Rogue Forest
Restoration Partnership

Rogue Forest Restoration Initiative

VISION

The Rogue Forest Restoration Initiative (RFRI) partners envision the Rogue River Basin Dry-Type Forests treated with restorative actions that will reduce tree density and basal area, reduce surface and ladder fuels, as well as alter species composition allowing them to receive both prescribed fire and wildfire, in a manner which supports them to predictably deliver benefits of fire in sustaining forest biodiversity and function, and ecosystem services.

PARTNERSHIP MEMBERS

Core Committee:

- Southern Oregon Forest Restoration Collaborative
- The Nature Conservancy
- Lomakatsi Restoration Project
- USDA Rogue River-Siskiyou National Forest
- USDI Bureau of Land Management, Medford District
- OSU Extension, Jackson/Josephine County
- Oregon Department of Forestry
- Klamath Bird Observatory

Other active partners that support the Initiative:

- Natural Resource Conservation Service
- USDI Fish and Wildlife Service
- Oregon Watershed Enhancement Board
- Rogue Basin Partnership

ECOLOGICAL PRIORITY

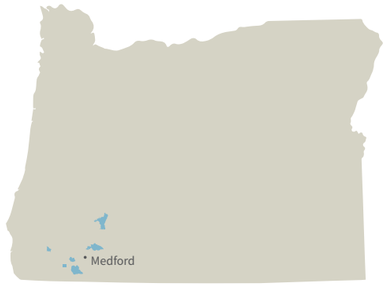
Dry-Type Forest Habitat

Oak Woodland and Prairie Habitat

Aquatic Habitat for Native Fish Species

FOCAL SPECIES

Northern Spotted Owl (NSO)



GEOGRAPHIC SCOPE

The 4.6 million acre Rogue Basin analytical area is centered on the northern Klamath Mountains Ecoregion and extends to parts of the Coast Range and Cascades bioregions as they overlap with the administrative units of Rogue River-Siskiyou National Forest, the Medford district of BLM and intervening lands.

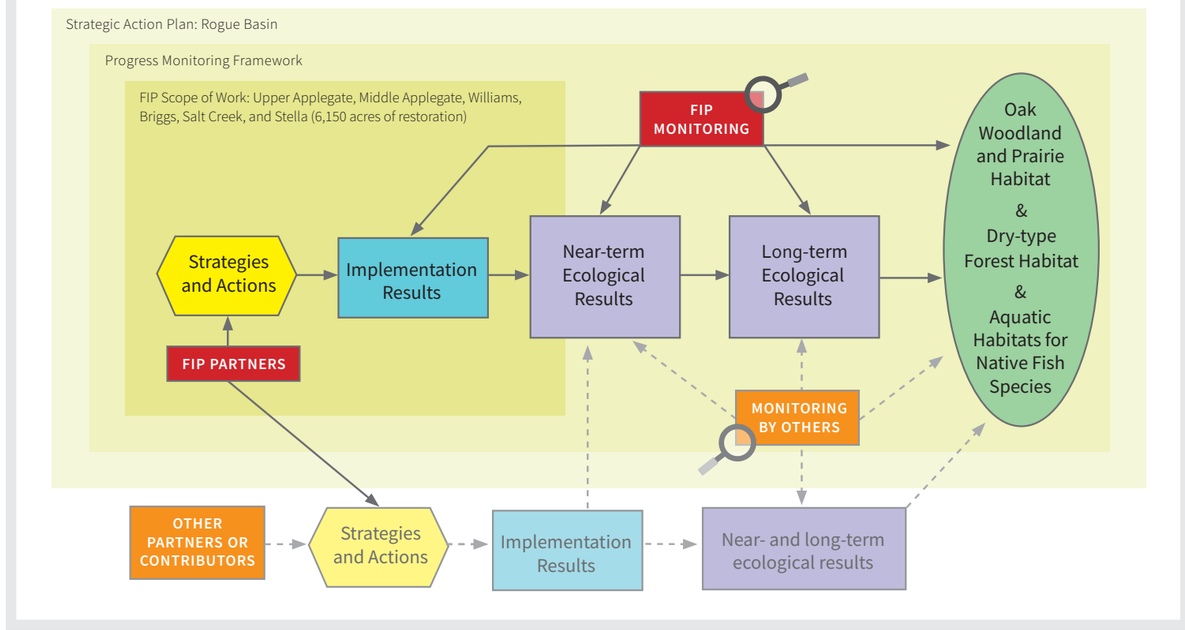
FIP Project Areas
(FIP treated areas in parentheses):

- Upper Applegate 20,000 ac (3,700 ac)
- Middle Applegate 10,000 ac (200 ac)
- Williams 6,625 ac (1,190 ac)
- Upper Briggs 3,000 ac (350 ac)
- Salt Creek 800 ac (710 ac)
- Stella 20,000 ac (0 ac), engagement only

Operational Context

The initiative represents an expanded implementation of the Rogue Basin Strategy (2017), a twenty-year guide for strategic action for 1.1 million acres of dry-type forest restoration within the 4.6 million acre Rogue Basin.

Figure 1: *Operational context of the OWEB-funded Focused Investment Partnership Initiative*



Theory of Change.

SITUATION

The discovery of gold brought settlers to the Rogue Valley during the 1850's but agriculture became the main draw during the late 19th century. The need for irrigated water to supplement rainfall for orchards and farmland shaped the landscape of the Rogue Valley as much oak savannah and woodlands were converted to agriculture. In the Rogue River Basin, the need for water control and a vibrant timber industry impacted the river systems and forests substantially.

Past clearcut timber harvest, fire suppression, and recent severe wildfires have resulted in an overabundance of young dense forests and a reduction of quality spotted owl habitat. The Rogue Basin has experienced significantly disrupted fire regimes over the last 100-150 years including lowland and mixed conifer riparian forests. Combined with extensive even-aged forest stand management and land conversion, the dry forest type and remaining oak woodland habitats in each of the sub-basins are at high risk from wildfire, insects and disease and these conditions are being exacerbated by climate change.

Strategies of the initiative endeavor to address the following limiting factors:

- Insufficient late seral forest, especially open late seral
- Insufficient public support
- Insufficient and at-risk legacy trees and snags
- Reduced Northern Spotted Owl (NSO) habitat that is at high risk from wildfire
- Insufficient private land engagement and treatment
- Upland effects on aquatic habitat
- Risk of high severity fire at spatial scales and proportions outside of natural variations
- Riparian vegetation lacks diversity
- Conifer encroachment into meadows
- Impacts from nonnative species
- Oak habitat loss and degradation

APPROACH

The results chain *(Figure 2)* articulates the partnership's theory of change by displaying the relationships between strategies, implementation results (outputs), and near- and long-term ecological results (outcomes) partners predict will occur in response to strategy implementation that will ultimately lead to achieving goals associated with the partnership's ecological priorities.

Numbered results identified in *Figure 2* are those the partnership has selected to be part of a progress monitoring approach. Measuring these results over time will allow the partnership to evaluate progress toward objectives and goals in both the near (e.g. 6-year FIP timeframe) and long term, and to identify areas that would benefit from future research.

Each numbered implementation result or ecological outcome is associated with the corresponding objective in the Strategic Action Plan *(Tables 1-3)*.

The narrative below summarizes the resulting theory of change. Implementation outputs and ecological outcomes prioritized for monitoring during the six-year FIP timeline are indexed to correspond to the results chain *(Figure 2)* and measuring progress tables *(Tables 1-3)*.

STRATEGIES

1 Apply forest treatments

This strategy involves the identification of appropriate sites, design, and application of stand level treatments to improve stand to landscape resiliency to climate and fire. Treatments include removal of dense vegetation to protect legacy trees, strategic ecological thinning and fuels reduction, and application of prescribed fire. Nonnative species will be mitigated with early detection and native seeding. In addition, this strategy also contains actions to manage riparian vegetation to reduce invasive plant species.

Theory of Change.
Strategic thinning of priority sites[1] will increase the overall proportion of open canopy forest at the landscape scale, increase the recruitment and vigor of fire-adapted and fire-dependent species[12], and increase the resilience of forest ecosystems to drought, extreme fire, insects and disease. Forest thinning[2, 3] will accelerate growth of retained trees into legacy trees[14], large wood, and development of late seral characteristics[13, 20]. Thinning and burning will expand or improve meadow[17] and oak habitat[16]. Restoring open forest will transition seral structural states toward the Natural Range of Variability (NRV)[20]. The long-term ecological outcome is improved landscape resiliency, protection of complex forest habitat, and restoration of late-seral closed and open forest habitat that supports dependent wildlife including NSO.

Targeted thinning and controlled burning treatments will reduce wildfire intensity and subsequent fire effects, as well as climate effects, for forest habitat, NSO habitat, aquatic and riparian resources, and human communities[18, 19]. Treatments that reduce burn intensity will provide safe and effective options for fire suppression[21]. The long-term ecological outcome will be a reduced risk of disturbances outside the historic natural range of variation to dry-type forest, downstream aquatic habitats and to local communities at risk of wildfire. Focused treatment of highest risk nonnative species and replanting with desired native species[15] will reduce the impact of nonnatives on the forest ecosystem. Where planned, nonnative removal followed by native planting in riparian areas will increase riparian vegetation diversity and help promote aquatic substrate inputs more in-line with the historic range of variability while maintaining water quality and aquatic habitat conditions.

Long-term outcomes of all forest treatments will shift the frequency and severity of fire toward an acceptable range of variation, reducing the threat of abrupt forest change and connectivity caused by climate change. Additionally, a restored forest structure and function decreases risk of sediment input into aquatic systems that are beyond the natural range of variation in these physical processes.

2 Foster development of engaged citizenry

Partners will guide tours, deliver youth education programs, host workshops, maintain a social media presence, and coordinate media coverage of successful restoration efforts[5].

Theory of Change.
Outreach guided by a strategic engagement plan will educate interested citizens, establish an understanding of the ecological rationale and foundation of the partnership's strategies, and promote face-to-face opportunities to ask and answer questions[6]. The desired outcome is an increase in support for forest restoration and reintroduction of beneficial fire10 including use of prescribed fire[3, 4].

3 Deepen the partnerships among public and private land managers, tribes, local governments, and communities

Work with federal and non-industrial private landowners and engaged citizens to implement the Rogue Forest Restoration Initiative.

Theory of Change.
Working with broad partner groups including state, county, local municipalities, and tribes to implement and evaluate the RFRI will build understanding and support at multiple scales. Projects that use established restoration approaches provide opportunities to develop relationships and operationalize methods for implementing and monitoring forest restoration. Resource specialists can then apply best practices developed collaboratively on established projects to plan and implement advanced projects (e.g. Upper Applegate), leveraging experience, relationships, and approaches to increase the pace, scale, and effectiveness of restoration across the Rogue Basin[8]. The long-term desired outcome is an improvement in the capacity for collaborative partners to plan and implement forest restoration projects consistent with the Rogue Basin Strategy (RBS) and Rogue Valley Integrated Fire Plan (RVIFP).

4 Improve socioeconomic conditions and workforce capacity

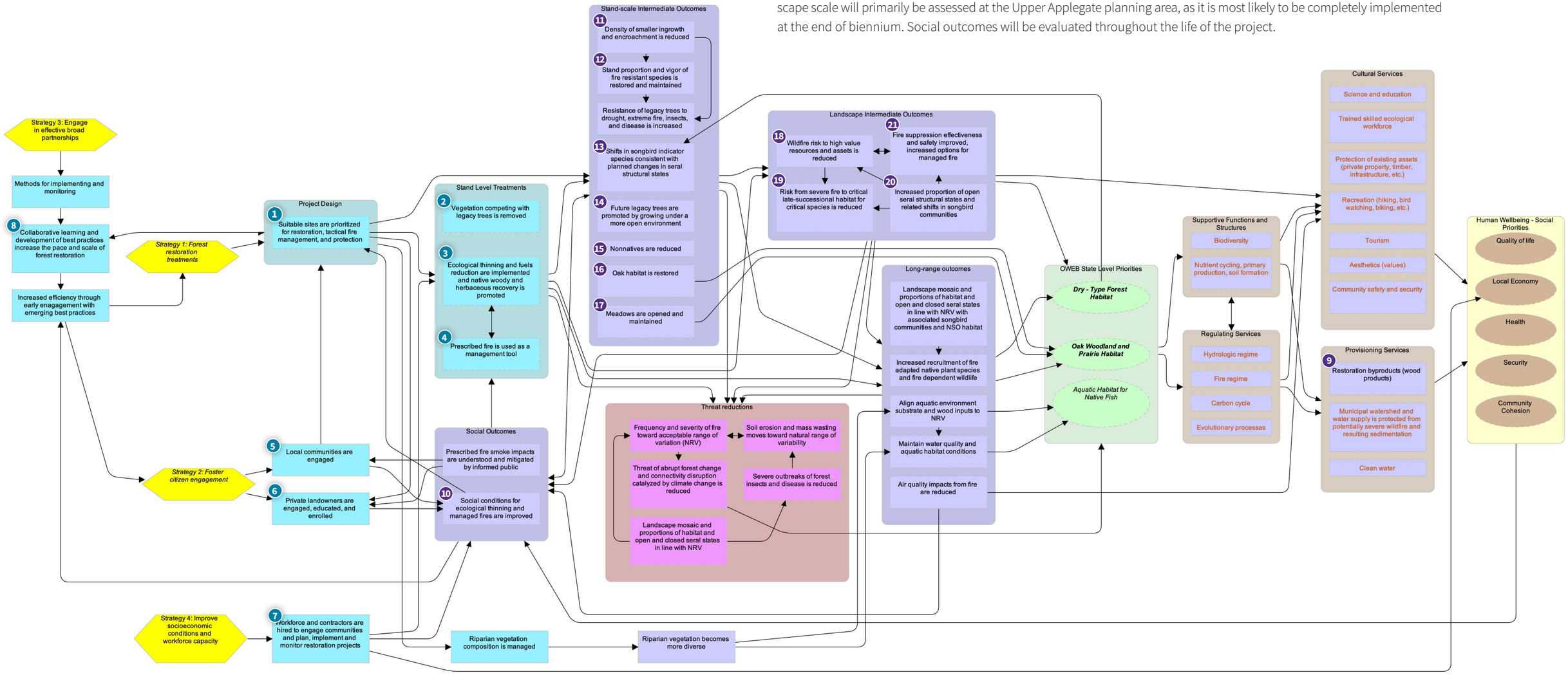
RFRI partners will hire and supervise a workforce and contractors to complete community engagement, restoration project planning, layout, implementation, monitoring, and reporting[7].

Theory of Change.
Resilient landscapes and fire-resilient communities require a knowledgeable, capable workforce and strong community support. Investments in restoration jobs will translate into economic activity, measurable by full time equivalent positions supported by the RFRI and regional multipliers. The long-term impact will be an improvement in socioeconomic conditions and workforce capacity in the Rogue Basin by generating jobs and economic activity. Sale of restoration byproduct timber produced through ecological thinning will support the local economy and generate funds for future work[9].

Superscript numbers [1-21] can be cross referenced on the Results Chain diagram and the Implementation Progress/Ecological Progress tables on the following pages.

Results Chain

Figure 2: Results chain for the Baker Sage-grouse Local Implementation Team / Baker Comprehensive Sage-grouse Threat Reduction



Progression of the Results Chain.

Strategies & Actions	Implementation Results	Threat Reduced	NEAR TERM	Intermediate Ecological Results	LONG TERM	Desired Ecological Impacts	Ecosystem Services	Human Wellbeing

Measuring Progress

Progress toward achieving ecological and social outcomes will be determined by evaluating progress toward shorter-term goals and objectives. Treatment effects will be quantified in OWEB funded units where partners will collect data to quantify changes in forest structure, composition, and fuel characteristics. Effectiveness at achieving ecological outcomes at a landscape scale will primarily be assessed at the Upper Applegate planning area, as it is most likely to be completely implemented at the end of biennium. Social outcomes will be evaluated throughout the life of the project.

OUTPUTS

Implementation Progress

Table 1. Implementation results objectives and metrics. The result numbers correspond to results shown in the results chain (Figure 2) and theories of change.

	IMPLEMENTATION RESULTS (OUTPUT)	OBJECTIVE(S)	METRICS
1	Suitable federal and non-federal dry forest sites are prioritized for restoration, tactical fire management and protection to optimize benefits identified in the RBS	**Objective 1.1a:** Identify complex suitable forest habitat in the UAWRP by working with agency specialists and community members	Acres of suitable forest habitat identified in project planning
2	Vegetation competing with legacy trees is removed and yarding systems protect legacy trees	**Objective 1.1d:** Protect legacy trees and future legacy trees by thinning encroaching smaller trees and competing vegetation to reduce fuel accumulations to a less volatile fuel model, increase legacy tree vigor, and reduce vulnerability to drought, insects, and disease.	Competitive environment of legacy trees in plots
3	Ecological thinning and fuels reduction are implemented, and treated sites are managed to promote native woody and herbaceous recovery	**Objective 1.1b:** Promote development of new late-successional habitat in appropriate bio-physical settings	Acres of thinning in mid-seral stands in high relative habitat suitability settings
		Objective 1.1c: Restore open mixed conifer/hardwood forest and oak woodland in appropriate landscape settings	Acres of restored mixed conifer/hardwood forest and woodland
4	Prescribed fire is used as a management tool	**Objective 1.1f:** Following treatments, apply appropriate planting and native understory restoration, especially mitigating areas more prone to spread of non-native or noxious species	Acres of treated areas planted
		Objective 2.1b: Increase the potential for using low severity fire with treatments that achieve a low intensity fuel model and propensity for crown fire on 50% of the landscape	Flame length, fire suppression effectiveness, surface fire spread, torching index, crowning index
5	Local communities, partners and tribes are engaged through neighborhood meetings, field trips, workshops, direct marketing, and social media.	**Objective 3.1a, 3.2a:** Engage and educate private landowners through direct marketing, neighborhood meetings, field trips, workshops, and social media. Increase public awareness of benefits of ongoing treatment.	Number and breadth of contacts through meetings, direct marketing, & social media
6	Private landowners are engaged, educated, and enrolled	**Objective 3.1b:** 10 percent of private landowners contacted through MSOW or other RFRP effort begin to reduce fuels and stand density on their property	Landowner interest; enrollment success; percentage of contacted landowners with signed agreements
7	Hire and supervise a workforce and contractors to complete community engagement, restoration project planning, layout, implementation, monitoring, and reporting.	**Objective 5.1a:** Hire and supervise a workforce and contractors to complete community engagement, restoration project planning, layout, implementation, monitoring, and reporting.	Employed full time equivalent positions, Participants in workforce development, timber volume
8	Resource specialists are co-learning, developing best practices, and more effectively planning to increase the pace and scale of forest restoration in support of the RBS.	**Objective 4.1a:** Resource specialists are co-learning, developing best practices, and more effectively planning to increase the pace and scale of forest restoration in support of the RBS.	Rate of restoration from MOU mapping project
9	Restoration byproducts (wood products)	**Objective 5.1b:** Support the local economy and generate funds for future work through sale of restoration byproduct timber	Volume of restoration timber harvested

OUTCOMES

Social Progress

Table 2. Social outcomes proposed objectives and potential metrics. The result numbers correspond to results shown in the results chain (Figure 1) and theories of change.

	SOCIAL OUTCOME	OBJECTIVE(S)	METRIC
10	Social conditions for using ecological thinning and prescribed fires are improved	**Objective 3.1a, 3.2a:** Engage and educate private landowners through direct marketing, neighborhood meetings, field trips, workshops, and social media. Increase public awareness of benefits of ongoing treatment.	Rogue Basin poll results
		Objective 3.2b: Tactical fire management options resulting from OWEB funded treatments increase support for managed fire that benefits resources and promotes safe and effective fire suppression response	Rogue Basin poll results

OUTCOMES

Ecological Progress

Table 3. Ecological results potential objectives and potential metrics. The result numbers correspond to results shown in the results chain (Figure 1) and theories of change.

	ECOLOGICAL OUTCOME	OBJECTIVE(S)	METRIC
11	Density of smaller ingrowth and encroachment is reduced	**Objective 1.1c:** Restore open mixed conifer/hardwood forest and oak woodland in appropriate landscape settings	Tree density relative to desired future condition
12	Stand proportion and vigor of fire-resistant species is restored and maintained	**Objective 1.1c:** Restore open mixed conifer/hardwood forest and oak woodland in appropriate landscape settings	Proportion of fire-resistant species
13	Shifts in songbird indicator species consistent with the planned changes in seral structural states	**Objective 1.1e:** Achieve desired conditions for wildlife habitat as measured by community shifts in the songbird indicator species associated with open forest, oak woodland, and/or a trajectory toward complex closed late seral habitat.	Field measured and modeled shifts in songbird community composition

	ECOLOGICAL OUTCOME	OBJECTIVE(S)	METRIC
14	Future legacy trees are promoted by growing under more open environment	**Objective 1.1d:** Protect legacy trees and future legacy trees by thinning encroaching smaller trees and competing vegetation to reduce fuel accumulations to a less volatile fuel model, increase legacy tree vigor, and reduce vulnerability to drought, insects, and disease.	Competitive environment of legacy trees in plots
15	Nonnatives are reduced	**Objective 1.1f:** Following treatments, apply appropriate planting and native understory restoration, especially mitigating areas more prone to spread of non-native or noxious species	Acres of non-native species mapped and controlled; acres of native species planted
16	Oak habitat is restored	**Objective 1.1c:** Restore open mixed conifer/hardwood forest and oak woodland in appropriate landscape settings	Acres of oak habitat restored
17	Meadows are opened and maintained	**Objective 1.1c:** Restore open mixed conifer/hardwood forest and oak woodland in appropriate landscape settings	Acres of meadow restored
18	Wildfire risk to high value resources and assets is reduced	**Objective 2.1a:** Reduce the predicted proportion of high severity wildfire and associated negative impacts to habitat (emphasizing complex forest habitat), water quality, and communities in the initiative landscapes.	Expected net value change for high value resources and assets Fire modeling outputs demonstrate a reduction in high severity wildfire at treatment unit and landscape scales
19	Risk from severe fire to critical late-successional habitat for critical species is reduced	**Objective 2.1a:** Reduce the predicted proportion of high severity wildfire and associated negative impacts to habitat (emphasizing complex forest habitat), water quality, and communities in the initiative landscapes.	Expected net value change for high quality complex habitat
20	Increased proportion of open seral structural states	**Objective 1.1c:** Restore open mixed conifer/hardwood forest and oak woodland in appropriate landscape settings	Proportions of seral structural states Landscape-scale shifts in songbird communities
21	Fire suppression effectiveness and safety improved, increased options for managed fire	**Objective 2.1c:** Increase tactical fire management options that allow for managed fire that benefits resources, protects residential areas, and facilitates safe and effective fire suppression	Change in suppression difficulty at the unit scale

Status & Trends

ECOLOGICAL PRIORITIES

Dry-Type Forest Habitat

Oak Woodland and Prairie Habitat

Aquatic Habitat for Native Species

Monitoring the status and trends of ecological priority habitats and focal species will include coordination with agencies or conservation organizations operating at the appropriate landscape or population scales. FIP partners will work with these entities to establish a process for integrating their monitoring framework with existing status and trends monitoring programs (if they occur) or to establish an approach for identifying key ecological attributes that should be measured to document and communicate change in the status and trajectory of ecological priority habitats and focal species populations.