



JACKSON
DEMONSTRATION
STATE FOREST

JDSF Facts

Jackson Demonstration State Forest

Jackson Demonstration State Forest (JDSF) was purchased by the State of California in 1947 to demonstrate sustainable forest management through active timber management as well as be an outdoor laboratory for forest research that tests the California Forest Practice Rules (FPR). Jackson Demonstration State Forest (JDSF) is under the State of California's jurisdiction and management of the State Forest is not affiliated with any political party.

Large trees marked for harvest within the Caspar 500 Timber Harvest Plan (THP)

The Caspar 500 project is harvesting about 10% of trees in the upper size categories (48"+), with 90% of these larger trees being retained.

One of the trees marked for harvest is approximately 74 inches in diameter at breast height (DBH). Due to the butt swell, measurements have to be taken slightly higher than the normal 4.5' breast height. This would put the circumference at 232". CALFIRE is on record saying the tree is estimated to be just over 100 years old (~107-115 years) based on current coring techniques and methods. This particular tree is a young 2nd growth tree with a swelled base. The limbs of the tree are less than 4 to 6 inches in diameter, the bark is not plated, there are no cavities or basal hollows on the tree. The tree lacks the characteristics that provide the wildlife habitat that old growth trees often possess.

JDSF Old Growth Retention Policy

JDSF management focuses on creating and maintaining a range of forest conditions that will continue to conserve and enhance older forest structure on 30% of the forest. Stands of "pure" second growth that have not been harvested again are limited on JDSF, but individual second growth remain very common. In comparison with unthinned forests, JDSF's light harvests continue to thin second growth stands and have contributed to individual second growth trees of larger size. The Older Forest Structure Zone links old growth groves with management that will provide opportunities for second growth to develop old growth characteristics (Late Seal Development). The Older Forest Development Zone also balances sustained harvests with enhanced wildlife and aesthetic values that many small private landowners manage for. These areas will be resources to better understand how climate and fire can be addressed on a range of redwood forest management objectives.

The JDSF Management Plan recognize that older trees, especially old growth, have ecological value. In addition, wildlife protections required by State and Federal laws include protections of forest with habitat attributes such as marbled murrelet habitat. The JDSF Management Plan describes, in detail, what is considered an old growth tree. This is used to differentiate between old growth and large second growth trees. Per JDSF Management Plan, "an old growth conifer tree is any live conifer, regardless of size or species that was present in the original stand before the first historic logging on JDSF (1860), based upon the professional judgment of JDSF staff. The evaluation focused on wildlife habitat attributes not only size. Characteristics often found in old-growth trees that can help identify them are: The bark is more deeply furrowed and more weathered on old-growth trees than on young-growth trees, often having a plated appearance.

Bark scorching may be heavier on old-growth trees, indicating that they were present during fires that occurred before the first logging in the Forest. A tree size that is larger than would be expected for the stand age, management history, and site quality may indicate an old-growth tree. Limbs often significantly larger in diameter than expected for the stand age, site quality and canopy closure may indicate an old-growth tree. Limbs often extend from the trunk at more of a downward angle than in common in younger trees.”

The plan lists a specific standard (excerpted from the Jackson Demonstration State Forest Management Plan, 2016, Page 104) that builds on the more general description above with:

“Old-growth conifers that also have one or more of the following structural characteristics will be retained unless specified otherwise in the Plan:

- a. DBH greater than 48 inches.
- b. Goose-pen (an opening one foot or more in diameter inside and above the top of the trunk opening).
- c. Platform branches greater than 8 inches in diameter.
- d. Exfoliating flanged bark slabs.
- e. Chimney top (hollowed upper stem).
- f. Dead top at least 16 inches in diameter and 16 feet long”

Thus, a large tree is not necessarily considered old growth and it recognizes that a less charismatic tree with a dead top and large limbs has ecological basis for retention.

The Jackson Demonstration State Forest Management Plan designated Older Forest Structure Zone includes: Old Growth Reserves – 459 acres, Watercourse and Lake Protection Zone areas – 7,440 acres, Woodlands Special Treatment Area – 2,511 acres, Late Seral Development and Older Forest Structure Development – 15,801 acres. There are now currently additional limitations or prohibitions on harvest that create an overlay of regulatory wildlife areas: Northern Spotted Owl- 76 Activity Centers/31 Territories; 2,713 acres of no harvest core protection area, Marbled Murrelet Habitat: 43 Potential Habitat Sites; 787 Acres of protection area.

Other protected areas are Pygmy Forest/Jughandle Reserve – 860 acres. Special treatments are required in: Buffers for Neighbors – 875 acres , State Parks Special Treatment Area – 415 acres, and Campground Buffers – 133 acres as well as along road and trail corridors.

Active Operations and Recreation

On any given year, 3% of the Forest is closed due to management activities.

The proposed projects will temporarily close trails and campgrounds but JDSF staff and the Licensed Timber Operators are working to time operations to minimize closures. JDSF staff is also working to complete a bypass trail in the Caspar area to accommodate recreationalist in conjunction with harvest operations. These proposed projects will benefit the recreation program by adopting unofficial trails, upgrading watercourse crossings on trails and roads through the Forest, and provide funding for campground upgrades such as new outhouses, picnic tables and BBQ’s. Mitigations including fire fuels reductions are included in the Timber Harvest Plans (THP) that are directly adjacent to private homes.

Archeology

JDSF is subject to the same laws and regulations regarding archeology as any other entity that participates in management activities. All Archeological Surveyors are required to attend a State mandated Archeological Survey Course sponsored by the California Board of Forestry and administered by CALFIRE and California Licensed Forester's Association. This training is taught by State Archeologists. The role of the archeological surveyor (in this case the RPF) is to identify and protect the extent of the sites with the help of any Native American who choose to participate and the State Archeologist.

These surveys are done in accordance with the California Environmental Quality Act (CEQA) and other legal mandates, located in Section VI of a THP, and are required to be confidential due to the nature of their contents. Native Americans receive at least one letter requesting information or collaboration regarding archeological sites that were found within the project areas, the protection measures that are proposed, as well as maps of the known sites. The contact list can be found on the CALFIRE website under Cultural Resources Management Program. If a site is found during active operations, there are procedures that are followed to ensure the remainder of the site is protected. Steps include halting operations in that area, and notifying Native Americans and State Archeologists.

Operations on steep slopes and endangered fish species

Little River or its tributaries are not located within CALFIRE Jackson Demonstration State Forest boundaries.

The California Forest Practice Rules (FPR) address steep, unstable slopes with many constraints. JDSF consults with Certified Geologic Engineers (CEG) from California Geologic Survey (CGS) on every Timber Harvest Plan and designs the plans to accommodate this county's unique terrain by choosing the appropriate yarding system and road placement, buffering unstable areas and leaving higher retention levels as deemed necessary.

The FPRs also include watercourse and lake protections (stream buffers). These rules require land managers to not only protect habitat, but to enhance habitat where feasible by removing fish barriers and installing culverts that allow fish passage. THPs also comply with General Waste Discharge Requirements and address Section 303(d) Listed Watersheds (as defined by the Clean Water Act). Many of JDSF's projects fall under the coastal anadromy zone rules which require are higher retention levels within the Watercourse and Lake Protection Zones (WLPZ). Since the coho were listed in 1996, the FPRs have been updated to address new research that has been collected over the years. For example, the new road rules within the FPRs were based on multiple studies on effects of fish with roads near watercourses and were updated in 2017. The FPRs now require new roads to be hydrologically disconnected to the extent feasible. The FPRs also requires projects to address existing erosion sites and to fix the problems to the extent feasible. Caspar Experimental Watershed on JDSF is used to test the CAFPR to ensure that the methods, science and protections are functioning properly and to adjust as needed. By complying with the FPRs at a minimum, JDSF is ensuring that 303(d) watersheds are given the protection they need.

JDSF preforms many restoration projects on the Forest, in and outside THPs. These projects include increasing the large woody debris in watercourses and decommissioning legacy roads that are within the Watercourse and Lake Protection Zones. These projects directly improve water quality and aquatic

habitat for all life cycles of aquatic species. Many of these projects are funded by THP funds and would otherwise not be implemented.

Fire Risk and Timber Harvesting

Forest Management activities practiced by JDSF decrease the risk for catastrophic wildfire by opening the stand up to create space between the trees and increasing forest health. These openings within the stand allow for the reduction of ladder fuels and breaks up the fuel continuity (continuousness) which can reduce the risk of fire spreading to crowns. On the ground, the fire is easier to manage, poses less of a risk to fire fighters and neighboring communities and is potentially less damaging.

Clear-cuts on JDSF are smaller in size, have good road access, and while there may be slash, this slash is lower to the ground. The Third Caspar Experiment (the intensely harvested unit that is off Road 409 is a part of this study) has found that these large canopy openings have increased soil water and that relative humidity has not decreased significantly. The slash that was left on the ground in these opening was for erosion control. All other slash was piled to be burned when the weather permitted.

All projects utilize a combination of treatment for logging residue. These treatments include, mastication, chipping, lop/scatter, and burning. Some slash is utilized for erosion control and to block illegal vehicle access. JDSF has focused treatments in areas of higher risk adjacent to roads. Steep slopes are more challenging because equipment cannot be used. Cull decks will be utilized in different ways; such as firewood, new biochar projects, and in some cases habitat enrichment projects. JDSF recently received state funds to address fire fuel reduction which allows us to potentially re-visit past harvest areas around the forest and treat additional fuels. JDSF staff are always looking for new and innovative techniques to address the topic of fire fuels management.

Road Density and Placement

As defined by the USDA, “watershed condition is the state of the physical and biological characteristics and processes within a watershed that affect the hydrologic and soil functions supporting aquatic ecosystems” (Potyondy and Geier, 2011). Road density is not the only contributor to determining the health and function of a watershed. Improving watershed conditions are a major goal of the forest.

Road placement within the watershed is a big factor, so roads that are located on ridges are much less likely to affect watercourses than roads that are right along the creeks. JDSF has decommissioned approximately 25 miles of road across the Forest since 2008. JDSF also has done numerous large woody debris projects with our partners over the years, as well as upgrading culverts to allow for fish passage. Many of these projects are done in conjunction with a THPs which provides the CEQA and funding.

By law, all funds generated through timber sales are deposited in the Forest Resource Improvement Fund (FRIF) and only available for management of the Demonstration State Forests. In other words, all money that is made in timber sales is put back on the Forest through programs such as recreation upgrades, road upgrades, restoration projects, invasive weed management and fuels treatments. JDSF is a self-funded State program that manages the land for all citizens of California.

Potyondy, John, P. and Geier, Theodore, W. 2011. “Watershed Condition Classification Technical Guide.” USDA.

https://www.fs.fed.us/biology/resources/pubs/watershed/maps/watershed_classification_guide2011FS978.pdf

Carbon

Careful forest management is also directed at creating a healthy and fire resilient forest that will resist a catastrophic wildfire. A forest replacing wildfire and the impacts that has on carbon storage is a concern for forest management. Some carbon removed from the harvests is stored in long lived wood products, displacing non-renewable alternatives that potentially have higher carbon emissions and can't sequester carbon.

Like any management objective, optimizing short term carbon storage could impact larger objectives. Treating logging slash by lopping and crushing or pile and burn can cycle carbon faster than retention but can also net lower fire risk. Retaining tanoaks rather than felling them to encourage conifer regeneration may maximize short term carbon retention, but may net larger carbon losses if diseases such as Sudden Oak Death were to spread across the forest. JDSF is working to demonstrate the balance these different objectives (carbon sequestration, fire risk, health forests, recreation, etc.) in land management techniques.