2019 Power Fire Pre-commercial Thinning Project

USDA Forest Service
Amador Ranger District, Eldorado National Forest
Amador County, California

Background

Throughout the perimeter of 2004 Power Fire there exists young conifer stands in varying stages of development. In some planted areas, conifer plantations exist with tree densities that would lead to overcrowding and trees that are at higher risk to insects and disease. In addition there are areas that have naturally regenerated that are overcrowded and in some cases have high proportions of shade tolerant species such as incense cedar and white fir. Trees growing in these conditions are exhibiting slow growth rates due to competition for resources such as water and sunlight.

Purpose and Need

The purpose of this project is to thin pre-commercial sized trees (less than 10 inches) to meet objectives for young plantations as specified in the Eldorado National Forest Plan, as amended by the Sierra Nevada Forest Plan Amendment (SNFPAROD, page 49-50). Without treatment, current stand conditions (trees per acre, species composition, and stand health) would result in a delay in meeting these objectives.

There is a need to pre-commercially thin about 11,354 acres of young plantations and natural regeneration for forest stand improvement on the Amador Ranger District of the Eldorado National Forest to:

1. Accelerate the development of old forest characteristics, by reducing intertree competition for moisture, sunlight, and nutrients in each stand and reducing each stand's susceptibility to western pine beetle and *lps spp.* beetle attack;
2. Increase stand variability, by achieving the desired tree species composition within each stand and increasing spatial heterogeneity;
3. Promote hardwoods, by retaining and releasing desirable hardwoods in each stand;
4. Reduce the risk of loss to wildfire, by maintaining or increasing diameter growth rates, increasing bark thickness, and facilitating the near term (10-15 years) introduction of fire (under burning) in each stand; and
5. Improve stand health by reducing the number of trees that have poor stem form and have been damaged by insects, diseases, or storms.

Proposed Action

The Amador Ranger District of the Eldorado National Forest proposes to pre-commercially thin about 11,354 acres of mixed-conifer plantations and natural regeneration in the following manner:

1. Competing conifer seedlings and saplings will be felled with chainsaws, other hand tools (5,725 acres), or ground based mechanical equipment such as a masticator (5,629 acres). Cut trees may be bucked (lopped) and scattered, chipped, or piled and burned.
2. About 110 to 150 desirable conifer saplings will be retained per acre (17 by 17 to 20 by 20 foot average spacing). The lower branches of these trees may be pruned.
3. Existing hardwood clumps and individuals may be cut, thinned and/or pruned as needed to release desirable hardwoods. The ratio of hardwoods to conifers would not be decreased.
4. Woody shrubs (i.e., manzanita, deerbrush, whitethorn, etc.) may be cut as needed in conjunction with treatment of conifers and hardwoods.

Design Criteria

Silviculture

Thinning prescriptions consider recommendations made in the Power Fire Ecological Framework (Estes and Gross 2015). Specifically:

- Focus reforestation densities and arrangement to trend stands toward desired future conditions.
- Reforestation and release efforts should consider resource management objectives along with slope, aspect, and landscape position in concepts presented in PSW GTR 220 and PSW GTR 237 in relation to density and species composition.
- Efforts to sustain reforestation efforts should include both planted and natural regeneration areas.

Target residual tree densities will vary based on slope position and aspect with lowest densities (110 trees per acre (TPA)) being on ridge tops and south facing slopes and while higher densities (150 TPA) will be maintained on lower slopes and transitioning into Riparian Conservation Areas (RCA), as well as on north facing aspects.

Spatial heterogeneity will be increased by maintaining clumps of trees (generally groups of 3-10 trees) as well as creating small gaps as described below.

Where feasible and practicable, and meeting desired tree density metrics, create spatial gaps by removing through mechanical or hand thinning small groups of trees (groups of 3-5 trees and approximately 1-2 gaps per acre). These small gaps will take advantage of existing areas of low tree vigor, poor stem form, or mortality, and will be chosen in areas less likely to result in increased shrub competition. The size, number, and shape of gaps within units would take into consideration slope, aspect, species composition, and other factors consistent with the principles of GTR-220 and GTR-337.

Aquatic Wildlife

The ENF developed the following design criteria applicable to aquatic resources. They are intended to avoid, eliminate or reduce unintended and undesirable effects of proposed activities. They are also included to ensure that the Projects are consistent with the Forest Plan, policy direction, and other laws and regulations.

For the applicable design criteria discussed below:

Suitable habitat for the Sierra Nevada (SNYLF) is 82 feet from special aquatic features (meadows, springs, lakes, ponds) and perennial and intermittent streams above 4,500 feet elevation.

To eliminate all impacts to the Sierra Nevada yellow-legged frog and their habitats, no project activities will occur in areas mapped as suitable habitat for SNYLF**.**

Suitable habitat for the Foothill yellow-legged frog (FYLF) encompasses special aquatic features (meadows, springs, lakes, ponds), perennial and intermittent streams below 4,500 feet elevation.

To minimize impacts to the Foothill yellow-legged frog and their habitats project activities occurring 4,500 feet elevation and below will follow requirements below:

- No mechanical treatments to occur as described in buffer distances below for aquatic features:
    - Perennial streams (50 ft. from channel edge, or from adjacent riparian vegetation, whichever is greater),
    - Intermittent streams (50 ft. from channel edge, or from adjacent riparian vegetation, whichever is greater),
    - Special aquatic features - ponds, meadows and lakes (50 ft. high water edge or from adjacent riparian vegetation whichever is greater)
    - Ephemeral streams (25 ft. from channel edge, or from adjacent riparian vegetation, whichever is greater).
- No hand treatments to occur as described in buffer distances below for aquatic features:
    - Perennial streams (25 ft. from channel edge, or from adjacent riparian vegetation, whichever is greater),

- Intermittent streams (10 ft. from channel edge, or from adjacent riparian vegetation, whichever is greater),
- Special aquatic features - ponds, meadows and lakes (25 ft. high water edge or from adjacent riparian vegetation whichever is greater)

- Tightly woven fiber netting or similar material shall be not used for erosion control or other purposes to prevent aquatic species being trapped, injured or killed, and 2) plastic mono-filament netting or similar material shall not be used since aquatic species may become entangled or trapped in it.
- Should any TES species be located during project implementation, a biologist should be informed, and appropriate mitigation measures be taken to protect TES species.

Terrestrial Wildlife

A limited operating period (LOP) for California spotted owls, prohibiting vegetation treatments would be implemented within ¼ mile of spotted owl activity centers during the breeding season (March 1 through August 15), unless surveys confirm that owls are not nesting. ***These LOPs could be evaluated by the district biologist on a case by case, unit by unit basis and may be lifted based this evaluation.***

- Based on survey data, LOPs would be implemented for all or portions of units AMA0001, AMA0004, AMA0005, AMA0007, AMA0013, AMA0017 and AMA0022.

A limited operating period (LOP) for northern goshawks, prohibiting vegetation treatments would be implemented within ¼ mile of the northern goshawk nest site during the breeding season (February 15 through September 15), unless surveys confirm that goshawks are not nesting. Where the nest stand within a protected activity center is unknown, the LOP will apply to a ¼ mile area surrounding the PAC. ***These LOPs could be evaluated by the district biologist on a case by case, unit by unit basis and may be lifted based on this evaluation.***

- Based on survey data, LOPs would be implemented for all or portions of units R05F03D1T35_01.

Should any TES species be located associated with this project location district biology staff should be informed, and steps taken to evaluate, and mitigate any possible effects not covered by this evaluation/assessment.

Hydrology

No pile burning within 50 feet of the edge of the channel of perennial and intermittent streams and within 50 feet of the edge of special aquatic features (ponds, springs, meadows, wetlands, etc.).

Fuels

- Prioritize mechanical treatments along roads and ridges to reduce fuels and aid in fire suppression. Focus these treatments on/near Panther Creek road, Ellis road, Henley Ridge, Salt Springs road, Spur 19, and Cole Creek loop.
- Where possible, utilize mastication and piling/burning or other fuels reduction techniques rather than lop and scatter.
- Prune trees to reduce potential wildfire damage.
- Desired surface fuel loading is less than 20 tons per acre of dead plant material less than 4 inches in diameter.

Botany

- Any new occurrences of sensitive plants identified within the project area would be flagged and avoided when necessary.
- Sensitive and watchlist plant populations within the project area would be flagged for avoidance. All activities, would be excluded from sensitive plant protection areas. If new sensitive plant occurrences are discovered during project implementation the project botanist would be notified to develop necessary protection measures.
- Potential habitat for Sensitive Plants would be surveyed prior to project implementation. Any unsurveyed potential habitat within or adjacent to project units would be flagged for avoidance unless additional surveys confirming occupancy have been completed.
- Lava caps, which support unique plant communities in the project area, would be protected from thinning, motorized equipment and vehicles.
- All equipment and vehicles (Forest Service) used for project implementation must be free of invasive plant material before moving into the project area. Equipment will be considered clean when visual inspection does not reveal soil, seeds, plant material or other such debris. Cleaning shall occur at a vehicle washing station or cleaning facility before the equipment and vehicles enter the project area.
- Known invasive plant sites along roads in the project area will be flagged prior to implementation and will be avoided as much as possible. If infestation cannot be avoided contact a Forest Service Botanist.
- Where possible, work in units with invasive plant infestations last. If working in infestations or infested units, equipment shall be cleaned before moving to other uninfested National Forest system lands. These areas will be identified on project maps.
- After the project is completed, monitor for new or expanding invasive plant infestations. If necessary, treatments would be conducted in accordance with the design features of the *Forest-Wide Treatment of Invasive Plants Project* (ENF 2013).

Archeology/Heritage

- This project will comply with Section 106 of the National Historic Preservation Act of 1966, as amended in accordance with provisions of the "Programmatic Agreement among the U.S.D.A. Forest Service, Pacific Southwest Region (Region 5), the California State Historic Preservation Officer, the Nevada State Historic Preservation Officer, and the Advisory

Council on Historic Preservation Regarding Processes for Compliance with Section 106 of the National Historic Preservation Act for Management of Historic Properties by the National Forest of the Pacific Southwest Region" (Regional PA 2018).

- Sites within treatment units will be identified with flagging and avoided during ground disturbing project activities. All thinning of trees adjacent to site boundaries will be directionally felled away from the site. Non-merchantable trees and brush may be removed by hand, within site boundaries, at the direction of the District Archaeologist.
- Treatments using hand tools and other activities may be permitted within the boundaries of known Historic Properties, if approved by the District Archeologist. Sites that are at risk from fire will be flagged and avoided during prescribed burning. Sites that are not considered at risk or have been previously burned at moderate or high intensity may be included in the prescribed burn at the discretion of the District Archeologist. Construction of fire lines will occur outside of the cultural resource boundaries unless directed by the District Archeologist. All machine and hand piles will be placed away from site boundaries at a distance such that site features will not be affected by flames and heat.
- Should any previously unrecorded cultural resources be encountered during implementation of this project, all work should immediately cease in that area and the District Archaeologist be notified immediately. Work may resume after approval by the District Archaeologist; provided any recommended Standard Protection Measures are implemented. Should any cultural resources become damaged in unanticipated ways by activities proposed in this project; the steps described in the Regional PA 2018 for inadvertent effects will be followed.
- The District Archaeologist will be kept informed of the status of various stages of the project, so that subsequent field work can proceed in a timely fashion. Monitoring of the area may occur after the project has been completed. This work will be documented in amendments to the Archaeology Specialist Report, as appropriate.

References

Estes, B., Gross, S. 2016. Power Fire Ecological Framework. Eldorado National Forest. USDA Forest Service.

North, M., P. Stine, K. O'Hara, W. Zielinski, and S. Stephens. 2009. An ecosystem management strategy for Sierran mixed-conifer forests. Gen. Tech. Rep. PSW-GTR-220. Albany, CA: USDA Forest Service, Pacific South West Research Station.

North, M. (editor). 2012. Managing Sierra Nevada Forests. USDA Forest Service General Technical Report PSW-GTR237. Albany,CA: USDA Forest Service, Pacific Southwest Research Station.