Jackson Demonstration State Forest

Plan for achievement of

Maximum Sustained Production
of
High Quality Timber Products

in accordance with

Title 14 CCR 913.11(a)

Certification:

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Date: October 22, 2014

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Chapter 1. Background

The Z'berg-Nejedly Forest Practices Act authorizes the California Board of Forestry and Fire Protection (Board) to adopt Forest Practice Rules (FPRs) that govern all timber-harvest-related activities on private and non-federal public forestlands in California. In 1994, the Board passed a series of regulations that require timberland owners to demonstrate maximum sustainable production (MSP) of high-quality timber products by either (1) submitting an "Option A" timber harvest plan, (2) preparing a sustained yield plan ("Option B"), or (3) following a set of prescriptive silvicultural requirements ("Option C"). The three options for meeting the MSP requirement are named after Forest Practice Rules sections 913.11 (a), (b), and (c), respectively.

An Option A plan identifies sustainable harvest levels given constraints on timber production from other public trust resources. Although there is no upper limit on the size of the assessment area for on Option A plan, Option A plans are tiered to individual THPs. Consequently an Option A plan, once approved, has no fixed life span. Every THP in the assessment area can conceivably trigger a new review of the Option A plan.

A sustained yield plan is usually a more detailed and formalized landscape-level plan. Documentation requirements are greater than in an Option A plan, and separate watershed and wildlife analyses are required. An SYP, once approved, is valid for 10 years.

Option C requirements consist of a fixed set of prescriptive silvicultural requirements that are deemed to satisfy the MSP requirement in lieu of a formal planning effort. Integral parts of the requirements are maintenance of at least 15 square feet per acre on site I through site III lands or 12 square feet per acre on site IV and site V lands in trees 18-inch (46-cm) diameter-at-breast-height (DBH), and rotation ages of at least 50 years on site I lands, 60 years on site II and III lands, and 80 years on site IV and V lands, in even-aged stands.

Because the California Department of Forestry and Fire Protection (CAL FIRE) manages a total of approximately 75,000 acres of state forestland in California on behalf of the public, the "ownership" exceeds 50,000 acres. CAL FIRE therefore prepares long-term forest plans for all the State Forests that harvest timber. This document is an Option A plan for the largest State Forest in California, the 48,650-acre Jackson Demonstration State Forest (JDSF).

Purpose of Document

This document is a revised long-term strategic plan for Jackson Demonstration State Forest that serves two purposes. First, it fulfills the requirements of section 913.11(a) of the California Forest Practice Rules by disclosing sustainable management, a balance of harvest and growth over time, and protection of public trust resources. Second, it meets the Forest's demonstration mandate as an example of an Option A document for a medium- to small-size ownership that strikes a reasonable balance between the competing objectives of cost of preparation and scientific rigor.

Objectives

The objective of the Jackson Demonstration State Forest Option A plan is to project the effect of management on long term sustained yield, as provided by the Jackson Demonstration State Forest Management Plan, prepared by the Department and approved by the State Board of Forestry in January of 2008 and updated with the July 2011 Board Findings[1]. This revised Option A is a result of changes in landscape allocations and associated management direction included in the Board's Findings.

JDSF's management direction derives directly from statutes, regulations, and policies set by the State Board of Forestry and Fire Protection. Board policy describes Jackson and three of the other Demonstration State Forests as "commercial timberland areas managed by professional foresters who conduct programs in timber management, recreation, demonstration, and investigation in conformance with detailed management plans," (Board Policy 0351.1). More specifically, Board policy states that the primary purpose of JDSF is to conduct innovative demonstrations, experiments, and education in forest management; that timber production will be the primary land use on JDSF, and that recreation is recognized as a secondary but compatible land use on JDSF (Board Policy 0351.2).

1 California Board of Forestry and Fire Protection, Findings on the Recommendations of the Jackson Demonstration State Forest Advisory Group and Direction to the department of forestry and fire protection for management of Jackson Demonstration State Forest, July 13, 2011.

Under the management plan, designated parts of the State Forest will be managed to produce a high level of forest growth and timber production while maintaining and restoring natural ecological processes, providing opportunities to conduct research and demonstration on the relationship of these goals.

Given the current low level of older forest in the redwood region, a significant portion of the structural goals are oriented towards accelerating the development of older forest structures. The plan specifies healthy, functional ecosystems, emulation of natural processes, and broad diversity of forest structures and habitats, while recognizing that humans are an integral part of the ecosystem. Utilizing a diverse set of silvicultural systems is just one of the management tools that may be used to help achieve these Desired Future Conditions. The Plan emphasizes that restoration and maintenance of functioning systems is of high priority. A range of watershed management measures is required to reduce negative inputs to streams (such as fine sediment) and improve positive inputs (such as large woody debris).

The Management Plan presents a workable approach to create and maintain multiple seral stages, along with important structural habitat elements. It preserves all existing old-growth groves, augmenting most of them to provide large, contiguous areas of older forest habitat. It provides for recruitment of late seral habitat in the Mendocino Woodlands Special Treatment Area, upper Russian Gulch, and lower Big River, as well as along all Class I and II streams. It also provides for a broad corridor of forest with the structural characteristics of older forest that extends from the west to the east and the north to the south. The Plan protects individual large old-growth trees and smaller residual old-growth trees with unique habitat attributes. And it sets goals for increased retention of structural habitat elements such as snags, downed logs, and large green trees and their associated biodiversity values.

Planned harvest actions are set to achieve desired forest structural conditions, not simply to cut current growth or generate revenues. Careful application of silvicultural systems over space and time will achieve these conditions while also ensuring high growth rates and accumulation of high volumes of timber. Under the Plan, standing timber volumes (or "inventory") will continue to build over time, while providing a significant contribution to the local economy through the harvest and processing of timber. The average annual harvest levels during the next decade are estimated to be about 20-25 million board feet per year, and shall not exceed 35 MMBF per year.

Description of Jackson Demonstration State Forest

Location

Jackson Demonstration State Forest (JDSF) is located a little northward of the geographic center of the redwood region, which stretches 500 miles from Del Norte County through Monterey County. About half the total area of redwood forest is located to the north of JDSF and about half to the south. With 542,000 acres of redwood forest, Mendocino County encompasses more redwood forest area than any other county in California (Fire and Resource Assessment Program 2002).

JDSF includes portions of the Noyo and Big River watersheds, as well as several small watersheds that drain directly to the Pacific Ocean. JDSF covers approximately 48,650 acres in central Mendocino County. It varies from 2½ to 8 miles wide in a north-south direction, and is about 16½ miles long on the east-west axis. Its western boundary is within 1.5 miles of the coast, and the eastern boundary generally lies on the crest of the Mendocino Ridge separating the coastal slopes from the inland valleys, approximately 7 miles west of Willits.

The City of Fort Bragg, where the JDSF headquarters facility is located, is 2 miles north of the western property boundary. The town of Mendocino is located 2 miles west of the southwest corner of JDSF. The town of Willits and the Brooktrails development are located approximately 7 miles to the east. Ukiah, the county seat, is 35 miles southeast of JDSF.

Topography and Geology

JDSF and the surrounding area are located on the coastal side of the Mendocino Coast Range. The State Forest lands extend from gently sloping marine terrace surfaces along the Mendocino coastal plain in the west, to increasingly steep, rugged terrain in the eastern part of JDSF that is along the crest of the Mendocino Coast Range. The geomorphology of the coastal mountains of Mendocino County has been strongly influenced by two on-going processes: tectonic uplift and fluctuations in sea level. The landscape is especially affected during low sea level stands, when sea level drops

moving the coastline farther to the west. During these events, streams down-cut and form deeply incised valleys with steep-sided inner gorges. Once sea level rises (as at present) and the coastline advances, streams aggrade, the deep coastal valleys partially in-fill and estuaries form at the mouths of larger streams.

In general, the landscape is characterized by moderate to high relief. Slopes are less steep in the western watersheds within the Forest, and are steeper to the east in the watersheds nearer the crest of the Mendocino Coast Range. Elevations range from less than 100 feet within stream valleys along the western edge of JDSF, to a maximum of 2,092 feet in the southeast corner. The area drains directly to the Pacific Ocean. The local stream pattern is reminiscent of a "trellis", where short tributary streams flow into larger streams at roughly right angles. Stream pattern is controlled in part by structural patterns in the bedrock. As is true throughout the Coast Ranges, the predominant structural pattern trends northwesterly. Thus, many of the principal watercourses in the area are oriented in a northwest/southeast direction (South Fork Noyo River, Hare Creek, and Caspar Creek).

The California Geological Survey has mapped landslide features and relative landslide potential for the entire Noyo River watershed and for portions of the Big River watershed occupied by JDSF (Manson, Sowma-Bawcom, and Parker 2001; Short and Spittler 2002a; Short and Spittler 2002b; Braun, Curless, Fresnel and McGuire 2005). The areas inside and outside of JDSF are generally similar in the percentage of area covered by the various landslide and mass wasting features. Debris slide slopes, followed by rockslides, are the features covering the greatest amount of area. JDSF has a higher percentage of its area in potential inner gorge than does the area outside of the Forest. This situation is of concern because these potentially unstable areas tend to be directly connected to watercourses and have a high likelihood of delivering sediment to watercourses if they release material due to either natural causes or anthropogenic disturbance.

Hydrology

A USGS stream gauging station has been operated on the Noyo River since 1951. Large runoff events have occurred in 1955, 1964, 1974, 1993, and 2006. Streamflow has been measured in the Caspar Creek basin since water year 1963, with large runoff events documented in 1964, 1966, 1974, 1993, 1999, and 2006. The effects of harvesting and road building on changes in stream flows have been well documented through the work that has been conducted as part of the Caspar Creek watershed study (Ziemer 1998) (see also, http://www.fs.fed.us/psw/topics/water/caspar/). This project has been carried out jointly by the USFS and CAL FIRE since 1962.

Vegetation - General Forest Habitats

The forest type dominates the North Coast, Mendocino County, and JDSF. Beyond JDSF to the west there are coastal and aquatic communities. Within JDSF, key forest vegetation types include the Redwood Series, Red Alder Series, Pygmy Cypress Series, and the Bishop Pine Series (Sawyer and Keeler-Wolf 1995, Holland 1986). Other non-forest vegetation communities are limited in area at JDSF and include sphagnum bogs, marshes and grassland.
The Redwood Series is the principal vegetation type found within JDSF, comprising approximately 48,000 acres. Redwood (*Sequoia sempervirens*) and Douglas-fir (*Pseudotsuga menziesii* var. *menziesii*) trees dominate the Forest. Other conifers present in the Forest include grand fir (*Abies grandis*), western hemlock (*Tsuga heterophylla*), and Bishop pine (*Pinus muricata*). Hardwoods comprise substantial secondary components in this type and are represented principally by tanoak (*Notholithocarpus densiflorus* var. *densiflorus*) and madrone (*Arbutus menziesii*). The mixture of species shifts with distance from the coast, history of the area, exposure and soils. Redwood becomes less dominant moving inland with Douglas-fir and hardwood increasing. Some of the inland areas would be classified as Douglas-fir series by Sawyer and Keeler-Wolf (1995), and Holland (1986).

Most of the redwood stands found on JDSF are young (from five to 120 years old), but several small stands of un-entered and residual old-growth forest remain, totaling approximately 459 acres. The management history has influenced the species distribution in the eastern part of the forest as well. Though conifers dominate the forest overall, hardwoods play a role at JDSF. Young tanoak and madrone dominate young fir and redwood in some areas, and exist within most conifer stands at the mid and lower canopy levels. Hardwoods are more prevalent toward the central and eastern portions of the Forest.

The riparian Red Alder Series found in the western portion of the Forest can contain relatively pure stands of alder. Alder, Big leaf maple, and willow are generally restricted to riparian areas. Additional hardwoods found on JDSF are: California bay (*Umbellularia californica*), chinquapin (*Chrysolepis chrysophylla* var. *minor*), and canyon live oak (*Quercus chrysolepis*).

The Mendocino pygmy forest is a unique ecological community that occurs only in coastal Mendocino County. The California Natural Diversity Database (CNDDB) recognizes it as a community that is "rare and worthy of consideration." (2003). The Pygmy Cypress series covers approximately 613 acres of JDSF near the western extent of the Forest. CAL FIRE and California State Parks cooperate to manage some of this area.

Within the Pygmy forest areas there are two Sphagnum bogs. The Pygmy Cypress series often lies adjacent to Bishop Pine series. This type is typically found on soils that lack the fertility to support timber and often have pygmy cypress within them. The Northern Bishop Pine series is listed by CNDDB.

Eight special status plants (CNPS 1 and 2) and one lichen are known to occur on the Forest and 26 others that have been identified as having some habitat potential to occur on JDSF. Habitat potential has been identified by scoping and as well as discussion with DFG.

Fungi and lichen are examples of smaller, less well known organisms present at JDSF. Fungi function as beneficial mycorrhizae, decomposers aiding nutrient cycling, and as pathogens. Fruiting bodies may include mushrooms that benefit wildlife and human foragers. The area known as Mushroom Corners near the intersection of roads 408 and 409 is utilized by several universities, colleges and scientific societies for educational and scientific purposes.

History of Jackson Demonstration State Forest

Caspar Creek and the Caspar Lumber Company were named after Siegfried Caspar, a German immigrant who owned a cattle operation in this area. Initial logging on what is now JDSF began in 1862 when the Kelley and Rundle sawmill, supplied by a surrounding 5,000 acres of virgin redwood land, started operating near the mouth of Caspar Creek (Wurm 1986). In 1863 Jacob Green Jackson, a lumber dealer who owned lumber yards in Stockton and San Francisco, bought out the owners of the Kelley and Rundle operation and founded the Jackson Lumber Company. Lumber from the Caspar Lumber Company was transported to markets, mainly San Francisco, by schooners until the early 1930s.

In February 1946, C. J. Wood, the president of Caspar Lumber Company, offered to sell up to 51,000 acres of the company lands to the State at a reasonable price. A condition of sale was that the company could operate up to 15 years on some reserved old-growth timber. The State finally entered into a contract with the company to buy the lands on January 31, 1947 for one and a half million dollars. The purchased lands were named Jackson State Forest after the original owner of the land, Jacob Green Jackson. For tax reasons, C. J. Wood chose to transfer the properties to the state in five separate transactions, the last of which took place in 1951. Separately from the Caspar Lumber Company transactions, the Mendocino Woodlands Recreation Demonstration Area was added to JDSF at approximately the same time. This 5,425-acre property had been acquired from the Mendocino Lumber Company in 1935 by the U.S. Resettlement Administration, and was being administered by the National Park Service. The property was conveyed by deed to the Division of Forestry on September 11, 1947, and incorporated into JDSF. Map Figure 1 shows the current area of the State Forest.

Prior to the first harvest entries in JDSF beginning in the 1860s, most of the Forest can be assumed to have been virgin old-growth. The coastal watersheds were largely clearcut until the 1930s when developing tractor technology and other factors allowed partial harvesting to extend further inland.

The earliest harvests in the original old-growth forest in the area which now constitutes JDSF were done with primitive technology, relying on rivers to float logs to the mill. This limited logging occurred within the Caspar Creek drainage immediately above the Caspar Mill, and along the lower slopes above the larger watercourses such as the South Fork of the Noyo River and the North Fork of Big River. The late 1800s witnessed the introduction of railroads and steam yarders. Most of the stands from the coast inland, up to the Chamberlain Creek drainage, were clear cut with this technology. Forest management was largely non-existent during this period. Emphasis was placed upon extraction of what seemed like a virtually inexhaustible resource of old-growth trees, and upon overcoming the challenges of logging and transporting very large trees with the primitive technology of that era. By 1947 when the State acquired Caspar Lumber Company's holdings, most of the coastal watersheds such as Caspar and Hare Creek, had regenerated to even-aged stands of 15 to 60 year old second-growth timber, though post-logging fires had burned through many of the regenerated stands.

Caspar Lumber Company started partial cutting toward the east end of the Forest in the late 1930s, in the Chamberlain Creek drainage. After acquiring the Forest, the State continued partial cutting in this drainage and the James Creek drainage during the 1950s and 60s. This first round of partial harvest was an individual marked tree cut that removed

about 70 percent of the conifer volume. As a result, most of the large old-growth trees were removed. This initial cut was followed by a diameter limit harvest that removed most remaining conifer trees greater than 22 inches in diameter. This harvest pattern on the east end of the Forest resulted in an irregular uneven-aged stand structure, characterized by a relative abundance of hardwoods, poletimber and small sawtimber-sized young second-growth conifers, and individual scattered residual old-growth conifers.

This kind of irregular stand structure is typical of current stands on the east end of the Forest, and distinguishes this area from the western and central areas of the Forest. Although the more westerly portion of the Forest was subject to partial cutting of many second-growth stands, it has retained a more uniform stand structure due to the early history of large-scale clearcutting within the coastal watersheds.

In the late 1950s, after most of the old-growth areas within JDSF had been entered, managers began to investigate the feasibility of harvesting second-growth stands. Since the oldest second-growth stands were located within the Caspar Creek watershed, the first second-growth harvest on the Forest took place there. Harvest in second-growth stands subsequently occurred in the Caspar, Jughandle, Hare Creek, and South Fork Noyo River watersheds during the 1960s.

Management of JDSF has made use of both even-aged and uneven-aged systems. The first even-aged harvest in second-growth within the State Forest occurred in Caspar Creek in the early 1960s. It was not until the 1980s that a substantial proportion of harvesting in second-growth stands consisted of forms of even-aged management. A range of silvicultural methods has been in use on the Forest, for research and demonstration projects as well as operational forest management (Lindquist 1988). Harvest on JDSF has generally involved longer rotations and less frequent re-entries than on most industrial timberlands within the region.

Chapter 2. Existing Forest Conditions

Current Forest Management

The legal mandate for management of Jackson Demonstration State Forest is to research and demonstrate financially viable sustainable forestry practices in a broad range of forested habitats and forest structure conditions in the North Coast region of California. The North Coast region contains a large variety of forest stand types, and landowners practice a broad range of harvesting and forest management techniques. The owners of these working forests benefit from the research and demonstration that JDSF and other demonstration forests provide.

In order to be truly sustainable, forest management must maintain the ecological processes and biological diversity of the forest and its watersheds. To this end, JDSF management has maintained and developed a diverse range of forest habitats and stages of forest development. The diversity of forest conditions that have been cultivated on JDSF through 60 years of management offers unique opportunities for research and demonstration. The variety of forest structures found on JDSF, from recently regenerated stands to old-growth, make the Forest an enormously valuable resource as a working forest laboratory for research and demonstration. Forest structure, inventory, and growth are monitored on a regular basis, and the information is used to predict both future structure conditions (including wildlife habitat characteristics and values) and forest growth and yield.

JDSF is managed under sustainable forestry principles. Annual harvest has averaged well below annual growth. As a result, many second-growth stands on the Forest are growing older and becoming increasingly stocked with larger trees. An integral part of management is the regular harvest of a sufficient acreage to maintain an adequate representation of early to mid seral forest structures. These "maintenance" harvests may not have an immediate research function, but they serve the essential purpose of maintaining the range of forest structure conditions necessary to stay relevant as a managed research forest. Every timber sale on JDSF has not had a direct research purpose, but every timber sale has contributed in some way to cultivating the range of forest structure conditions necessary to remain relevant as a working research and demonstration forest.

Watershed protection levels at JDSF have been, and will remain high. Forest restoration is an essential element of forest management, providing opportunities to test and monitor both active and passive approaches associated with management of riparian zones, the forest road system, older forest structures, and habitat development.

The development of high value forest products culminates in the sale of forest products to private entities, which contributes to the local economy. Timber sales, described in greater detail below, may be of varying sizes, with substantial variation in the harvest methods and the volume of timber that is made available. Minor forest products, including firewood, mushrooms, and greenery are also offered to small businesses and the general public.

Forest Structure

Forest structure refers to the unique combination of tree species, tree sizes, tree numbers, and tree spacing, along with other forms of vegetation (*e.g.*, shrubs, forbs, grasses, and fungi) that can become established among and beneath the trees. The structure of a forest is reflective of conditions that promote regeneration and growth of the vegetation. Vegetation responds to opportunities to regenerate, and subsequent growth is influenced by available light, moisture, and nutrients. As a forest develops, the vegetation competes for light and moisture, creating abundant diversity of conditions. The removal of trees, as individuals or in groups, creates openings in the forest, and opportunities for regeneration and remaining vegetation to occupy these spaces.

Depending upon the amount of light that reaches the forest floor, various species of brush, forbs, and grasses may become established and persist. As forest stands change, due to natural development or stand management activity, the spacing and size of the trees is variable, and the level of undergrowth will change. This dynamic is commonly referred to as vertical and horizontal diversity.

Historic management and natural forest development have combined to produce a mix of conditions within the Forest. Most of the original old forest was harvested by the Caspar Lumber Company between 1860 and 1955. Where this harvesting involved the cutting and burning of entire stands, which was common practice prior to the 1940s, the

resulting young forest developed in an even-aged condition, where most of the trees are of nearly the same age and the forest canopy tended to become closed very early. This canopy condition tends to inhibit the growth of brush and forbs near the ground surface. After World War II, the cutting of old forests tended to be conducted in increments, where the larger trees were removed initially, followed by subsequent removal of smaller trees on one or two occasions. These conditions are prevalent in the North Fork of the Big River watershed and its tributaries (Chamberlain and James Creek watersheds). Each time that these areas were harvested, an opportunity was created for young trees to regenerate, so these areas tend to be occupied by stands with trees in two or more distinct age classes, along with scattered residual old trees that were not cut due to size, defect, or logistical circumstances.

Active management of young forest stands began during the 1960s. This management involved multiple forms of partial cutting as well as clearcutting. Clearcutting of young forest occurred primarily during the 1980s and early 1990s. Where this practice occurred, the resulting forest is very young and even-aged, rapidly approaching a closed canopy condition where the high level of shade will impede the development of brush and forbs. Where partial cutting methods have been employed in young stands, conditions are variable, and these stands are commonly characterized by having trees of two or more distinct ages, as well as having some brush and forbs growing under the canopy due to increased levels of light produced by the removal of trees.

The principal conifer species present within JDSF are coast redwood and Douglas-fir. These species commonly occur together within the Forest, with redwood typically more prevalent. Other minor conifers are present, including grand fir, hemlock, and bishop pine.

Most of the forest stands also include a hardwood component, with the predominant hardwood species being tanoak. Other hardwoods that occur include Pacific madrone, red alder, and live oak. Within conifer-dominated stands, the hardwoods are generally incapable of attaining the same height growth as the conifers, and eventually occupy a place below the crowns of the taller conifer trees.

There are a few remnant stands of virgin old-growth within the Forest, in addition to several hundred acres of partially harvested old forest. Structural components characteristic of older or late seral forest stands *(e.g.*, snags, down logs, live trees with cavities and large limbs) exist throughout the Forest at various levels.

The property has been conservatively harvested, resulting in a relatively high volume of standing timber. Because growth exceeds harvest, the forest continues to build inventory, and management has fostered the development of a broad range of structure conditions.

Resource Inventories

Estimates of timber volumes and other vegetation characteristics are derived primarily from a system of plots installed in 2005 referred to as the JDSF Forest Resources Inventory (FRI). The inventory consists of approximately 5,000 temporary plots and is used as the primary basis for the Option A analysis.

In addition, forest inventory and growth has been monitored since 1959 through the implementation of a Continuous Forest Inventory (CFI) system. A 60 by 60 chain grid of 141 permanently monumented study plots was installed throughout the Forest. These plots do not receive special protections so that they remain representative of the managed forest. The system was designed to track changing forest conditions and structures within reasonable tolerances for the Forest overall. Period measurements have been completed approximately every 5 years since 1959. The most recent measurement of the CFI plots occurred in 2010. The JDSF CFI system constitutes one of the longest and most detailed time series of forest growth monitoring data in existence.

Timber Sale Program

The State Forest plans and schedules regular timber sales as directed by Board policy and the Forest Management Plan.

Forest product sale transactions are broken into two categories based on size, Class I sales and Class III sales (an intermediate Class II category was discontinued in 1976). Classes I sales are limited to no more than 100 thousand board feet in volume, and cannot exceed $10,000 in value. These sales tend to consist of salvage operations, power

line right-of-way clearance, and other small lots of timber. Classes I sales of other forest products typically include firewood, split products, poles, greenery, and mushrooms. The Department of General Services exempts CAL FIRE from the requirements for competitive bidding for Class I sales, although these sales can be bid when it is appropriate. (For example, it may be desirable to use a bidding process to select a purchaser of a small sale when there are many people interested.)

Class III sales cover the major timber sale program, and are awarded through a competitive bidding process. Sale volumes have ranged from 100,000 board feet to more than 15 million board feet. Most sales have been between 5 and 12 million board feet. A Timber Harvesting Plan is prepared for each major timber sale.

Following consultation with the forest manager and forest staff, and after review of the Management Plan a timber harvesting plan and sale contract are prepared. The sale is appraised and advertised. A prospectus for each sale is sent to persons and organizations found on a mailing list that currently has about 40 names of potential purchasers, local logging contractors, and other interested parties. The sale is also listed on the California State Contracts Register website.

An advertising period of four to five weeks is typically provided to allow purchasers and contractors ample time to evaluate the sale and the contract provisions. Sales usually have bid dates in late winter or early spring, which allows the contract to be awarded and approved and operations to begin shortly after the end of the winter period.

Sale contracts are valid for one to two operating seasons, depending on the volume to be logged, the amount of new road to be constructed, the complexity of the operation, and how early in the year the sale is awarded. Normally, the contract for a sale of less than five or six million board feet will be designed for completion in one season, and a larger sale will run for two seasons.

In most cases, the lead forester during sale preparation will serve as the contract administrator during the operational phase. This provides continuity of site-specific familiarity and ensures immediate feedback on the strengths and weaknesses of the harvest design. Administrative inspections are intended to ensure compliance with the timber sale contract. Inspections of the sale area are made at least weekly, and more often during critical or sensitive phases of operation. Additional administrative duties include monitoring harvesting progress and the request of stumpage payments on a timely basis.

State Forest sale administrators do not double as CAL FIRE Forest Practice inspectors on the sales which they administer. THP review and inspection for the purpose of compliance with the Forest Practice Rules is performed by CAL FIRE inspectors who are not State Forest staff. The contract administrator's responsibilities extend beyond the completion of timber harvesting, to include inspection and arrangement of maintenance of erosion control facilities during the maintenance period, and ensuring that harvest units meet stocking requirements.

Recreation

Recreational opportunities found on Jackson Demonstration State Forest are unique to the coastal region. They are informal, unsupervised, and diverse. Primary recreational activities include camping, picnicking, hiking, biking, driving, horse-back riding, and hunting.

Although public use on the Forest has not diminished over time, priorities for implementing a recreation program have fluctuated with political goals and their resultant budgets. The goal of integrating recreation management, forestry education, resource protection and timber harvesting to demonstrate compatible use has been ongoing by default since the State Forest's inception as well as with directed attention.

With the exception of the two Conservation Camps and areas undergoing active timber operations, nearly all of the 48,650-acre forest is open for public access. There are 21 campgrounds within the boundaries of JDSF, and most of these offer opportunities for swimming or wading. The road system and easy access from Fort Bragg, Mendocino and Willits allows for extensive day use. It is estimated that day use comprises at least three times as many visitor-days as overnight camping. Unlike the surrounding smaller State Parks, JDSF has more roads available for use and allows a wider range of recreational uses (horseback riding, mountain biking, and hunting). JDSF provides considerable public value to its visitors.

The majority of visitors live in Mendocino County, but an increasing number of visitors are from outside of the county. The rise in non-local visitors may be attributed to increased publicity from travel guides, a general increase in tourist travel to the north coast, and perhaps in the future from the Internet. Campgrounds are always full for the holiday weekends during the summer. The majority of the campsites are open seasonally.

Facilities

Maintenance of existing facilities has been the primary recreation management objective for the past several years. As staffing levels and budgets varied over the years, priorities fluctuated. The majority of recreational facility maintenance has been made possible by utilizing JDSF staff and crews from the two Conservation Camps located on the Forest.

Camp Host sites are located on the Forest at the two multiple-site campgrounds: Camp One (west end) and Dunlap Camp (east end). Information and camping permits can be obtained from the Camp Hosts. Currently, the only other locations where information can be obtained are from the JDSF headquarters (Fort Bragg) or the Mendocino Unit headquarters (Willits) during business hours on weekdays. Camp Hosts have been key in reducing the frequency of vandalism to campground and day-use facilities. Their physical presence acts as a deterrent, as does their routine maintenance of campground facilities.

The trail system on the Forest varies from designated self-guided interpretive trails and developed hiking trails to skid trails and logging roads (both old and new). There are four designated non-interpretive hiking trails that are located in JDSF: Camp One Loop, Trestle, Waterfall Grove, and Woods Trail. These trails are primarily limited to foot traffic travel although other non-motorized uses are not restricted. The Sherwood Trail is part of a regional trail designed for equestrian use that is not maintained by JDSF and continues into Fort Bragg across private property.

Road Management

The road system serves as the main point of public contact with the forest, and also serves as the conduit for management activities, including the transportation of staff, researchers, equipment, and forest products.

Forest roads on JDSF are used for timber harvesting, forest management activities, forest protection, public access, and recreation. The current road network reflects a history of various transportation technologies and forest practices. Beginning in the 1870s, railroads were used to transport logs in some watersheds and railroad grades were located along or adjacent to streambeds. Some JDSF roads use remnants of the old railroad grades in several places.

Most of the roads on JDSF, however, were constructed from the 1950s to the 1970s. Roads constructed during this period generally included an inboard ditch and cross drains. Concentrated runoff from this type of road has been shown to be a major source of fine sediment, because the inboard ditches are often connected directly to stream channels (Wemple et al 1996). Improvement of JDSF roads to reduce sediment yield continues to be a priority for management.

Minor Forest Products

The Department currently offers the public and private commercial interests the opportunity to purchase minor forest products, subject to specific rules and constraints. At present, permits can be purchased for collection of products including salvage sawlogs, poles, split products, greenery (e.g., boughs, shrubs, and ferns), mushrooms, and firewood. Class I sale permits are issued for the collection of these minor forest products.

Salvage Sawlogs

Logs may be purchased from the State Forest, subject to permit constraints and applicable state regulations. Payments are generally made on the basis of log volume removed from the State Forest. The purchaser is responsible for paying all applicable yield and sales taxes. The removal of salvage sawlogs requires the purchaser to be in possession of a valid timber operator's license. Prices for logs to be removed are subject to negotiation between the purchaser and the State Forest manager. All timber operations are limited by the Forest Practice Rules and constraints established by the State Forest manager. Typical State Forest constraints include provisions for clearance from watercourses, slope

limitations, wet weather restrictions, and pre-location of yarding and hauling facilities. All log locations are pre-specified. No logs and wood products originating from standing snags or old-growth trees may be collected.

Firewood

Firewood permits are available from the Forest. Firewood collection permits can be purchased for personal and commercial purposes after payment of a fee. Commercial producers are responsible for payment of all applicable taxes. Firewood collection is limited to dead and down material, and does not include either old-growth material or potential conifer sawlogs. Firewood collection is limited to pre-designated areas, and is generally subject to constraints such as watercourse clearance, slope limitation, weather conditions, retention of sufficient LWD for forest structure purposes and access road designation.

Greenery

Permits to collect greenery are available to the public. Very little of this activity occurs, but a few permits are issued every year. In recent years, permits have been issued for the collection of Douglas-fir boughs, ferns, salal, and huckleberry brush. Payment varies by product, being either on a volume basis or an item basis.

Mushrooms

Mushroom collection permits may be purchased for both personal use and commercial collection. Collection volume is limited, although areas of collection are not constrained.

Poles and Split Products

Permits may be purchased for collection and manufacture of poles and split products. Old-growth material may not be collected. Payment is made on an item or volume basis, and the purchaser is responsible for payment of all applicable taxes. Typically, poles are derived from thinning of young redwood/Douglas fir stands. Very little split product is manufactured, due primarily to the restriction against collection of old-growth material. Areas near watercourses are restricted in order to retain large woody debris with specific ecological value.

Periodically, the State Forest manager establishes permit prices, volume or numerical limits, and conditions of collection for the various minor forest products collected by the public. For personal use items, permit prices are nominal and are intended to cover the costs of administration of the permit process. Conditions of collection, collection location and collection limits (volumetric or numeric) are based upon an assessment of potential impacts that could result from the collection process and removal of the resource.

Research and Demonstration

This section discusses the general research and demonstration mandate for JDSF and how it affects the kind of forest management that is practiced on the Forest.

Research and demonstration are primary elements of the mission for JDSF established by the State Board of Forestry and Fire Protection. The large number of research projects also contributes to the wide range of silvicultural prescriptions encountered on the Forest. It is important to distinguish between the general management prescriptions for the State Forest and silvicultural prescriptions that are part of specific research studies. For example, the collaborative Caspar Creek watershed study between CAL FIRE and the USDA Forest Service was designed in part to investigate the effect of clearcutting on soil erosion, sediment production and water flow. This study has provided valuable insights into the environmental effects of different patterns of road location and harvest, but it would be a mistake to interpret the large clearcuts and even-aged silvicultural prescriptions implemented under this study as indicative of the overall management goals for JDSF.

Future management in JDSF will continue the current pattern of a wide range of silvicultural prescriptions, with a mixed approach of uneven-aged and even-aged prescriptions covering the forested landscape. Habitat for the broadest range of species can be insured if diversity exists with regard to the size, shape, and continuity of created openings, and the resultant forest structure present during stand development. Future research and demonstration projects could include

large-scale experiments to investigate effects of different management patterns. Such experiments necessitate retaining the flexibility to implement as wide a range of silvicultural prescriptions as possible on any given site. Past research, including the Caspar Creek watershed study, has been successfully implemented without jeopardizing the productive capacity of the Forest. Proven strategies for protecting public trust resources such as aquatic resources on managed forestland are not well developed, and the need for scientific information is great. JDSF is virtually the only managed forest ownership in the redwood region that can accommodate large-scale research to study how public trust resources can be protected on managed forest lands.

To forward the interests of research and demonstration, the planned management of Jackson Demonstration State Forest will produce an array of forest stand conditions available for observation and study. After accounting for areas requiring special protection, the remainder of the Forest was segregated into sizable management areas where a variety of stand management techniques will be utilized (Map Figure 5). In addition, a substantial acreage was dedicated to the long-term development of late-seral forest conditions for the benefit of habitat, biodiversity, and ecological process. The range of potential silvicultural systems available in any given area is constrained by the landscape allocations mentioned above.

This forest is quite unique in that it offers the State of California an opportunity to determine the potential of timberland to produce forest products while enhancing both habitat and water quality. There is an opportunity for JDSF to demonstrate the level of productivity and protection that can be achieved from the 2 million acres of private redwood timberland within the region, if provided with appropriate incentive and opportunity.

Vegetation and Site Class

JDSF is dominated by second growth stands of redwood and Douglas-fir. Hardwood species, primarily tanoak, become more prevalent within the conifer stands toward the eastern portion of the Forest, and on south and west-facing slopes. Much of the difference in vegetation composition along an east-west gradient is due to historical logging patterns. The western and central portion of the Forest historically received generally even-aged harvests of the old forest, while partial cutting (primarily to a diameter limit) was predominant in the North Fork of Big River watershed toward the eastern part of the Forest. Additionally, climatic and soil conditions account for differences in stand conditions. See Map Figure 2.

One of the key factors for the predictions of timber productivity is site index. Most of JDSF is site class II and III. Map Figure 3 shows the distribution of site class on the Forest.

Stocking

For the purposes of this Option A plan, CAL FIRE will be reporting and tracking all timber volume estimates in board foot measure, Scribner scale. Minimum DBH is 11 inches and minimum top diameter inside bark is 6 inches. The board foot is the unit of measure chosen because it is the standard commercial unit used to determine the merchantable contents of trees, logs, and finished forest products, and it is the most common unit of valuation for taxation and market transactions. The board foot measure of volume described above was used for all forest inventory and growth and yield models used in the development of this Option A plan.

Table 4 below shows a summary of beginning vegetation strata statistics, including volume and basal area. Based upon the 2005 inventory data updated to 2009, the total standing inventory volume on the Forest is estimated at 2.02 billion board feet or 41,583 board feet per acre for conifer species, and 79.6 million cubic feet or 1,637 cubic feet per acre of hardwood species.

Forest Growth

The Continuous Forest Inventory (CFI) system described above is used to estimate forest-wide growth. Based on the 10 year period 2000-2010, the average forest-wide growth is 973 board feet per acre per year. Based on the 21 year period from 1989-2010, the average forest-wide growth is 923 board feet per acre per year. The Forest and Stand Evaluation Environment (FORSEE) projected forest-wide growth for the first period of this plan was 905 board feet per acre per year, which is slightly conservative.

Chapter 3. Planned Future Conditions

Desired Future Forest Structure Conditions

An integral part of the sustainable forestry program of management on JDSF is to achieve a deliberate balance of successional stages on the Forest, from very young to late seral stands and old-growth stands, at all times. The major purpose of the forest structure condition goals is to provide forest stand conditions and management histories in the Forest suitable to accommodating a range of research investigations and demonstration opportunities, as well as a broad range of different habitats. A substantial portion of JDSF is dedicated to the development, maintenance and study of mature older forest. At the same time, the Forest needs to maintain sufficient cohorts of younger stand structures to stay relevant to its research and demonstration clientele of small and medium size private landowners, whose lands are typically dominated by early and mid-seral stands.

To facilitate the allocation of a variety of silvicultural prescriptions, unique management areas with specific management goals relating to planned future forest structure conditions have been spatially designated, as well as any restrictions on management activities based on the Forest Practice Rules (Table 1 below). Each of these management areas will have a one or more silvicultural options, which may be limited to the "no harvest" prescription.

A broad range of management practices and forest management methods, from preservation to intensive forest management, will be utilized depending on the management goals. Forest structure conditions will be cultivated through a variety of silvicultural methods, both even-aged and uneven-aged. The stages of regeneration up through late seral can have significant cohorts of different ages and sizes of trees within the stand.

One goal of management on JDSF is to maintain the relative proportions of forest structure conditions or successional stages over time. The exception is old-growth stands which will not be harvested. All identified old growth stands are included in the "no harvest" silviculture prescription, and are not included in the long-term sustained yield (LTSY) estimate. Management may consist of either passive (i.e., foregoing harvest) or active management (typically thinnings) to allow young stands to mature into later successional classes in order to balance the distribution of successional classes. Management to balance the acreages of successional stages across the Forest may also consist of harvesting sufficiently many trees in a stand to reset it to an earlier successional stage. This approach can entail harvesting a sufficient number of trees in a mature stand to reset it to regeneration.

Late Seral, Watercourse and Lake Protection Zone Areas, Older Forest Development Area within the Older Forest Structure Zone Area

A significant component of stand management across the Forest will be directed toward the creation and maintenance of interconnected older forest structure and older forest habitat. The principal areas within which this will occur are the existing old-growth groves, watercourse and lake protection zones (WLPZ), late seral development areas (LSD), and the older forest development areas (OFDA) (see Map Figure 5). Each of these areas is organized around the geographic concept that larger units will be more effective than a collection of smaller units that are not connected. The late seral development areas and older forest development areas are large contiguous areas designed in large part to provide core areas for wildlife species that prefer unfragmented areas with large trees in the overstory. These areas also have high research and recreation values.

Nearly all of the areas designated for late seral development currently are (1) immediately adjacent to core areas such as old-growth groves, State Parks, or Class I and II streams WLPZs, (2) dominated by stands with high California Wildlife Habitat Relationship (CWHR) ratings, and (3) will be managed to accelerate the development of larger trees or other older forest structures. The WLPZs are a hydrologically linked system that extends from low gradient reaches near the ocean all the way up to intermittent streams in the upper reaches of the watershed. The WLPZ goes through all stand types and management is primarily driven by evolving regulatory requirements as well as research and demonstration projects specifically designed to address riparian forest conditions. Older forests with larger trees and late seral structural characteristics will provide both high levels of canopy to maintain moister, cooler microclimates as well as provide the potential recruitment of large trees that could eventually enter the stream systems and provide some of the in-stream structure that is critical to salmonid species.

A contiguous 8,265-acre corridor will be managed as an Older Forest Structure Zone, extending across JDSF from west to east and north to south (Map Figure 5), composed primarily of reserved Old-growth Groves, Late Seral Development Areas, and older forest development areas. This area will produce structural characteristics of older forest, which include large trees, snags, down logs, multiple canopy layers, and a high level of structural diversity.

The portions of this zone available for timber management would be managed on an uneven-aged basis to recruit these structural conditions and wildlife habitat elements, to coincidentally grow and produce timber through careful thinnings and periodic replacement of large trees, and to provide recreational opportunities.

The Older Forest Structure Zone will have high value for research concerning topics such as restoration of older forests and the ecological processes associated with older forests. It also will improve the long-term conditions for wildlife, particularly species that prefer older forests. It provides a continuous corridor of forest that links most of the Forest's old-growth groves, and also provides habitat linking adjacent industrial timberland with the forests of JDSF.

The late seral development area is concentrated in two areas, including the Mendocino Woodlands and Upper Russian Gulch areas, and in three areas adjacent to designated old-growth groves. Within these areas, the objective of management will be to develop older forest through a variety of means, from relatively passive to active management. The more active forms of management will be conducted to accelerate the development of late seral structure. Late seral structure targets will include a significant component of large, old trees (greater than 150 years), as well as large snags, large down logs, deformed trees, multiple canopy layers, and a high degree of within-stand variability. A similar management strategy will be applied in the WLPZ, although management will also concentrate upon the unique values that these areas provide to watershed processes, the stream, and the near-stream environment. This management strategy recognizes that the stream zones provide a valuable forested link within watersheds and across the Forest and that large trees within these areas are an important source of large woody debris inputs to streams.

Matrix

Areas of the forest that have not been designated for special treatment may receive a broad range of silvicultural prescriptions, including both even-aged and uneven-aged methods. These areas will include more early seral stage conditions and stocking levels that are more reflective of current management practices on private forest properties. Together with the dedicated reserves and special treatment areas, this will provide the widest range of structural conditions possible on the Forest, creating vast research opportunities to assess the effects of diverse management strategies. It will also make it possible to conduct research and demonstrations that are directly relevant to mid-size private forest owners.

Forest Management

JDSF is first and foremost a research and demonstration forest. The Management Plan identifies planned management based on biological, scientific, and social criteria. It is based on the premise that JDSF Forest managers have the discretion to allocate forest management treatments, within the framework established by the Management Plan, based on the best available science. The forest will be managed to develop the desired future conditions set forth in the previous section.

The primary focus of management is to lay out best management practices for sustainable forestry on JDSF. In some areas such as old-growth groves, areas immediately adjacent to larger streams, and parts of occupied habitats of threatened or rare species, the management will typically be "no management" except to protect the site from serious external threats or to improve specific habitat values.

The concept of sustainability requires a scientifically based long-term view with respect to the planned sequencing of forest treatments. A reasoned sequence of proposed treatments, based on sound silvicultural and ecological principles, is essential in meeting the defined land management objectives. The land management objectives and sequencing of treatments must be spatially allocated over the forest landscape in order to develop desired future conditions at the landscape level. JDSF continues to adhere to a policy of relatively open access for researchers, and therefore cannot completely predetermine the type of silviculture that will be used in research projects. In addition, given the amount of acres that have to be treated each year to achieve forest structure goals, research projects alone cannot be the only vehicle for timber harvest on JDSF. In any given year, a majority of the silvicultural treatments will probably not be directly associated with a specific research project, but rather will be aimed at creating the diversity of forest structure conditions replicated across the landscape, that is necessary for conducting future research projects that will meet the Forest's mandate.

The current structure and composition of the State Forest is reflective of past management and historic plans. Future management actions and natural growth processes will move the Forest towards a more varied set of stand structures and habitat conditions, which are reflective of how management objectives on JDSF have evolved over the years.

The management allocation plan described here provides implementation guidelines for allocating harvest levels and silvicultural methods to different areas on the Forest. A key objective is to keep as many options available for future research and demonstration as possible within forest structure goals that primarily follow planning watershed boundaries. No single forest structure is favored over another. A key consideration is not to foreclose on future options, thus maintaining flexibility for future management and research installations.

This plan does not alter any of the protection measures associated with recognized areas of special concern. State Forest staff will continue to conduct site-specific assessments to determine the appropriateness of silvicultural prescriptions for any given area. Forms of stand management are spatially allocated by forest area in a way that establishes an area allocation plan that limits management options near the OFSZ, adjacent rural residential neighborhoods, state parks, and the Mendocino Woodlands (see Map Figure 5). For any given timber harvest, the THP process provides the CEQA-compliant project-level environmental assessment process.

The allocation of management areas addresses potential conflicts with State Forest recreational use and local public interest values. Practices similar to even-aged silviculture that would encompass 2.5 or more acres were minimized in management compartments adjacent to areas where management is constrained. Uneven-aged management, which tends to maintain a continuous forest canopy, has been incorporated within the management areas with identified sensitive public interest values.

Table 1. Land Management Allocation

Land Management Allocation	Acres	Percent of Forest Acres	Allowed Silviculture
Matrix	23,125	47.5	All (with restrictions on Even-aged management acres)
Watercourse and Lake Protection Zones	7,117	14.6	WLPZ Selection, Grow only
Older Forest Development Area	6,580	13.5	Older Forest Development (OFDA), Grow only
Late Seral Development (includes Woodlands Special Treatment)	3,331	6.8	Late Seral Development (LSD), Grow only
Research	2,517	5.2	All (with restrictions on Even-aged management acres)
Reserves (including Jughandle)	1,813	3.7	Grow only
Marbled Murrelet	1,348	2.8	Buffer Selection, LSD, Grow only
Road and Trail Corridor	1,135	2.3	Buffer Selection, OFDA, Selection, Grow only
Old Growth Groves	447	0.9	Grow only
Pygmy	382	0.8	Grow only
Neighbor/Campground Buffers	361	0.7	Buffer Selection, Grow only
Eucalyptus Infestation Area	238	0.5	Selection, Buffer Selection, Group Selection, Grow only
Cypress	110	0.2	Selection, Grow only
Powerline Right of Way	83	0.2	Selection, Buffer Selection, Grow only
Water Supply	32	0.1	Buffer Selection, Grow only
Conservation Camps	32	0.1	Selection, Grow only
Totals	48,650	100	

Uneven-aged Management

Uneven-aged management is used to create and develop stands with trees of differing sizes and ages. The common systems in uneven-aged management include single tree selection and group selection. Openings within uneven-aged systems vary from an individual tree (1/100th of an acre) to openings designed to allow full sunlight (1/4 acre to 2.5 acres). Over time, uneven-aged systems develop trees from at least 3 age or size classes. Periodic timber harvest in these stands removes selected individual trees or small groups of trees in order to promote growth of the remaining trees and to create an opportunity for new trees to develop or regenerate.

A majority of the area devoted to timber production will be managed under an uneven-aged management system This is the dominant system utilized by non-industrial forest landowners and others intent upon maintaining visual quality.

In practice, size class differentiation often complements or substitutes for age class differentiation. The Forest will be managed to utilize two predominant uneven-aged silvicultural systems, single tree selection and group selection. The objective of this variability is to demonstrate a range of silvicultural options under uneven-aged management, and to provide multiple future research opportunities.

Single Tree Selection:

Single tree selection leads to stands with continuous forest cover, small gaps between trees, and a diversity of tree sizes and ages. The intent will be to enter each timber stand every 15 to 25 years to create a new age class. The residual growing stock level and the diameter distribution of trees in a stand will be adjusted on a site-specific basis. Stand variability will be maintained in order to demonstrate a range of silvicultural options under uneven-aged management and to provide variable conditions available for future research.

Many existing selection harvest units on the Forest have not yet had the kinds of repeated harvest entries that lead to multiple age classes and canopy layers, and only a very few have had more than two such entries. Many stands to be managed under the selection system are even-aged, single-canopy second-growth stands that have not been re-entered since their establishment, or have had only one partial cut that may or may not have resulted in successful creation of a new age class. Nowhere on JDSF is there a stand that displays the full range of trees of all sizes and ages that is the ultimate structure of the regulated[2] selection stand. Within the region, the practice of selective harvest of second-growth stands began only 40 to 50 years ago. A complete transition from even-aged to uneven-aged structure is largely theoretical, thus providing research and demonstration opportunities, and may take up to 80 years or more.

Each potential single tree selection harvest unit will be evaluated to determine the most appropriate treatment to move its condition towards a stand with a balance of age and size classes. Evaluation characteristics may include:

- Structural needs associated with creation of a range of conditions across the Forest for future research and demonstration.
- Condition of regeneration or opportunities to promote regeneration.
- Stand density. An open stand tends to receive light at the level of the regeneration, so a light harvest of the overstory may be appropriate. A closed stand may indicate the need to create canopy gaps.
- Competing vegetation. Stands with large components of brush or hardwood may benefit from a more aggressive regeneration effort.

Group Selection:

Stands managed under the group selection system will eventually consist of small forest patches at multiple stages of development, from recently regenerated to mature. The cutting cycle for an area designated for group selection will range from 15 to 25 years. The goal is to establish and maintain three to five separate age classes.

The sizes of group openings will typically range from 0.25 acre to 2.5 acres. Group openings 2.5 acres and larger are considered to represent even-aged management. Within stands, group sizes may remain fairly uniform to maintain the ability for comparison between stand management options. The intent under this plan is to demonstrate and assess a range of harvest opening sizes upon factors such as tree growth, regeneration of new trees, wildlife habitats, botanical diversity, operability, and financial considerations.

Criteria for selecting the sizes and configuration of group openings in a harvest unit may include:

- Forest-wide structure goals over time.
- Height of trees surrounding the opening. Smaller openings can be accommodated when surrounding trees are relatively short.
- Logging systems anticipated. The logistics of specific systems can be accommodated by the size, orientation, and arrangement of group openings.
- Shape. Long openings may require additional size to maintain sufficient levels of light for regeneration success.
- Orientation. Openings with the long axis aligned east-west will remain shaded along the south edge, while a north-south alignment may allow more sunlight to reach the opening. This effect may be accentuated on north-facing slopes.

[2] In the context of managed uneven-aged stands, "regulated" stand conditions are reached once the stand approaches a relatively stable and sustainable state where harvest is roughly balanced with growth over the cutting cycle.

- Site preparation and artificial regeneration. If these cultural practices are prescribed, their implementation can be more efficiently facilitated by larger opening sizes.
- Adjacency of neighbors, recreation areas, and other potential use conflicts.
- Species composition and stocking levels.
- Specific demonstration and/or research objective.

The Parlin Fork Management Area will continue to be managed using a group selection strategy.

Even-aged Management

Even-aged management is intended to create and develop stands within which most of the trees are of similar age. This form of management works best when the desired species of trees grow well with a lot of sunlight. Some common systems to be demonstrated in even-aged management include variable retention and one-aged stands (commonly called clearcutting). Harvest under this form of management tends to remove most of the trees from a given area to promote the regeneration of a new stand.

Even-aged management is generally used to create and maintain stands with trees of the same or similar age. This form of management works best when the desired species of trees grow well with a lot of sunlight. It is increasingly common to retain a significant number of larger trees growing above or among the more numerous younger trees. These larger trees are generally retained to increase habitat values, to shelter the younger trees, to provide a seed source, or to accumulate volume for later harvest.

Even-aged management will be used as necessary to achieve the forest structure conditions needed to accommodate research investigations. Within this context, even-aged management also may be used to address forest health and problematic regeneration conditions, as well as immediate research and demonstration purposes.

A minority of the total Forest area devoted to timber production can be managed under an even-aged management system. The total area receiving any form of even-aged silvicultural treatments shall not exceed 2,700 acres per decade (or 5.5% of Forest area), and will be conducted only where necessary for research purposes. Clearcutting will only be conducted in association with a research project, addressing forest health, or addressing problematic conditions for regeneration; clearcutting for these three purposes is limited to a cumulative maximum of 300 acres (or 0.6 % of Forest area) per decade. All proposed even-aged management will be presented to the appropriate advisory committee(s) for review and recommendation prior to implementation.

The forms of even-aged management that are proposed for future research include variable retention and one-aged stands, including clearcutting. Variable retention is a form of management in which mature trees are retained in a variable configuration, and a new even-aged stand is grown beneath or between the retained trees. Retained trees may occur as scattered individuals, in groups, or in combination. The purposes for retention of the mature trees are numerous, including habitat value, watershed, and aesthetic considerations. Two-aged stand conditions have not been widely applied within the region, but offer an important research and demonstration opportunity to meld the continuous canopy concept of uneven-aged management with the concept of creating significant space and sunlight for promotion of a second age class developing beneath and between the overstory. One-aged stands as the name implies designates stands where most of the trees are of the same age cohort. Developing and retaining areas with this simplified stand structure, at a range of stand ages, is critical to support a wide variety of research opportunities.

An important consideration for the landowner when applying forms of even-aged management is the concept of rotation age. Rotation age is the age at which a stand of trees is harvested and a new even-aged stand of trees is regenerated on the site. Science has demonstrated that stands can produce maximum physical yields when the average annual growth of the stand is at or near its peak (Lindquist and Palley, 1963; Schumacher, 1930). Land managers also need to consider the economic costs and risks associated with retaining a stand to an advanced age. This continues to be a fertile area for research and demonstration. A broad range of rotation ages will be demonstrated. Most even-aged stands are capable of achieving culmination of mean annual increment at ages between 60 and 150 years, with the longest rotations applied to sites with the lowest growth potential. Economically optimal rotation ages are generally considered to be shorter, in the range of 40-70 years. All even-aged rotations modeled are between 70-100 years.

Timber Stand Improvement

Some silvicultural treatments are designed to improve the stand condition independent of whether an even-aged or uneven-aged stand structure is desired. The following treatments are applicable depending on specific site conditions. JDSF has a recent management history of applying mechanical timber stand improvement techniques to the majority of

newly regenerated even-aged stands, and it is the intent of management to continue this practice in the future.

Precommercial Thinning and Release:

"Precommercial" means that merchantable sawtimber is not derived from the thinning operation. This stand treatment is undertaken to space the remaining trees and control species composition. It is designed to direct growth to the remaining trees, generally those with the best form or growth potential. Young stands are thinned to prescribed stocking levels, in an effort to produce a desired combination of species, tree size, and stand volume increment.

Release often accompanies precommercial thinning, and involves freeing individual trees, or groups of trees, from immediate competition by eliminating over-topping or closely surrounding vegetation. This practice, generally accomplished by mechanical means (e.g. chainsaw), produces increased growth on the remaining trees, a means of controlling invasive weed species, and assurance that planted seedlings will be free to grow. Release is normally a non-commercial practice.

Limits on Productivity Imposed by Other Forest Values

This section describes the non-timber resource values affecting the level of timber production that can be achieved at JDSF. The two major limiting factors for timber production on JDSF are wildlife and watershed resources. Other non-timber resources listed in 14CCR 913.11(a)(1), recreation, regional economic vitality and employment, and aesthetic enjoyment, are also discussed in this section.

Special Concern Areas

In consideration of forest values other than timber production, areas of special concern that constrain management were identified and provisions for their management were established. Special Concern Areas are geographically distinct areas that include: unique habitats, habitat for species of concern, riparian areas, recreational areas, areas near residences and parks, research areas, water supplies, and sensitive slopes (Map Figure 5).

In the identified Special Concern Areas, allowed silviculture was modeled with consideration to the following objectives: maintaining or restoring habitat, creating diverse forest types and specific structural elements, producing high levels of sustainable timber growth, and creating opportunity for a viable research and demonstration program. Additionally, these areas are subject to management restrictions to protect sensitive resources. Map Figure 5 shows the approximate locations of the Special Concern Areas. The acreage figures provided here are the best current estimates, but are subject to change with refinement of information or changes in conditions over time.

Many Special Concern Areas overlap. Examples include the power line right-of-way crossing through the watercourse and lake protection zone or the matrix management area; the overlap of pygmy forest and the Jughandle Reserve; or road and trail corridors within the Woodlands Special Treatment Area. The acreages shown below are those that are assigned to each Special Concern Area independently; thus, the total of all acres is more than the total Forest acreage affected by Special Concern Areas. The most restrictive limitations will be applied during plan implementation. The research and demonstration mandate coupled with public trust resource protection has resulted in 23 Special Concern Areas on the Forest.

Older Forest Structure Zone- 8,265 acres
Area designated for management to connect specific old-growth groves, late seral development areas, watercourse protection zones, and upland forest to form a contiguous area of habitat with structural characteristics of older forest, such as large trees, snags, down logs, and a high degree or vertical and horizontal diversity. Where timber harvest is proposed adjacent to the Old Forest Structure Zone, a buffer will be applied. No even-aged silvicultural systems may be used within 300 feet, and only single tree selection may be used within the first 100 feet adjacent to these areas.

Cypress groups - 253 acres
Stands dominated by pygmy cypress that occur on sites with generally unproductive soils (i.e., sites that are considered non-timberland), but not considered to be true pygmy forest. These areas will not be harvested. Note that conifer stands containing cypress that occur on more productive sites may be subject to harvesting and are not included in this Special Concern Area.

Pygmy forest - 502 acres
A unique type of dwarf vegetation found on old marine terraces dominated by pygmy cypress and other specially-adapted species. This Special Concern Area includes nearly all of the Jughandle Reserve Special Concern Area, along with other pygmy forest stands in JDSF that occur outside of the Jughandle Reserve boundaries. These areas will not be harvested.

Jughandle Reserve - 247 acres
An administrative area designated to protect a tract of pygmy forest within JDSF and to manage recreational access to these lands in a manner compatible with human use in the adjacent Jughandle State Reserve. This Special Concern Area lies almost entirely within the pygmy forest Special Concern Area. There will be no harvesting within the pygmy forest area.

Eucalyptus infestation area
This is an area in the Caspar Creek planning watershed that includes eucalyptus species mixed with the native species (Douglas-fir, redwood, and other species), along with some Monterey pine. This is an area of special management concern because of the need to control eucalyptus to allow regeneration of conifers in this stand and to prevent the spread of this exotic species on the Forest. JDSF intends to convert this area to native conifer species.

Inner gorges
Steep slopes adjacent to streams that are that are prone to mass wasting and have a high potential for sediment delivery to stream channels. These areas are subject to silvicultural limitations, such as no harvest or limited single tree selection, depending on the results of a site review during THP preparation.

Northern spotted owl nest areas
Buffers around known nest site locations that will be managed to minimize disturbance to these sites and enhance their value as nesting habitat for the northern spotted owl.

Osprey nest areas
Buffers around known nest site locations that will be managed to minimize disturbance to these sites and enhance their value as nesting habitat for osprey.

Watercourse and lake protection zones (WLPZ) - 7,460 acres
Areas designated for special management to protect aquatic and riparian resources, maintain terrestrial habitat connectivity for wildlife, and promote development of late-successional forest stand conditions. Silviculture is limited to no harvest or special uneven-aged regimes designed to promote development of late-successional forest stand conditions. WLPZ acres were estimated.

Woodlands Special Treatment Area - 2,511 acres
A special management area adjacent to the Mendocino Woodlands. Silvicultural activities, with limited exceptions, are focused on promoting late-successional forest conditions, maintaining aesthetic qualities, and limiting impacts on the operation of Mendocino Woodlands. (Note: the Railroad Gulch silvicultural study area is not included in this acreage).

Domestic water supplies - 195 acres
Designated areas for domestic water supply in JDSF that are sensitive to disturbance. Only a limited range of silviculture is allowed in these areas.

Buffers adjacent to non-timberland neighbors – 906 acres
Areas along the boundary of JDSF adjacent to non-industrial timberland owners where a buffer zone is designated to minimize impacts on neighbors. Only a limited range of silviculture is allowed in these areas.

Power line right-of-way - 89 acres
Operated by PG&E. The power line right-of-way runs through the Forest, generally parallel to Highway 20. The maintained clearing is not available for timber production.

State Park Special Treatment Areas - 415
Areas adjoining State Parks where the application of silvicultural systems must take the values of the parks into consideration.

Reserved old-growth groves - 459 acres
Includes the existing mapped old-growth grove reserves. These areas will not be harvested.

Late seral development areas – 3,302 acres
Includes areas adjacent to three old-growth grove reserves, in addition to the upper Russian Gulch and lower Big River areas, which will be managed to develop late seral habitat conditions potentially suitable for the marbled murrelet. These areas will be managed to promote development of late seral stand conditions to help buffer the adjacent old-growth groves and to enhance the value of these areas for wildlife species that are associated with late seral forests. Where timber harvest is proposed near old-growth groves or late seral development areas, a buffer will be applied. No even-aged silvicultural systems may be used within 300 feet, and only single tree selection may be used within the first 100 feet adjacent to these areas.

Campground buffers - 154 acres
Areas immediately adjacent to campgrounds that are managed for public safety and aesthetic enjoyment. Even-aged silviculture is not allowed within the campground buffers.

Conservation camps - 32 acres
Areas occupied by the Parlin Fork and Chamberlain Creek conservation camps.

Road and trail corridors – 4,790 acres
Buffer areas along trails and roads to maintain aesthetic qualities valued by the public. Only a limited range of silviculture is allowed in these areas.

Parlin Fork management area - 279 acres
An area adjacent to the Parlin Fork Conservation Camp that is used as a demonstration area for small woodland management.

Research/Reserve areas (including Caspar Creek) – 4,930 acres
Areas set aside for various research studies.

Areas with a high relative landslide potential

Areas identified from CGS geology and geomorphology maps as having a high relative landslide potential using the best available data and assessment methodologies. These areas will be reviewed on the ground following the guidelines presented at the 1999 CLFA workshop. They are potentially subject to limitations on road construction, yarding methods, and silviculture and may need to be evaluated by a certified engineering geologist (CEG).

Mushroom Management Area – 330 acres

The Mushroom Corners area partially overlaps the Caspar Experimental Watershed, Russian Gulch/Lower Big River a Late Seral Recruitment area, county roads with visual and recreation concerns, as well as proximity to State Parks and private land ownerships (see Figure 5). This area is particularly important to the mycological research community, in part due to its ease of access and presence and abundance of a diverse number of species.

Parts of the Forest not affected by these constraints are generally available for an allocation of management options that can be selected to best meet the array of management goals. To ensure that management activities do not conflict with these constraints, a comprehensive reference list has been compiled and the affected areas have been mapped.

During the course of planning regular timber harvesting operations, adjacent Special Concern Areas where timber harvesting is allowed will be evaluated for their suitability for concurrent management treatments. For some special concern areas, notably research areas, a dedicated timber harvest or other project may be designed specifically to fulfill the objective of that area.

Watersheds

The goal of the prescriptions developed for JDSF management related to watershed and fisheries values is to maintain or enhance important habitats for both anadromous and resident fishes found in JDSF and promote healthy and sustainable aquatic ecosystems. Specifically, properly functioning riparian and stream ecosystems will be protected or restored by managing forest stands in watercourse and lake protection zones (WLPZs) to promote their ecological succession to late seral forest conditions. Development of vertical structural diversity in these stands will be facilitated. A key overall management objective for in-channel areas is to increase the abundance and improve the distribution of key pieces of

large woody debris (LWD). Streamside overstory and understory riparian trees in the WLPZ will provide sufficient canopy to avoid or minimize impacts to stream temperatures. Bank stability will be promoted by retaining vegetation, establishing equipment exclusion zones (EEZs) or equipment limitation zones (ELZs) along watercourses, and prohibiting ignition of prescribed fire near watercourses. Since JDSF is a publicly owned property available for research purposes, protection measures assigned to riparian areas are to remain sufficiently flexible for conducting research on the adequacy of differing riparian protection measures.

Wetland habitats on JDSF will continue to be managed in a manner that maintains or restores productivity and contributes to fish and wildlife habitat, water quality, and ecological functions and processes. The wetlands of JDSF are small in extent, but of high interest and value. They include two known Sphagnum bogs and numerous springs and seeps with aquatic habitat values. Wetland habitat quality and hydrologic function will be protected.

Wildlife, Fisheries and Plants

The overall objective for fish, wildlife and other non-timber resources is to manage habitat and special habitat elements. Jackson Demonstration State Forest, given its geographic location, vegetation types, and demonstration mandate, is in a unique position to develop habitats that contribute to improvement in the population viability of certain species of concern and to protect or restore other forest values. Opportunities exist for habitat restoration and management for species that may or may not presently occur on the forest. Similarly, efforts to control the establishment and spread of invasive weed species will contribute to the protection of biological diversity from both a local and regional perspective.

Protection and Enhancement of Aquatic Organisms and Associated Habitat

The intent of management is to achieve desired future conditions that will provide site- and species-specific protection measures that contribute to maintenance or improvement of the long-term conservation of population viability of aquatic and riparian dependent species of concern and enhance habitat values over existing conditions. Individual project stream and riparian protection and management measures will be determined on a site-specific basis and be designed to attain or maintain properly functioning condition.

Protection and Enhancement of Wildlife Species, Habitat, and Forest Structure

The wildlife management objectives of the Forest are designed to protect or improve current populations and habitat by maintaining a diverse, dynamic matrix of forest habitats and seral stages suitable for a wide variety of native wildlife populations. Manage designated old-growth reserves for maintenance of late seral habitat values. Maintain and recruit special habitat elements necessary for properly functioning habitats. Management goals and direction are intended to initiate a trajectory of management that will result in about one-third of the Forest area being in older forest structure, late seral forest, or old-growth.

Recruitment of Late Seral and Older Forest

Management areas have been designated adjacent to three existing old-growth groves or complexes to provide for the recruitment of additional late seral forest stands. These management areas will receive the same site-specific protection measures (i.e., special silvicultural management zones) as the old-growth grove reserves when THPs occur adjacent to these areas. These protection measures will increase the ecological values of these groves as habitat for marbled murrelet and other species, and help buffer the groves from various types of disturbance.

Late seral forest characteristics will also be cultivated in the Mendocino Woodlands Special Treatment. Management in this area may include thinning from below and individual tree selection designed to emphasize development and retention of large trees.

An additional area that encompasses part of the Russian Gulch and Lower Big River watershed has been designated for marbled murrelet habitat recruitment/late seral development. This area has important habitat potential due to its close proximity to the coast, State Park lands (Big River and Russian Gulch), and the Mendocino Woodlands Special Treatment Area (discussed above).

Where timber harvest is proposed near old-growth groves, late seral development areas, or the Older Forest Structure

Zone, a buffer will be applied. No even-aged silvicultural systems may be used within 300 feet, and only single tree selection may be used within the first 100 feet adjacent to these areas.

The WLPZs on Class I and Class II streams will be managed for the development and maintenance of late seral forest characteristics.

Portions of other special concern zones may have designated areas where silvicultural activity will not occur. This management will allow for the recruitment of large trees that may develop the structural characteristics commonly associated with old-growth trees.

JDSF intends to recruit trees with late seral or old-growth characteristics in areas that enhance the ecological effects of forests with these structural characteristics.

Older Forest Structure Zone

To provide for an extensive corridor or older forest structure across the Forest, from west to east and north to south, an 8,265-acre Older Forest Structure Zone (OFSZ) has been designated. This corridor is indicated in Map Figure 5. The OFSZ corridor connects most of the old-growth groves and late seral development areas on the Forest. The OFSZ and its management have already been described.

Old-growth Forest

Existing old-growth groves will be retained, as will aggregations of old-growth trees. Individual old-growth trees found outside of stands or aggregations and exhibiting specified characteristics will be retained, with limited exceptions, such as where the tree presents a public safety issue or retention would result in the potential for greater long-term environmental damage.

Hardwoods

JDSF will maintain the naturally occurring hardwood component in riparian stands (WLPZs) and other special concern areas when consistent with the objectives of that area. Maintaining and recruiting hardwoods on JDSF, including larger size classes, will enhance not only wildlife species diversity but also forest structural diversity.

Protection of Unique Habitats

Pygmy Forest

JDSF will maintain the current distribution and species composition of this plant community and protect it from harmful human disturbance, while continuing to allow compatible recreational activities. Sphagnum Bogs will be protected due to their location within the Pygmy forest and their wetland status.

In addition, Cypress Groups, elements of bishop pine/pygmy cypress forest on unproductive soils (non-timberland) will not be subject to harvest. Some of this vegetation may also be considered Northern Bishop Pine Forest, a series or association considered rare and worthy of consideration by California Natural Diversity Database (dated 9/2003). Note that both Bishop pine and pygmy cypress can occur on disturbed more fertile redwood forest. In these areas (i.e. timberland) harvest may occur. As a special status plant species, effects to individual upland pygmy cypress will be evaluated on a project basis.

Recreation

The overall objective for timber management associated with designated recreation areas (*i.e.*, Campground Buffers, Road and Trail Corridor, Map Figure 5) is to protect, maintain and improve aesthetic values and public safety. Limited single tree selection will be implemented within these designated management areas.

Regional Economic Vitality

JDSF is located in Mendocino County near the towns of Fort Bragg, Willits and Mendocino. Its western edge is near the Pacific Coast Highway and its eastern edge is near the town of Willits along State Highway 101. This area between the coast and the interior valleys is dominated by forests with residential development concentrated along the coast and the Highway 101 corridor.

In 2008, Mendocino County had a population of 90,163, of whom 61,990 lived in unincorporated areas. The county has a land area of 2.2 million acres.

The report "Background Report for the County of Mendocino General Plan Update" (Pacific Municipal Consultants, January 2003) provides a thorough background on much of the economic setting relevant for JDSF in terms of the central Mendocino Coast as well as the broader target of private forests in the county.

Major Economic Sectors in Mendocino County

In describing the prospects for Mendocino County's ability to support and grow specialized and competitive industries, the Economic Development chapter of the Background Report provided useful insights into the nature and location of both the timber and tourism industries. It identified local concentration and relative employment growth as key metrics for identifying sectors that are projected to have the potential to be a large and growing part of the local economic base. Based on their analysis of 3-digit SIC (Standard Industrial Classification) codes for 1991 and 1999 they identified both the "lumber and wood products industry cluster" and the "tourism industry cluster" as vital pillars of the current and future Mendocino economy. Comparative economic advantages of these clusters are related to features such as specialized marketing organizations, credit and transport facilities, a trained labor force, and the existence of complementary industries.

Using a broader definition of workers than just those in the sawmill sector, the report calculated that the lumber and wood products industry cluster accounts for 2,520 or 9.2 percent of all the wage and salary jobs in the County in 1999. This reflects a loss of 354 jobs since 1991. During this period, the only segment of the cluster to show any employment growth was logging, which gained 149 jobs. In 1999, the lumber and wood products industry cluster average annual wage was $33,245—higher than the County's average at $21,507. Logging and wood products manufacturing have provided an excellent opportunity for high paying, blue collar jobs for decades. These have been valued by county residents, as they typically do not require extensive education or formal training. The downturn of timber production has spread to a broad range of wood products occupations including forestry, timber falling, choker setting, mechanic, truck driving, millwright, sawyer, planer operator, board handler, log and lumber grader, and electrician. Many of these workers have had to take cuts in hours worked, cuts in pay, or are forced to relocate, retire, or retrain in new occupations.

Mendocino's Tourism Industry

The Background Report provides a thorough overview of the tourism industry. It estimated that Mendocino County had a $303 million tourism industry in 1999, making it the third largest industry after agriculture and wood products. The analysis pointed out that the industry is dominated by coastal visitation as well as by activity in the inland communities along the State Route 101 corridor. A substantial amount of State Route 101 traffic utilizes commercial services in Hopland, Ukiah, and Willits. These communities have not historically been visitor destinations, and are challenged to attract the pass-through highway traffic. The expansion of Indian casinos along the corridor is adding to the activity.

For 1999 the study identified four major components of the tourism industry to which JDSF contributes either directly or indirectly.

- More than half (58 percent) of the $303 million visitor spending came from overnight guests at bed and breakfast inns, motels, and vacation rentals. The coastal area attracts the majority of overnight guests with most of the remainder utilizing lodging establishments along the State Route 101 corridor.
- Day travelers comprise 21 percent of visitor spending. This includes all Mendocino County spending by visitors traveling the State Route 101 corridor, as well as any day visitors traveling along the coastal highways.
- Eleven percent of Mendocino County's visitor spending comes from campers. This visitor segment is oriented to more outdoor recreation, spends less on lodging, and many prepare their own food. They spend more in local grocery stores, and less eating out.
- Ten percent of visitor spending in Mendocino County is from persons visiting friends and family who are permanent residents.

Source: Pacific Municipal Consultants 2003

Jobs and Revenue at Different Harvest Levels

For predicting employment changes related to changing levels of harvest output from Jackson Demonstration State Forest, or other timberlands in Mendocino County, a conservative ratio of 8 direct workers per million board feet of harvest was used rather than the much higher jobs/MMBF ratios experienced in Mendocino since 2000. The total of 8 direct jobs per million board feet of harvest is based on 7 workers per MMBF in sawmills and related wood remanufacturing plants and 1 worker per MMBF working in the logging, log transport, and reforestation sectors.

Table 2 presents a range of employment, regional income, and local tax estimates that would correspond to various levels of annual timber harvest. In addition to the benefits to local workers and local government revenue, increased economic output from the state forest supports other local business revenues. It also provides the funds necessary to continue to upgrade the road system to reduce sediment and peak water flow runoff, maintain research programs, fund the extension and outreach program, and improve recreational facilities. In simple terms, every change of 10 million board feet of annual harvest is related to 160 jobs, $4.3 million in local wages, and $184,000 in local taxes.

Current recreational opportunities on Jackson Demonstration State Forest do not appear to be directly tied in a positive or negative manner to harvest levels since the harvest units are scattered across the Forest and are only closed for a limited period of time. In the short term, recreational use will move when seasonally limited to permit the safe use of harvesting and reforestation equipment. The ability of JDSF to maintain recreational infrastructure such as roads, trails, and trash removal is reduced when reductions in timber revenue force decreases in personnel working on the Forest. In the longer term, a combination of JDSF staff time, internally generated funds, potential state grants, and partnerships with local recreation use organizations will drive the design and development of new recreational opportunities on the Forest.

Table 2.	Employment and Revenue Effects of Various Timber Harvest Levels.						
		Annual Timber Harvest MMBF (million board feet)					
Variable		**5**	**10**	**20**	**30**	**40**	**50**
$500/MBF	Stumpage value	$2,500,000	$5,000,000	$10,000,000	$15,000,000	$20,000,000	$25,000,000
*2.90%	Local yield tax to Mendocino	$145,000	$290,000	$580,000	$870,000	$1,160,000	$1,450,000
*Fixed by acreage	Property tax	$87,413	$87,413	$87,413	$87,413	$87,413	$87,413
Full-time equivalent positions	JDSF timber staff	5	10	15	20	20	25
8 jobs per MMBF	Direct Timber Employment (based on Mendo. and Humboldt ratios)	40	80	160	240	320	400
8 jobs per MMBF	Indirect Timber Employment (1:1 ratio)	40	80	160	240	320	400
$31,721 (same as direct estimate)	Estimated Wages JDSF	$158,605	$317,210	$475,815	$634,420	$634,420	$793,025
$31,721 (2003 salary survey)	Direct Wages non JDSF	$1,268,840	$2,537,680	$5,075,360	$7,613,040	$10,150,720	$12,688,400
$19,700 (2003 salary survey for service workers)	Indirect Wages	$788,000	$1,576,000	$3,152,000	$4,728,000	$6,304,000	$7,880,000
	Total Wages	$2,215,445	$4,430,890	$8,703,175	$12,975,460	$17,089,140	$21,361,425
1.25% of wages	County Sales Tax from wages (JDSF, Direct, Indirect)	$27,693	$55,386	$108,790	$162,193	$213,614	$267,018
	*All Local Taxes (timber, property, sales on wages)	$260,106	$272,799	$456,203	$639,606	$821,027	$1,004,431
	Local Employment	85	170	335	500	660	825

*2013 values

Other Considerations

JDSF is a research and demonstration forest, used to conduct pure and applied research, and demonstrate techniques that are of possible use to other Northern California forest landowners. The Forest is managed to favor relatively rare vegetation and to favor wildlife to a degree greater than required of private forests. The protection of flora and fauna has economic values, though those values are difficult to quantify and are partially represented in the value for recreation. The Forest also produced mushrooms, forest greens, and firewood. In many respects, the Forest plays a valuable role for surrounding private forest landowners by allowing for the empirical testing on public land of how alternative land use patterns will affect non-timber values. Without such a public resource to test alternatives, regulatory guidelines are often proposed with limited understanding of their overall effectiveness and cost.

Aesthetic Enjoyment

Even-aged management will be concentrated in areas of the Forest that are not normally viewed closely by highway travelers, campers, or large numbers of nearby residential owners. Parks are buffered by special treatment areas, and identified rural residential ownerships are provided with a neighbor buffer, within which only a limited range of silviculture applies. A substantial forest area adjacent to the Mendocino Woodlands camp area, lower Big River, and Russian Gulch State Park is dedicated to development of late-seral forest conditions.

The Option A plan restricts forest management to partial harvest prescriptions in designated road and trail corridors throughout JDSF, and adjacent to campgrounds.

Chapter 4. Data and Methods

This chapter describes the data, analysis, and assumptions used in the analysis to develop the Option A plan. This chapter provides additional technical detail necessary for regulatory and peer review of the plan. It describes the resource inventories and models that were drawn upon to guide the development of the plan.

The analysis supporting this Option A plan consisted of two parallel tracks: 1) analysis of resource data by experienced forestry experts, and 2) harvest schedule computer models - simulating forest management 100 years into the future in order to evaluate the long term consequences of contemplated management over the next few years.

In the first analysis track, a diverse range of resource inventory data was studied and used to guide resource experts' professional opinion during the formulation of the Option A. Some inventory data, such as timber inventories, were incorporated into computer simulation models. Other resource inventories, such as archaeological surveys, were not analyzed quantitatively, due to their complex and site-specific nature.

In the second analysis track, 100-year projections of harvest, growth, and inventory over time were developed for a range of silvicultural prescriptions for each stratum on the Forest. All these projections along with restrictions on management were integrated into a harvest schedule-a computer simulation model of the long-term effects of planned future management in the Option A plan. In the end, the harvest schedule model result was used as a decision support aide to help experienced resource professionals arrive at the final Option A plan. The remaining parts of this chapter discuss the resource data and analysis steps in more detail.

Resource Inventories

Forest Resource Inventory

The forest resource inventory (FRI) represents a system of temporary variable radius plots established in 2005. The plots were located on a grid, with the grid located randomly over the State Forest. The individual plots are spaced at five chain intervals along plot strips spaced twenty chains apart and oriented north-south. There are approximately 5,000 FRI plots. Within the plots, individual trees were tallied by species, and DBH was measured on each tree greater than 5 inches in diameter. Sample measurements of total tree height were made on each plot with suitable trees. A sub-plot was installed in order to tally small trees or regeneration.

Continuous Forest Inventory

The original continuous forest inventory (CFI) system consisted of 141 fixed radius permanent plots distributed on a square 3/4 mile systematic grid across the forest (sixty chains between plot centers). The plots were established and the first measurements obtained in 1959. Since then, the plots have been re-measured in 1964, 1969, 1974, 1979, 1984, 1989, 1999, 2005, and 2010. Due to periodic remeasurement, the CFI plot system provides an estimate of inventory and growth over time.

The original one-half acre CFI plots were fixed area rectangular plots, 2 chains by 2.5 chains. In addition to the main plot there were three subplots: a one-quarter acre subplot was put in at the time of the first measurement to measure tree heights in order to establish a height-diameter relationship. This subplot was only put in during the first measurement of the plots in 1959. Subsequent measurements did not measure heights, but rather relied on this relationship to estimate heights. A 1/25-acre subplot was used to measure trees 3.0 inches to 10.9 inches DBH. Finally, 40 one-thousandth acre subplots were used to record conifer reproduction less than 3.0 inches DBH.

General data measured at each CFI plot includes aspect, slope, age class (young growth/old growth), and whether the stand has been harvested in the past. Data measured on individual trees include species, DBH to the nearest 1/10 inch, merchantability class, crown class, vigor class, defect indicators, and sample regeneration status of the tree (re-measured, ingrowth, logged). Heights were measured on approximately half of the trees at the time of the first measurement in 1959. These data were used to estimate a height-diameter relationship which was used on subsequent measurements.

This original inventory design was used for five measurements of the plots: 1964, 1969, 1974, 1979, and 1984. Starting in 1989, permanent plots were circular one-fifth acre plots rather than rectangular one-half acre plots.

The 1989 permanent plots consisted of a one-fifth acre (52.7 feet radius) main plot on which all trees greater than 11.0 inches DBH were measured. All trees 7.0 inches DBH and larger were recorded on a one-twentieth acre subplot. Finally all trees greater than 4.5 feet tall and less than 7 inches DBH were tallied by 2-inch class on a one-hundredth acre subplot.

The Forest-wide growth rate for the period 2000-2010 was estimated to be 973 board feet/acre/year. The Forest-wide growth rate for the period 1989-2010 was estimated to be 923 board feet/acre/year.

Timber Volume Calculations and Merchantability Limits

The board foot volumes presented in this document are in terms of net Scribner board feet in 16-foot logs with a minimum top diameter of 6 inches inside bark. Minimum diameter at breast height (DBH) for board foot measure is 11 inches. Volume equations for conifers are from Wensel and Krumland (1983), calibrated to local conditions. Volume equations for hardwoods are from Pillsbury & Kirkley, USDA Forest Service Research Note PNW-414 (1984).

Stand Classification

Stands are the basic land units to which alternative management activities are allocated and simulated over time in FORSEE. These "stands", more commonly referred to as Strata, are often comprised of many smaller areas that have similar characteristics. Each stand or stratum is a unique combination of vegetation type and site class.

Vegetation Typing

The vegetation map used in this analysis is based upon field evaluation in 2004 by trained staff. Tools utilized by the staff included aerial photographs, stand harvest history, and forest inventory plots. Criteria utilized to segregate the vegetation were established by staff, and include species composition, stand density, tree size, and stand structure (Map Figure 2).

Site Classification

Soil survey maps for Mendocino County (NRCS, 1987) along with forest inventory plots formed the basis for estimates of site productivity on the Forest. The soil survey map units are soil series or a complex of several soil series. Site index estimates for redwood and Douglas-fir were calculated for each soil map unit polygon using 2005 FRI and CFI site trees. In cases where a soil mapping unit polygon didn't contain site trees, the site index estimate was derived from an average of all other soil polygons with the same soil complex. The site index values for each soil polygon were then assigned to a Forest Practice Rule (FPR) site class for Douglas-fir (DF) and Redwood (RW). The site trees from all plots that fell within one FPR DF/RW site class were then used to calculate an average site index for both redwood and Douglas-fir for that site class (Map Figure 3). FORSEE extrapolates site index for all less common species based on the site index of redwood and Douglas-fir. This site index was used in the FORSEE stand tables and is one of the variables used to model tree growth rates.

Strata Development

The final step in the stand classification process is to overlay the vegetation type polygons with the site polygons to generate a set of strata. All of the polygons within the stratum will have both similar starting and growth potential conditions (See Table 3 below).

Table 3. Strata Summary

STRATA	Acres	Conifer Trees /Acre	QMD Inches	Basal Area /Acre	Std Err %	Conifer Volume BF/Acre	Std Err %	Total Volume BF	HW Trees/ Acre	HW BA/ Acre	HW Volume CF/Acre
BD4M3	533	175	15.5	229	7.9	31,244	9.4	16,649,085	71	29	544
DR4D2	2,793	147	18.7	280	3.6	61,316	3.9	171,282,052	91	47	1,147
DR4D3	1,830	185	17.0	292	4.3	50,333	5.0	92,132,108	95	46	1,219
DR4D4	811	128	16.0	180	8.0	30,138	9.1	24,449,103	105	60	1,833
DR4M2	746	119	19.6	248	7.1	54,659	7.4	40,800,184	62	26	392
DR4M3	922	145	16.8	223	6.6	36,410	7.6	33,580,387	63	28	688
DR4P3	1,009	116	15.2	146	7.2	21,054	8.4	21,234,068	129	78	2,711
DR5D3	356	211	14.7	249	9.5	39,435	11.8	14,050,851	47	27	1,031
DR5M2	1,212	141	18.4	261	4.7	53,315	5.2	64,640,793	56	27	640
DRT4M2	1,345	134	16.9	208	6.1	40,471	6.7	54,431,327	126	75	2,520
DRT4M3	1,681	116	16.7	176	4.7	27,116	5.2	45,578,457	125	79	2,860
DRT4M4	607	127	16.9	199	8.2	31,049	9.2	18,845,567	117	74	2,505
DRT4P3	1,028	92	13.5	92	8.5	11,486	10.7	11,812,718	101	75	3,488
DRT4P4	807	114	12.3	93	7.9	10,579	10.1	8,537,015	96	69	2,796
DRT4S3	445	92	14.0	98	16.8	13,052	15.9	5,808,250	115	106	4,856
DRT4S4	561	132	13.3	127	7.6	15,483	10.5	8,680,542	101	59	2,123
NT	229	51	21.1	122	33.8	20,735	34.3	4,738,884	10	8	327
ORD5M3	438	142	17.2	229	8.3	46,231	10.8	20,260,059	87	78	3,742
PC	669	134	10.1	74	12.4	4,152	22.8	2,777,770	7	2	21
RD2D2	892	147	11.8	111	7.9	10,004	14.6	8,922,692	7	3	99
RD2M2	867	139	12.5	118	9.4	15,308	14.8	13,278,440	17	13	543
RD3D2	373	218	13.8	225	9.2	26,001	14.4	9,690,759	11	5	60
RD3M2	877	159	13.2	151	8.1	15,941	12.0	13,972,908	16	13	559
RD4D2	5,411	146	19.5	304	2.5	64,540	2.6	349,205,712	49	31	1,007
RD4D3	1,592	175	17.7	299	4.8	51,366	5.7	81,761,939	44	23	729
RD4D4	346	142	19.8	302	8.9	54,869	8.8	18,970,825	55	29	871
RD4M2	1,649	157	18.3	287	4.9	59,589	5.1	98,262,302	61	31	774
RD4M3	1,050	165	15.9	226	6.5	36,528	8.0	38,353,478	75	38	1,118
RD4M4	1,217	143	13.4	141	5.4	16,374	7.0	19,919,896	103	67	2,426
RD4P3	1,257	123	14.7	146	5.7	20,737	7.8	26,076,117	91	62	2,568
RD5D2	1,510	150	20.5	346	4.5	77,507	5.0	117,019,777	52	31	1,197
RD5M2	2,625	120	19.3	243	4.3	49,575	4.4	130,143,077	80	52	1,717
RD5M3	907	124	19.4	255	6.0	47,104	6.3	42,731,933	91	57	2,142
RD5S2	1,557	91	19.9	197	7.3	42,839	7.8	66,707,458	42	24	694
RDT4M2	2,336	145	19.8	311	3.9	62,820	3.9	146,738,152	125	65	1,691
RDT4M3	642	124	19.4	256	8.0	45,343	8.7	29,107,951	182	99	2,465
RDT4P2	1,162	179	17.0	284	5.4	54,576	5.9	63,399,386	166	80	1,795
RDT4P3	238	145	17.4	239	14.4	35,416	15.2	8,426,966	231	129	4,224
RDT5M2	664	140	19.3	285	7.8	57,944	8.6	38,468,652	202	117	3,668
T4M3	1,272	106	14.0	114	8.0	15,398	9.7	19,590,808	114	77	3,136
T4M4	2,182	116	12.6	101	5.1	11,015	6.0	24,030,664	88	62	2,683
Totals	**48,650**	**138**	**17.2**	**224**	**0.9**	**41,583**	**1.1**	**2,022,991,148**	**83**	**49**	**1,637**

Initial Regeneration Stocking

At the start of the planning period small, sub-merchantable trees were added each stand or stratum. All trees greater than five inches DBH were imported into FORSEE as part of the main plot tree list. For trees less than 5 inches a regeneration file was created to be added at the start of any growth projection. The data from both the CFI and IFI 100th-acre subplot was used to develop a regeneration list for each of the major Vegetation Types (BD, RD, DR, NT, OR, PC, T).

The following process was used: plots from each major vegetation type were aggregated. All subplot data that had species with counts in excess of 500 trees per acre were truncated to a maximum of 500 trees per acre. Heights and live crown ratios were based on local data and professional judgment. A summary of existing regeneration by species in the 2 inches and 4 inches classes for each type were then developed for each vegetation type.

Due to the tendency of the FORSEE growth model to model conservative small tree mortality, these starting condition small tree files were further modified to better simulate the expected competition-based mortality. This was accomplished by reducing the two-inch class to 25 percent of the original quantity and reducing the four-inch class to 50 percent of the original quantity. Subsequent model testing confirmed that this level provided the expected recruitment into the larger (greater than five inches DBH) diameter classes. Starting condition small tree lists varied from 145 to 222 trees per acre. These trees are added at time zero to all simulations.

Updating and Depletion of Current Resource Inventories

ARC GIS was used to aggregate the inventory plots in each stratum and the tree data was input into FORSEE by Stratum. In order to better estimate the current forest conditions, all 2005 plot data was input into FORSEE and updated (grown in FORSEE) from the 2005 measure date to a common year of 2009. No significant harvesting occurred during the 2005-2008 period so no depletion estimates were needed.

Custom silvicultural prescriptions were developed to match and simulate the harvesting that occurred in the period from 2009-2013. This resulted in estimates of harvested gross board foot volume of 89 million board feet. Current estimates for the actual gross board foot harvested in the period, based largely on mill receipts is 90 million board feet, showing good correlation with the modeled depletion estimates. The following table has a summary of the starting (2009) inventory conditions.

Table 4. Summary 2009 Stocking Statistics by Stratum (based on all trees over 5" DBH)

STRATA	Acres	Conifer Trees /Acre	QMD Inches	Basal Area /Acre	Std Err %	Conifer Volume BF/Acre	Std Err %	Total Volume BF	HW Trees/ Acre	HW BA/ Acre	HW Volume CF/Acre
BD4M3	533	175	15.5	229	7.9	31,244	9.4	16,655,137	71	29	544
DR4D2	2,794	147	18.7	280	3.6	61,316	3.9	171,297,036	91	47	1,147
DR4D3	1,831	185	17.0	292	4.3	50,333	5.0	92,150,326	95	46	1,219
DR4D4	811	128	16.0	180	8.0	30,138	9.1	24,451,154	105	60	1,833
DR4M2	748	119	19.6	248	7.1	54,659	7.4	40,874,758	62	26	392
DR4M3	924	145	16.8	223	6.6	36,410	7.6	33,631,342	63	28	688
DR4P3	1,006	116	15.2	146	7.2	21,054	8.4	21,174,737	129	78	2,711
DR5D3	358	206	14.8	248	9.3	39,756	11.5	14,214,786	46	26	1,007
DR5M2	1,104	150	18.3	275	4.4	56,022	4.9	61,851,411	57	28	677
DRT4M2	1,412	134	16.9	208	6.1	40,471	6.7	57,137,116	126	75	2,520
DRT4M3	1,686	116	16.7	176	4.7	27,116	5.2	45,716,989	125	79	2,860
DRT4M4	607	127	16.9	199	8.2	31,049	9.2	18,848,304	117	74	2,505
DRT4P3	1,028	92	13.5	92	8.5	11,486	10.7	11,812,986	101	75	3,488
DRT4P4	807	114	12.3	93	7.9	10,579	10.1	8,537,077	96	69	2,796
DRT4S3	456	92	14.0	98	16.8	13,052	15.9	5,949,725	115	106	4,856
DRT4S4	561	132	13.3	127	7.6	15,483	10.5	8,681,102	101	59	2,123
NT	229	51	21.1	122	33.8	20,735	34.3	4,742,158	10	8	327
ORD5M3	438	142	17.2	229	8.3	46,231	10.8	20,268,808	87	78	3,742
PC	669	135	10.1	75	12.1	4,187	22.3	2,801,781	7	2	21
RD2D2	850	147	11.8	111	7.9	10,004	14.6	8,506,897	7	3	99
RD2M2	913	139	12.5	118	9.4	15,308	14.8	13,978,682	17	13	543
RD3D2	368	218	13.8	225	9.2	26,001	14.4	9,581,058	11	5	60
RD3M2	874	159	13.2	151	8.1	15,941	12.0	13,938,819	16	13	559
RD4D2	5,405	147	19.5	304	2.5	64,460	2.7	348,425,970	49	31	1,003
RD4D3	1,592	174	17.7	298	4.8	51,426	5.7	81,862,119	44	23	736
RD4D4	344	145	19.6	305	9.0	55,058	9.0	18,951,000	50	28	897
RD4M2	1,586	161	18.3	292	4.9	60,436	5.2	95,863,923	55	29	777
RD4M3	1,050	165	15.9	226	6.5	36,528	8.0	38,348,475	75	38	1,118
RD4M4	1,217	143	13.4	141	5.5	16,450	7.0	20,011,572	104	67	2,445
RD4P3	1,247	121	14.8	143	5.6	20,319	7.6	25,343,240	91	62	2,581
RD5D2	1,504	150	20.5	346	4.5	77,507	5.0	116,582,004	52	31	1,197
RD5M2	2,625	120	19.3	243	4.3	49,587	4.4	130,178,735	83	53	1,718
RD5M3	946	124	19.4	255	6.0	47,058	6.3	44,528,974	94	58	2,142
RD5S2	1,634	88	19.9	191	7.3	41,576	7.8	67,946,021	36	22	660
RDT4M2	2,333	142	19.9	307	3.9	62,125	3.9	144,944,581	127	65	1,664
RDT4M3	642	124	19.4	256	8.0	45,343	8.7	29,103,073	182	99	2,465
RDT4P2	1,162	179	17.0	284	5.4	54,576	5.9	63,401,449	166	80	1,795
RDT4P3	238	154	17.0	243	13.6	36,235	15.1	8,622,025	220	124	4,046
RDT5M2	664	140	19.3	285	7.8	57,944	8.6	38,465,216	202	117	3,668
T4M3	1,272	106	14.0	114	8.0	15,398	9.7	19,579,857	114	77	3,136
T4M4	2,182	116	12.6	101	5.1	11,015	6.0	24,030,727	88	62	2,683
Totals	**48,650**	**138**	**17.2**	**224**	**0.9**	**41,583**	**1.1**	**2,022,991,148**	**83**	**49**	**1,637**

Silvicultural Prescriptions

After land management allocations had been defined and starting inventory characteristics had been developed for each stratum, the next step in the analysis process was to identify the set of candidate silvicultural prescriptions to simulate for each allocation on the Forest. Each silvicultural prescription represents one possible future management direction that can be applied to the piece of land. A silvicultural prescription includes the type and timing of harvest, regeneration, vegetation control, precommercial thinnings and intermediate thinnings.

The forest was divided into timber management areas to facilitate analysis, and each of these was assigned a group of permissible silvicultural prescriptions (Map Figure 5 and Table 1). Model prescriptions were either selected individually for application to specific areas (e.g. Special Concern Areas) and specific percentages of management areas, or a range of prescriptions was modeled for each land type, in order to provide flexibility to choose prescriptions for each land type in the harvest schedule. The timber management areas were spatially mixed to demonstrate a range of management practices across the landscape. Multiple forms of silviculture will be applied within these timber management areas, depending upon the nature of the demonstration and the specific stand characteristics, as well as any restrictions based on the management classification.

Most of the modeled prescriptions were developed to simulate the current silvicultural prescriptions on the Forest, although not all possible applications and postharvest stand conditions could be simulated. Actual prescriptions utilized in practice will vary from the modeled prescriptions, based upon assessment of individual stands and a desire to produce varied stand conditions. The modeled prescriptions are intended to provide a range of results similar to potential practice in the forest. A detailed description of all the modeled silvicultural prescriptions can be found in Appendix 1.

The shortest projected even-aged rotations are 70 years. The longest modeled even-aged rotation used in this study was 100 years. The suite of uneven-aged selection prescriptions modeled includes varying post-harvest basal area levels, maximum diameters, and cutting cycle lengths. The cutting cycle represents the number of years between two successive harvest entries into the same stand. A range of cutting cycles from 15 to 30 years was simulated to provide a wide range of stand characteristics. The maximum diameter parameter in the uneven-aged silvicultural prescriptions is a modeling construct necessary to mathematically represent the diameter distribution of the stands. While this is the most satisfactory mathematical abstraction of reality that can be achieved with current models, it only partially captures operational reality. In practice, trees larger than the modeled maximum diameter will often be left on site. For example, individual trees that meet certain structural criteria may be left on site.

Harvests were modeled at the start of 22 five year periods to allow the greatest flexibility in harvest scheduling. These yield streams were combined into ten year periods for reporting purposes.

Post Harvest Regeneration

For each major vegetation type, two post harvest regeneration files were created. In each case the species composition is based on the current overstory composition, but the size and quantity are dependent on the harvest method and the harvest intensity (Appendix 1).

Partial Harvests

The first of the post harvest regeneration files is designed for any partial cut, such as single tree selection. Like the initial regeneration stocking, the height, diameter, and live crown ratios of the trees was based on the 1/100th acre regeneration plots. The proportion of species is based on the existing stand percentages. Species are added proportional to the pre-harvest basal area of that species. All hardwood regeneration assumed to be tanoak.

Most stand simulators are not designed to handle small trees well. To minimize this issue, regeneration trees are added as 20 year old trees, 20 years after harvest. This allows sufficient time for the trees to reach larger size classes and also enables simulating the expected high mortality rates of regeneration trees.

Even-aged Harvests

Any harvest that removes most of the trees from a given area (includes even-age, variable retention, and group cuts) utilize a different post harvest regeneration file. As with partial cuts the trees are added as 20 year old trees, 20 years after harvest, but the height, diameter and live crown ratios of the trees are based on data from young even-age stands. Adding 20 year old trees, 20 years after harvest avoids the need to model pre-commercially thinning (PCT) the stand. The quantity of trees added represents the expected post precommercial thinning stocking levels. The added trees are larger and have higher live crown ratios than the partial cut files, reflecting greater resource availability to small trees when most, or all, of the overstory is removed. A detailed description of all the modeled silvicultural prescriptions, including regeneration quantities, can be found in Appendix 1.

Growth and Yield

Once a set of yield streams, which consists of all the possible combinations of strata and silvicultural prescriptions projected over the planning interval, was developed, the harvest schedule was constructed.

Long Term Sustained Yield consists of estimating the inventory, growth and harvest of trees that will develop on a piece of land over time for a particular set of silvicultural prescriptions, described in the previous section. The resulting growth projection represents the expected future conditions that will result from that silvicultural prescription applied to a particular stratum over time. The set of all possible growth projections that were developed for each land type becomes the pool of candidate prescriptions in the harvest schedule.

In order to analyze the effects of a given management direction it is necessary to project forest development over a sufficiently long interval to capture conditions likely to result over time. One-hundred-year projections with 10-year planning periods were used in this Option A plan.

Harvest Schedule

Guided by a management objective and all the management constraints that exist on the Forest, computer models were used to assign silvicultural prescriptions to land types on the Forest. The resulting assignment of a unique silvicultural prescription to every acre on the Forest constitutes the harvest schedule. The harvest schedule projects growth and development of the Forest for 100 years or more into the future under a proposed management direction to allow us to evaluate the long term consequences of proposed management. Specifically, the harvest schedule provides estimated growth, harvest, and inventory levels over the planning period. These projected future resource conditions allow analysts to evaluate the characteristics of candidate management scenarios.

In the JDSF Option A plan, harvest schedule development was accomplished using locally produced custom-designed simulation software (FORSEE), a GIS database and a forest resources database.

The objective was the utilization of silvicultural systems to create the desired set of forest structure conditions. Constraints, which varied by land management allocation, describe both desired future conditions and management policies. Limits on timber productivity imposed by other forest values, as discussed earlier in this document, describes constraints on future forest conditions used in the modeling of the selected alternative. The following set of policy constraints were used in the modeling process:

- Total harvest must be less than or equal to LTSY in each period throughout the planning interval.
- Harvest must be less than or equal to growth in all periods.
- The maximum annual harvest level is 35 million board feet of conifers in the first planning period.
- Application of the clearcut prescription was limited to no more than 300 acres per decade.
- Application of Variable Retention prescriptions is limited to no more than 2,700 acres per decade in the JDSF Management Plan, but was modeled more conservatively herein (less than 1000 acres/decade) due to perceived limitations to link maximum acres alotted to future forest research.

The JDSF Option A plan was not developed as a normative optimization harvest schedule. Rather, the harvest schedule modeling was used primarily as a decision support tool. The development of the Option A plan was a collective process driven by scientists, managers, field foresters, existing laws and policies, and the Forest management plan approved by the Board of Forestry and Fire Protection.

Long Term Sustained Yield

The estimated LTSY for JDSF is 43.2 million board feet (mbf) conifer[3] per year on the timberland base of 44,965 acres, or 960 board feet per acre per year. The LTSY for all prescriptions was computed as the average growth of the inventory predicted in the last decade of the planning interval of the Option A plan. The LTSY estimate did not include growth from any areas (3,685 acres) that were not scheduled for harvest within the planning interval (3,685 acres), which included, but was not limited to, all designated old growth stands, non-timber strata, pygmy cypress and other designated forest reserves.

The long-term sustained yield (LTSY) is defined in the California FPRs as the average annual growth sustainable by the inventory predicted at the end of a 100-year planning interval. Because trees take a long time to grow to maturity, it is often difficult to assess the long-term consequences of planned management. The LTSY statistic is intended to address the problem by capturing the harvest level that is sustainable in perpetuity under a particular management situation. The management situation reflected in the LTSY estimate describes the assumed type and intensity of future management that will occur for the duration of the 100-year planning interval, and it has a profound effect on the resulting estimate of the LTSY. A management situation that assumes a high level of successful intensive growth-enhancing treatments such as brush and hardwood control, and precommercial thinning, will result in high future growth projections and therefore a high LTSY estimate. Conversely, a management situation that embodies more extensive treatment assumptions with few growth-enhancing treatments will have a correspondingly lower LTSY estimate. The LTSY estimate therefore is almost exclusively determined by the assumptions made about future management, and only to a very small extent by current stand conditions. The credibility of the estimated LTSY is greatly enhanced if it is based on assumptions about future management that bears some resemblance to past and current management on the property.

Balance of Growth and Harvest

One of the guiding principles of sustainable forestry is the concept of balancing growth with harvest to provide a stable inventory and a steady, sustainable production of high quality timber products. While this balance is nearly achieved in the later decades of this plan, the planned future harvest is consistently at a lower level than projected growth, resulting in an increase in stocking levels over time. This difference is reflective of the limits placed on timber production to protect and enhance non-timber resource values on the Forest.

Table 5 and Figure 1 display the projected inventory, harvest and growth over time. Inventories increase steadily over the planning period, reaching their maximum at approximately 72,760 board feet per acre at the end of the planning interval. Growth exceeds harvest in all planning periods. Table 5 describes the results of the computer model projections for calculating the long-term sustained yield. Computer models by necessity are abstractions of reality that capture average trends but have limited ability to represent the variation around these averages that occurs on individual sites.

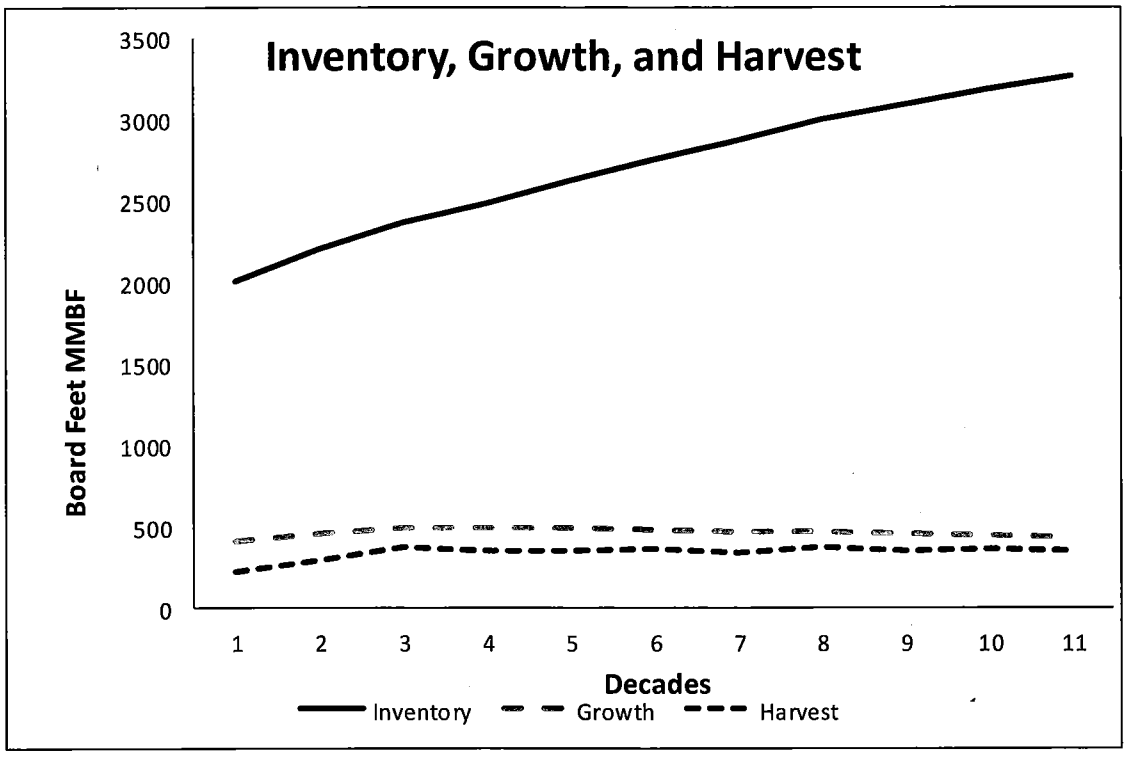
Appendix 2 describes acres and timber volume harvested by silvicultural method during the planning interval in the harvest schedule simulation.

3 : gross Scribner board feet, 11 inches minimum DBH to a six inches top diameter inside bark.

Table 5 Inventory, Growth, and Harvest Over Time, Conifer

Decade	Iventory	Growth	Harvest
1	2,009,155,356	413,908,795	220,634,819
2	2,202,428,634	460,916,754	293,736,591
3	2,369,608,033	487,772,432	373,978,386
4	2,483,400,651	490,988,172	346,447,902
5	2,627,976,322	488,445,360	358,430,848
6	2,757,170,367	479,581,461	355,790,162
7	2,879,403,414	471,798,658	348,792,348
8	3,002,114,623	464,448,980	371,599,422
9	3,093,472,058	452,523,794	360,292,798
10	3,184,509,013	445,875,774	358,461,646
11	3,271,691,558	431,796,991	357,722,513

Figure 1. Inventory, Growth, and Harvest Chart



Monitoring

The success of this Option A plan will ultimately be measured not upon approval of the planning document, but rather during its implementation, through a gradual adaptive management and learning process. The success of this plan is therefore inextricably linked to JDSF's State Forest research and demonstration program, and the objectives are crafted not as absolute standards but rather as goals to be achieved through adaptive management and learning over time.

The on-going JDSF continuous forest inventory (CFI) has been maintained since 1959 and constitutes one of the longest-running monitoring programs of forest growth in existence. The CFI inventory was last remeasured in 2010. While the CFI was originally intended to serve primarily as a guide for balancing harvest and growth at a forest wide level of detail, it provides a wealth of legacy information on forest structure over this time interval. The CFI system will continue to be

maintained and updated into the future. With its extensive historical records of past trends combined with measurements in the future, the CFI system, together with regular periodic forest inventories, will be a cornerstone of the monitoring and adaptive management program under this Option A plan.

Annual harvest, decadal harvest, and 10-year rolling harvest volumes will be monitored and compared to LTSY projections.

Implementation of silvicultural methods will be guided by Appendix 2: Harvest Schedule by Silvicultural Prescription.

A component of determining compliance of individual THPs with the property-wide Option A plan is monitoring, wherein the conclusions emerge over time, as evidence from several THPs accumulates, to provide evidence of compliance with the Option A plan.

In order to help the Department determine the relationship between any future individual THP and the modeling conducted for the Option A, the elements of the prescriptions utilized in a THP that correspond to those above shall be clearly stated as well as information to address the requirements of 14CCR 1034(m). Specifically, the THP will include a stand description before and after harvesting that includes: volume, growth projection, stocking, and species composition.

It is the Forest's intent to monitor progress toward achievement of LTSY by doing the following:

- Maintaining records of volume harvested (based on a logyard-scaled basis, which is the unit of measure used for yield tax purposes) from individual timber sales.
- Annually summarizing records of acres harvested by silvicultural method.
- Provide estimate of volume harvested from these acres based on our forest inventory system. This estimate is the basis for the long-term sustained yield calculations and is therefore the most accurate representation of volume removed, against which our adherence to the LTSY can be evaluated.
- Periodic re-measurement of continuous forest inventory (CFI) plots, as has occurred periodically since 1959.
- Periodic reinventory of the entire Forest, as has occurred in the past with the intensive forest inventory (IFI) in 1989, and with the forest resource inventory (FRI) in 2005.

Implementation

All forest inventory data, models, and growth-and-harvest projections used in the development of the Option A plan are public information. The actual volume of timber harvested annually or in any other time period will be tracked to ensure compliance with the LTSY harvest restrictions and made available to the public on request.

All harvested timber products that are sold off the Forest and are subject to payment of yield tax will count towards the LTSY harvest quota. Examples of forest products that will not be tracked for reporting purposes are firewood cutting, cull trees or logs, and submerchantable wood products left after logging operations.

Monitoring growth and harvest over time will continue to inform the accuracy of the modeling effort included herein. Future management practices and specific silvicultural applications within the management areas may indicate adjustments to the modeling effort are necessary and could indicate a revision to this Option A plan is warranted. Review and further consideration as to the necessity of a revised document include the following situations:

- A catastrophic event that alters forest productivity such that net conifer volume changes by more than 10%.

- A significant change to specified management areas and associated allowable silviculture that affects projected net conifer volume inventory in any planning period by more than 10%.

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Appendix 1. Detailed Silvicultural Prescriptions

Single Tree Selection / Single Tree Selection High30/Med35/Low40%

Re-entry Interval	15, 20 years			
Residual Conifer Basal Area		Low RBA	Med RBA	High RBA
	Site II	125 / 60%	150 / 65%	190 / 70%
	Site III	100 / 60%	120 / 65%	150 / 70%
	Site IV	75 / 60%	100 / 65%	110 / 70%
Harvest as a max% of preharvest basal area	None / 30,35,40% max			
Minimum harvest volume, board feet	Site II-III	7000		
	Site IV	5000		
Diminution Quotient	1.2 (based on 1" DBH Class)			
Hardwood harvest ratio*	0.75			
Maximum conifer diameter retained	60			
Max HW diameter to cut	36			
Post harvest Regen Quantity (TPA)	100 x harvest %			

*Note: The hardwood harvest ratio sets the hardwood basal area harvest level in proportion to the conifer harvest. A value of 1 indicates the the same percentage of preharvest basal area is removed

Older Forest Development / Older Forest Development High35, Med30, Low25

Re-entry Interval	15, 25 years			
Residual Conifer Basal Area		Low RBA	Med RBA	High RBA
	Site II	100 / 65%	150 / 70%	190 / 75%
	Site III	100 / 65%	150 / 70%	160 / 75%
	Site IV	75 / 65%	100 / 70%	110 / 75%
Harvest as a max% of preharvest basal area	None / 25,30,35% max			
Minimum harvest volume, board feet	Site II-III	7000		
	Site IV	5000		
Diminution Quotient	1.1 (based on 1" DBH Class)			
Hardwood harvest ratio	0.75			
Maximum conifer diameter retained	56			
Max HW diameter to cut	36			
Post harvest Regen Quantity (TPA)	50 x harvest %			

Late Seral Development/Late Seral High25_ 2X*, Late Seral Low30_2X*

Re-entry Interval	15, 25 years		
Residual Conifer Basal Area		Low RBA	High RBA
	Site II	150 / 70%	190 / 75%
	Site III	125 / 70%	160 / 75%
	Site IV	100 / 70%	110 / 75%
Harvest as a max% of preharvest basal area	None / 25, 30% max		
Minimum harvest volume, board feet	Site II-III	7000	
	Site IV	5000	
Diminution Quotient	1.1 (based on 1" DBH Class)		
Hardwood harvest ratio	0.4		
Maximum conifer diameter retained	None		
Max HW diameter to cut	36		
Post harvest Regen Quantity (TPA)	None		

*Note: The LSD Rx is limited the harvesting to 2 entries during the planning period, and 25/30% max harvest

Transition Low /Transition High

Precondition for Transition harvest	Site II-III	Preharvest Conifer BA < 125*,	
	Site IV	Preharvest Conifer BA < 100*	
Residual Conifer Basal Area Transition1 Entry	Site II	50 (15 BA 12"DBH+)	
	Site III	50 (15 BA 12"DBH+)	
	Site IV	50 (12 BA 12"DBH+)	
Residual Conifer Basal Area Transition2 Entry		Low RBA	High RBA
	Site II	125	125
	Site III	100	100
	Site IV	75	75
Residual Conifer Basal Area post Trans Selectio		Low RBA	High RBA
	Site II	125	150
	Site III	100	120
	Site IV	75	100
Harvest as a max% of preharvest basal area	None		
Minimum harvest volume, board feet	Site II-III	6000 first entry / 7000 all others	
	Site IV	4000 first entry / 5000 all others	
Diminution Quotient	1.2 (based on 1" DBH Class)		
Hardwood harvest ratio	0.85 on Transition harvests, 0.75 on Selection harvests		
Maximum conifer diameter retained	60		
Max HW diameter to cut	36		
Post harvest Regen Quantity (TPA)	200 x harv % Transition entry, 100 x harv % Selection entry		

*Note: Preharvest BA restrictions were relaxed to allow Tanoak dominated stands (T4M3,T4M4) that slightly exceeded the preharvest BA precondition to be modeled using this prescription. These stands are heterogenious (clumpy) with variable conifer stocking. For modeling purposes the Transition Rx in these stands was balanced with Selection Low RBA Rx to provide reasonable harvest estimates and to provide the greatest on-site silvicultural flexibility

Appendix 1 continued

WLPZ

Re-entry Interval	20,25,30 years	
Residual Conifer Basal Area		RBA
	Site II	240
	Site III	240
	Site IV	240
Harvest as a max% of preharvest basal area	None / 10%	
Minimum harvest volume, board feet	Site II-III	None
	Site IV	None
Diminution Quotient	1.1 (based on 1" DBH Class)	
Hardwood harvest ratio	0, No HW cut	
Maximum conifer diameter retained	No max	
Max HW diameter to cut	No HW cut	
Post harvest Regen Quantity (TPA)	50 x harvest %	

Buffer Selection (same as WLPZ but allowed 15 year re-entry cycle)

Re-entry Interval	15,20,25,30 years	
Residual Conifer Basal Area		RBA
	Site II	240
	Site III	240
	Site IV	240
Harvest as a max% of preharvest basal area	None	
Minimum harvest volume, board feet	Site II-III	None
	Site IV	None
Diminution Quotient	1.1 (based on 1" DBH Class)	
Hardwood harvest ratio	0, No HW cut	
Maximum conifer diameter retained	No max	
Max HW diameter to cut	No HW cut	
Post harvest Regen Quantity (TPA)	50 x harvest %	

Appendix 1 continued

Group Selection without Matrix Thinning

Precondition for harvest	Low RBA High RBA	None 2 or more Conifer over 22"
Re-entry Interval Group Cut	20 years, 100 years for complete cycle	
Group Comm Thin Entries	40, 60, 80 years	
Group Comm Thin Residual BA	160 for all Site Class	
Residual Conifer Basal Area	Low RBA High RBA	None 2 Conifer over 22"
Residual HW Basal Area	Low RBA High RBA	None 1 largest
Harvest as a max% of preharvest basal area	NA	
Minimum harvest volume, board feet	Site II-III Site IV	7000 5000
Diminution Quotient	NA	
Hardwood harvest ratio	1	
Maximum conifer diameter retained	NA	
Max HW diameter to cut	NA	
Post harvest Regen Quantity (TPA)	200	

Group Selection with Matrix Thinning

Precondition for harvest	Low RBA High RBA	None 2 or more Conifer over 22"
Re-entry Interval Group Cut	20 years, 100 years for complete cycle	
Group Comm Thin Entries	40, 60, 80 years	
Group Comm Thin Residual BA	160 for all Site Class	
Matrix Comm Thin Residual BA	160 for all Site Class	
Residual Conifer Basal Area	Low RBA High RBA	None 2 Conifer over 22"
Residual HW Basal Area	Low RBA High RBA	None 1 largest
Harvest as a max% of preharvest basal area	NA	
Minimum harvest volume, board feet	Site II-III Site IV	7000 5000
Diminution Quotient	NA	
Hardwood harvest ratio	1	
Maximum conifer diameter retained	NA	
Max HW diameter to cut	NA	
Post harvest Regen Quantity (TPA)	200	

Appendix 1 continued

The following prescriptions have the option to have a 20 year rotation Selection High RBA entries prior to the primary sivicultural Rx (e.g. if an "even age" harvest entry is scheduled 50 years out, 2 Selection entries can be scheduled).

EvenAge 70, 80, 90, 100 With or without CT

Rotation Ages	70, 80, 90, 100	
Comm Thin Entries	EvenAge 70	50 years
	EvenAge 80	40, 60 years
	EvenAge 90	50, 70 years
	EvenAge 100	40, 60, 80 years
Comm Thin Residual BA	Site II-III	100
	Site IV	75
Minimum harvest volume, board feet	Site II-III	7000
	Site IV	5000
Hardwood retention	2 TPA, Maximum DBH	
Hardwood harvest ratio	0.75 Selection entries, 1 (CT entries)	
Maximum conifer diameter retained	None	
Max HW diameter to cut	None, Leave largest 2 TPA	
Post harvest Regen Quantity (TPA)	200 Evenage,100 x harvest% Selection, no regen on CT	

Variable Retention with CT

Precondition for VR harvest	Low RBA	30 BA Conifer over 22"
	High RBA	45-50 BA Conifer over 22"
Residual Conifer Basal Area VR entry	Low RBA	30 BA, smallest over 22"
	High RBA	45-50 BA, smallest over 22"
Comm Thin Entries	50 years	
Comm Thin Residual BA	Site II-III	100
	Site IV	75
Rotation Age VR entries	70 years	
Minimum harvest volume, board feet	Site II-III	7000
	Site IV	5000
Hardwood retention	Smallest 2 TPA over 12" DBH, else largest 2	
Hardwood harvest ratio	1 CT entries, 0.75 Selection entries,	
Maximum conifer diameter retained	None	
Max HW diameter to cut	None	
Post harvest Regen Quantity (TPA)	180 VR, 100 x harvest% Selection, no regen on CT entries	

Variable Retention without CT

Precondition for VR harvest	Low RBA	30 BA Conifer over 22"
	High RBA	45-50 BA Conifer over 22"
Residual Conifer Basal Area VR entry	Low RBA	30 BA, smallest over 22"
	High RBA	45-50 BA, smallest over 22"
Rotation Age VR entries	70 years	
Minimum harvest volume, board feet	Site II-III	7000
	Site IV	5000
Hardwood retention	Smallest 2 TPA over 12" DBH, else largest 2	
Hardwood harvest ratio	0.75 Selection entries (if any)	
Maximum conifer diameter retained	None	
Max HW diameter to cut	None	
Post harvest Regen Quantity (TPA)	180 VR, 100 x harvest% Selection	

Appendix 2. Harvest Schedule by Prescription

Single Tree Selection	Decade 1	Decade 2	Decade 3	Decade 4	Decade 5	Decade 6	Decade 7	Decade 8	Decade 9	Decade 10	Decade 11
Selection Acres Scheduled (no Switch/Transition)	5,710	5,911	8,224	5,631	7,698	7,396	7,749	6,870	8,224	6,920	7,698
Selection Acres Harvested	5,167	5,627	8,196	5,631	7,698	7,396	7,588	6,828	8,182	6,674	7,656
Selection Volume Harvested	91,886,369	117,676,343	149,648,227	115,397,156	125,656,118	133,928,386	153,554,619	120,333,641	125,038,644	143,279,909	113,231,349
Group Selection											
Group Sel Acres Scheduled (Includes Matrix/CT)	1,920	2,477	3,465	2,477	3,465	2,477	3,465	2,477	- 3,465	2,477	3,465
Group Sel Acres Harvested (Includes Matrix/CT)	1,920	2,477	3,465	2,477	3,465	2,477	3,465	2,477	3,465	2,477	3,465
Group Sel Volume Harvested (Includes Matrix/CT)	23,311,474	34,300,200	52,898,411	40,809,202	57,162,834	50,092,626	73,643,105	69,657,848	93,902,795	73,558,966	85,526,567
Note: Includes all Matrix/CT acres (5X Group acres)											
Even-age											
EvenAge CC Acres Scheduled	282	299	293	-	-	-	-	69	206	200	230
EvenAge CC Acres Harvested	282	299	293	-	-	-	-	69	206	200	230
Evenage CC Volume Harvested	15,165,451	16,750,589	19,511,655	-	-	-	-	2,245,446	8,309,203	10,082,192	12,943,063
EvenAge CT Acres Scheduled	-	-	-	-	122	160	331	210	153	86	25
EvenAge CT Acres Harvested	-	-	-	-	-	106	265	201	130	64	17
Evenage CT Volume Harvested	-	-	-	-	-	1,298,033	4,577,930	2,940,183	2,021,019	563,574	141,027
Even Age with Switching Prescription											
Switch EvenAge Sel Acres Scheduled	265	771	513	478	265	230	-	-	-	-	-
Switch EvenAge Sel Acres Harvested	131	460	513	478	265	230	-	-	-	-	-
Switch EvenAge Sel Volume Harvested	2,639,918	9,956,805	9,150,822	9,505,607	5,311,311	4,934,005	-	-	-	-	-
Switch EvenAge CC Acres Scheduled	-	-	-	293	248	248	265	230	-	-	46
Switch EvenAge CC Acres Harvested	-	-	-	293	248	248	265	230	-	-	46
Switch EvenAge CC Volume Harvested	-	-	-	19,134,031	16,252,822	17,383,848	18,796,758	17,136,842	-	-	1,496,964
Switch EvenAge CT Acres Scheduled	-	-	-	-	-	-	-	33	149	173	243
Switch EvenAge CT Acres Harvested	-	-	-	-	-	-	-	-	120	140	196
Switch EvenAge CT Volume Harvested	-	-	-	-	-	-	-	-	150,494	241,682	290,988
Note: Switch Rx has Selection prior to primary Rx											
Variable Retention											
VR VR Acres Scheduled	820	807	-	847	324	-	-	820	807	-	847
VR VR Acres Harvested	820	807	-	847	324	-	-	820	807	-	847
VR VR Volume Harvested	24,308,691	34,433,400	-	47,655,137	30,484,586	-	-	26,252,752	39,367,034	-	28,468,658
VR CT Acres Scheduled	-	-	-	-	-	484	412		482	251	
VR CT Acres Harvested	-	-	-	-	-	484	412		482	251	
VR CT Volume Harvested	-	-	-	-	-	7,247,826	6,415,582	-	-	3,979,657	2,846,866
Variable Retention with Switching Prescription											
Switch VR Sel Acres Scheduled	239	-	-	589	-	-	-	-	-	-	-
Switch VR Sel Acres Harvested	231	-	-	589	-	-	-	-	-	-	-
Switch VR Sel Volume Harvested	4,936,515	-	-	14,813,096	-	-	-	-	-	-	-
Switch VR VR Acres Scheduled	-	-	239	-	-	589	-	-	-	239	-
Switch VR VR Acres Harvested	-	-	239	-	-	589	-	-	-	239	-
Switch VR VR Volume Harvested		-	14,061,343	-		32,949,823				6,276,827	
Switch VR CT Acres Scheduled	-	-	-	-	-	-	-	239	-	-	370
Switch VR CT Acres Harvested	-	-	-	-	-	-	-	239	-	-	370
Switch VR CT Volume Harvested	-	-	-	-	-	-	-	4,037,705	-	-	4,855,858
Note: Switch Rx has Selection prior to primary Rx											

Appendix 2 continued

Older Forest Development	Decade 1	Decade 2	Decade 3	Decade 4	Decade 5	Decade 6	Decade 7	Decade 8	Decade 9	Decade 10	Decade 11
OFDA Acres Scheduled	2,391	2,756	3,755	2,914	3,843	2,988	2,914	4,437	2,395	3,680	3,670
OFDA Acres Harvested	1,593	1,867	2,722	2,862	3,079	2,849	2,898	3,626	2,168	3,055	3,506
OFDA Volume Harvested	28,171,689	31,222,792	56,180,208	42,605,429	65,544,669	50,812,912	44,724,117	80,045,217	35,129,485	61,284,011	56,115,378
Late Seral Development											
LSD Acres Scheduled	925	1,553	1,444	904	842	390	-	-	-	-	-
LSD Acres Harvested	831	1,500	1,422	898	842	390	-	-	-	-	-
LSD Volume Harvested	13,913,131	21,278,876	26,830,761	19,954,120	21,654,318	11,106,837	-	-	-	-	-
Watercourse and Lake Protection Zone											
WLPZ Acres Scheduled	2,400	2,205	2,994	2,887	2,354	3,338	2,857	2,740	2,804	3,115	2,680
WLPZ Acres Harvested	1,495	1,714	2,454	2,634	2,251	3,335	2,857	2,740	2,804	3,115	2,680
WLPZ Volume Harvested	8,024,335	9,610,149	15,739,213	19,522,639	18,607,048	30,507,364	29,736,572	30,141,023	34,738,809	41,580,749	35,596,830
Buffer Selection (Light Selection)											
BufferSelection Acres Scheduled	412	825	1,376	847	1,236	987	1,236	847	1,376	847	1,236
BufferSelection Acres Harvested	326	699	1,251	789	1,176	986	1,236	847	1,376	847	1,236
BufferSelection Volume Harvested	4,019,912	12,241,924	26,564,778	11,211,036	17,114,324	14,956,075	17,275,973	11,542,185	19,657,698	11,127,263	15,972,707
Transition											
Transition Cut 1 Acres Scheduled	514	4	-	-	-	-	-	-	-	-	-
Transition Cut 1 Acres Harvested	514	4	-	-	-	-	-	-	-	-	-
Transition Cut 1 Volume Harvested	4,257,335	80,453	-	-	-	-	-	-	-	-	-
Transition Cut 2 Acres Scheduled	-	-	-	496	27	-	-	-	-	-	-
Transition Cut 2 Acres Harvested	-	-	-	496	27	-	-	-	-	-	-
Transition Cut 2 Volume Harvested	-	-	-	5,840,449	272,023	-	-	-	-	-	-
Transition Selection Cuts Acres Scheduled	-	-	-	-	-	496	27	496	27	496	27
Transition Selection Cuts Acres Harvested	-	-	-	-	-	29	9	496	27	496	27
Transition Selection Cuts Volume Harvested	-	-	-	-	-	228,094	67,691	6,933,034	351,835	4,311,676	252,702

Summary Tables

Total Acres Scheduled	15,878	17,609	22,303	18,363	20,425	19,782	19,256	19,469	20,088	18,485	20,538
Total Acres Harvested	13,311	15,454	20,555	17,995	19,374	19,118	18,996	18,573	19,767	17,558	20,276
Total Volume Harvested	220,634,819	287,551,531	370,585,418	346,447,902	358,060,053	355,445,829	348,792,348	371,265,876	358,667,016	356,286,504	357,738,958
Total Selection Acres Scheduled	6,214	6,682	8,737	6,698	7,964	8,122	7,776	7,367	8,251	7,417	7,725
Total Selection Acres Harvested	5,530	6,087	8,709	6,698	7,964	7,655	7,597	7,324	8,209	7,170	7,683
Total Selection Volume Harvested	99,462,801	127,633,148	158,799,049	139,715,859	130,967,429	139,090,486	153,622,309	127,266,675	125,390,480	147,591,585	113,484,051
Note: Includes Switch Rx and Transition selection entries											
Total Even Age Acres Scheduled	282	299	293	293	248	248	265	299	206	200	276
Total Even Age Acres Harvested	282	299	293	293	248	248	265	299	206	200	276
Total Even Age Volume Harvested	15,165,451	16,750,589	19,511,655	19,134,031	16,252,822	17,383,848	18,796,758	19,382,289	8,309,203	10,082,192	14,440,027
Note: Includes EA and Switch EA clearcut entries											
Total VR Acres Scheduled	820	807	239	847	324	589	-	820	807	239	847
Total VR Acres Harvested	820	807	239	847	324	589	-	820	807	239	847
Total VR Volume Harvested	24,308,691	34,433,400	14,061,343	47,655,137	30,484,586	32,949,823	-	26,252,752	39,367,034	6,276,827	28,468,658
Note: Includes VR and Switch VR Variable Retention entries											
Total CT Acres Scheduled	-	-	-	-	122	643	743	483	784	510	638
Total CT Acres Harvested	-	-	-	-	-	589	677	440	732	455	583
Total CT Volume Harvested	-	-	-	-	-	8,545,859	10,993,512	6,977,888	2,171,513	4,784,912	8,134,740

Appendix 3. Summary of Estimated Conifer Quadratic Mean Diameter by Period

Period	1	2	3	4	5	6	7	8	9	10	11
Forest wide	14.3	16.3	17.6	18.4	19.0	19.6	20.3	20.9	21.4	22.1	22.2
Matrix	14.2	16.6	17.8	18.2	18.2	18.6	19.0	19.3	19.7	20.3	19.7
WLPZ	15.0	16.5	17.8	19.2	20.4	21.6	22.7	23.8	24.8	25.7	26.6
OFDA	13.9	15.3	16.6	17.9	18.9	19.7	20.4	21.1	21.5	21.9	22.5
LSD	15.9	17.3	18.6	20.0	21.4	22.7	23.9	25.1	26.2	27.2	28.2
Research	15.1	17.6	19.2	18.8	19.5	19.6	20.2	20.0	20.4	21.2	20.5
All Managed Acres	14.4	16.4	17.7	18.4	19.0	19.6	20.3	20.8	21.4	22.0	22.0

SelMed35joy

DR5M2 Yield Table
Regime/Class: SelMed35/IGROWTO=1/ICCYCLEPERIODS=4/
Load Setup: 5Year_StartCycle_JDSF

Site Index Values

Species	Site Index	Obs.	Est.Method
BP	107		Defaulted
CY	124		Predicted
DF	126	1	Estimated
GF	122		Predicted
OCC	107		Defaulted
OGDF	124		Predicted
OGRW	102		Predicted
RW	102	1	Estimated
WH	112		Predicted
hWI	70		Defaulted
hBM	70		Defaulted
hCL	70		Defaulted
hGC	70		Defaulted
hLO	70		Defaulted
hMD	52		Predicted
hOCH	70		Defaulted
hRA	91		Predicted
hTO	70		Predicted

			Initial Stocking						After Activities						Growth (PAI)				Harvests				Regeneration			
ET	Period	Species	QMD	TPA	BA	Bd.Ft	Cu.Ft	CC	QMD	TPA	BA	Bd.Ft	Cu.Ft	CC	QMD	BA	Bd.Ft	Cu.Ft	TPA	BA	Bd.Ft	Cu.Ft	Seed	Sprout	Total	Pool
0.0	1	Residual	47.2	0	1	312	50	0	47	0	1	312	50	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	18.2	111	201	35101	6561	1	18	111	201	35101	6561	1	-0.39	3.5	801	132	0	0	0	0	45	0	45	0
		Other Conifer	10.8	8	5	995	199	0	11	8	5	995	199	0	-0.63	0.4	33	8	0	0	0	0	16	0	16	0
		Douglas-fir	21.6	21	54	16908	2741	0	22	21	54	16908	2741	0	-1.20	1.2	359	53	0	0	0	0	27	0	27	0
		Conifers	18.4	141	261	53315	9550	1	18	141	261	53315	9550	1	-0.60	5.2	1193	194	0	0	0	0	88	0	88	0
		Hardwoods	9.4	56	27	640	502	0	9	56	27	640	502	0	-0.57	1.1	10	8	0	0	0	0	86	0	86	0
		Totals	16.4	198	289	53955	10052	1	16	198	289	53955	10052	1	-0.72	6.3	1203	202	0	0	0	0	174	0	174	0
5.0	2	Residual	47.2	0	1	312	50	0	47	0	1	312	50	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	16.2	152	219	39107	7221	1	15	116	136	23178	4330	1	0.18	2.8	583	108	37	82	15929	2891	15	0	15	15
		Other Conifer	7.7	23	8	1158	240	0	7	22	6	619	158	0	0.25	0.4	17	11	1	2	539	83	3	0	3	3
		Douglas-fir	15.6	45	60	18702	3006	0	14	40	44	13246	2159	0	0.25	1.1	304	55	5	16	5456	848	9	0	9	9
		Conifers	15.4	221	287	59279	10518	1	14	178	188	37354	6697	1	0.20	4.3	904	174	43	99	21925	3821	28	0	28	28
		Hardwoods	6.6	140	33	693	544	1	6	118	24	536	393	0	0.08	0.5	19	10	22	9	156	151	7	0	7	7
		Totals	12.8	361	320	59972	11062	2	11	296	212	37891	7090	1	0.16	4.9	923	184	65	108	22081	3972	35	0	35	35
10.0	3	Residual	47.2	0	1	312	50	0	47	0	1	312	50	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	15.6	113	150	26095	4869	1	16	113	150	26095	4869	1	0.17	2.9	632	117	0	0	0	0	0	0	0	15
		Other Conifer	8.2	22	8	701	214	0	8	22	8	701	214	0	0.24	0.4	39	15	0	0	0	0	0	0	0	3
		Douglas-fir	15.4	38	50	14766	2436	0	15	38	50	14766	2436	0	0.24	1.1	359	62	0	0	0	0	0	0	0	9
		Conifers	14.9	173	209	41874	7569	1	15	173	209	41874	7569	1	0.19	4.5	1030	194	0	0	0	0	0	0	0	28
		Hardwoods	6.6	115	27	632	441	0	7	115	27	632	441	0	0.08	0.6	13	12	0	0	0	0	0	0	0	7
		Totals	12.3	288	236	42507	8010	1	12	288	236	42507	8010	1	0.16	5.1	1044	206	0	0	0	0	0	0	0	35
15.0	4	Residual	47.2	0	1	312	50	0	47	0	1	312	50	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	16.5	111	165	29257	5456	1	16	111	165	29257	5456	1	-0.05	3.0	662	124	0	0	0	0	0	0	0	15
		Other Conifer	9.4	21	10	896	289	0	9	21	10	896	289	0	0.07	0.4	83	17	0	0	0	0	0	0	0	3
		Douglas-fir	16.6	37	56	16562	2746	0	17	37	56	16562	2746	0	-0.16	1.2	425	68	0	0	0	0	0	0	0	9
		Conifers	15.8	169	231	47026	8541	1	16	169	231	47026	8541	1	-0.07	4.6	1170	208	0	0	0	0	0	0	0	28
		Hardwoods	7.0	113	30	699	501	1	7	113	30	699	501	1	0.04	0.6	22	14	0	0	0	0	0	0	0	7
		Totals	13.0	282	262	47725	9042	1	13	282	262	47725	9042	1	-0.01	5.1	1192	222	0	0	0	0	0	0	0	35
20.0	5	Residual	47.2	0	1	312	50	0	47	0	1	312	50	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	16.2	125	180	32566	6074	1	16	125	180	32566	6074	1	0.17	2.9	761	128	0	0	0	0	0	0	0	0
		Other Conifer	9.7	24	12	1312	374	0	10	24	12	1312	374	0	0.21	0.4	107	19	0	0	0	0	0	0	0	0
		Douglas-fir	15.8	45	61	18685	3085	0	16	45	61	18685	3085	0	0.26	1.2	499	73	0	0	0	0	0	0	0	0
		Conifers	15.5	194	254	52875	9582	1	16	194	254	52875	9582	1	0.19	4.5	1368	220	0	0	0	0	0	0	0	0
		Hardwoods	7.2	118	33	808	569	1	7	118	33	808	569	1	0.07	0.5	17	14	0	0	0	0	0	0	0	0
		Totals	13.0	311	287	53683	10152	2	13	311	287	53683	10152	2	0.15	5.0	1385	235	0	0	0	0	0	0	0	0
25.0	6	Residual	47.2	0	1	312	50	0	47	0	1	312	50	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	17.1	122	194	36373	6716	1	15	94	121	21050	3984	0	0.18	2.4	565	99	29	73	15323	2732	15	0	15	15
		Other Conifer	10.7	23	14	1849	470	0	10	21	12	1330	370	0	0.23	0.5	120	22	2	2	519	100	3	0	3	3
		Douglas-fir	17.2	42	68	21181	3448	0	15	36	47	13389	2261	0	0.25	1.2	469	68	6	20	7792	1187	9	0	9	9

			SelMed35joy																							
		Conifers	16.5	187	277	59715	10684	1	15	151	181	36081	6665	1	0.20	4.1	1155	189	36	96	23634	4019	28	0	28	28
		Hardwoods	7.5	115	35	894	640	1	7	96	26	575	439	0	0.09	0.5	27	15	20	9	318	202	7	0	7	7
		Totals	13.8	302	313	60608	11324	2	12	246	207	36656	7103	1	0.17	4.6	1182	204	56	105	23952	4221	35	0	35	35
30.0	7	Residual	47.2	0	1	312	50	0	47	0	1	312	50	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	16.3	92	133	23876	4481	1	16	92	133	23876	4481	1	0.17	2.4	637	105	0	0	0	0	0	0	0	15
		Other Conifer	11.5	20	14	1932	481	0	11	20	14	1932	481	0	0.21	0.5	160	25	0	0	0	0	0	0	0	3
		Douglas-fir	16.7	35	53	15735	2600	0	17	35	53	15735	2600	0	0.24	1.2	488	74	0	0	0	0	0	0	0	9
		Conifers	15.8	147	201	41856	7611	1	16	147	201	41856	7611	1	0.19	4.1	1285	205	0	0	0	0	0	0	0	28
		Hardwoods	7.5	93	29	709	512	0	8	93	29	709	512	0	0.08	0.5	14	14	0	0	0	0	0	0	0	7
		Totals	13.2	241	230	42565	8123	1	13	241	230	42565	8123	1	0.16	4.5	1299	219	0	0	0	0	0	0	0	35
35.0	8	Residual	47.2	0	1	312	50	0	47	0	1	312	50	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	17.1	90	145	27061	5008	1	17	90	145	27061	5008	1	-0.11	2.5	655	110	0	0	0	0	0	0	0	15
		Other Conifer	12.5	20	17	2733	607	0	13	20	17	2733	607	0	-0.01	0.5	166	27	0	0	0	0	0	0	0	3
		Douglas-fir	17.9	34	59	18175	2970	0	18	34	59	18175	2970	0	-0.21	1.2	506	77	0	0	0	0	0	0	0	9
		Conifers	16.8	144	222	48281	8635	1	17	144	222	48281	8635	1	-0.12	4.1	1328	215	0	0	0	0	0	0	0	28
		Hardwoods	7.9	91	31	780	584	1	8	91	31	780	584	1	0.01	0.4	20	14	0	0	0	0	0	0	0	7
		Totals	14.0	235	253	49060	9219	1	14	235	253	49060	9219	1	-0.05	4.6	1347	228	0	0	0	0	0	0	0	35
40.0	9	Residual	47.2	0	1	312	50	0	47	0	1	312	50	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	16.6	105	157	30336	5558	1	17	105	157	30336	5558	1	0.17	2.4	683	113	0	0	0	0	0	0	0	0
		Other Conifer	12.5	23	19	3564	742	0	12	23	19	3564	742	0	0.20	0.5	176	28	0	0	0	0	0	0	0	0
		Douglas-fir	16.8	42	65	20707	3358	0	17	42	65	20707	3358	0	0.28	1.2	541	81	0	0	0	0	0	0	0	0
		Conifers	16.2	170	243	54919	9708	1	16	170	243	54919	9708	1	0.20	4.1	1400	222	0	0	0	0	0	0	0	0
		Hardwoods	8.0	96	33	878	652	1	8	96	33	878	652	1	0.06	0.4	13	13	0	0	0	0	0	0	0	0
		Totals	13.8	266	276	55797	10360	1	14	266	276	55797	10360	1	0.16	4.5	1413	235	0	0	0	0	0	0	0	0
45.0	10	Residual	47.2	0	1	312	50	0	47	0	1	312	50	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	17.4	102	169	33749	6122	1	16	74	100	19036	3489	0	0.18	1.8	458	80	28	70	14713	2634	15	0	15	15
		Other Conifer	13.5	22	22	4444	884	0	13	20	18	3493	718	0	0.21	0.5	190	31	2	3	951	165	3	0	3	3
		Douglas-fir	18.2	39	71	23413	3763	0	17	35	53	15949	2652	0	0.26	1.3	518	78	5	18	7464	1110	9	0	9	9
		Conifers	17.2	163	263	61918	10819	1	16	128	172	38790	6909	1	0.20	3.6	1166	188	35	91	23128	3909	28	0	28	28
		Hardwoods	8.3	94	35	942	717	1	8	78	26	497	487	0	0.07	0.4	11	12	17	9	445	230	7	0	7	7
		Totals	14.6	257	298	62860	11535	2	13	206	198	39287	7396	1	0.17	4.0	1177	201	52	100	23573	4139	35	0	35	35
50.0	11	Residual	47.2	0	1	312	50	0	47	0	1	312	50	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	16.6	72	109	21327	3887	0	17	72	109	21327	3887	0	0.17	1.9	488	85	0	0	0	0	0	0	0	15
		Other Conifer	14.2	19	21	4442	871	0	14	19	21	4442	871	0	0.20	0.5	206	33	0	0	0	0	0	0	0	3
		Douglas-fir	18.0	33	59	18538	3042	0	18	33	59	18538	3042	0	0.24	1.3	561	84	0	0	0	0	0	0	0	9
		Conifers	16.7	125	190	44620	7851	1	17	125	190	44620	7851	1	0.19	3.7	1255	202	0	0	0	0	0	0	0	28
		Hardwoods	8.2	76	28	551	548	0	8	76	28	551	548	0	0.07	0.3	11	12	0	0	0	0	0	0	0	7
		Totals	14.1	201	218	45171	8399	1	14	201	218	45171	8399	1	0.16	4.0	1267	213	0	0	0	0	0	0	0	35
55.0	12	Residual	47.2	0	1	312	50	0	47	0	1	312	50	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	17.5	71	118	23768	4310	0	17	71	118	23768	4310	0	-0.18	2.0	520	88	0	0	0	0	0	0	0	15
		Other Conifer	15.2	19	24	5473	1037	0	15	19	24	5473	1037	0	-0.07	0.5	223	34	0	0	0	0	0	0	0	3
		Douglas-fir	19.2	32	66	21344	3461	0	19	32	66	21344	3461	0	-0.26	1.3	590	87	0	0	0	0	0	0	0	9
		Conifers	17.7	122	208	50897	8858	1	18	122	208	50897	8858	1	-0.18	3.8	1333	209	0	0	0	0	0	0	0	28
		Hardwoods	8.5	74	29	607	608	0	9	74	29	607	608	0	-0.02	0.3	14	11	0	0	0	0	0	0	0	7
		Totals	14.9	196	238	51504	9466	1	15	196	238	51504	9466	1	-0.10	4.0	1346	220	0	0	0	0	0	0	0	35
60.0	13	Residual	47.2	0	1	312	50	0	47	0	1	312	50	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	16.6	86	128	26369	4752	0	17	86	128	26369	4752	0	0.18	1.9	551	91	0	0	0	0	0	0	0	0
		Other Conifer	14.9	22	26	6586	1210	0	15	22	26	6586	1210	0	0.20	0.5	234	36	0	0	0	0	0	0	0	0
		Douglas-fir	18.0	41	72	24294	3894	0	18	41	72	24294	3894	0	0.30	1.3	619	90	0	0	0	0	0	0	0	0
		Conifers	16.8	148	227	57560	9905	1	17	148	227	57560	9905	1	0.21	3.8	1405	216	0	0	0	0	0	0	0	0
		Hardwoods	8.4	79	31	676	662	0	8	79	31	676	662	0	0.05	0.2	16	10	0	0	0	0	0	0	0	0
		Totals	14.4	227	258	58236	10568	1	14	227	258	58236	10568	1	0.17	4.0	1420	226	0	0	0	0	0	0	0	0
65.0	14	Residual	47.2	0	1	312	50	0	47	0	1	312	50	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	17.4	83	138	29126	5205	0	15	64	80	15763	2876	0	0.18	1.5	362	64	19	58	13363	2330	15	0	15	15
		Other Conifer	15.9	21	29	7755	1387	0	15	17	21	5688	1025	0	0.20	0.5	211	32	3	7	2067	362	3	0	3	3
		Douglas-fir	19.5	38	79	27390	4344	0	18	33	59	19465	3170	0	0.25	1.3	582	83	5	20	7925	1174	9	0	9	9
		Conifers	17.8	142	246	64583	10986	1	16	115	161	41228	7120	1	0.20	3.3	1156	179	27	85	23355	3866	28	0	28	28
		Hardwoods	8.7	77	32	756	714	0	8	62	23	458	511	0	0.06	0.2	14	9	15	8	297	203	7	0	7	7
		Totals	15.2	219	278	65338	11700	1	14	177	184	41686	7631	1	0.17	3.5	1170	189	42	93	23652	4069	35	0	35	35
70.0	15	Residual	47.2	0	1	312	50	0	47	0	1	312	50	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	16.0	63	87	17575	3194	0	16	63	87	17575	3194	0	0.17	1.6	397	69	0	0	0	0	0	0	0	15
		Other Conifer	16.0	17	24	6740	1185	0	16	17	24	6740	1185	0	0.19	0.5	233	34	0	0	0	0	0	0	0	3
		Douglas-fir	19.3	32	65	22378	3587	0	19	32	65	22378	3587	0	0.24	1.3	613	88	0	0	0	0	0	0	0	9
		Conifers	17.1	112	177	47006	8016	1	17	112	177	47006	8016	1	0.19	3.3	1244	191	0	0	0	0	0	0	0	28
		Hardwoods	8.6	61	25	529	558	0	9	61	25	529	558	0	0.06	0.2	10	9	0	0	0	0	0	0	0	7
		Totals	14.7	172	202	47535	8574	1	15	172	202	47535	8574	1	0.16	3.5	1254	200	0	0	0	0	0	0	0	35

								SelMed35joy																			
75.0	16	Residual	47.2	0	1	312	50	0	47	0	1	312	50	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0	0
		Redwood	16.9	61	95	19562	3537	0	17	61	95	19562	3537	0	-0.21	1.7	431	72	0	0	0	0	0	0	0	0	15
		Other Conifer	16.9	17	26	7908	1357	0	17	17	26	7908	1357	0	-0.13	0.5	245	35	0	0	0	0	0	0	0	0	3
		Douglas-fir	20.5	31	71	25444	4029	0	21	31	71	25444	4029	0	-0.31	1.3	641	91	0	0	0	0	0	0	0	0	9
		Conifers	18.0	109	194	53226	8972	1	18	109	194	53226	8972	1	-0.23	3.5	1317	199	0	0	0	0	0	0	0	0	28
		Hardwoods	8.9	59	26	581	603	0	9	59	26	581	603	0	-0.04	0.2	18	8	0	0	0	0	0	0	0	0	7
		Totals	15.5	168	220	53807	9575	1	15	168	220	53807	9575	1	-0.14	3.7	1335	207	0	0	0	0	0	0	0	0	35
80.0	17	Residual	47.2	0	1	312	50	0	47	0	1	312	50	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0	0
		Redwood	15.8	76	104	21717	3897	0	16	76	104	21717	3897	0	0.18	1.7	441	75	0	0	0	0	0	0	0	0	0
		Other Conifer	16.3	20	29	9133	1534	0	16	20	29	9133	1534	0	0.21	0.5	255	36	0	0	0	0	0	0	0	0	0
		Douglas-fir	19.0	40	78	28650	4486	0	19	40	78	28650	4486	0	0.32	1.3	678	95	0	0	0	0	0	0	0	0	0
		Conifers	16.9	136	211	59812	9966	1	17	136	211	59812	9966	1	0.22	3.5	1373	206	0	0	0	0	0	0	0	0	0
		Hardwoods	8.7	64	27	673	644	0	9	64	27	673	644	0	0.05	0.2	22	8	0	0	0	0	0	0	0	0	0
		Totals	14.8	200	238	60484	10611	1	15	200	238	60484	10611	1	0.18	3.7	1395	214	0	0	0	0	0	0	0	0	0
85.0	18	Residual	47.2	0	1	312	50	0	47	0	1	312	50	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0	0
		Redwood	16.7	74	112	23922	4270	0	15	58	67	13309	2425	0	0.19	1.4	309	56	15	45	10613	1845	15	0	15	15	
		Other Conifer	17.3	19	31	10406	1716	0	16	15	20	6716	1112	0	0.20	0.4	202	29	4	11	3690	605	3	0	3	3	
		Douglas-fir	20.6	37	85	32038	4959	0	19	31	62	23089	3604	0	0.26	1.2	600	84	6	22	8949	1356	9	0	9	9	
		Conifers	18.0	129	229	66679	10995	1	16	104	151	43427	7190	1	0.21	3.1	1111	168	25	78	23252	3805	28	0	28	28	
		Hardwoods	8.9	63	27	780	685	0	9	50	20	549	503	0	0.06	0.2	11	7	13	7	231	181	7	0	7	7	
		Totals	15.6	192	256	67459	11680	1	14	154	171	43976	7694	1	0.17	3.2	1122	175	38	85	23483	3986	34	0	34	34	
90.0	19	Residual	47.2	0	1	312	50	0	47	0	1	312	50	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0	0
		Redwood	15.5	57	74	14856	2704	0	16	57	74	14856	2704	0	0.18	1.5	350	61	0	0	0	0	0	0	0	0	15
		Other Conifer	16.9	14	23	7724	1256	0	17	14	23	7724	1256	0	0.19	0.4	220	31	0	0	0	0	0	0	0	0	3
		Douglas-fir	20.5	30	68	26090	4022	0	21	30	68	26090	4022	0	0.24	1.3	625	88	0	0	0	0	0	0	0	0	9
		Conifers	17.4	101	166	48983	8032	1	17	101	166	48983	8032	1	0.20	3.2	1195	180	0	0	0	0	0	0	0	0	28
		Hardwoods	8.9	49	21	605	539	0	9	49	21	605	539	0	0.06	0.2	15	6	0	0	0	0	0	0	0	0	7
		Totals	15.2	150	188	49588	8571	1	15	150	188	49588	8571	1	0.17	3.3	1210	187	0	0	0	0	0	0	0	0	34
95.0	20	Residual	47.2	0	1	312	50	0	47	0	1	312	50	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0	0
		Redwood	16.4	56	82	16606	3010	0	16	56	82	16606	3010	0	-0.22	1.6	378	65	0	0	0	0	0	0	0	0	15
		Other Conifer	17.9	14	25	8824	1412	0	18	14	25	8824	1412	0	-0.19	0.4	229	32	0	0	0	0	0	0	0	0	3
		Douglas-fir	21.7	29	75	29214	4462	0	22	29	75	29214	4462	0	-0.36	1.3	649	91	0	0	0	0	0	0	0	0	9
		Conifers	18.4	99	182	54957	8933	1	18	99	182	54957	8933	1	-0.26	3.3	1255	188	0	0	0	0	0	0	0	0	28
		Hardwoods	9.2	47	22	680	571	0	9	47	22	680	571	0	-0.07	0.2	21	6	0	0	0	0	0	0	0	0	7
		Totals	16.0	146	204	55638	9504	1	16	146	204	55638	9504	1	-0.18	3.5	1276	194	0	0	0	0	0	0	0	0	34
100.0	21	Residual	47.2	0	1	312	50	0	47	0	1	312	50	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0	0
		Redwood	15.3	70	90	18494	3333	0	15	70	90	18494	3333	0	0.19	1.6	390	68	0	0	0	0	0	0	0	0	0
		Other Conifer	17.0	17	27	9968	1572	0	17	17	27	9968	1572	0	0.23	0.4	238	33	0	0	0	0	0	0	0	0	0
		Douglas-fir	19.9	37	81	32461	4919	0	20	37	81	32461	4919	0	0.34	1.3	701	95	0	0	0	0	0	0	0	0	0
		Conifers	17.1	125	199	61235	9873	1	17	125	199	61235	9873	1	0.24	3.4	1329	196	0	0	0	0	0	0	0	0	0
		Hardwoods	8.9	53	23	783	603	0	9	53	23	783	603	0	0.05	0.1	13	6	0	0	0	0	0	0	0	0	0
		Totals	15.1	178	221	62018	10476	1	15	178	221	62018	10476	1	0.19	3.5	1342	202	0	0	0	0	0	0	0	0	0
105.0	22	Residual	47.2	0	1	312	50	0	47	0	1	312	50	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0	0
		Redwood	16.3	68	98	20444	3672	0	14	55	62	12243	2227	0	0.20	1.4	295	54	13	35	8200	1446	13	0	13	13	
		Other Conifer	18.1	16	29	11160	1738	0	16	13	20	7261	1144	0	0.20	0.4	195	27	3	9	3899	594	3	0	3	3	
		Douglas-fir	21.6	34	88	35965	5393	0	20	30	68	27121	4107	0	0.25	1.3	630	87	4	20	8845	1286	8	0	8	8	
		Conifers	18.3	118	216	67881	10852	1	17	98	151	46937	7527	1	0.21	3.0	1120	167	20	65	20944	3325	24	0	24	24	
		Hardwoods	9.1	52	23	847	634	0	9	42	18	672	485	0	0.06	0.1	12	5	9	5	175	148	6	0	6	6	
		Totals	16.1	170	239	68728	11486	1	15	141	169	47609	8012	1	0.18	3.2	1132	173	29	70	21119	3474	30	0	30	30	
110.0	23	Residual	47.2	0	1	312	50	0	47	0	1	312	50	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0	0
		Redwood	15.4	53	69	13720	2495	0	15	53	69	13720	2495	0	0.19	1.4	338	59	0	0	0	0	0	0	0	0	13
		Other Conifer	17.5	13	22	8234	1278	0	17	13	22	8234	1278	0	0.19	0.4	208	29	0	0	0	0	0	0	0	0	3
		Douglas-fir	21.6	29	74	30271	4541	0	22	29	74	30271	4541	0	0.24	1.3	658	91	0	0	0	0	0	0	0	0	8
		Conifers	17.9	96	166	52537	8364	1	18	96	166	52537	8364	1	0.20	3.1	1204	179	0	0	0	0	0	0	0	0	24
		Hardwoods	9.2	41	19	733	512	0	9	41	19	733	512	0	0.06	0.1	13	5	0	0	0	0	0	0	0	0	6
		Totals	15.8	137	185	53270	8876	1	16	137	185	53270	8876	1	0.17	3.3	1216	184	0	0	0	0	0	0	0	0	30
115.0	24	Residual	47.2	0	1	312	50	0	47	0	1	312	50	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0	0
		Redwood	16.4	52	76	15408	2790	0	16	52	76	15408	2790	0	-0.19	1.5	358	62	0	0	0	0	0	0	0	0	13
		Other Conifer	18.5	13	24	9276	1423	0	18	13	24	9276	1423	0	-0.19	0.4	217	30	0	0	0	0	0	0	0	0	3
		Douglas-fir	22.8	29	81	33560	4994	0	23	29	81	33560	4994	0	-0.33	1.3	675	94	0	0	0	0	0	0	0	0	8
		Conifers	18.9	94	182	58556	9257	1	19	94	182	58556	9257	1	-0.24	3.3	1250	186	0	0	0	0	0	0	0	0	24
		Hardwoods	9.5	40	19	796	539	0	9	40	19	796	539	0	-0.08	0.1	13	5	0	0	0	0	0	0	0	0	6
		Totals	16.6	134	201	59352	9795	1	17	134	201	59352	9795	1	-0.17	3.4	1263	191	0	0	0	0	0	0	0	0	30

Evenaged

RD5M2 Yield Table
Regime/Class: EvenAgeWithCTNoSel/IGROWTO=3/ICCYCLEPERIODS=4/IEAROTATION=16/
Load Setup: 5Year_StartCycle_JDSF

Site Index Values

Species	Site Index	Obs.	Est.Method
BP	107		Defaulted
CY	124		Predicted
DF	126	1	Estimated
GF	122		Predicted
OCC	107		Defaulted
OGDF	124		Predicted
OGRW	102		Predicted
RW	102	1	Estimated
WH	112		Predicted
hWI	70		Defaulted
hBM	70		Defaulted
hCL	70		Defaulted
hGC	70		Defaulted
hLO	70		Defaulted
hMD	52		Predicted
hOCH	70		Defaulted
hRA	91		Predicted
hTO	70		Predicted

			Initial Stocking						After Activities						Growth (PAI)				Harvests				Regeneration			
ET	Period	Species	QMD	TPA	BA	Bd.Ft	Cu.Ft	CC	QMD	TPA	BA	Bd.Ft	Cu.Ft	CC	QMD	BA	Bd.Ft	Cu.Ft	TPA	BA	Bd.Ft	Cu.Ft	Seed	Sprout	Total	Pool
0.0	1	Residual	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	19.2	102	204	38164	6934	1	19	102	204	38164	6934	1	-0.53	3.4	701	118	0	0	0	0	51	0	51	0
		Other Conifer	14.7	5	6	1298	228	0	15	5	6	1298	228	0	-1.12	0.3	47	7	0	0	0	0	12	0	12	0
		Douglas-fir	20.8	13	30	9222	1478	0	21	13	30	9222	1478	0	-1.57	1.1	186	33	0	0	0	0	29	0	29	0
		Conifers	19.3	120	243	49575	8781	1	19	120	243	49575	8781	1	-0.75	4.8	934	158	0	0	0	0	92	0	92	0
		Hardwoods	10.9	80	52	1717	1063	1	11	80	52	1717	1063	1	-0.54	1.2	39	20	0	0	0	0	80	0	80	0
		Totals	16.4	200	295	51292	9844	1	16	200	295	51292	9844	1	-0.72	6.0	973	179	0	0	0	0	172	0	172	0
5.0	2	Residual	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	16.5	148	221	41668	7524	1	17	148	221	41668	7524	1	0.15	3.0	731	127	0	0	0	0	0	0	0	0
		Other Conifer	9.1	16	7	1535	264	0	9	16	7	1535	264	0	0.21	0.3	42	10	0	0	0	0	0	0	0	0
		Douglas-fir	12.9	39	35	10151	1644	0	13	39	35	10151	1644	0	0.25	1.0	206	44	0	0	0	0	0	0	0	0
		Conifers	15.5	203	267	54246	9573	1	16	203	267	54246	9573	1	0.17	4.3	979	182	0	0	0	0	0	0	0	0
		Hardwoods	8.2	158	58	1913	1165	1	8	158	58	1913	1165	1	0.07	0.8	62	22	0	0	0	0	0	0	0	0
		Totals	12.9	361	325	56159	10738	2	13	361	325	56159	10738	2	0.13	5.1	1041	203	0	0	0	0	0	0	0	0
10.0	3	Residual	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	17.3	145	236	45324	8160	1	17	145	236	45324	8160	1	0.14	3.0	759	134	0	0	0	0	0	0	0	0
		Other Conifer	10.1	15	9	1745	314	0	10	15	9	1745	314	0	0.20	0.3	54	13	0	0	0	0	0	0	0	0
		Douglas-fir	14.2	37	40	11180	1866	0	14	37	40	11180	1866	0	0.24	1.0	269	50	0	0	0	0	0	0	0	0
		Conifers	16.4	198	288	59140	10481	1	16	198	288	59140	10481	1	0.16	4.4	1082	197	0	0	0	0	0	0	0	0
		Hardwoods	8.6	155	62	2224	1274	1	9	155	62	2224	1274	1	0.07	0.8	67	24	0	0	0	0	0	0	0	0
		Totals	13.5	353	351	61364	11755	2	13	353	351	61364	11755	2	0.12	5.2	1149	221	0	0	0	0	0	0	0	0
15.0	4	Residual	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	18.0	143	251	49118	8830	1	0	0	0	0	0	0	0.00	0.0	0	0	143	251	49118	8830	132	0	132	132
		Other Conifer	11.1	15	10	2016	377	0	0	0	0	0	0	0	0.00	0.0	0	0	15	10	2016	377	6	0	6	6
		Douglas-fir	15.4	35	46	12526	2118	0	0	0	0	0	0	0	0.00	0.0	0	0	35	46	12526	2118	38	0	38	38
		Conifers	17.1	194	310	64551	11466	1	34	1	3	891	141	0	0.00	0.0	0	0	193	307	63660	11325	176	0	176	176
		Hardwoods	8.9	153	66	2559	1395	1	0	0	0	0	0	0	0.00	0.0	0	0	153	66	2559	1395	24	0	24	24
		Totals	14.1	347	376	67110	12860	2	34	1	3	891	141	0	0.00	0.0	0	0	346	373	66219	12719	200	0	200	200
20.0	5	Residual	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	0.0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0	0	0	0	0	0	0	0	0	0	132
		Other Conifer	0.0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0	0	0	0	0	0	0	0	0	0	6
		Douglas-fir	0.0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0	0	0	0	0	0	0	0	0	0	38
		Conifers	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	176
		Hardwoods	0.0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0	0	0	0	0	0	0	0	0	0	24
		Totals	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	200
25.0	6	Residual	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	0.0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0	0	0	0	0	0	0	0	0	0	132
		Other Conifer	0.0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0	0	0	0	0	0	0	0	0	0	6
		Douglas-fir	0.0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0	0	0	0	0	0	0	0	0	0	38
		Conifers	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	176
		Hardwoods	0.0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0	0	0	0	0	0	0	0	0	0	24
		Totals	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	200
30.0	7	Residual	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	0.0	0	0	0	0	0	0	0	0	0	0	0	1.68	10.2	149	98	0	0	0	0	0	0	0	132

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		Other Conifer	0.0	0	0	0	0	0	0	0	0	0	0	0	0.80	0.1	0	0	0	0	0	0	0	0	0	0	0	6
		Douglas-fir	0.0	0	0	0	0	0	0	0	0	0	0	0	1.06	1.2	0	8	0	0	0	0	0	0	0	0	0	38
		Conifers	33.5	1	3	891	141	0	34	1	3	891	141	0	-5.12	11.5	149	107	0	0	0	0	0	0	0	0	0	176
		Hardwoods	0.0	0	0	0	0	0	0	0	0	0	0	0	0.83	0.5	0	2	0	0	0	0	0	0	0	0	0	24
		Totals	33.5	1	3	891	141	0	34	1	3	891	141	0	-5.19	11.9	149	109	0	0	0	0	0	0	0	0	0	200
35.0	8	Residual	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0	0	0
		Redwood	8.4	132	51	745	492	1	8	132	51	745	492	1	0.36	4.4	270	82	0	0	0	0	0	0	0	0	0	0
		Other Conifer	4.0	6	1	0	0	0	4	6	1	0	0	0	0.49	0.2	0	3	0	0	0	0	0	0	0	0	0	0
		Douglas-fir	5.3	38	6	0	42	0	5	38	6	0	42	0	0.52	1.2	20	30	0	0	0	0	0	0	0	0	0	0
		Conifers	7.9	177	61	1636	675	1	8	177	61	1636	675	1	0.38	5.8	290	115	0	0	0	0	0	0	0	0	0	0
		Hardwoods	4.2	24	2	0	10	0	4	24	2	0	10	0	0.15	0.2	0	1	0	0	0	0	0	0	0	0	0	0
		Totals	7.6	201	63	1636	685	1	8	201	63	1636	685	1	0.36	6.0	290	116	0	0	0	0	0	0	0	0	0	0
40.0	9	Residual	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0	0	0
		Redwood	10.2	129	73	2095	901	1	10	129	73	2095	901	1	0.31	4.5	392	102	0	0	0	0	0	0	0	0	0	0
		Other Conifer	6.5	6	1	0	14	0	6	6	1	0	14	0	0.41	0.2	0	4	0	0	0	0	0	0	0	0	0	0
		Douglas-fir	7.9	36	12	100	193	0	8	36	12	100	193	0	0.46	1.4	66	42	0	0	0	0	0	0	0	0	0	0
		Conifers	9.8	171	90	3086	1250	1	10	171	90	3086	1250	1	0.34	6.1	458	148	0	0	0	0	0	0	0	0	0	0
		Hardwoods	4.9	23	3	0	17	0	5	23	3	0	17	0	0.14	0.2	0	2	0	0	0	0	0	0	0	0	0	0
		Totals	9.4	194	93	3086	1267	1	9	194	93	3086	1267	1	0.32	6.3	458	150	0	0	0	0	0	0	0	0	0	0
45.0	10	Residual	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0	0	0
		Redwood	11.8	127	96	4055	1410	1	12	127	96	4055	1410	1	0.27	4.3	558	119	0	0	0	0	0	0	0	0	0	0
		Other Conifer	8.5	6	2	0	34	0	8	6	2	0	34	0	0.35	0.2	9	5	0	0	0	0	0	0	0	0	0	0
		Douglas-fir	10.2	34	19	429	404	0	10	34	19	429	404	0	0.41	1.5	390	56	0	0	0	0	0	0	0	0	0	0
		Conifers	11.5	167	121	5375	1988	1	12	167	121	5375	1988	1	0.29	6.0	957	180	0	0	0	0	0	0	0	0	0	0
		Hardwoods	5.6	23	4	0	29	0	6	23	4	0	29	0	0.12	0.2	0	2	0	0	0	0	0	0	0	0	0	0
		Totals	11.0	189	124	5375	2017	1	11	189	124	5375	2017	1	0.28	6.2	957	182	0	0	0	0	0	0	0	0	0	0
50.0	11	Residual	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0	0	0
		Redwood	13.1	125	117	6845	2005	1	13	125	117	6845	2005	1	0.23	4.1	652	131	0	0	0	0	0	0	0	0	0	0
		Other Conifer	10.2	5	3	44	61	0	10	5	3	44	61	0	0.31	0.2	58	7	0	0	0	0	0	0	0	0	0	0
		Douglas-fir	12.2	33	27	2379	681	0	12	33	27	2379	681	0	0.36	1.5	428	66	0	0	0	0	0	0	0	0	0	0
		Conifers	13.0	164	151	10159	2889	1	13	164	151	10159	2889	1	0.26	5.7	1138	204	0	0	0	0	0	0	0	0	0	0
		Hardwoods	6.2	22	5	0	40	0	6	22	5	0	40	0	0.11	0.1	2	3	0	0	0	0	0	0	0	0	0	0
		Totals	12.4	186	155	10159	2929	1	12	186	155	10159	2929	1	0.24	5.9	1140	207	0	0	0	0	0	0	0	0	0	0
55.0	12	Residual	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0	0	0
		Redwood	14.3	124	138	10107	2662	1	14	124	138	10107	2662	1	0.20	3.8	749	140	0	0	0	0	0	0	0	0	0	0
		Other Conifer	11.8	5	4	335	95	0	12	5	4	335	95	0	0.27	0.2	54	8	0	0	0	0	0	0	0	0	0	0
		Douglas-fir	14.0	32	34	4517	1012	0	14	32	34	4517	1012	0	0.32	1.5	411	74	0	0	0	0	0	0	0	0	0	0
		Conifers	14.3	161	179	15850	3910	1	14	161	179	15850	3910	1	0.23	5.5	1215	222	0	0	0	0	0	0	0	0	0	0
		Hardwoods	6.7	22	5	9	57	0	7	22	5	9	57	0	0.09	0.1	2	4	0	0	0	0	0	0	0	0	0	0
		Totals	13.6	183	185	15860	3966	1	14	183	185	15860	3966	1	0.22	5.6	1217	226	0	0	0	0	0	0	0	0	0	0
60.0	13	Residual	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0	0	0
		Redwood	15.3	123	157	13853	3364	1	15	123	157	13853	3364	1	0.18	3.6	818	147	0	0	0	0	0	0	0	0	0	0
		Other Conifer	13.1	5	5	607	134	0	13	5	5	607	134	0	0.24	0.2	55	9	0	0	0	0	0	0	0	0	0	0
		Douglas-fir	15.7	31	41	6574	1382	0	16	31	41	6574	1382	0	0.30	1.4	473	81	0	0	0	0	0	0	0	0	0	0
		Conifers	15.4	160	207	21925	5021	1	15	160	207	21925	5021	1	0.20	5.2	1346	236	0	0	0	0	0	0	0	0	0	0
		Hardwoods	7.2	21	6	21	75	0	7	21	6	21	75	0	0.08	0.1	4	3	0	0	0	0	0	0	0	0	0	0
		Totals	14.7	181	213	21946	5095	1	15	181	213	21946	5095	1	0.20	5.3	1351	239	0	0	0	0	0	0	0	0	0	0
65.0	14	Residual	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0	0	0
		Redwood	16.2	122	175	17945	4097	1	16	122	175	17945	4097	1	0.16	3.4	802	151	0	0	0	0	0	0	0	0	0	0
		Other Conifer	14.3	5	6	884	176	0	14	5	6	884	176	0	0.22	0.2	58	9	0	0	0	0	0	0	0	0	0	0
		Douglas-fir	17.1	30	48	8937	1785	0	17	30	48	8937	1785	0	0.27	1.4	525	86	0	0	0	0	0	0	0	0	0	0
		Conifers	16.4	158	233	28657	6200	1	16	158	233	28657	6200	1	0.19	5.0	1385	245	0	0	0	0	0	0	0	0	0	0
		Hardwoods	7.6	21	7	44	89	0	8	21	7	44	89	0	0.07	0.1	1	3	0	0	0	0	0	0	0	0	0	0
		Totals	15.7	179	239	28701	6289	1	16	179	239	28701	6289	1	0.18	5.1	1386	249	0	0	0	0	0	0	0	0	0	0
70.0	15	Residual	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0	0	0
		Redwood	17.0	122	192	21954	4851	1	17	122	192	21954	4851	1	0.15	3.2	838	153	0	0	0	0	0	0	0	0	0	0
		Other Conifer	15.4	5	6	1176	222	0	15	5	6	1176	222	0	0.20	0.1	64	10	0	0	0	0	0	0	0	0	0	0
		Douglas-fir	18.5	30	55	11563	2213	0	18	30	55	11563	2213	0	0.25	1.3	568	89	0	0	0	0	0	0	0	0	0	0
		Conifers	17.4	157	258	35583	7427	1	17	157	258	35583	7427	1	0.17	4.7	1470	252	0	0	0	0	0	0	0	0	0	0
		Hardwoods	8.0	20	7	49	106	0	8	20	7	49	106	0	0.06	0.1	5	3	0	0	0	0	0	0	0	0	0	0
		Totals	16.6	177	265	35632	7533	1	17	177	265	35632	7533	1	0.16	4.8	1475	254	0	0	0	0	0	0	0	0	0	0
75.0	16	Residual	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0	0	0
		Redwood	17.8	121	209	26144	5617	1	22	26	67	9806	1982	0	0.20	1.2	380	64	95	142	16338	3635	0	0	0	0	0	0
		Other Conifer	16.4	5	7	1496	269	0	0	0	0	0	0	0	0.00	0.0	0	0	5	7	1496	269	0	0	0	0	0	0
		Douglas-fir	19.7	29	62	14401	2658	0	22	13	33	8117	1460	0	0.30	0.9	381	57	16	29	6284	1198	0	0	0	0	0	0
		Conifers	18.2	156	281	42932	8685	1	22	40	103	18814	3583	0	0.23	2.1	762	121	116	178	24118	5102	0	0	0	0	0	0
		Hardwoods	8.3	20	7	74	120	0	11	4	3	74	49	0	0.12	0.0	3	2	16	5	0	70	0	0	0	0	0	0
		Totals	17.4	175	289	43006	8805	1	21	43	106	18888	3632	0	0.22	2.1	764	123	132	183	24118	5172	0	0	0	0	0	0
80.0	17	Residual	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0	0	0
		Redwood	22.7	26	73	11707	2301	0	23	26	73	11707	2301	0	0.20	1.3	413	68	0	0	0	0	0	0	0	0	0	0
		Other Conifer	0.0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0	0	0
		Douglas-fir	23.2	13	37	10023	1745	0	23	13	37	10023	1745	0	0.29	0.9	416	60	0	0	0	0	0	0	0	0	0	0

												Evenaged													
		Conifers	23.0	39	114	22621	4187	0	23	39	114	22621	4187	0	0.22	2.2	829	128	0	0	0	0	0	0	0	0
		Hardwoods	11.8	4	3	89	58	0	12	4	3	89	58	0	0.12	0.0	15	2	0	0	0	0	0	0	0	0
		Totals	22.3	43	117	22710	4245	0	22	43	117	22710	4245	0	0.22	2.2	844	130	0	0	0	0	0	0	0	0
85.0	18	Residual	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	23.7	26	79	13771	2640	0	24	26	79	13771	2640	0	0.19	1.3	442	71	0	0	0	0	0	0	0	0
		Other Conifer	0.0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Douglas-fir	24.6	13	42	12104	2047	0	25	13	42	12104	2047	0	0.28	0.9	447	63	0	0	0	0	0	0	0	0
		Conifers	24.1	39	125	26767	4827	0	24	39	125	26767	4827	0	0.22	2.2	889	134	0	0	0	0	0	0	0	0
		Hardwoods	12.4	4	3	165	68	0	12	4	3	165	68	0	0.12	0.0	6	2	0	0	0	0	0	0	0	0
		Totals	23.4	43	128	26932	4895	0	23	43	128	26932	4895	0	0.21	2.2	895	136	0	0	0	0	0	0	0	0
90.0	19	Residual	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	24.6	26	86	15980	2994	0	25	26	86	15980	2994	0	0.19	1.3	469	74	0	0	0	0	0	0	0	0
		Other Conifer	0.0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Douglas-fir	26.0	13	46	14338	2363	0	26	13	46	14338	2363	0	0.27	0.9	475	66	0	0	0	0	0	0	0	0
		Conifers	25.2	39	136	31210	5498	0	25	39	136	31210	5498	0	0.21	2.2	944	140	0	0	0	0	0	0	0	0
		Hardwoods	13.0	4	3	194	78	0	13	4	3	194	78	0	0.12	0.0	6	2	0	0	0	0	0	0	0	0
		Totals	24.4	43	139	31405	5576	0	24	43	139	31405	5576	0	0.21	2.3	950	142	0	0	0	0	0	0	0	0
95.0	20	Residual	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	25.6	26	92	18325	3364	0	0	0	0	0	0	0	0.00	0.0	0	0	26	92	18325	3364	132	0	132	132
		Other Conifer	0.0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0	0	0	0	0	0	0	6	0	6	6
		Douglas-fir	27.3	12	51	16715	2692	0	0	0	0	0	0	0	0.00	0.0	0	0	12	51	16715	2692	38	0	38	38
		Conifers	26.3	39	147	35931	6196	0	34	1	3	891	141	0	0.00	0.0	0	0	38	143	35040	6055	176	0	176	176
		Hardwoods	13.5	4	4	223	89	0	0	0	0	0	0	0	0.00	0.0	0	0	4	4	223	89	24	0	24	24
		Totals	25.5	43	150	36154	6285	0	34	1	3	891	141	0	0.00	0.0	0	0	42	147	35263	6144	200	0	200	200
100.0	21	Residual	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	0.0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0	0	0	0	0	0	0	0	0	0	132
		Other Conifer	0.0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0	0	0	0	0	0	0	0	0	0	6
		Douglas-fir	0.0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0	0	0	0	0	0	0	0	0	0	38
		Conifers	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	176
		Hardwoods	0.0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0	0	0	0	0	0	0	0	0	0	24
		Totals	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	200
105.0	22	Residual	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	0.0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0	0	0	0	0	0	0	0	0	0	132
		Other Conifer	0.0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0	0	0	0	0	0	0	0	0	0	6
		Douglas-fir	0.0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0	0	0	0	0	0	0	0	0	0	38
		Conifers	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	176
		Hardwoods	0.0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0	0	0	0	0	0	0	0	0	0	24
		Totals	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	200
110.0	23	Residual	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	0.0	0	0	0	0	0	0	0	0	0	0	0	1.68	10.2	149	98	0	0	0	0	0	0	0	132
		Other Conifer	0.0	0	0	0	0	0	0	0	0	0	0	0	0.80	0.1	0	0	0	0	0	0	0	0	0	6
		Douglas-fir	0.0	0	0	0	0	0	0	0	0	0	0	0	1.06	1.2	0	8	0	0	0	0	0	0	0	38
		Conifers	33.5	1	3	891	141	0	34	1	3	891	141	0	-5.12	11.5	149	107	0	0	0	0	0	0	0	176
		Hardwoods	0.0	0	0	0	0	0	0	0	0	0	0	0	0.83	0.5	0	2	0	0	0	0	0	0	0	24
		Totals	33.5	1	3	891	141	0	34	1	3	891	141	0	-5.19	11.9	149	109	0	0	0	0	0	0	0	200
115.0	24	Residual	33.5	1	3	891	141	0	34	1	3	891	141	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	8.4	132	51	745	492	1	8	132	51	745	492	1	0.36	4.4	270	82	0	0	0	0	0	0	0	0
		Other Conifer	4.0	6	1	0	0	0	4	6	1	0	0	0	0.49	0.2	0	3	0	0	0	0	0	0	0	0
		Douglas-fir	5.3	38	6	0	42	0	5	38	6	0	42	0	0.52	1.2	20	30	0	0	0	0	0	0	0	0
		Conifers	7.9	177	61	1636	675	1	8	177	61	1636	675	1	0.38	5.8	290	115	0	0	0	0	0	0	0	0
		Hardwoods	4.2	24	2	0	10	0	4	24	2	0	10	0	0.15	0.2	0	1	0	0	0	0	0	0	0	0
		Totals	7.6	201	63	1636	685	1	8	201	63	1636	685	1	0.36	6.0	290	116	0	0	0	0	0	0	0	0

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LSD25

DRT4M2 Yield Table
Regime/Class: LsdHigh25_2X/IGROWTO=3/ICCYCLEPERIODS=5/
Load Setup: 5Year_StartCycle_JDSF

Site Index Values

Species	Site Index	Obs.	Est.Method
BP	107		Defaulted
CY	124		Predicted
DF	126	1	Estimated
GF	122		Predicted
OCC	107		Defaulted
OGDF	124		Predicted
OGRW	102		Predicted
RW	102	1	Estimated
WH	112		Predicted
hWI	70		Defaulted
hBM	70		Defaulted
hCL	70		Defaulted
hGC	70		Defaulted
hLO	70		Defaulted
hMD	52		Predicted
hOCH	70		Defaulted
hRA	91		Predicted
hTO	70		Predicted

			Initial Stocking						After Activities						Growth (PAI)				Harvests				Regeneration			
ET	Period	Species	QMD	TPA	BA	Bd.Ft	Cu.Ft	CC	QMD	TPA	BA	Bd.Ft	Cu.Ft	CC	QMD	BA	Bd.Ft	Cu.Ft	TPA	BA	Bd.Ft	Cu.Ft	Seed	Sprout	Total	Pool
0.0	1	Residual	48.7	0	1	186	28	0	49	0	1	186	28	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	17.0	76	120	18505	3650	0	17	76	120	18505	3650	0	-0.39	2.2	490	81	0	0	0	0	33	0	33	0
		Other Conifer	17.8	4	6	1618	268	0	18	4	6	1618	268	0	-0.84	0.1	45	6	0	0	0	0	3	0	3	0
		Douglas-fir	16.6	54	81	20162	3642	0	17	54	81	20162	3642	0	-0.61	2.2	611	101	0	0	0	0	43	0	43	0
		Conifers	16.9	134	208	40471	7588	1	17	134	208	40471	7588	1	-0.50	4.6	1146	188	0	0	0	0	80	0	80	0
		Hardwoods	10.4	126	75	2520	1507	1	10	126	75	2520	1507	1	-0.41	1.7	63	29	0	0	0	0	95	0	95	0
		Totals	14.1	260	283	42992	9095	2	14	260	283	42992	9095	2	-0.49	6.3	1209	218	0	0	0	0	175	0	175	0
5.0	2	Residual	48.7	0	1	186	28	0	49	0	1	186	28	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	15.0	106	131	20956	4053	1	15	106	131	20956	4053	1	0.14	2.0	492	86	0	0	0	0	0	0	0	0
		Other Conifer	13.6	7	7	1841	299	0	14	7	7	1841	299	0	0.15	0.1	56	7	0	0	0	0	0	0	0	0
		Douglas-fir	13.5	92	92	23217	4149	0	14	92	92	23217	4149	0	0.20	2.0	654	116	0	0	0	0	0	0	0	0
		Conifers	14.4	206	231	46201	8529	1	14	206	231	46201	8529	1	0.17	4.1	1202	208	0	0	0	0	0	0	0	0
		Hardwoods	8.4	218	83	2836	1655	1	8	218	83	2836	1655	1	0.05	0.9	76	30	0	0	0	0	0	0	0	0
		Totals	11.7	424	314	49037	10184	2	12	424	314	49037	10184	2	0.12	4.9	1278	238	0	0	0	0	0	0	0	0
10.0	3	Residual	48.7	0	1	186	28	0	49	0	1	186	28	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	15.7	104	141	23415	4482	1	16	104	141	23415	4482	1	0.14	2.0	504	90	0	0	0	0	0	0	0	0
		Other Conifer	14.3	7	8	2123	334	0	14	7	8	2123	334	0	0.14	0.1	50	8	0	0	0	0	0	0	0	0
		Douglas-fir	14.5	89	102	26488	4727	0	15	89	102	26488	4727	0	0.19	2.0	704	124	0	0	0	0	0	0	0	0
		Conifers	15.2	200	251	52211	9571	1	15	200	251	52211	9571	1	0.16	4.1	1259	222	0	0	0	0	0	0	0	0
		Hardwoods	8.6	215	88	3214	1803	1	9	215	88	3214	1803	1	0.05	0.8	66	30	0	0	0	0	0	0	0	0
		Totals	12.2	415	339	55426	11374	2	12	415	339	55426	11374	2	0.11	4.9	1325	252	0	0	0	0	0	0	0	0
15.0	4	Residual	48.7	0	1	186	28	0	49	0	1	186	28	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	16.4	103	151	25937	4932	1	17	70	106	19116	3561	0	0.16	1.6	416	75	33	45	6822	1371	0	0	0	0
		Other Conifer	15.0	7	8	2374	372	0	15	4	5	1540	234	0	0.19	0.1	37	6	2	3	833	139	0	0	0	0
		Douglas-fir	15.5	86	112	30009	5348	0	15	72	93	24803	4410	0	0.21	1.9	772	121	14	19	5206	938	0	0	0	0
		Conifers	16.0	195	272	58507	10681	1	16	146	204	45645	8233	1	0.18	3.7	1225	202	49	67	12861	2448	0	0	0	0
		Hardwoods	8.9	212	92	3545	1955	1	9	190	83	3242	1775	1	0.05	0.8	64	30	22	9	303	180	0	0	0	0
		Totals	12.8	407	363	62051	12636	2	13	337	287	48887	10008	2	0.12	4.4	1289	232	71	76	13164	2627	0	0	0	0
20.0	5	Residual	48.7	0	1	186	28	0	49	0	1	186	28	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	17.4	69	114	21197	3938	0	17	69	114	21197	3938	0	0.15	1.6	455	78	0	0	0	0	0	0	0	0
		Other Conifer	15.5	4	6	1724	265	0	15	4	6	1724	265	0	0.18	0.1	41	7	0	0	0	0	0	0	0	0
		Douglas-fir	16.4	70	103	28662	5013	0	16	70	103	28662	5013	0	0.20	1.9	850	128	0	0	0	0	0	0	0	0
		Conifers	16.9	143	223	51770	9244	1	17	143	223	51770	9244	1	0.17	3.7	1346	212	0	0	0	0	0	0	0	0
		Hardwoods	9.2	187	87	3560	1923	1	9	187	87	3560	1923	1	0.05	0.7	58	29	0	0	0	0	0	0	0	0
		Totals	13.1	330	309	55330	11167	2	13	330	309	55330	11167	2	0.11	4.3	1404	241	0	0	0	0	0	0	0	0
25.0	6	Residual	48.7	0	1	186	28	0	49	0	1	186	28	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	18.2	68	122	23473	4328	0	18	68	122	23473	4328	0	0.14	1.6	490	80	0	0	0	0	0	0	0	0
		Other Conifer	16.4	4	6	1929	297	0	16	4	6	1929	297	0	0.17	0.1	46	7	0	0	0	0	0	0	0	0
		Douglas-fir	17.4	68	112	32911	5651	0	17	68	112	32911	5651	0	0.19	1.9	926	133	0	0	0	0	0	0	0	0
		Conifers	17.8	140	241	58499	10305	1	18	140	241	58499	10305	1	0.16	3.6	1462	220	0	0	0	0	0	0	0	0
		Hardwoods	9.5	184	90	3853	2066	1	9	184	90	3853	2066	1	0.05	0.6	44	27	0	0	0	0	0	0	0	0
		Totals	13.7	324	331	62352	12371	2	14	324	331	62352	12371	2	0.11	4.2	1507	247	0	0	0	0	0	0	0	0
30.0	7	Residual	48.7	0	1	186	28	0	49	0	1	186	28	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	18.9	67	130	25922	4729	0	19	67	130	25922	4729	0	0.13	1.6	502	82	0	0	0	0	0	0	0	0

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			LSD25																					
		Other Conifer	17.2	4	7	2160	332	0	17	4	7	2160	332	0	0.16	0.1	52	7	0	0	0	0	0	0	0	0
		Douglas-fir	18.4	66	122	37543	6317	0	18	66	122	37543	6317	0	0.18	1.9	1015	138	0	0	0	0	0	0	0	0
		Conifers	18.6	137	259	65811	11406	1	19	137	259	65811	11406	1	0.16	3.6	1568	227	0	0	0	0	0	0	0	0
		Hardwoods	9.7	182	93	4075	2199	1	10	182	93	4075	2199	1	0.04	0.5	39	25	0	0	0	0	0	0	0	0
		Totals	14.2	319	352	69886	13606	2	14	319	352	69886	13606	2	0.10	4.0	1607	251	0	0	0	0	0	0	0	0
35.0	8	Residual	48.7	0	1	186	28	0	49	0	1	186	28	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	19.5	66	138	28431	5138	0	20	66	138	28431	5138	0	0.13	1.6	517	83	0	0	0	0	0	0	0	0
		Other Conifer	18.0	4	7	2418	367	0	18	4	7	2418	367	0	0.15	0.1	56	7	0	0	0	0	0	0	0	0
		Douglas-fir	19.3	65	131	42617	7005	0	19	65	131	42617	7005	0	0.17	1.8	1021	141	0	0	0	0	0	0	0	0
		Conifers	19.4	135	277	73651	12539	1	19	135	277	73651	12539	1	0.15	3.5	1594	231	0	0	0	0	0	0	0	0
		Hardwoods	9.9	179	95	4271	2322	1	10	179	95	4271	2322	1	0.04	0.4	38	22	0	0	0	0	0	0	0	0
		Totals	14.7	314	372	77922	14861	2	15	314	372	77922	14861	2	0.10	3.9	1633	253	0	0	0	0	0	0	0	0
40.0	9	Residual	48.7	0	1	186	28	0	49	0	1	186	28	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	20.2	66	146	31016	5551	0	20	47	101	21448	3826	0	0.14	1.2	419	65	19	45	9567	1724	0	0	0	0
		Other Conifer	18.8	4	8	2698	405	0	18	3	6	2191	324	0	0.17	0.1	54	7	0	1	507	81	0	0	0	0
		Douglas-fir	20.1	63	140	47723	7711	0	20	52	114	38282	6196	0	0.19	1.7	974	130	12	26	9441	1515	0	0	0	0
		Conifers	20.1	133	295	81623	13695	1	20	102	222	62108	10375	1	0.17	3.1	1447	202	31	73	19515	3319	0	0	0	0
		Hardwoods	10.1	176	97	4463	2434	1	10	160	88	4017	2192	1	0.04	0.4	30	21	16	9	446	242	0	0	0	0
		Totals	15.2	309	392	86086	16129	2	15	262	309	66125	12567	2	0.11	3.4	1477	223	47	82	19962	3561	0	0	0	0
45.0	10	Residual	48.7	0	1	186	28	0	49	0	1	186	28	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	20.5	47	107	23545	4149	0	21	47	107	23545	4149	0	0.14	1.2	433	66	0	0	0	0	0	0	0	0
		Other Conifer	18.9	3	7	2460	359	0	19	3	7	2460	359	0	0.16	0.1	56	7	0	0	0	0	0	0	0	0
		Douglas-fir	21.0	51	123	43151	6846	0	21	51	123	43151	6846	0	0.18	1.7	974	133	0	0	0	0	0	0	0	0
		Conifers	20.8	101	237	69342	11383	1	21	101	237	69342	11383	1	0.16	3.0	1464	207	0	0	0	0	0	0	0	0
		Hardwoods	10.2	157	90	4167	2297	1	10	157	90	4167	2297	1	0.04	0.3	36	19	0	0	0	0	0	0	0	0
		Totals	15.2	258	326	73509	13680	2	15	258	326	73509	13680	2	0.10	3.3	1500	226	0	0	0	0	0	0	0	0
50.0	11	Residual	48.7	0	1	186	28	0	49	0	1	186	28	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	21.2	46	113	25711	4479	0	21	46	113	25711	4479	0	0.13	1.2	443	67	0	0	0	0	0	0	0	0
		Other Conifer	19.7	3	7	2742	395	0	20	3	7	2742	395	0	0.15	0.1	58	7	0	0	0	0	0	0	0	0
		Douglas-fir	21.9	50	131	48021	7514	0	22	50	131	48021	7514	0	0.17	1.7	997	136	0	0	0	0	0	0	0	0
		Conifers	21.6	99	252	76660	12417	1	22	99	252	76660	12417	1	0.15	3.0	1498	210	0	0	0	0	0	0	0	0
		Hardwoods	10.4	154	91	4347	2392	1	10	154	91	4347	2392	1	0.03	0.2	27	17	0	0	0	0	0	0	0	0
		Totals	15.7	254	343	81007	14809	2	16	254	343	81007	14809	2	0.10	3.2	1525	227	0	0	0	0	0	0	0	0
55.0	12	Residual	48.7	0	1	186	28	0	49	0	1	186	28	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	21.9	46	119	27924	4814	0	22	46	119	27924	4814	0	0.12	1.2	444	68	0	0	0	0	0	0	0	0
		Other Conifer	20.5	3	8	3034	433	0	20	3	8	3034	433	0	0.15	0.1	59	8	0	0	0	0	0	0	0	0
		Douglas-fir	22.8	49	139	53005	8193	0	23	49	139	53005	8193	0	0.17	1.6	1022	138	0	0	0	0	0	0	0	0
		Conifers	22.3	98	267	84150	13469	1	22	98	267	84150	13469	1	0.15	2.9	1525	213	0	0	0	0	0	0	0	0
		Hardwoods	10.6	152	92	4481	2477	1	11	152	92	4481	2477	1	0.03	0.2	31	15	0	0	0	0	0	0	0	0
		Totals	16.2	250	359	88631	15945	2	16	250	359	88631	15945	2	0.09	3.1	1556	228	0	0	0	0	0	0	0	0
60.0	13	Residual	48.7	0	1	186	28	0	49	0	1	186	28	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	22.5	45	125	30143	5152	0	22	45	125	30143	5152	0	0.12	1.2	447	68	0	0	0	0	0	0	0	0
		Other Conifer	21.2	3	8	3331	471	0	21	3	8	3331	471	0	0.14	0.1	60	8	0	0	0	0	0	0	0	0
		Douglas-fir	23.6	49	148	58114	8881	0	24	49	148	58114	8881	0	0.16	1.6	1045	139	0	0	0	0	0	0	0	0
		Conifers	23.0	97	282	91775	14533	1	23	97	282	91775	14533	1	0.14	2.9	1553	214	0	0	0	0	0	0	0	0
		Hardwoods	10.7	149	93	4636	2551	1	11	149	93	4636	2551	1	0.03	0.1	25	13	0	0	0	0	0	0	0	0
		Totals	16.7	246	375	96411	17083	2	17	246	375	96411	17083	2	0.09	3.0	1577	227	0	0	0	0	0	0	0	0
65.0	14	Residual	48.7	0	1	186	28	0	49	0	1	186	28	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	23.1	45	131	32379	5492	0	23	45	131	32379	5492	0	0.12	1.2	451	68	0	0	0	0	0	0	0	0
		Other Conifer	21.9	3	8	3633	509	0	22	3	8	3633	509	0	0.13	0.1	62	8	0	0	0	0	0	0	0	0
		Douglas-fir	24.4	48	156	63341	9574	0	24	48	156	63341	9574	0	0.15	1.6	1064	139	0	0	0	0	0	0	0	0
		Conifers	23.7	96	296	99539	15604	1	24	96	296	99539	15604	1	0.13	2.8	1577	215	0	0	0	0	0	0	0	0
		Hardwoods	10.8	146	94	4759	2615	1	11	146	94	4759	2615	1	0.02	0.1	17	11	0	0	0	0	0	0	0	0
		Totals	17.2	242	390	104298	18219	2	17	242	390	104298	18219	2	0.09	2.9	1593	226	0	0	0	0	0	0	0	0
70.0	15	Residual	48.7	0	1	186	28	0	49	0	1	186	28	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	23.7	45	137	34633	5833	0	24	45	137	34633	5833	0	0.11	1.2	452	68	0	0	0	0	0	0	0	0
		Other Conifer	22.6	3	9	3941	548	0	23	3	9	3941	548	0	0.13	0.1	63	8	0	0	0	0	0	0	0	0
		Douglas-fir	25.2	47	164	68662	10269	0	25	47	164	68662	10269	0	0.15	1.5	1078	139	0	0	0	0	0	0	0	0
		Conifers	24.4	95	310	107423	16679	1	24	95	310	107423	16679	1	0.13	2.8	1593	215	0	0	0	0	0	0	0	0
		Hardwoods	11.0	143	94	4841	2668	1	11	143	94	4841	2668	1	0.02	0.0	16	9	0	0	0	0	0	0	0	0
		Totals	17.6	239	404	112264	19347	2	18	239	404	112264	19347	2	0.09	2.8	1609	224	0	0	0	0	0	0	0	0
75.0	16	Residual	48.7	0	1	186	28	0	49	0	1	186	28	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	24.2	45	143	36893	6173	0	24	45	143	36893	6173	0	0.11	1.1	450	68	0	0	0	0	0	0	0	0
		Other Conifer	23.2	3	9	4254	587	0	23	3	9	4254	587	0	0.12	0.1	63	8	0	0	0	0	0	0	0	0
		Douglas-fir	25.9	47	171	74054	10965	0	26	47	171	74054	10965	0	0.14	1.5	1090	139	0	0	0	0	0	0	0	0
		Conifers	25.1	95	324	115388	17754	1	25	95	324	115388	17754	1	0.12	2.7	1604	214	0	0	0	0	0	0	0	0
		Hardwoods	11.1	141	94	4923	2712	1	11	141	94	4923	2712	1	0.02	0.0	16	7	0	0	0	0	0	0	0	0
		Totals	18.0	236	418	120311	20465	2	18	236	418	120311	20465	2	0.08	2.7	1619	221	0	0	0	0	0	0	0	0
80.0	17	Residual	48.7	0	1	186	28	0	49	0	1	186	28	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	24.7	45	149	39144	6512	0	25	45	149	39144	6512	0	0.10	1.1	451	67	0	0	0	0	0	0	0	0
		Other Conifer	23.8	3	10	4570	626	0	24	3	10	4570	626	0	0.12	0.1	64	8	0	0	0	0	0	0	0	0
		Douglas-fir	26.6	46	179	79505	11659	0	27	46	179	79505	11659	0	0.13	1.5	1099	138	0	0	0	0	0	0	0	0

														LSD25											
		Conifers	25.7	94	338	123406	18826	1	26	94	338	123406	18826	1	0.12	2.7	1614	214	0	0	0	0	0	0	0	0
		Hardwoods	11.2	138	94	5001	2746	1	11	138	94	5001	2746	1	0.02	-0.1	12	5	0	0	0	0	0	0	0	0
		Totals	18.5	232	432	128407	21572	2	18	232	432	128407	21572	2	0.08	2.6	1626	219	0	0	0	0	0	0	0	0
85.0	18	Residual	48.7	0	1	186	28	0	49	0	1	186	28	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	25.3	44	154	41399	6849	0	25	44	154	41399	6849	0	0.10	1.1	450	67	0	0	0	0	0	0	0	0
		Other Conifer	24.4	3	10	4889	665	0	24	3	10	4889	665	0	0.11	0.1	64	8	0	0	0	0	0	0	0	0
		Douglas-fir	27.3	46	186	85001	12351	0	27	46	186	85001	12351	0	0.13	1.4	1106	138	0	0	0	0	0	0	0	0
		Conifers	26.3	93	351	131476	19894	1	26	93	351	131476	19894	1	0.11	2.6	1620	212	0	0	0	0	0	0	0	0
		Hardwoods	11.2	136	93	5059	2770	1	11	136	93	5059	2770	1	0.02	-0.1	10	3	0	0	0	0	0	0	0	0
		Totals	18.9	229	445	136535	22664	2	19	229	445	136535	22664	2	0.08	2.5	1629	215	0	0	0	0	0	0	0	0
90.0	19	Residual	48.7	0	1	186	28	0	49	0	1	186	28	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	25.8	44	160	43647	7184	0	26	44	160	43647	7184	0	0.10	1.1	448	66	0	0	0	0	0	0	0	0
		Other Conifer	25.0	3	10	5211	704	0	25	3	10	5211	704	0	0.11	0.1	65	8	0	0	0	0	0	0	0	0
		Douglas-fir	27.9	45	193	90531	13039	0	28	45	193	90531	13039	0	0.13	1.4	1110	137	0	0	0	0	0	0	0	0
		Conifers	26.8	93	364	139575	20955	1	27	93	364	139575	20955	1	0.11	2.6	1623	211	0	0	0	0	0	0	0	0
		Hardwoods	11.3	133	93	5107	2787	1	11	133	93	5107	2787	1	0.01	-0.1	7	2	0	0	0	0	0	0	0	0
		Totals	19.3	226	457	144682	23742	2	19	226	457	144682	23742	2	0.08	2.4	1629	212	0	0	0	0	0	0	0	0
95.0	20	Residual	48.7	0	1	186	28	0	49	0	1	186	28	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	26.2	44	165	45887	7515	0	26	44	165	45887	7515	0	0.09	1.1	445	65	0	0	0	0	0	0	0	0
		Other Conifer	25.5	3	11	5533	742	0	26	3	11	5533	742	0	0.10	0.1	65	8	0	0	0	0	0	0	0	0
		Douglas-fir	28.6	45	200	96081	13722	0	29	45	200	96081	13722	0	0.12	1.4	1113	136	0	0	0	0	0	0	0	0
		Conifers	27.4	92	377	147688	22007	1	27	92	377	147688	22007	1	0.11	2.5	1623	209	0	0	0	0	0	0	0	0
		Hardwoods	11.4	131	92	5141	2796	1	11	131	92	5141	2796	1	0.01	-0.2	5	0	0	0	0	0	0	0	0	0
		Totals	19.7	223	470	152829	24803	2	20	223	470	152829	24803	2	0.08	2.4	1627	209	0	0	0	0	0	0	0	0
100.0	21	Residual	48.7	0	1	186	28	0	49	0	1	186	28	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	26.7	44	171	48111	7842	0	27	44	171	48111	7842	0	0.09	1.1	441	64	0	0	0	0	0	0	0	0
		Other Conifer	26.1	3	11	5856	780	0	26	3	11	5856	780	0	0.10	0.1	65	7	0	0	0	0	0	0	0	0
		Douglas-fir	29.2	45	207	101647	14401	0	29	45	207	101647	14401	0	0.12	1.3	1115	135	0	0	0	0	0	0	0	0
		Conifers	27.9	92	390	155800	23051	1	28	92	390	155800	23051	1	0.10	2.5	1620	207	0	0	0	0	0	0	0	0
		Hardwoods	11.4	128	92	5164	2798	1	11	128	92	5164	2798	1	0.01	-0.2	3	-1	0	0	0	0	0	0	0	0
		Totals	20.0	220	481	160964	25849	2	20	220	481	160964	25849	2	0.07	2.3	1623	206	0	0	0	0	0	0	0	0
105.0	22	Residual	48.7	0	1	186	28	0	49	0	1	186	28	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	27.1	44	176	50315	8164	0	27	44	176	50315	8164	0	0.09	1.0	436	63	0	0	0	0	0	0	0	0
		Other Conifer	26.6	3	11	6179	817	0	27	3	11	6179	817	0	0.10	0.1	64	7	0	0	0	0	0	0	0	0
		Douglas-fir	29.7	44	214	107220	15074	0	30	44	214	107220	15074	0	0.11	1.3	1115	133	0	0	0	0	0	0	0	0
		Conifers	28.4	91	402	163901	24083	1	28	91	402	163901	24083	1	0.10	2.4	1615	204	0	0	0	0	0	0	0	0
		Hardwoods	11.5	126	91	5177	2794	1	12	126	91	5177	2794	1	0.01	-0.2	6	-2	0	0	0	0	0	0	0	0
		Totals	20.4	217	493	169077	26877	2	20	217	493	169077	26877	2	0.07	2.2	1621	202	0	0	0	0	0	0	0	0
110.0	23	Residual	48.7	0	1	186	28	0	49	0	1	186	28	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	27.6	44	181	52494	8481	0	28	44	181	52494	8481	0	0.08	1.0	430	62	0	0	0	0	0	0	0	0
		Other Conifer	27.0	3	12	6501	854	0	27	3	12	6501	854	0	0.09	0.1	64	7	0	0	0	0	0	0	0	0
		Douglas-fir	30.3	44	221	112796	15741	0	30	44	221	112796	15741	0	0.11	1.3	1115	132	0	0	0	0	0	0	0	0
		Conifers	28.9	91	414	171977	25104	1	29	91	414	171977	25104	1	0.10	2.4	1609	202	0	0	0	0	0	0	0	0
		Hardwoods	11.6	123	90	5204	2785	1	12	123	90	5204	2785	1	0.01	-0.2	2	-3	0	0	0	0	0	0	0	0
		Totals	20.8	214	504	177182	27889	2	21	214	504	177182	27889	2	0.07	2.2	1611	199	0	0	0	0	0	0	0	0
115.0	24	Residual	48.7	0	1	186	28	0	49	0	1	186	28	0	0.00	0.0	0	0	0	0	0	0	0	0	0	0
		Redwood	28.0	44	186	54644	8792	0	28	44	186	54644	8792	0	0.08	1.0	423	61	0	0	0	0	0	0	0	0
		Other Conifer	27.5	3	12	6820	890	0	27	3	12	6820	890	0	0.09	0.1	64	7	0	0	0	0	0	0	0	0
		Douglas-fir	30.9	44	227	118371	16403	0	31	44	227	118371	16403	0	0.11	1.3	1114	131	0	0	0	0	0	0	0	0
		Conifers	29.4	90	426	180021	26113	1	29	90	426	180021	26113	1	0.09	2.3	1601	199	0	0	0	0	0	0	0	0
		Hardwoods	11.6	121	89	5214	2772	1	12	121	89	5214	2772	1	0.01	-0.2	-3	-3	0	0	0	0	0	0	0	0
		Totals	21.1	211	515	185236	28885	2	21	211	515	185236	28885	2	0.07	2.1	1598	196	0	0	0	0	0	0	0	0

Map Figure 1

Ownership

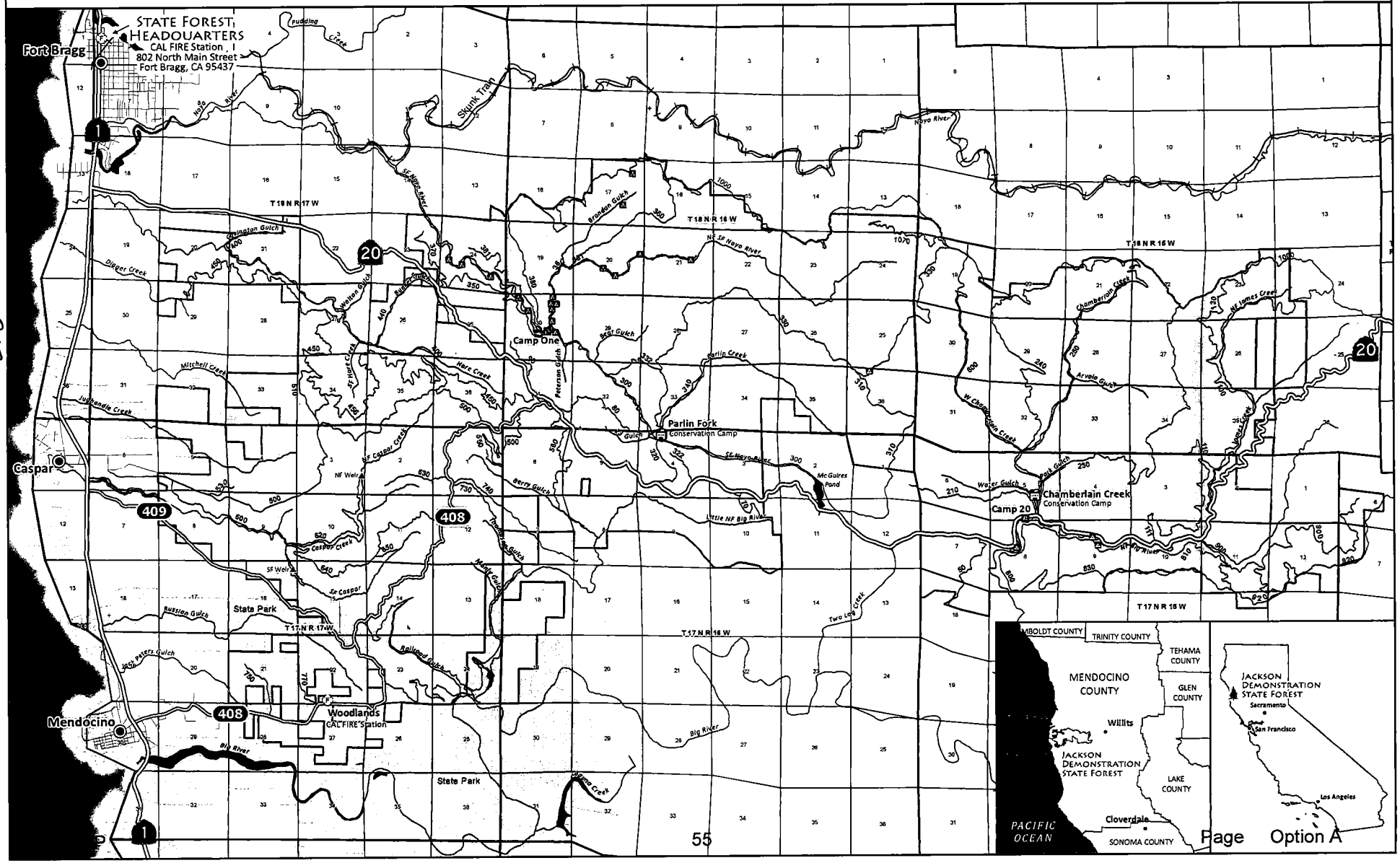
JACKSON DEMONSTRATION STATE FOREST

0 0.5 1 2 3 Miles

Scale 1:120,000 at page size 8.5"X11"

Date 9/8/2014 By Shawn Headley

Map Notes:
- To be used for reference only
- Projection: UTM Zone 10
- Datum: NAD 83



Page Option A

Map Figure 2

Vegetation Types

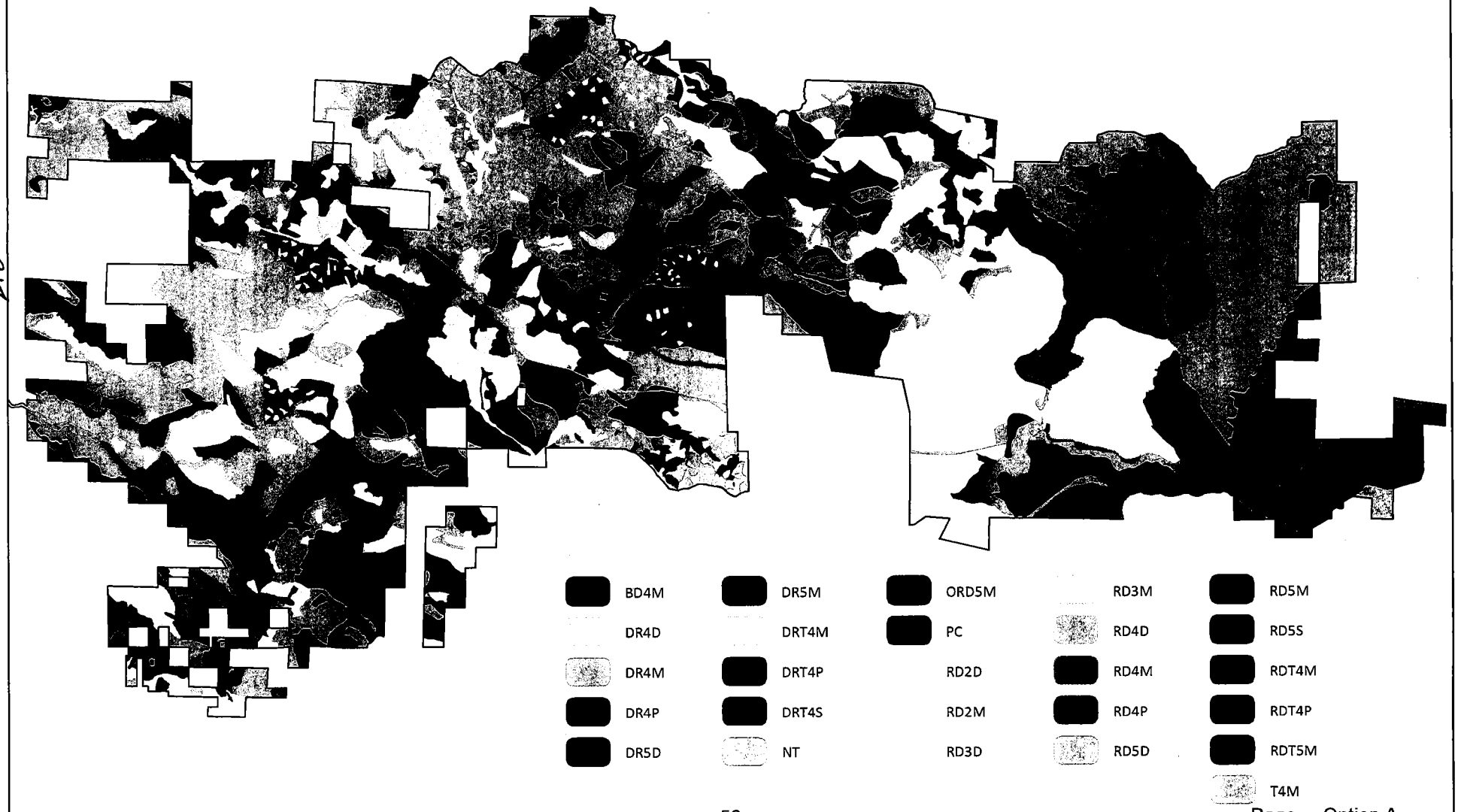
JACKSON DEMONSTRATION STATE FOREST

0 0.5 1 2 3 Miles

Scale 1:108,000 at page size 8.5"X11"

Date 9/8/2014 By Shawn Headley

Map Notes:
- To be used for reference only
- Projection: UTM Zone 10
- Datum: NAD 83



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Map Figure 3
Site Class

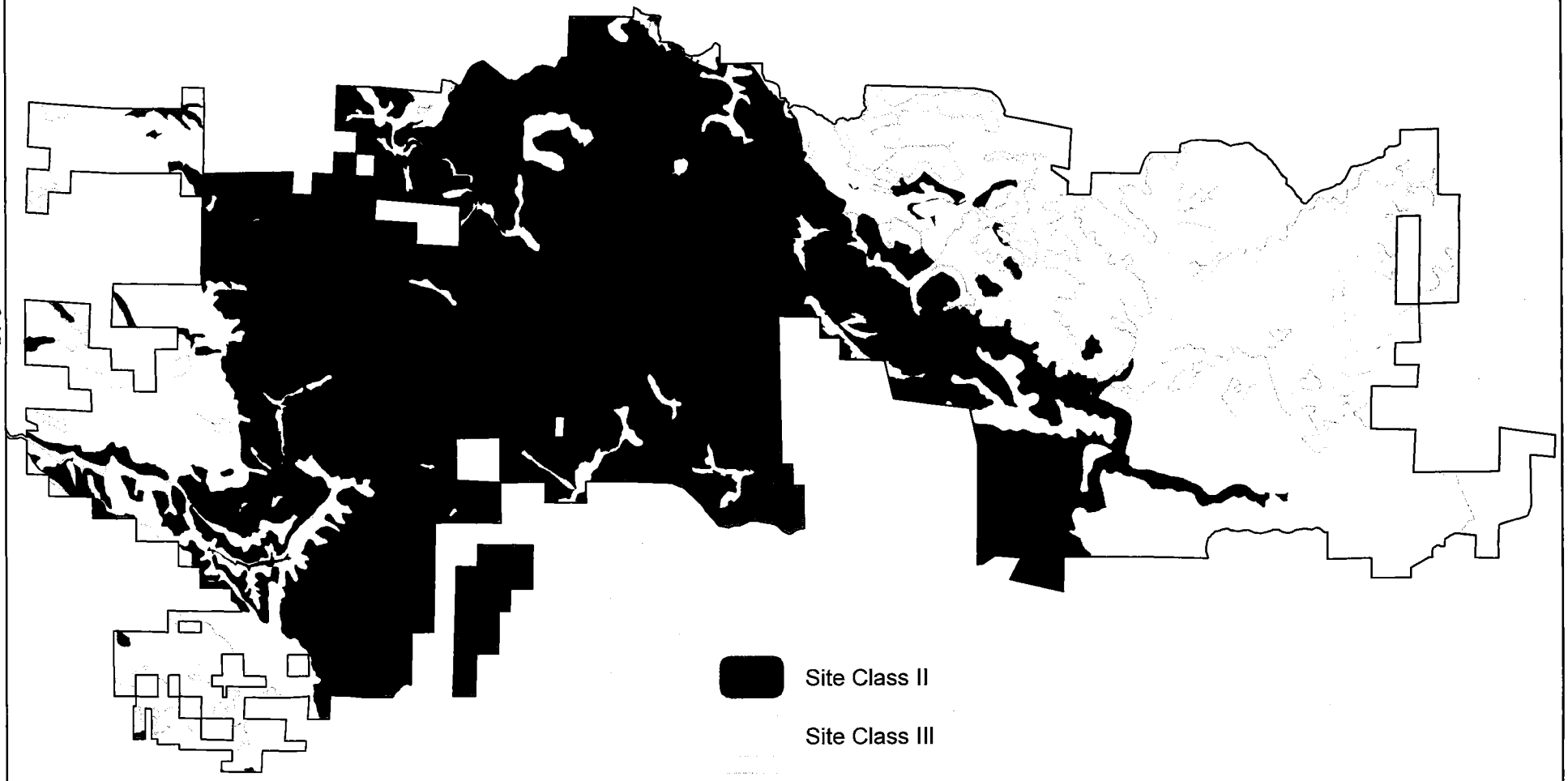
JACKSON DEMONSTRATION STATE FOREST

0 0.5 1 2 3 Miles

Scale 1:108,000 at page size 8.5"X11"

Date 9/8/2014 By Shawn Headley

Map Notes:
- To be used for reference only
- Projection: UTM Zone 10
- Datum: NAD 83



Map Figure 4

Strata

JACKSON DEMONSTRATION STATE FOREST

0 0.5 1 2 3 Miles

Scale 1:108,000 at page size 8.5"X11"

Date 9/8/2014 By Shawn Headley

Map Notes:
- To be used for reference only
- Projection: UTM Zone 10
- Datum: NAD 83

Map Figure 5

Forest Management and Special Concern Areas

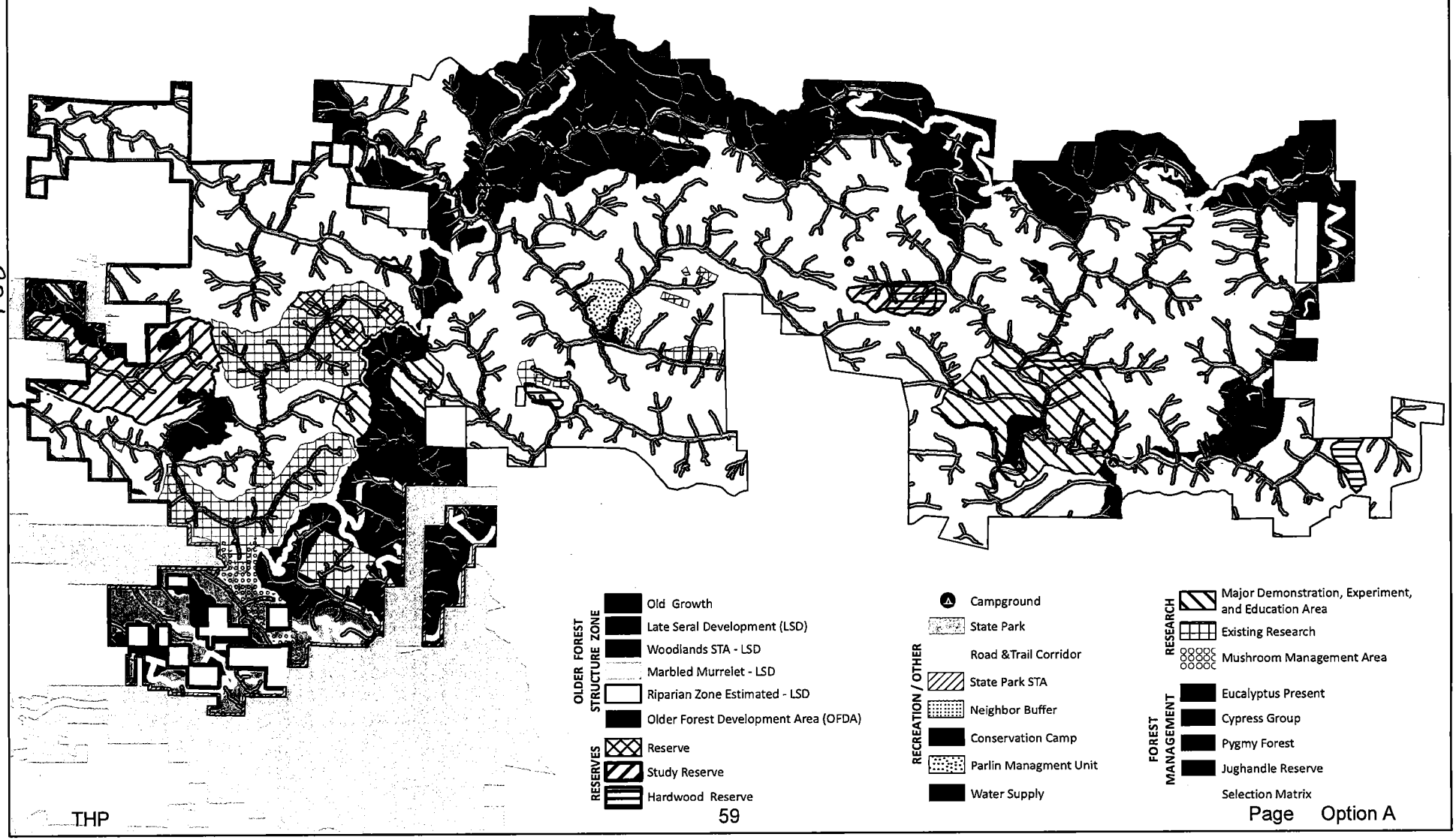
JACKSON DEMONSTRATION STATE FOREST

0 0.5 1 2 3 Miles

Scale 1:108,000 at page size 8.5"X11"

Date 9/8/2014 By Shawn Headley

Map Notes:
- To be used for reference only
- Projection: UTM Zone 10
- Datum: NAD 83



Map Figure 6

Short Term Harvest Schedule

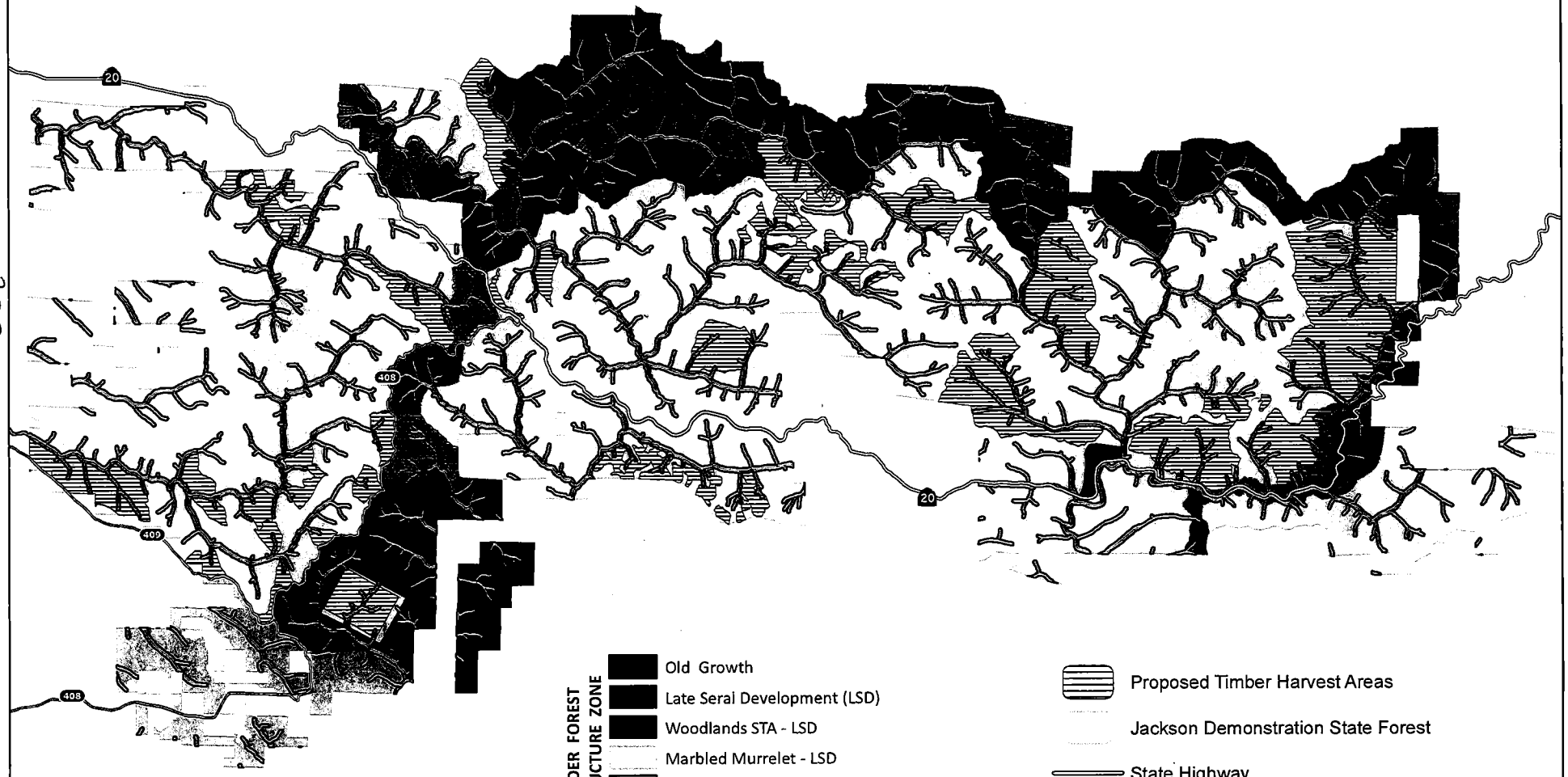
JACKSON DEMONSTRATION STATE FOREST

0 0.5 1 2 3 Miles

Scale 1:108,000 at page size 8.5"X11"

Date 9/8/2014 By Shawn Headley

Map Notes:
- To be used for reference only
- Projection: UTM Zone 10
- Datum: NAD 83



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