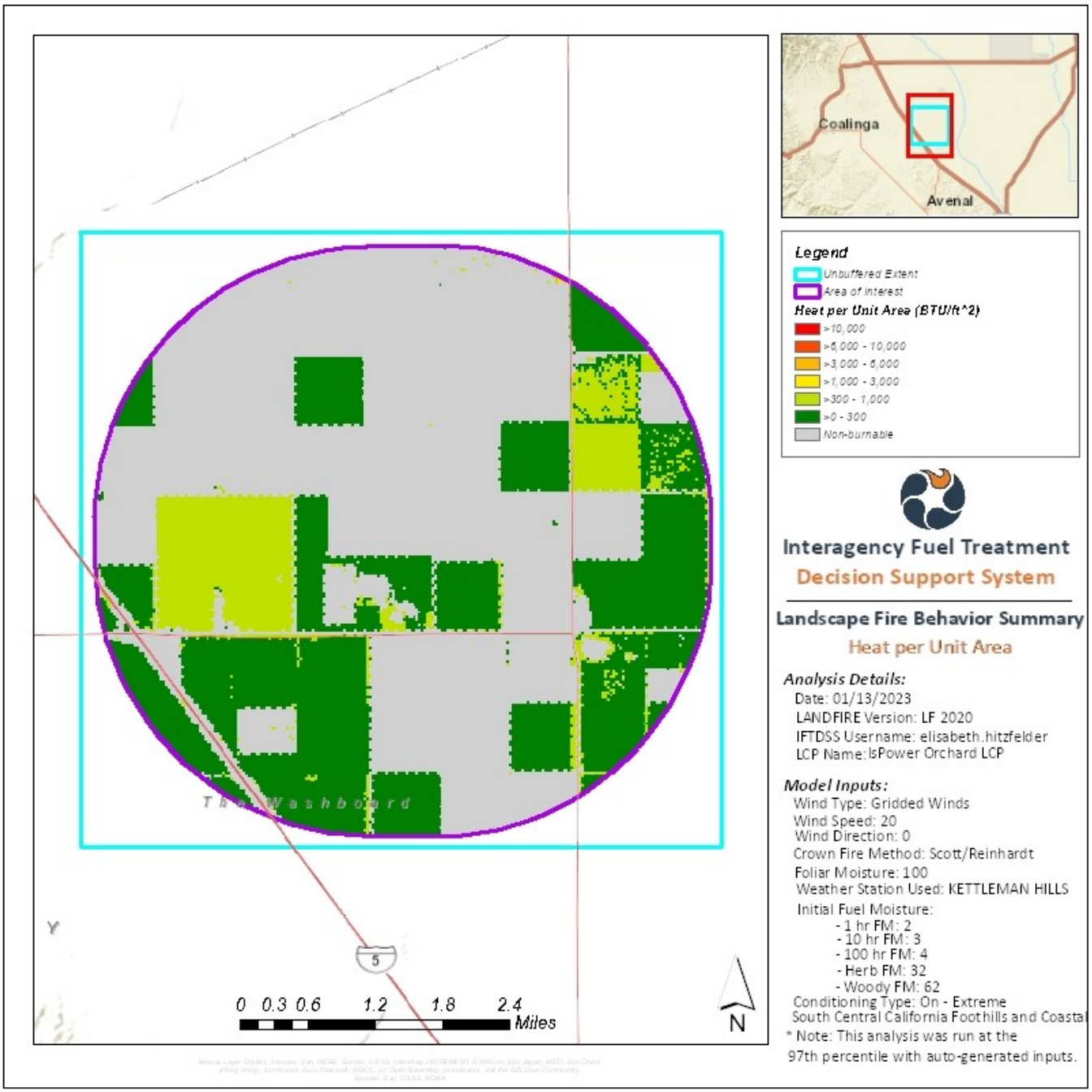
Fireline Intensity (BTU/ft-sec) Data Summary for Area of Interest "orchardaoi" within "IsPower_Orchard_LCP" Landscape

Landscape Name: IsPower_Orchard_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 13,071
Area of Interest Name: orchardaoi
Area of Interest Acres: 9,893
Model Name: IsPower_Orchard_LCP - Auto97th



Fireline Intensity (BTU/ft-sec)	Pixel Count (freq)	Acres In AOI	Percent In AOI
Non-burnable	25485	5668	57
>0 - 5	3	1	0
>5 - 100	5722	1273	13
>100 - 500	8638	1921	19
>500 - 1,000	4635	1031	10
>1,000 - 6,175	0	0	0
>6,175	0	0	0

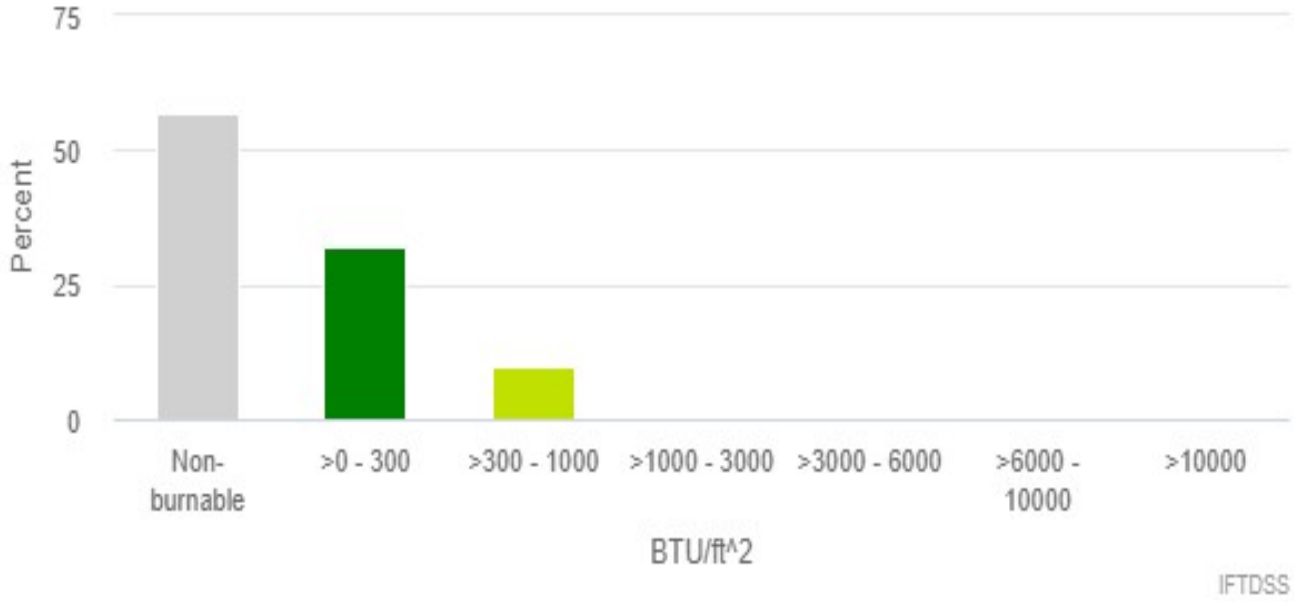
Heat/Area


Coalinga
Avenal
Legend
Unbuffered Extent
Area of Interest
Heat per Unit Area (BTU/ft^2)
>10,000
>6,000 - 10,000
>3,000 - 6,000
>1,000 - 3,000
>300 - 1,000
>0 - 300
Non-burnable
Interagency Fuel Treatment
Decision Support System
Landscape Fire Behavior Summary
Heat per Unit Area
Analysis Details:
Date: 01/13/2023
LANDFIRE Version: LF 2020
IFTDSS Username: elisabeth.hitzfelder
LCP Name: IsPower Orchard LCP
Model Inputs:
Wind Type: Gridded Winds
Wind Speed: 20
Wind Direction: 0
Crown Fire Method: Scott/Reinhardt
Foliar Moisture: 100
Weather Station Used: KETTLEMAN HILLS
Initial Fuel Moisture:
- 1 hr FM: 2
- 10 hr FM: 3
- 100 hr FM: 4
- Herb FM: 32
- Woody FM: 62
Conditioning Type: On - Extreme
South Central California Foothills and Coastal M
* Note: This analysis was run at the
97th percentile with auto-generated inputs.
0 0.3 0.6 1.2 1.8 2.4
Miles
N
5

Heat/Area

Heat per Unit Area (BTU/ft^2) Data Summary for Area of Interest "orchardaoi" within "IsPower_Orchard_LCP" Landscape

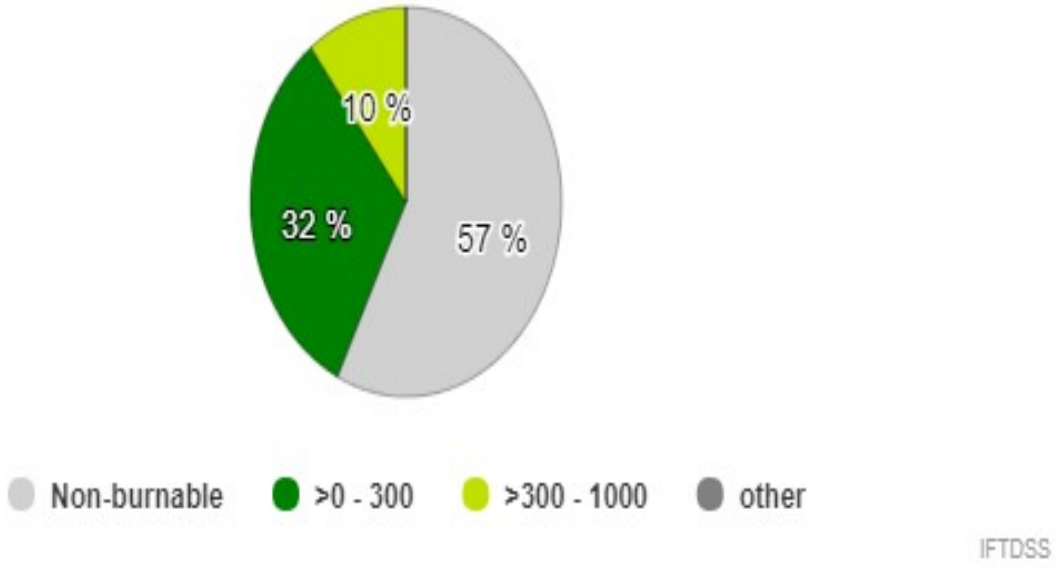
Landscape Name: IsPower_Orchard_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 13,071
Area of Interest Name: orchardaoi
Area of Interest Acres: 9,893
Model Name: IsPower_Orchard_LCP - Auto97th



Heat/Area

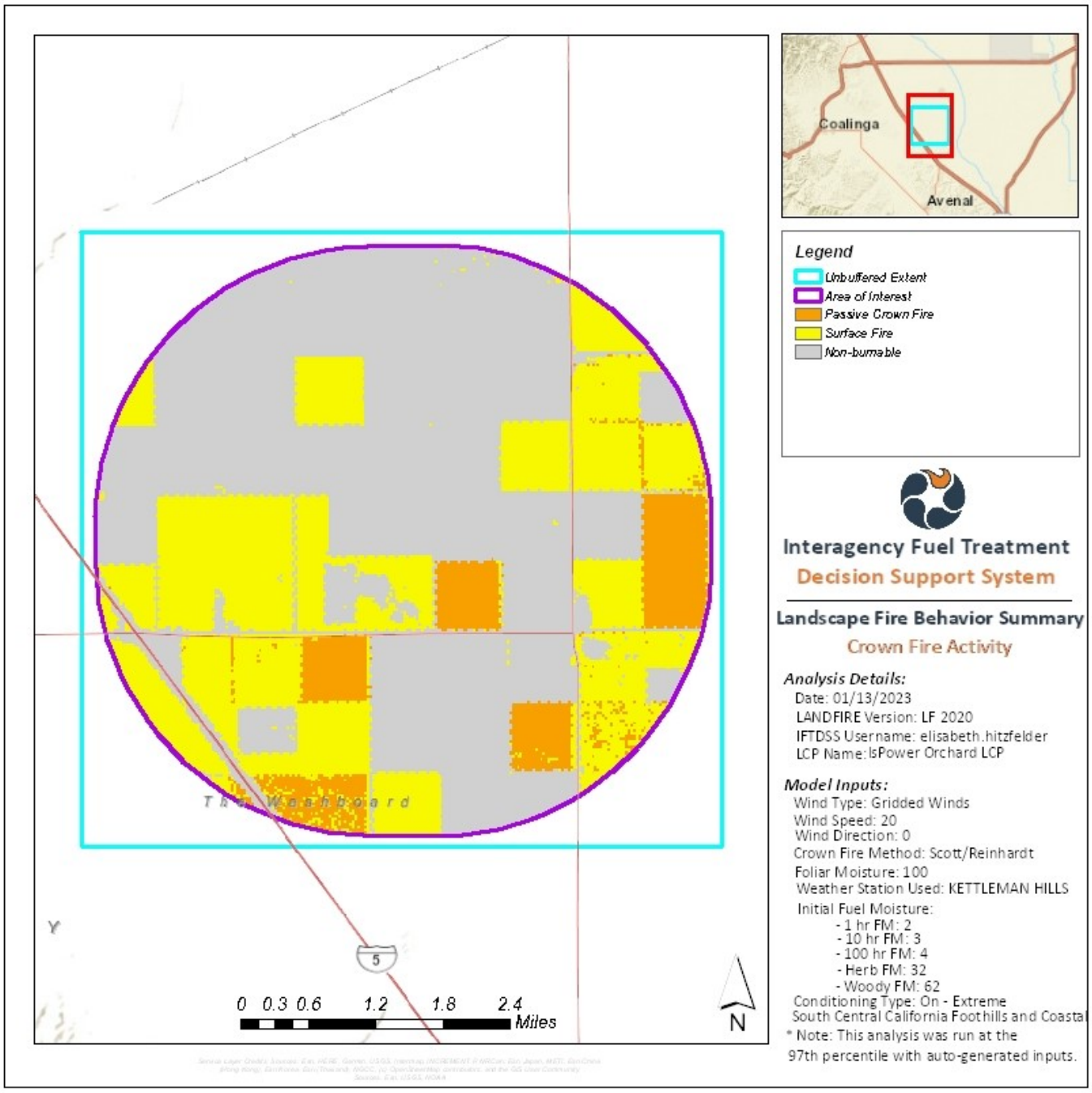
Heat per Unit Area (BTU/ft^2) Data Summary for Area of Interest "orchardaoi" within "IsPower_Orchard_LCP" Landscape

Landscape Name: IsPower_Orchard_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 13,071
Area of Interest Name: orchardaoi
Area of Interest Acres: 9,893
Model Name: IsPower_Orchard_LCP - Auto97th



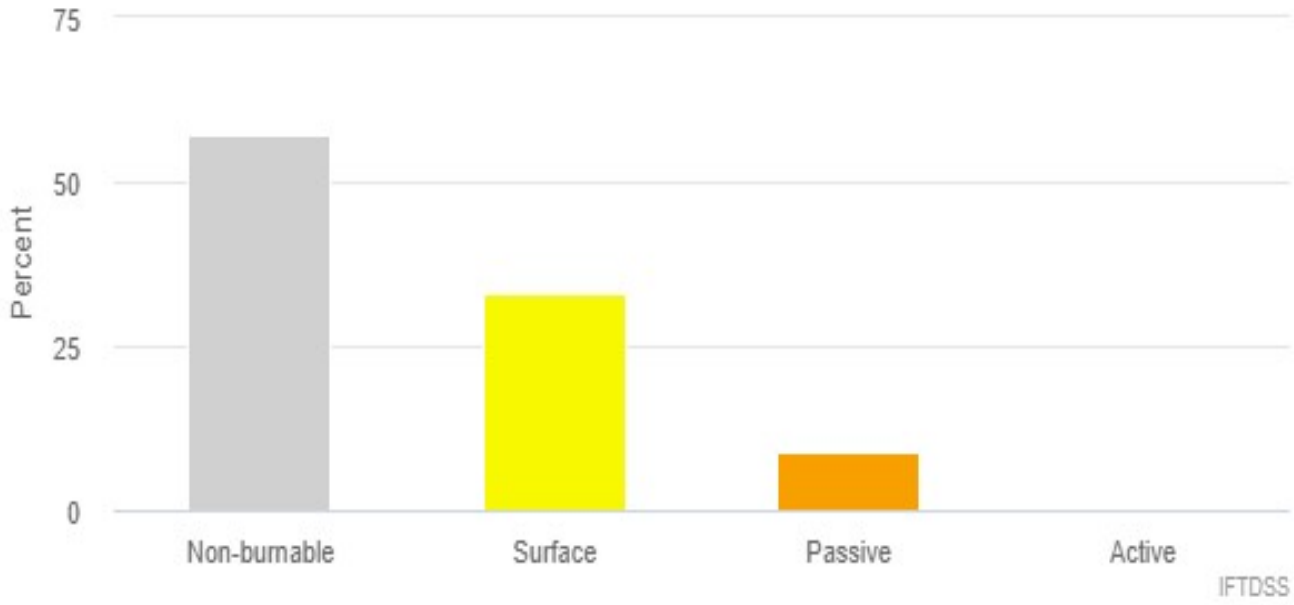
Heat per Unit Area (BTU/ft^2)	Pixel Count (freq)	Acres In AOI	Percent In AOI
Non-burnable	25485	5668	57
>0 - 300	14348	3191	32
>300 - 1,000	4646	1033	10
>1,000 - 3,000	4	1	0
>3,000 - 6,000	0	0	0
>6,000 - 10,000	0	0	0
>10,000	0	0	0

Heat/Area


Coalinga
Avenal
Legend
Unbuffered Extent
Area of Interest
Passive Crown Fire
Surface Fire
Non-burnable
Interagency Fuel Treatment
Decision Support System
Landscape Fire Behavior Summary
Crown Fire Activity
Analysis Details:
Date: 01/13/2023
LANDFIRE Version: LF 2020
IFTDSS Username: elisabeth.hitzfelder
LCP Name: lsPower Orchard LCP
Model Inputs:
Wind Type: Gridded Winds
Wind Speed: 20
Wind Direction: 0
Crown Fire Method: Scott/Reinhardt
Foliar Moisture: 100
Weather Station Used: KETTLEMAN HILLS
Initial Fuel Moisture:
- 1 hr FM: 2
- 10 hr FM: 3
- 100 hr FM: 4
- Herb FM: 32
- Woody FM: 62
Conditioning Type: On - Extreme
South Central California Foothills and Coastal M
* Note: This analysis was run at the
97th percentile with auto-generated inputs.
0 0.3 0.6 1.2 1.8 2.4
Miles
N
5

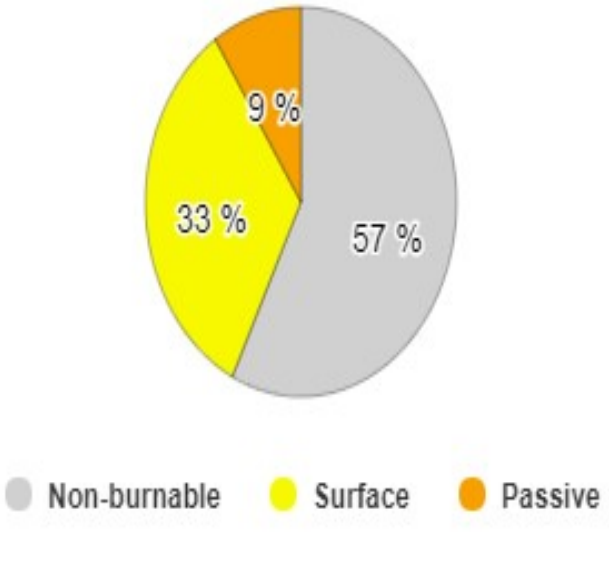
Crown Fire Activity Data Summary for Area of Interest "orchardaoi" within "lsPower_Orchard_LCP" Landscape

Landscape Name: lsPower_Orchard_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 13,071
Area of Interest Name: orchardaoi
Area of Interest Acres: 9,893
Model Name: lsPower_Orchard_LCP - Auto97th



Crown Fire Activity Data Summary for Area of Interest "orchardaoi" within "lsPower_Orchard_LCP" Landscape

Landscape Name: lsPower_Orchard_LCP
Landfire Version: LF 2020
Landscape Acres (unbuffered): 13,071
Area of Interest Name: orchardaoi
Area of Interest Acres: 9,893
Model Name: lsPower_Orchard_LCP - Auto97th



Crown Fire Activity	Pixel Count (freq)	Acres In AOI	Percent In AOI
Non-burnable	25485	5668	57
Surface Fire	14872	3307	33
Passive Fire	4126	918	9
Active Fire	0	0	0

Appendix C: Additional Maps

No additional maps are included at this time.

Appendix D: Areas for Continued Improvement

LSPG-CA has no previously identified areas for continued improvement.

Appendix E: Referenced Regulations, Codes, and Standards

Name of Regulation, Code, or Standard	Brief Description
CA Public Utilities Code Section 8386	California standards for wildfire mitigation
CA Public Utilities Code Section 768.6	California standards for disaster and emergency preparedness
CA Public Resources Code 4290	California fire safety standards in hazardous fire areas
CA Public Resources Code 4291	California fire safety standards in mountainous, forest, brush, and grass covered lands
OSHA 1910.269	National occupational health and safety standards relating to electric transmission
CA Fire Code	California fire safety regulations
CPUC GO 95	California Public Utilities Commission rules for overhead electric line construction
CPUC GO 165	California Public Utilities Commission requirements for inspection of electric transmission and distribution lines
CPUC GO 166	California Public Utilities Commission standards for utility operation, reliability, and safety during emergencies and disasters
NERC Reliability Standards	National reliability requirements for planning and operating the transmission system
NERC CIP Standards	National physical and cyber security standards for transmission facilities