Integrated Landscape Committee Documents, Sections 1 & 2
Approved by JAG, May 24, 2010

This document is Sections 1 and 2 of a larger package of documents originating with the JAG Landscape Committee, reviewed and revised by the Integration Team, reviewed and edited by the Landscape break-out session of the May 10, 2010 JAG, re-edited by the Landscape Committee on May 20 and presented at the May 24 JAG meeting. After additional revision, these Sections were adopted by consensus of the JAG. Additional changes and additions were suggested June 25-26, 2010. ***This is NOT to be considered the full Report from the Landscape Committee, even in relation to these sections. Landscape recognizes that the final report will include additional background, rationale, charter review, and other information.***

## Table of Contents: (Sections to be included as they become finalized)

## Section 1. Silviculture Goals and Guidelines for Harvests in Matrix Lands* not Associated with Approved Research and Demonstration

**Goals** (to be implemented together as a whole)

- Allow and encourage research and demonstration projects throughout the Matrix.
- Manage the forestland at JDSF that is not included in Special Concern Areas, research and demonstration projects, or otherwise designated for a special status to develop a stand component of large, old trees that will be used for harvesting valuable timber and maintaining habitat as well as to provide a landscape that the community can feel good about.
- Use a variety of silviculture techniques and document stand responses to treatment.
- Maintain or increase timber harvest revenue over time, assuming reasonably normal economic conditions.
- Recognize and plan for aesthetic values.

* JDSF *"matrix lands"* are those lands not allocated to *Older Forest Structure Zones* (OFSZs**, Reserves, or other Special Concern Areas defined in the Management Plan and shown in Map Figure 5 (as revised to conform with JAG determinations). These matrix lands will be the primary areas allocated to manipulative research, demonstration projects, and to develop the three Centers of Excellence where these studies require treatments not compatible with the goals of OFSZs.

** *OFSZs* are contiguous areas that include *Old Growth* and other *Reserves*, *Late-Seral Development Areas (LSDAs),* and *Older Forest Development Areas (OFDAs*). Harvesting is permitted within *LSDAs* and *OFDAs* consistent with their designated goals (see: *Definitions*).

**Guidelines**

Harvest on matrix lands will utilize single-tree, pre-commercial thinning, commercial thinning, and group selection as defined in the Forest Practice Rules with the following provisions and conditions applied. These conditions are to be addressed simultaneously and as a whole.

- Manage for stand components of larger diameter harvest trees
- Favor redwood where appropriate
- While protecting other forest resources, grow a component of trees in each stand toward the maximum size that can feasibly be harvested and milled without undue environmental impact to the site. *
- Promote the growth of the larger and better phenotypes of conifers and hardwoods while maintaining and enhancing structural diversity for wildlife needs at the stand and landscape level.
- Retain old growth trees as defined in the JDSF Management Plan.
- 
- Where no old growth trees are present, retain a component of dominant conifers, hardwoods, or both within each THP area outside the WLPZ for development of old forest structure across the landscape for at least the next 40 years.
- Depending on the planned reentry period, the percentage of basal area removal should range from 25-40%.
- Promote adequate regeneration that is free to grow for future harvest.
- Where stand conditions are such that adequate regeneration cannot be achieved by single tree selection, small group openings should be used. Openings should be kept as small as possible, typically not greater than one and a half times dominant tree height in any direction, but not to exceed 2 acres. As the size of the openings increases, individual and/or small clusters of trees should be retained within the openings to provide desired structural characteristics.
- In stands historically dominated by conifers, and where previous management or fire occurrence has resulted in hardwood-dominated stands, exceptions may be made to the

**Deleted:** Promote the growth of the larger and better phenotypes while giving consideration to wildlife needs and maintaining structural diversity at the stand and landscape levels.

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**Deleted:** Where no old growth trees are present, an average of two dominant trees per acre distributed across the harvest area outside Class I and Class II WLPZs will be designated and retained during the 40-year planning period to provide the opportunity at that time to decide whether to continue to retain these trees for their structural value. Over time, an equivalent tree may be designated if removal of a retained tree is required for safety or unavoidable operational requirements or the originally designated tree cannot be located. If desirable for wildlife structure, larger, mature hardwoods may be designated to substitute for some of the dominant trees.

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standard Matrix Silviculture Guidelines. Exceptions must be approved by the JAG upon recommendation of the Forest Manager.

* Factors affecting feasibility include, but are not limited to site slope, yarding method, equipment access, mill utilization, and others. In 2010, depending on specific conditions this may beapproximately 48-72 inches DBH, but this is only an estimate and is likely to change over time. The JAG recognizes that as trees get bigger, the public may resist harvesting them, but it is JAG's intent that in the matrix area these trees will be available for harvest.

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## Section 2. Silviculture in a Research and Demonstration Context within the Matrix

Silviculture other than that described in Section 1, including even-aged management, is expected to be a continuing component of operations in the Matrix lands of JDSF within the context of a professionally designed research and demonstration program. Initially, an evaluation of these proposed harvests will be made by JAG until alternative review processes are developed.

In the period prior to the development of the full Strategic Research Plan and Structure, harvests in the Matrix implementing other than Matrix Silviculture will only be conducted in the purple-blue areas of Management Plan Map 5, and only for research projects that meet the following Guidelines for Silviculture in a Research and Demonstration Context within the Matrix.

**Guidelines for Silviculture in a Research and Demonstration Context within the Matrix**

All proposed timber harvests in the Matrix not utilizing Matrix Silviculture will be presented to the appropriate advisory entities for review and recommendation prior to implementation. Criteria used by reviewing bodies should include:

Deleted: , including even-aged management,

Deleted: bodies in approving the use of even-aged methods

- Harvest is pursuant to a peer-reviewed research plan
- The total area receiving the treatment is the minimum required for the scientific validity of the research involved
- Purpose of project, area of sub-watershed or watershed (including replications), and duration of project
- History of proposed project location in relation to age, structure, and past silviculture treatments
- Potential conflict with overarching Centers of Excellence, ongoing research projects, neighbors, sensitive areas, designated special treatment areas, and recreation use

Deleted: use of even-aged methods

[? See Section 7. Excerpts from JDSF Plan Regarding Even-aged Management for full JAG discussion. When the contents are agreed on, it will be inserted into Section 2. ?]

**After Completion of the Research Plan**

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After development of the long-term Strategic Research Plan and associated landscape allocations, harvests justified by research will be implemented only when there is reasonable confidence that the associated research will be carried out. Steps that should be completed to provide this level of confidence include:

- The Strategic Research Plan and associated Research Agenda have been completed and approved.

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- The research has been approved by a standing research committee as part of the Strategic Research Plan
- Goals and explication of expected contributions to an associated Center of Excellence are specifically identified
- The professional and financial resources needed to implement the project and associated work plan over the specified term are developed and allocated
- [Language for consideration: *[For at least the first decade, if the research requires other than Matrix silviculture, the JAG has reviewed and approved it.]*

Research that is not associated with the Strategic Research Plan may be considered for approval if it is to be conducted within the allocations developed for the approved Research Plan and does not conflict with the Plan.

**Section 7. Excerpts from JDSF Management Plan Regarding Even-aged Management**

The following excerpts from the current Plan require a discussion by the full JAG to determine the extent to which JAG recommends modifications:

Page 255:

*"All proposed even-aged management will be presented to the appropriate advisory entities for review and recommendation prior to implementation.*

***Clearcutting**** *will be restricted to a cumulative maximum of 100 acres per decade and only for purposes of research, demonstration, addressing forest health, or addressing problematic conditions for regeneration. Up to an additional 400 acres may be clearcut per decade, but only for research purposes that cannot be met through any other method.*

**[The Landscape Committee is recommending the following change indicated in red.]**

*The total area of the Matrix receiving **even-aged** * silvicultural treatments other than Matrix Silviculture shall be the minimum required for the scientific validity of the research involved.not exceed 2,700 acres per decade. In addition, even-aged management will be tied to:*
*a) the Forest condition it is intended to produce.*
*b) necessity and appropriateness for accommodating research investigations either immediately or at a later time.*
*These constraints (i.e. a, b) do not apply to even-aged management necessary for addressing forest health or problematic regeneration conditions."*

* Bolding added for clarity

## Brief Guidance Lists

***[See full text version for more complete understanding]***

### Harvests in Matrix Lands *Not Associated with Research & Demonstration*

[Research and Demonstration allowed on every acre - see specifics elsewhere]

**Goals:**

1. Grow component of large old trees for harvest and habitat
2. Use a variety of silviculture techniques
3. Document stand response
4. Maintain or increase timber harvest
5. Plan for aesthetics

**Guidelines:**

1. Manage for stand component of larger diameter harvest trees
2. Favor redwood where appropriate
3. Stand to include some maximal sizes when feasible
4. Promote larger and better phenotypes while considering wildlife needs
5. Maintain structural diversity at stand and landscape levels
6. Retain old growth trees as defined
7. Retain some dominants for old forest structure development
8. 25-40% basal area removal depending on re-entry planned
9. Adequate regeneration free to grow
10. Use single tree selection if feasible for adequate regeneration
11. If not feasible, use small group openings
12. Generally, openings not greater than 1.5 times dominant tree height, not to exceed 2 acres
13. In larger openings, retain small clusters for structural characteristics
14. For particular hardwood-dominated stands, exceptions may be approved by JAG

## Harvests in Matrix Lands *Not Associated with Research & Demonstration*

[Research and Demonstration allowed on every acre - see specifics elsewhere]

**Allowed:**
Large trees harvested
Large trees retained
All tree sizes grown
All tree sizes harvested
All tree ages grown
All tree ages harvested
Variety of silviculture
Documentation
Maintain harvest
Increase harvest
Favor redwoods
Larger, better phenotypes
Wildlife considerations
Structural diversity
Retained old growth
Retained dominants
25-40% basal area removed
Adequate regeneration
Aesthetic planning
Single tree selection
Pre-commercial thinning
Commercial thinning
Some small group openings
Structure clumps
Hardwood exceptions

**Not Allowed:**
Uniform stand age
Uniform forest structure
Even-aged management
Two-age management
Variable retention
Transition
Openings > 2 acres
> 40% basal area removed
Old growth harvest
Failure to document
Decreased harvest
High-grading
Ignoring wildlife needs

Ignoring aesthetics

**Silviculture in a Research and Demonstration Context *within the Matrix***

[Research and Demonstration allowed on every acre]

**Allowed:**
Professionally designed research program
Professionally designed demonstration program
Program research on every acre
Program demonstration on every acre

***Prior to program design:***
JAG review
If not Matrix prescription, only within blue area
Must meet Guidelines

***Guidelines***
Peer-reviewed plan
Use minimum area feasible
Information for reviewers
- Purpose
- Area
- Watershed
- Duration
- Harvest history
- Potential conflicts

**Not Allowed:**
Not consistent with JDSF Goals
Not consistent with JDSF Objectives
Not peer reviewed
Unnecessarily large area
Insufficient review information
Insufficient review time
Conflict with other research
Conflict with sensitive areas
Conflict with Special Concern Areas
Conflict with other uses

**Rationale for Allocation Recommendations and Analysis of Proposals**

The Landscape Committee (LC) of the Jackson Advisory Group (JAG) was charged with reviewing the current Management Plan and considering whether changes to allocations or management strategies would improve implementation of previously articulated goals. We reviewed a wide variety of data provided by staff, considered a broad array of other information, and consulted with experts and practitioners. As a result, we are proposing an integrated set of allocation revisions. The following is a brief summary that highlights some of the reasoning behind our recommendations.

The book, *The Redwood Forest*, edited by Reed F. Noss and published by Island Press in conjunction with Save-the-Redwoods League (SRL) in 2000, is the most current comprehensive work on the History, Ecology, and Conservation of the Coast Redwoods. The book's final chapter and selected additional pages are attached. The map on Page 42 shows how the range of the coast redwoods has been divided for the purpose of its analysis. Jackson Demonstration State Forest (JDSF) is located in the area characterized as the "central section" of the coast redwood range. This area includes the area north of San Francisco Bay to the northern boundary of Mendocino County.

This delineation is important. Statistics found on the SRL website in July 2010 and reprinted below, indicate that fewer than 106,000 acres (5%) of ancient coast redwoods remain in the original approximately 2 million acre range. However, as *The Redwood Forest* notes on Page 265:

> "The redwood forest is, in fact, an assortment of many different plant associations responding to a plethora of site conditions. Several tree species, such as Douglas-fir and tanoak, often share dominance with redwood. These different associations have different species composition and ecological relationships. Protection of redwoods in parks and other reserves has not sampled the various associations equally. Some types of redwood forest are unrepresented. For example, 10.75 percent of the redwood forests in the southern section is in the highest category of protected areas, compared to 5.76 percent in the northern section and only 1.36 percent in the central section."

Since the book's publication there have been a number of conservation-minded forest acquisitions in the central region only some of which will result in an increase in the acreage of redwood in the highest category of protected areas:

- Thanks to a multi-organization funding effort, in 2002 California State Parks was able to acquire approximately 7300 acres of mostly second and third growth redwood forest for addition to the state park system at Big River, adjacent to JDSF near Mendocino. Over the long term, this will significantly add to the region's protected stock of late seral forest as these mostly young trees mature.

- Since 2004, the Conservation Fund has purchased approximately 40,000 acres at Garcia River, Big River, and Salmon Creek. Most of this land will be used for sustainable timber harvesting. However, in the Garcia River forest, 8265 acres (approximately 35% of the 24,000-acre forest) have been put into an Ecological Reserve Network (ERN) under their 2006 Management Plan. This acreage includes grassland and oak woodland. According to the CF Management Plan, "Ecological objectives will drive management of ERN." Over time, the forested portion of the ERN will add to the region's stock of protected forest. Currently, however, this forest is young. According to the CF Plan, "The forest is almost equally populated by redwood and Douglas-fir, with a small amount of sugar pine. The timber stand is uniformly small, with an average merchantable tree size diameter of only 14 inches, and only 21 percent of the total sawtimber volume occurring in trees with diameters over 24 inches." The CF Plan for the Big River and Salmon Creek forests make no mention of reserves.

- In 2007, the Redwood Forest Foundation (RFFI) purchased the 50,635 acre Usal Forest north of Ft. Bragg from the Hawthorne Timber Company. With the exception of the likely transfer of beach property and other non-timber, management is anticipated to be sustainable timber production. According to the RFFI website, "RFFI's governing bylaws require that the overwhelming majority of land that they acquire be maintained as a working forest. In this regard, RFFI is looking forward to maintaining 98.2% of Usal in working forest in perpetuity. Given the importance of certain environmental attributes, RFFI is pleased to sell approximately 918 acres to the Save the Redwood League at the same time the conservation easement is sold on the remainder of the property. The park parcel contains the old-growth "Trees of Mystery" grove along with a scenic coastline. In addition, the sale will improve public access to the adjacent Usal Beach property that is already held in park ownership."

- In July 2010, approximately 800 acres along the Sonoma County coast was purchased by Save-the-Redwoods League for eventual transfer to Pacific Forest Trust and other entities. A yet-to-be determined portion of these acres will be reserved, while the overwhelming majority will be used as a working forest with conservation goals.

Even taking into consideration these new park and conservation acreages, JDSF is located in the section where redwood forests have the lowest percentage of reserve protection compared to their original range. Old growth characteristics are regionally in short supply. This is strongly supported by the SRL map included below that shows areas of "remaining old growth redwoods" within the range of the coast redwood.

A review of Map Figure 2 of the 2008 JDSF Management Plan entitled "Regional Forestland Ownership Northern California" clearly indicates that JDSF is by far and away the largest area of public ownership in the central section of the redwood region. Therefore, if there is to be any significant recovery of old growth and late seral redwood characteristics in this heavily depleted central region, JDSF is going to have to make the most significant contribution.

The following two pages are from http://www.savetheredwoods.org/

## REDWOOD STATISTICS

- Of the original 2 million acres of ancient coast redwood forest, approximately 95% has been logged.
- Today, fewer than 106,000 acres (5%) of these ancient coast redwood forests remain.
- Most areas that were ancient redwood forests 200 years ago are second- or third-growth redwood forests today. There is an urgent need to restore original habitats in these forests to protect imperiled species that rely on old-growth ecosystems.
- Approximately 18% of existing coast redwood forests is in a park or reserve. The remaining 82% may be logged because it is either held privately or in a national forest.
- Since 1918, Save the Redwoods League has protected more than 187,000 acres of California land.

[http://www.savetheredwoods.org/education/stats.shtml]


CURRENT EXTENT OF OLD GROWTH REDWOODS (2000)
OREGON
Eureka
NEVADA
San
Francisco
Monterey
Los Angeles
250 Miles
ORIGINAL EXTENT OF OLD GROWTH REDWOOD FOREST
REMAINING OLD GROWTH REDWOOD FOREST

The JAG Landscape Committee believes that JDSF can and should play a key role in helping to fill the "urgent need to restore original habitats" and to increase the regionally depleted stock of older forest characteristics. Management by the State Forest staff has resulted in some forest stands at Jackson that are older, with larger trees than are generally available on private ownerships in the region, providing a unique opportunity to build old forest structure sooner at Jackson than will be possible elsewhere. Additionally, as the largest public forest in the central redwood region, JDSF has a responsibility to respond to the clearly articulated public interest in restoring old growth and late seral forest attributes. The 2008 JDSF Management Plan has made significant strides in this direction by recognizing Forest Restoration as one of the principle goals of management.

**Goal #2 of the 2008 Management Plan:**

> ***"Forest Restoration: Work towards active restoration by managing the Forest to promote and enhance forest health and productivity.***
>
> ***Objective [1]: Increase the amount of older forest structure and late seral forest available for terrestrial wildlife, including areas adjacent to aquatic habitats.***
>
> ***Objective [2]: Improve habitat connectivity and reduce forest fragmentation, including the concepts of corridors and contiguous habitat."***

Within the context of dire regional circumstances, the Jackson Advisory Group (JAG) Landscape Committee (LC) reviewed the 2008 Plan and analyzed whether Goal #2 and its Objectives were fully implemented. After a thorough review of a variety of stand maps and other information, the LC determined this Goal and its Objectives could and should be more fully realized. The LC identified opportunities at JDSF to increase the components of Late Seral Development, Older Forest Structure Development, and Reserve status within JDSF without significantly impinging on other Plan Goals and Objectives. A major focus of the LC's work was consideration of enhancing buffers around special concern areas and older forest structure identified in the Management Plan or improving buffers by taking advantage of topography. Additionally, a very significant effort was made to strengthen corridors and provide better contiguity of older forest structure, particularly in the north/south gradient.

Keeping in mind the multiple goals for which JDSF is managed, rather than designating large swaths of the forest as Late Seral Development or Reserve, or recommending that the entire forest be managed for old growth restoration as some have advocated, the LC has proposed modest but meaningful increases in the above categories. Primary rationales for these specific recommendations include:

> ***Amount of older forest and late seral forest, consistent with Goal #2, Objective 1:***
> Stands whose existing stand characteristics are more successionally advanced will be most likely to achieve older forest conditions sooner than other possible choices.

> ***Habitat connectivity and forest fragmentation, consistent with Goal #2, Objective 2:*** Stands that enlarge existing small stands, widen existing corridors, or fill in gaps to connectivity were identified.

Even so, the LC recognizes that while these designations will immediately improve the security of corridors and contiguity, these forested areas will not achieve anything like true late seral conditions for many centuries.

Additionally, when reviewing opportunities, the LC also considered how best to implement Goal #2 while also honoring JDSF Plan **Goal #5:**

> ***"Recreation and Aesthetic Enjoyment: Plan for and provide enhanced levels of low impact recreational opportunities that are compatible with forest management objectives and healthy ecological processes, that are consistent with historic recreational use characteristics, and that allow for engagement of recreation user groups."***

Where there was a choice, the LC considered the historic recreation use patterns at JDSF and designated areas for LSD and OFSD in areas where there was a strong history of public use. The non-regulated public has consistently expressed a strong desire for JDSF to increase areas of older forest both for its own sake and for public enjoyment. In most instances however, stand conditions were the driving factor in determinations.

In keeping with the analysis provided by Save-the-Redwoods and The Redwood Forest, the following section reviews the Management Plan and Landscape Committee allocation recommendations in relation to the percentage of JDSF acres.

The LC's proposed designation changes cover approximately 9.7% (4719 acres) of JDSF, including a significant component of non-timber or limited timber in expanding the Pine/Cypress/Pygmy Reserve. However, acreages and percentages are not cumulative with those in the 2008 Management Plan because much of the area the LC is proposing as Late Seral Development was re-designated from Old Forest Structure in the Management Plan.

***In a region that has lost nearly 99%% of its old growth redwood forest***, it is appropriate to consider whether the Landscape Committee's recommendations are of a meaningful scale or whether they are insufficient. The LC is aware of this potential criticism. We have attempted to address it by recommending relatively conservative selection silviculture in the matrix lands of the forest when no research is proposed. We have also recommended retaining trees across the landscape to develop old forest characteristics. The Landscape Committee believes that these measures in combination will result in JDSF fulfilling its responsibility to make a meaningful contribution to regional old forest recovery while meeting other Management Plan goals.

**Analysis of Key Landscape Committee Proposals**

**A. Jackson Demonstration State Forest Statistics** (per 2008 Management Plan)

***Total acreage***, mostly redwood/Douglas fir forest: ***48,652 acres:***
***Reserved Old Growth Groves: 459 acres***, less than 1 % of the forest
***Late Seral Development Areas: 2762 acres***, ~5.7%
***Older Forest Structure Zone: 6803 acres***, ~14%

**B. Landscape Committee Proposal Additions ***

New Late Seral Development: 1233 ac, less than 2.5%
New Old Forest Structure Development: 1138 ac, ~2%
New Reserve: 1453 ac (includes 998 ac Pine/Cypress area), ~3%

**C. Landscape Committee Proposals With Additions noted below**

Volcano Late Seral Development: ~280 acres, ~0.6%
Camp 3 THP Out-area LSD: ~125 acres, less than 0.3%
Volcano OFSD: ~150 acres, ~0.03%
New Indian Springs Fire Reserve: ~300 acres, ~0.6%

**D. Most Inclusive Landscape Committee Proposals (includes B and C) #**

***Total New Late Seral Development: 1638 ac***, 3.4%
***Total New Old Forest Structure Development: 1288 ac***, 2.7%
***Total New Reserve: 1753 ac,*** 3.6%

**E. Total Landscape Committee and Management Plan (A + D)**

**TOTAL Reserved Old Growth Groves: 459 acres**, <1%
***TOTAL Late Seral Development: 4400 acres,*** 9%
***TOTAL Old Forest Structure Development: 7830 acres***, 16%**
***TOTAL Other Reserve: 1753 acres***, 3.6%
***TOTAL ALL LS, OFS, OG Reserve, Other Reserve = 14,442 acres,*** 30%

* Does not include Volcano LSD or OFSD, Camp 3 THP Out-area, nor Indian Springs Fire Reserve

# Acreages and percentages not cumulative with those in Section A because much LSD was re-designated from OFSZ. Proposed designation changes total 9.7% of JDSF.

** 6803 + 1288 – 261 = 7830 ac (261 ac is OFS to LS)

**DOCUMENT 2-E**

To: JAG
From: Kathy Bailey on behalf of the Landscape Committee
Re: **Recommend designating Camp 3 THP out area as Late Seral Development**
Date: July 20, 2010

At the Landscape Committee's May 20, 2010 meeting, it was called to our attention that we had inadvertently left out including in our Late Seral Development recommendation a small parcel of land adjacent to the Camp 3 THP that had been drawn out of the THP area. After reviewing the maps and considering possible alternatives to designating this area for Late Seral Development, we determined that this area would best contribute to the Management Plan Goal #2 of Restoration by being designated the same way all the adjacent land was designated, ie for Late Seral Development.

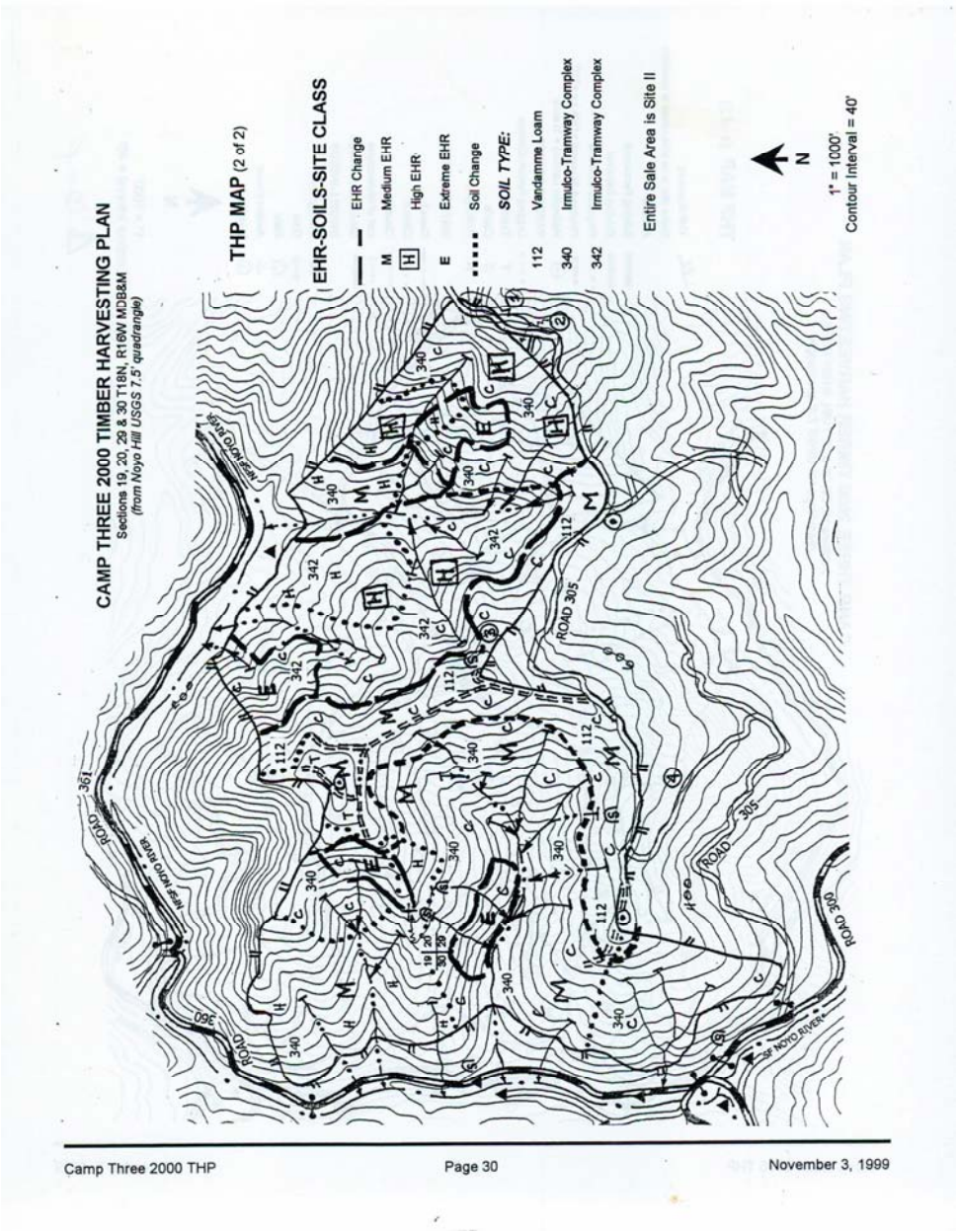
A review of the Camp Three 2000 THP maps, which I had in my files, shows that the parcel is unlikely to exceed approximately 140 acres. The THP itself (1-99-484) is 366 acres. It is shown in its entirety in relation to the THP area on the THP Map, Page 30. On the north, it abuts Road 360, Road 361, and the NFSF Noyo River; similarly on the east and west. On the north it adjoins the THP.

The "Geology and Geomorphic Features Map on Page 31 shows the segment of the out-area that is adjacent to the THP. The map key shows that the out-area is classified both Inner Gorge and Slopes >70%. Given that this area drops to both the river and the roads, RPF Fay Yee is likely to have drawn this area out of the THP to avoid conflicts with road useage in this high recreation use area.

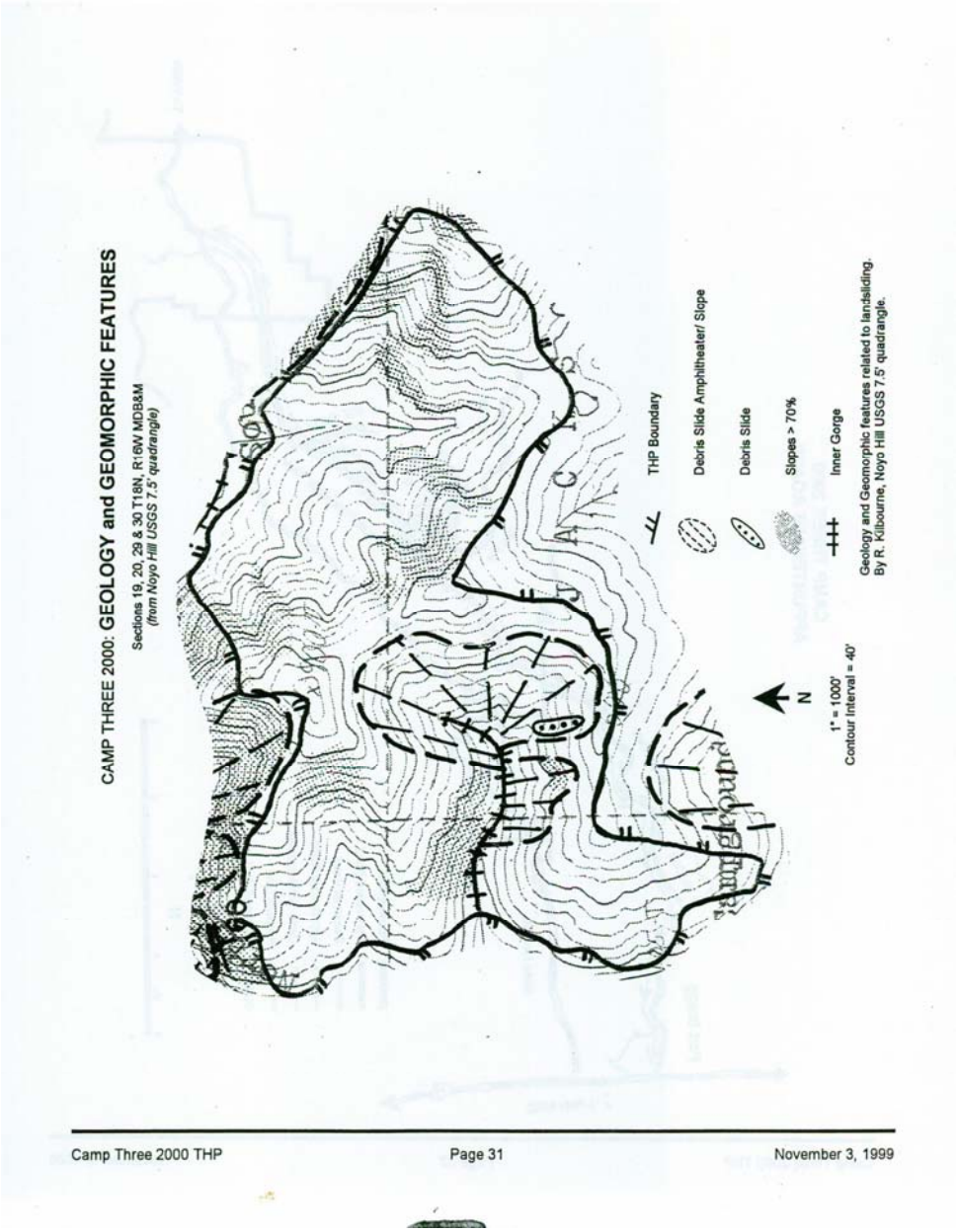
The Landscape Committee recommends designating this THP out-area as Late Seral Development.

[THP maps attached.]

**DOCUMENT 2-E**


CAMP THREE 2000 TIMBER HARVESTING PLAN
Sections 19, 20, 29 & 30 T18N, R16W MDB&M
(from Noyo Hill USGS 7.5' quadrangle)
THP MAP (2 of 2)
EHR-SOILS-SITE CLASS
EHR Change
Medium EHR
High EHR
Extreme EHR
Soil Change
SOIL TYPE:
112 Vandamme Loam
340 Irmulco-Tramway Complex
342 Irmulco-Tramway Complex
Entire Sale Area is Site II
N
1" = 1000'
Contour Interval = 40'
ROAD 361
ROAD 360
ROAD 305
ROAD 300
NFK NOYO RIVER
SF NOYO RIVER
Camp Three 2000 THP
Page 30
November 3, 1999

**DOCUMENT 2-E**


CAMP THREE 2000: GEOLOGY and GEOMORPHIC FEATURES
Sections 19, 20, 29 & 30 T18N, R16W MDB&M
(from Noyo Hill USGS 7.5' quadrangle)
THP Boundary
Debris Slide Amphitheater/ Slope
Debris Slide
Slopes > 70%
Inner Gorge
N
1" = 1000'
Contour Interval = 40'
Geology and Geomorphic features related to landsliding.
By R. Kilbourne, Noyo Hill USGS 7.5' quadrangle.

# Old Growth Development in Matrix Acres

Because of a divergence of views within JAG over designating some trees to grow to old growth status, the JAG chose to restrict its management recommendations for Matrix acres to a 40-year horizon.

The 40-year time horizon, in effect, defers the decision on old-growth development to a later generation. The Matrix Silviculture recommendations of this JAG ensure that an ample number of larger trees will be available 40 years hence to designate for old growth development if desired.

Although not relevant to JAG recommendations for management in the 40-year planning horizon, members of the JAG wish to express their position on the following:

> **A long-term goal for Jackson Forest should be, consistent with maintaining or increasing harvest levels and accommodating research projects, to manage for the development of limited old-growth components[1] within all areas of the forest being managed for timber production**.

X members support this goal; Y members do not support it.[2]

[1] Single or small groups of old growth trees
[2] See Table Z, Appendix _ for votes of individual members.

# Silviculture in Late Seral Management Areas

The silviculture recommendations developed by and approved by the JAG for Brandon Gulch[3] will be used in areas designated for Late Seral Management, except for approved research projects.[4] These recommendations include applying the principles of adaptive management over time.

Research within Late Seral Management Areas will be consistent with late seral development.

## Excerpt from *Recommended Late Seral Forest Development Prescription for Brandon Gulch*[5]

**Prescription Emphasis**

The JAG-recommended prescription differs from standard prescriptions for timber production. It emphasizes:

1. developing complex, multi-layered forest structure
2. minimizing regeneration so that it is similar to natural levels in late-seral stands
3. diverse horizontal stand variability
4. provisions for enhancing ecological diversity
5. increasing the proportion of larger diameter trees
6. increasing stand and crown complexity
7. retaining trees of various vigor conditions to maintain an on-going process of dead-wood elements recruitment.

### *Recommended Entries*

A prescription of two entries approximately 20 years apart is proposed. Specifics of the second entry would be outlined following an evaluation of the first entry and subsequent 20-years growth (adaptive management). Selecting only one entry would involve a heavier cut and entail the risk of stand-level blowdown or a higher than desired amount of regeneration. Selecting more than two entries, although permitting adjusting stand density in smaller increments, would entail more harvesting operations and greater potential for accumulated disruption to ecological development.

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[3] *Recommended Late Seral Forest Development Prescription for Brandon Gulch*, Report of the Jackson Demonstration State Forest Advisory Group to Director, California Department of Forestry and Fire Protection, August 8, 2008.

[4] Silviculture prescription recommendations from the Brandon Gulch report are attached here as Appendix 1.

[5] *Recommended Late Seral Forest Development Prescription for Brandon Gulch*, Report of the Jackson Demonstration State Forest Advisory Group to Director, California Department of Forestry and Fire Protection, August 8, 2008.

### *Thinning Prescription*

**Prescription Emphasis** A primary intent of the prescription is to provide selected large trees with increased growing space, yielding accelerated growth. Prescription emphasis will focus on: 1) accelerating the growth of dominant and co-dominant trees into larger size classes, and 2) retaining and developing other basic elements of late-seral conditions such as deformity, decadence, and abundant dead wood.

Existing groupings or clumps of redwood will be the source of most harvested trees and most will be thinned to variable levels to promote random stem distribution and variable growth responses. Entire clumps should not be removed to minimize establishment of a new cohort of regeneration. About 10 percent of the clumps should remain unthinned to promote slow tree growth, fine tree rings, and enhance heterogeneity in stand structure. About 10 percent of the clumps should be heavily thinned to create patchy diversity.
Prescribing desired harvest goals in terms of stand basal area provides an overall guide to accelerating development of late-seral conditions. This does not, however, recognize existing variability in stand density and diversity or how to apply the prescription to maintain or enhance irregular, old forest structure. The task of professional staff will be to determine an effective and practical thinning approach, possibly with input from JAG in the initial phase of field implementation. One approach that could be considered is to develop rules using a list of thinning options together with a random number generator (designed to remove a stand average of 30 percent of basal area) to select the specific proportion of trees to be removed from a particular redwood clump. A similar approach could be developed to establish thinning guides for individual Douglas-fir trees and individual redwood trees between clumps. The rules would be constrained to leaving larger diameter trees, Douglas-fir retained for diversity and future snag production, and other desired ecological and diversity outcomes described below.

**Stand Structure** Old forests are characteristically very diverse and have heterogeneous structure both vertically through various canopy layers and horizontally across the landscape.

a) Vertical Structure and Canopy Diversity
Vertical structure can be promoted by developing multiple tree layers. These provide varied light and microclimates favorable to diverse populations of understory plants, animals, fungi, and lichens characteristic of late-seral redwood forests. Based on professional judgment and data available from other areas, species composition within a mature redwood forest at JDSF would probably range from 65-90 percent redwood, 5-20 percent other conifers, and 0-15 percent hardwoods, depending on site quality. These proportions should be used to guide treatments that affect overall vertical structure and canopy diversity.

b) Horizontal structure and spatial distribution
Encourage variable density and species composition across the landscape.

**Old Growth** The existing JDSF old-growth retention policy will be implemented (Page 104 JDSF Management Plan). This specifies retention of (i) large old-growth trees and (ii) old growth trees of any size that exhibit unique structural characteristics as described in the policy.

**Tree Retention** In general, all dominant trees will be retained except where their removal will enhance desired stand structure. Emphasis should be placed on developing stand variability, minimizing impacts on ecosystem components and functioning, and sensitivity to aesthetics.

**Suppressed and Small Low-Canopy Trees** These trees will mostly be left unthinned to provide shade and site occupancy and to repress new regeneration. Their numbers, however, will be reduced through light harvest and related logging activity.

**Regeneration** No targets should be made to manage regeneration and its occurrence will be incidental to stand treatments. The moderate thinning prescribed should limit light levels sufficiently to reduce the development and competitiveness of regeneration and redwood sprouts, which is needed to promote the development of late-seral conditions in this stand.

**Tanoak and Other Hardwoods** Hardwoods will generally be retained for wildlife and other values. This may depart from the JDSF Management Plan guideline (page 107) of retaining hardwood tree composition at approximately 10 percent (West end of Forest) to 15 percent (East end of Forest) of stand basal area. Hardwood composition and quality should be evaluated prior to the second entry and treatments considered to balance or enhance their role in the late-seral forest.

**Sanitation/Salvage Cutting** Limited cutting to salvage mortality or to mitigate the effects of insect or disease infestation or wildfire could be undertaken if these natural disturbances are so extensive as to detract from the goal of achieving late-seral conditions. Care should be taken, however, not to diminish meeting wildlife habitat and ecological goals.