

THE CONSERVATION FUND

America's Partner in Conservation

North Coast Forest Conservation Program Policy Digest August 2010; updated September 2011

TABLE OF CONTENTS

North Coast Forest Conservation Program Policy Digest Overview.....	1
TCF Forest Management Policies September 2011.....	5
Road Management Policies (5/24/07).....	23
Commitment to Safety and Health (12/20/07).....	27
HCVF RSA Program Memo September 2011.....	35
Social benefit/impact assessment (8/25/08 – revision in progress).....	44
Certified Product Chain-of-Custody Program (operational policy, 9/17/07).....	45
Herbicide Policy, Big River/Salmon Creek (8/14/09)	50

North Coast Forest Conservation Program Policy Digest, August 2010
The Conservation Fund's North Coast Forest Conservation Program
Distribution: Auditors, field staff, interested public
Primary authors: Jenny Griffin, Evan Smith

Introduction

The following summary of The Conservation Fund's North Coast California forest management policies was prepared to facilitate review and provide links for more information in a single source document.

Program Background

The Conservation Fund's Mendocino County forest properties were acquired as part of the Fund's North Coast Forest Conservation Initiative, which is dedicated to the permanent protection and restoration of coastal forests in the Redwood Region of northern California. The strategic foundation for the Initiative is described in "Conservation Prospects for the North Coast"¹ prepared in 2005 by The Conservation Fund for the California Coastal Conservancy. This study noted the extraordinary biological diversity and economic productivity of the coastal forests of the Redwood Region and recommended that conservationists "move quickly to establish 'working landscape' conservation management on large, strategically located forest properties in Humboldt, Mendocino and Del Norte counties."

The Conservation Fund acquired the 24,000-acre Garcia River Forest in February, 2004. In October 2006, The Conservation Fund acquired an additional 16,100 acres in two tracts – the 11,700-acre Big River Forest and the 4,400-acre Salmon Creek Forest. The Conservation Fund and its partners developed an Integrated Resource Management Plan (IRMP) for each acquisition² to guide the management and restoration plan for these new properties. Partners include the State Coastal Conservancy, Wildlife Conservation Board, State Water Board, North Coast Regional Water Quality Control Board, David and Lucile Packard Foundation, Nature Conservancy, and National Fish and Wildlife Foundation. These properties represent a collective capital investment of almost \$67 million.

By acquiring these properties, the Fund and its partners hope to demonstrate that these large tracts of intensively managed coastal forest can gradually be returned to sustainable timber production and ecological vitality through the use of innovative financing and patient management by a nonprofit organization in partnership with private and public agencies and community stakeholders.

Property-specific Background

The Conservation Fund owns three forests in Mendocino County as part of its North Coast Forest Conservation Program: Salmon Creek, Big River, and Garcia River. While there is one overall program, the Big River and Salmon Creek properties were acquired at the same time and have the same management treatment, but the Garcia River Forest was acquired earlier and with different partners so it has some unique management requirements. Management of the Garcia River Forest is governed by the Garcia River Forest Integrated Resource Management Plan (GRF IRMP) published in August 2006. Management of the Big River and Salmon Creek Forests is governed by the Big River and Salmon Creek Integrated Resource Management Plan (BR/SC IRMP) completed in August 2009. All reference documents are available at

¹ Available at: http://www.conservationfund.org/north_coast_forests

² *ibid*

http://www.conservationfund.org/north_coast_forests/documents and at the Fund's North Coast Office.

There are a number of planning differences between Garcia River and Big River/Salmon Creek (these are described in more detail in the Forest Management Policies):

1. Because of the different funding sources and loan agreements, each program has its own accounting records and revenue-sharing requirements. Many expenses are shared between the two accounts but are tracked and reported separately.
2. The Garcia River Watershed has an approved Total Maximum Daily Load (TMDL) Implementation Plan and TCF is required to have an ownership-wide program to meet the TMDL requirements through implementation of an approved Site-Specific Management Plan and Erosion Control Plan. Water quality protection is an objective across all of the properties, but because of the TMDL status, the reporting, monitoring and specific policies for the Garcia River Forest are slightly different.
3. While a key objective on all properties is to increase the volume and quality of the timber inventory, the Annual Allowable Cut levels are different between Garcia and BR/SC, primarily because of the different initial inventory conditions and partially because of the loan repayment obligations for BR/SC.
4. The Nature Conservancy holds a perpetual conservation easement on the Garcia River Forest. BR/SC also have permanent conservation restrictions, but in a slightly different form; in this case, use of the property is limited to conservation purposes (including forest management) and the State Coastal Conservancy and the Wildlife Conservation Board are responsible for ensuring the conservation objectives are met.
5. There is an established Ecological Reserve Network that comprises 35% of the Garcia River Forest where management is limited to techniques that advance the desired ecological goals, namely late-seral forest development and protection.

Program Goals

The North Coast Forest Conservation Program shall be guided by the following objectives:

- Acquire forestland with high conservation values that is under threat of loss or degradation because of human development and protect those properties for continued forest management and restoration.
- Manage the forests sustainably [and profitably], increasing the economic productivity and ecological health, while providing meaningful local employment and recreation opportunities.
- Respect the local community by operating honestly, transparently and efficiently; soliciting and responding to feedback; hiring local services and purchasing local goods; and holding ourselves to the highest standards for professional, safe and courteous conduct.
- Work collaboratively with local businesses, civic institutions, and other organizations and landowners to increase the understanding, appreciation, and value of the region's forest systems.

Unified Management

All properties that are acquired as part of the North Coast Forest Conservation Program (including Garcia River, Big River, Salmon Creek, and any new acquisitions) are to be managed consistent with the TCF Forest Management Policies, the property-specific management plan, and the North Coast Forest Conservation Program Goals. In addition, TCF is committed to the Principles and Criteria of the Forest Stewardship Council (FSC) and Sustainable Forestry Initiative (SFI) and to maintaining our annual independent certification under those systems. The

Management Policies and Program Goals and their implementation will be reviewed every year as part of the Annual Program Review and updated as necessary; the management plans will be reviewed and updated on a ten-year cycle. This document and all management plans and policies are intended to be publicly available.

Policies

Existing stand alone policy documents (attached):

TCF Forest Management Policies August 2010
Road Management Policies (5/24/07)
Commitment to Safety and Health (12/20/07)
HCVF RSA Program Memo September 2010
Social benefit/impact assessment (8/25/08 – revision in progress)
Certified Product Chain-of-Custody Program (operational policy, 9/17/07)
Herbicide Policy, Big River/Salmon Creek (8/14/09)

Policies on the following topics are detailed within the respective IRMPs:

Ecological Reserve Network (GRF IRMP, pgs. 41-50)
Aquatic habitat restoration (GRF IRMP pgs. 51-66; 259-274; BR/SC IRMP pgs. 63-64, 108-192)
Invasive species management (GRF IRMP pgs. 66-68; BR/SC IRMP pg. 67; see also July 15, 2010 Draft “Invasive Plant Management Plan for the Salmon Creek Forest”)
Water Quality (GRF IRMP pgs. 69-73; 110-117; 145-166; 254-257; 259-274; BR/SC IRMP pgs. 29-37; 58-64; 108-192)
Community Use and Involvement (GRF IRMP pgs. 105-108; BR/SC IRMP pgs. 80-84)
Monitoring (GRF IRMP pgs. 110-117; BR/SC IRMP pgs. 77-79; 258-265, 274)

FSC/SFI Standards:

In addition, FSC and SFI Standards are available at:

http://www.fscus.org/images/documents/2006_standards/pcwg_9.0_NTC.pdf and
<http://www.sfiprogram.org/files/pdf/sfi-standard-2005-2009-sept%2008%20update.pdf>

August 2010; expanded September 2011
FOREST MANAGEMENT POLICIES
For The Conservation Fund’s North Coast timberland—
Garcia River, Big River, and Salmon Creek, Mendocino County, CA
Principal authors: Evan Smith, Scott Kelly, Jenny Griffin

Contents

I. Program Overview	X. Retention Requirements
II. Policy Introduction	XI. Retention General Guidelines
III. Forest Management General Strategy	XII. Hardwoods
IV. Critical Landscape Features	XIII. Timber Marking Guidelines
V. Harvest Levels	XIV. WLPZ Protection Measures
VI. Silvicultural Objectives	XV. Harvesting Operations
VII. Silvicultural Decisions	XVI. Contractor Selection
VIII. THP Operational Realities	XVII. Forest Certification
IX. THP Development & Review Process	XVIII. Community Engagement

I. Program Overview

These forest management policies have been developed to guide management of The Conservation Fund’s Mendocino County forest properties. These properties were acquired as part of the Fund’s North Coast Forest Conservation Initiative, which is dedicated to the permanent protection and restoration of coastal forests in the Redwood Region.

The strategic foundation for the Initiative is described in “Conservation Prospects for the North Coast” prepared in 2005 by The Conservation Fund for the California Coastal Conservancy. This study noted the extraordinary biological diversity and economic productivity of the coastal forests of the Redwood Region and recommended that conservationists “move quickly to establish ‘working landscape’ conservation management on large, strategically located forest...properties in Humboldt, Mendocino and Del Norte counties.”¹

This recommendation is based on two key findings:

1. Population growth, increasing land values, depletion of timber inventories and global competition in the commodities markets are putting increasing pressure on traditional resource-based land uses, making land use conversion increasingly likely as landowners look for more profitable uses of their land.²
2. The traditional approach of public acquisition and preservation of forest and range lands is not sufficient to meet this challenge: there is not nearly enough public money to purchase or manage such large properties and local communities are concerned about the fiscal and economic impacts of taking working lands out of production.

In furtherance of this strategy, The Conservation Fund acquired the 24,000-acre Garcia River Forest in February, 2004, thereby establishing the first non-profit owned “working forest” in California. An

¹ The Conservation Fund, 2005, *Conservation Prospects for the North Coast, A Review and Analysis of Existing Conservation Plans, Land Use Trends and Strategies for Conservation on the North Coast of California* at page 134.

² Id. at page 131.

Integrated Resource Management Plan (IRMP) for the property was collaboratively developed over a two-year planning period to meet the following general objectives:

- Restore and protect a productive and relatively natural coastal California forest ecosystem.
- Protect fish and wildlife habitat associated with this ecosystem, in particular the oak woodlands, serpentine grasslands, redwood/-Douglas-fir forests, and spawning habitat for coho salmon and steelhead trout.
- Protect significant water resources, springs and the water quality thereof.
- Maintain the capacity of the Property for productive forest management, including the long-term sustainable harvest of high quality forest products, contributing to the economic vitality of the state and region.
- Provide outdoor recreational opportunities, as appropriate.

In October 2006, The Conservation Fund acquired an additional 16,100 acres in two tracts – the 11,700-acre Big River Forest and the 4,400-acre Salmon Creek Forest. A similar management and restoration plan for these new properties was completed in August 2009 (Big River and Salmon Creek Integrated Resource Management Plan). This plan identifies and describes in detail the following specific management goals:

- Improve ecological conditions by protecting and enhancing water quality.
- Improve ecological conditions by protecting and enhancing terrestrial and aquatic habitat on the Forests.
- Generate sufficient revenue to cover SRF loan and the Packard loan payments (the latter from non-timber revenue, such as the sale of carbon offsets, and only after the accrued SRF obligations are fulfilled), property taxes, on-site maintenance, management, and restoration projects.
- Develop and implement conservation-based forest management greenhouse gas reduction projects under the California Climate Action Registry's Forest Project Protocol version 2.1.
- Practice continual improvement through adaptive management based on monitoring of water quality and forest health against specific objectives described in the Plan.
- Support the local business community by utilizing local contractors and suppliers.
- Involve the local community by seeking input on management of the Forests, including review of this Plan and timber harvest plans implemented under the Plan, and providing compatible public access, educational, and recreational opportunities.

These three properties combined (40,000 acres) represent a collective capital investment of almost \$67 million. By acquiring them, the Fund and its partners hope to demonstrate that these large tracts of intensively managed coastal forest can gradually be returned to sustainable timber production and ecological vitality through the use of innovative financing and patient management by a nonprofit organization in partnership with private and public agencies and community stakeholders.

Guiding these properties from their current forest conditions (which reflect a legacy of clear cutting or excessive harvesting resulting in young and in some cases understocked timber stands) to the desired future condition of economic stability and ecological integrity will take decades. Along the way we will need to overcome many challenges, including relatively low current timber volumes, the unnatural predominance of hardwoods in places, the burden of maintaining and improving extensive road systems, and the uncertain economic, regulatory and political environment affecting the timber economy as a whole.

At the same time, there is broad awareness that North Coast forests are at an historic crossroad, with one road leading to fragmentation and loss of forest productivity and ecological integrity, the other leading to intact watersheds, recovering fish and wildlife, and a sustainable timber economy for the region. With the cooperation and goodwill of the community and public and private stakeholders, we are optimistic that we are setting off down the latter, more hopeful road.

II. Policy Introduction

These guidelines and policies apply to management and operations on the Garcia River, Big River, and Salmon Creek properties. This document is a “work-in-progress” and will be revised and refined based on the experience and perspective of our project foresters, program partners, and agency staff as we all develop increasing familiarity with the properties and the forests’ response to the silvicultural and other management measures described here, in the Garcia IRMP (2006), and in the management plan for Big River and Salmon Creek (2009) (both plans are available at http://www.conservationfund.org/north_coast_forests/documents).

III. Forest Management General Strategy

[Taken, without editing, from the Garcia River Forest IRMP and also detailed in the Big River and Salmon Creek IRMP]

- Our silviculture will be primarily uneven-aged, to develop and maintain a range of tree sizes and ages within a stand, with the goal of producing valuable sawtimber and utilizing natural regeneration.
- We have a responsibility to manage the properties to generate reasonable revenue for loan payments, re-investment in the property (e.g. restoration projects, road upgrades) and, potentially, for conservation projects elsewhere in the region.
- Our harvest levels will be significantly less than growth rates over the next few decades so as to increase the timber inventory.
- We are providing for increased riparian buffers on our Class I streams so as to improve riparian habitat conditions and provide late-seral connectivity across the landscape.
- Special attention will be given to critical wildlife habitat features, such as snags, down wood, and trees of significant size.
- We recognize that because of past practices the forest contains smaller trees and more hardwoods than would have occurred naturally and we will work to more closely approximate natural conditions.
- There are no old growth stands on the properties; there are individual trees that may be residual old growth—these and other very large trees and true oaks will be maintained.
- We anticipate no need to clearcut; we may use even-aged variable retention harvests (that retain large trees and habitat features) to rehabilitate conifer sites now dominated by hardwood or in future salvage situations; group selection will likely be used on Douglas-fir sites; and all regeneration harvests will encourage natural regeneration.
- We have committed to certification of our forest management under the Forest Stewardship Council and Sustainable Forestry Initiative standards and to reporting our carbon sequestration through the California Climate Action Registry.

IV. Critical Landscape Features

Most of these policies are intended to guide the management of those areas of the property which will support commercial timber harvesting operations. However, one of the most important steps in determining how to manage a forest is recognizing which areas have unique ecological values that outweigh their potential contribution from a commercial harvest perspective. For example, oak woodlands are fairly geographically limited and support a very different set of birds and small mammals than dense coniferous forest. Likewise, springs, seeps, and small wetlands occupy only a

very small portion of the property but probably support more amphibians than the rest of the forest. The protection of these features is critical to achieving the program objectives of restoring habitat for species of concern and increasing the ecological health of these forests. Specific policies to address these areas include the following:

- All pygmy forest and true oak (*Quercus* spp.) woodlands and native grasslands are to be preserved.
- Springs, seeps, and small wetlands shall receive protection measures at least equivalent to Class 3 WLPZ. [There are no large wetlands on the properties.]
- Riparian forests, particularly along Class 1 streams, will be managed to provide for closed canopy mature forest with a high component of down logs and other late-seral features. [Some removal of timber can be consistent with this objective - see WLPZ Protection Measures for more detail in Section XIV, below.]
- Other features that are fairly rare on the landscape and may have unique habitat value include cliff faces, alder thickets, and recently-burned areas. These will be mapped and receive site-specific protection measures when they are within or adjoining a potential timber harvest area.

V. Harvest Levels

Careful determination of appropriate harvest levels is critical to ensuring sustainability and achieving the conservation and economic objectives for the properties we manage. As described below, each project has slightly different harvest levels because of the differing starting inventories and financial responsibilities.

In the **GRF** IRMP, we committed to harvesting not more than 35% of growth on the working forest (non-reserve) portion of the Garcia River Forest (GRF) for each of the first two decades (measured on a rolling ten-year basis). The net harvest level calculations are based on conservative growth assumptions and result in an annual allowable harvest of 1.5 mmbf (million board feet) for the first decade (2006-2015). [To compensate for no harvest in 2006, the harvest levels will likely average slightly over 1.5 mmbf for the following nine years.] Over the next two decades this should result in an increase in standing timber volume on the non-reserve portion of the property from 5.6 mbf (thousand board feet) per acre to 10.41 mbf per acre (reaching 20 mbf per acre around 2065). Actual harvest volumes in 2007 were 1.4 mmbf; 0 in 2008 and 2009.

[Notes on GRF modeling: As described in the GRF IRMP allowable harvest was calculated as a percent of anticipated growth. We chose to use percent of anticipated growth because it served as an easily communicable approach while also being readily scalable as forest conditions change in the coming decade. We started with 35% limit because it seemed to offer an appropriate balance between covering property expenses and allowing recovery of the forest. Anticipated growth was determined by an knowledgeable local forester with experience managing uneven-aged redwood forests as they rebuild inventory. A simple growth percentage was applied by decade to determine future inventory increases. Subsequent modeling and re-inventory indicates the growth predictions were conservative. A future revision of the IRMP will update the modeling and inventory projections (while maintaining the 35% restriction). Until then, harvest is limited to an average of 1.5 mmbf for 2006-2015.]

In the **BR/SC** IRMP we committed to an annual net harvest level for each of the first two decades of 4.65 million board feet (the MOU restriction is for not greater than 5.1 million board feet and the appraisal estimated that the FPR would allow harvest of 8.5 million board feet). Actual harvest volumes in 2007 were 3.3 mmbf; in 2008 3.5 mmbf; and in 2009 1.48 mmbf. An average annual harvest level of 4.65 million board feet on the Forests is projected to result in

overall inventory increases of 34 percent over the next two decades, consistent with the objective of increasing the average size and overall stocking of the forest. More recent modeling done for the purposes of carbon sequestration projections indicates that an annual allowable cut of 4.65 million board feet (net) represents about 1.3 percent of the inventory, or 23 percent of the annual growth, which should allow for a significant increase in the size and stocking of the forest in the next two decades. Ultimately, however, the goal is not to achieve a specific number (forest inventory is an inexact science) but to achieve a more natural species balance (i.e., less tanoak), with greater stocking and greater average tree size.

[Notes on BR/SC modeling: As described in the BRSC IRMP allowable harvest was determined as a function of a growth & yield study conducted by Forest Systems prior to acquisition. We asked them to determine if we could meet certain revenue objectives (to payback loans) while continuing to meet specific forestry expectations (selection forestry, entries no more frequent than every 10 years, harvest of not more than 35% of basal area, expanded protection of streams and NSO activity centers, and increase property-wide stocking). The harvest schedule prepared did not seek to maximize revenue or optimize the variables, merely to confirm that the objectives could be met. The modeling was based on inventory information provided by the Campbell Timberland and was modeled in CRYPTOS, a forest projection software program designed for the redwood region. The Fund has not closely followed the harvest schedules, because they were not spatially-optimized and field conditions often necessitate site-specific prescription. However the scale and type of harvest we have conducted is entirely consistent with the growth and yield study assumptions. A future revision of the IRMP will re-visit the projected growth and harvest levels, taking advantage of improved forest inventory information and more experience with our applied silviculture; the long-term objectives, such as to increase stocking and forest structure, will not be changed.]

[Notes on species composition of allowable harvest volumes: The IRMPs for both properties have annual allowable cuts established without limitation on the species composition. The goal on all properties is to increase conifer dominance while at least maintaining the redwood percentage, so as to respond to historical management practices that shifted species composition. Because of the differential value of species and the dynamic marketplace, not to mention the sometimes irregular nature of stand composition and structure, it is important to retain flexibility in harvest by species. Nevertheless we do not want to create the perception that the forests are being high-graded. Flexible limits on harvest by species shall be based on the existing forest composition (percent conifer volume), with no more than 25% variance. Maximum average annual allowable cut calculations are:

Garcia: Redwood (40%) 750 mbf/yr, Douglas fir (45%) 844 mbf/yr, pine/fir (15%) 281 mbf/yr.

BR/SC: Redwood (71%) 4119 mbf/yr, Douglas fir (25%) 1439 mbf/yr, pine/fir (4%) 254 mbf/yr

These are to be averaged on a decadal basis, and the overall harvest volume limits still apply.]

VI. Silvicultural Objectives

Our goal is to grow large high-quality trees and be able to perpetuate that through selective harvests. We want to maximize value growth and develop and maintain important late-seral habitat characteristics for wildlife and non-timber forest vegetation. Our “crop tree” target diameters are 30-36” for redwood and 26-28” for Douglas-fir (most high-quality trees below this diameter range will be retained while most non-wildlife trees above this diameter range will be removed). Generally, we are not trying to mimic old-growth or late-seral stand conditions, we are trying to ensure that late-

seral ecological functions and processes are present within a managed forest. For example we will be seeking to develop stands that have high canopy closure, some large mature trees, and a high degree of structural diversity. In time we may elect to allow certain stands to return to old growth, once they are on an appropriate trajectory.

The success of our initiative and these acquisitions depends on our ability to generate revenue to support ongoing management and restoration projects and repay loans for the acquisition of the properties in a manner that over time achieves our stated silvicultural and ecological objectives. In consultation with project foresters and biologists, we will continually strive to balance our harvest levels and methods to carefully meet our financial and management obligations while improving ecological health and vitality. We will not fixate on the silvicultural semantics of “uneven-aged,” “all-aged” or “multi-aged” or the coefficient of the “reverse J-shaped curve,” but on the question of whether we are growing high-quality trees and maintaining desired habitat conditions. More detailed performance monitoring metrics are available in the BR/SC IRMP (Section 4.4.9.2, Long-term Forest Monitoring) and in the GRF IRMP (Section IV, Adaptive Management and Information Systems). In addition we have the broader objectives of engaging the local community and businesses in what we do, which relates back to how we conduct harvesting operations.

VII. Silvicultural Decisions

To the extent that it is possible to generalize types of stands and approaches, we have attempted to describe likely decision pathways below. Forests are highly variable so it is impossible and unwise to prescribe “one-size fits all.” Further, each of the forests reflects a management legacy that limits our silvicultural options. For example, prior management of the Garcia River Forest has left very young stands with limited commercial volumes. For the most part, these stands are growing well—they just have limited silvicultural options in the short-term. On Big River and Salmon Creek, a history of clear-cuts forces difficult choices between the remaining well-stocked stands and stand classes that are several years away from supporting our preferred silvicultural methods. Additionally many of the partial harvests of the past did not always leave the high-quality trees we desire. Finally, we are learning more every day about how to manage forests for both economic and environmental objectives and our approaches will change with future scientific research and operational realizations.

Our preferred silviculture is high retention (150 sf/acre basal area) single tree selection with re-entries every 10-20 years to remove most trees that exceed the target crop-tree size and thin the smaller size classes. Stands that have reached this condition (referred to as stand condition A) will be maintained indefinitely through thinning, individual tree selection, and small group selection harvests. Most stands are not anywhere near the desired stand condition A. Some stands may consist of smaller diameter classes or be less dense but generally have good form and growth (referred to as stand condition B). These stands might be dense even-aged stands of 40-60 years or they may be more open stands of indeterminate age that have had past selection harvests; regardless, the key silvicultural criteria is that they have good material to work with. (The Garcia LNF THP, the BR Riverbends THP, and the selection units of LSC THP are good examples of B conditions.) B stands are in an excellent position because they can support commercially-viable selection harvests and with a few decades of growth and just one or two intermediate harvests that maintain high-quality trees and increasing stocking, they will reach A condition. The silviculture to go from B to A is similar to the selection silviculture to maintain A (although in B we are not particularly concerned with creating a new age class). These are “easy” decisions, because the stands have good stocking and growth and the pathway to the desired conditions is evident and readily achievable.

However because of past harvesting practices, very few stands are currently in A or B condition (because of lower stocking, smaller diameters and/or poorer-quality trees). Most stands will take

several decades to reach this steady-state condition with multiple intermediate harvest entries to guide this development. Until we reach the ideal steady-state condition, the silviculture focus will be on creating and/or building stands of higher quality and better growth potential. Many stands (especially on Big River) are young and even-aged, from clearcuts or aggressive selection harvests in the last thirty years (referred to as stand condition C). C stands are, for the most part, growing quickly and with good-quality stems—but they are small in diameter (average 12” or less) and lack structure from a habitat perspective. C stands will receive thinnings to accelerate stand development and concentrate growth on high-quality stems. These selective harvests will occur every 10-20 years with the long-term objective of moving the C stands into B and then A condition. These thinnings will yield low harvest volumes and small average piece sizes so they will need to be carefully-designed to be economically-viable. These low-value harvests will be a good source of employment in the local community and will also allow us to shape the stand at an early age to better achieve our long-term growth and habitat objectives. (The better-stocked parts of the Jack’s Opening THP fit this generalization.) In some cases pre-commercial thinning will be considered.

A different category of stands (condition D) has resulted from the merchantable trees having been excessively “picked over;” most of the dominant trees were removed leaving uneven regeneration, a low-quality overstory and often a high degree of tanoak competition. The overstory may be of average to large diameter but the entire stand is usually less than 100 square feet of basal area per acre and not comprised of the high-quality stems we desire (and therefore not growing in value). In most of these cases the younger “regeneration” age classes exhibit good growth, height, form and stocking. Harvests in D stands need to balance the removal of the poor-quality overstory (to accelerate the development of the higher-quality regeneration and pole-sized trees) with the need to maintain habitat structure and late-seral elements. (The “seed tree removal” units in the LSC THP and the variable retention units in the Jarvis Camp THP fall into this category.) This is not “easy” silviculture as it will feel like an aggressive harvest. The residual stand will be open-looking and often we will need to reduce hardwood competition and/or plant additional conifers. A good indication for this type of harvest is that given twenty years without harvest the stand would not be appreciably improved (hence the need for an intervention). In the short-term it is easy to think, “maybe it would be better to not harvest here,” but it should be obvious that in the long-term the stand and the program will benefit from this harvest. These D harvests result in a good-quality young stand that is growing well and has some late-seral elements. Given two to three decades to develop without commercial harvest they will become C and B stands.

Of course not all stands fit these generalizations. In some stands, especially on the east side of the Garcia, it is more appropriate to manage primarily for Douglas-fir than redwood and since Douglas-fir lacks redwood’s remarkable abilities to release and sprout, these will likely have long-term management through group selection, although the first couple of entries will look more like B thinnings. And some stands, again on the east side of Garcia, are completely dominated by tanoak. While it might be better ecologically and financially to be growing more conifers on these sites the short-term cost of such a rehabilitation will likely preclude much action.

VIII. THP Operational Realities

The complexity of forest regulations and the high cost of harvesting operations impose additional constraints on our operations, beyond simply what silviculture we want to apply. For example, almost all of our harvests are some type of thinning (a selective harvest not designed to introduce another age class) but under the Forest Practice Rules (FPR) they may need to be called Selection, Group Selection, Commercial Thinning, Transition, Variable Retention, Rehabilitation, or Alternative Prescription because of the differing requirements for initial and post-harvest stocking and tree diameter requirements defined in the FPR for each specific silvicultural treatment listed

above. And in the Timber Harvest Plan (THP) document we will commit to meeting only the FPR stocking requirements (rather than a voluntary higher standard) to avoid risk of violation in areas where initial stocking is low prior to harvest. Regardless of what the prescription is called, we will only implement the silviculture that enables us to meet our long-term project goals and follows the retention requirements and tree marking guidelines below.

Another operational reality relates to the distribution of THPs across the landscape. Our THPs will need to be fairly large (200-500 acres) and geographically-concentrated because of the high costs of THP development and maintenance. The goal is to increase operational efficiency by concentrating planning and road costs. We will try to treat all the eligible stands within a selected area (rather than cherry-picking across the property). Thus THPs will often include several types of FPR silviculture but almost all of them will meet stocking requirements immediately following the harvest. In the future we will not use amendments to increase THP area (unless there is a significant market or regulatory shift) but in 2007 as part of adapting the approved LSC THP to our preferred approach we used an amendment as an expedient means. Another important economic constraint is that currently we have limited ability to cable-thin young Douglas-fir stands because of high logging costs and low Douglas-fir prices.

IX. THP Development and Review Process

Our goal is to develop clear and consistent THPs that incorporate the concerns of the public and conservation partners before they are submitted to the state agencies. THPs are, by requirement, cumbersome documents and long-term legal obligations; we do not expect to revolutionize THP writing. We have adopted the following procedures for the development and review of THPs:

1. General harvest locations will be informed by harvest scheduling plans and reviewed by Scott Kelly (TCF's Senior Forester).
2. Field foresters will review past materials and field conditions, decide on likely unit layout, silvicultural prescriptions, access needs, road improvements, etc., and consult with project consultants and partners on habitat and restoration implications and opportunities.
3. Evan and Scott will field review harvest unit selections and general operation strategies.
4. Field foresters will coordinate necessary surveys and access (geologist, botanist, NSO).
5. Field foresters will begin unit layout and stand marking.
6. "Field Consultation"-- staff, contract foresters and advisors will discuss, in the field, the proposed operation.
7. Garcia only—notice to TNC will be provided and field review scheduled if desired.
8. Stakeholder tour. Tours will be offered just prior to CAL FIRE submittal (when all the potential THP issues are well-identified and resolved). Jenny Griffin, North Coast Program Manager, and/or Holly Newberger, Office Manager, will coordinate.
9. Field foresters will complete drafting of the THP.
10. THPs will be submitted to Scott for review.
11. Field foresters will prepare final version and submit to CAL FIRE, with copy for TCF office.

Field Consultations are a very important step in our review process because they leverages the combined experience of our foresters and biologists to ensure that only sound and well-planned THPs that reflect TCF goals and objectives go forward and because it offers an opportunity for everyone to learn from each other, thus helping our program grow efficiently.

X. Retention Requirements

[Quoted from the Big River and Salmon Creek IRMP - with edits italicized and in brackets - and equally applicable to GRF]

Within a harvest area, the Fund will permanently retain or recruit downed wood, snags, and trees with high wildlife value given their recognized ecological role and ability to enrich the surrounding stand. The following policies for downed wood, snags, and wildlife trees are meant to implement this strategy by providing clear rules and numerical targets for certain types of features. [The FPR do not categorically address general wildlife habitat retention trees (although there are some requirements for protection of active raptor nests), but additional guidance is available from DFG.] Retention trees will be painted (“W”) or tagged by the field foresters as they are marking the timber harvest to communicate the value of these features not just to the loggers but also the public and future foresters. Because a harvest can include over a thousand retention trees, they are not mapped or recorded unless they are suspected NSO nest trees. And while maintaining trees with high wildlife value is important, it is also critical to recognize the wildlife value of the surrounding stand and the conserved landscape, and not expect the harvest stand to mimic or contain all features which may be better represented in other areas of the property.

Downed Wood

Target: two pieces per acre (at least one conifer, 18 inch minimum diameter and ten feet minimum length).

Actions:

- Retain existing downed wood except in situations of recent windfall or fire outside of WLPZ. (In most stands this should be sufficient to meet the target.)
- Retain snags and mark trees for recruitment snags to eventually become downed wood.
- Redistribute cull logs from the landing (unless used for firewood or instream restoration).

Snags and Wildlife Trees

Target: four per acre on average across stand. [*While every effort shall be made by the Licensed Timber Operator (LTO) to retain all snags, it is understood that some snags may be cut for safety considerations by the LTO with the project foresters approval (e.g. snags near active landings which may fall into the landing if bumped by logging equipment or snags used to anchor yarder guy lines or tail holds).*]

Criteria for mandatory retention:

- Snags (all should be retained but only those greater than 18-inch DBH and 20 foot height shall count towards the retention targets);
- Conifers greater than 48-inch DBH;
- Old-growth trees (use MRC definition if in question – see Appendix K [*of Big River/Salmon Creek IRMP*]);
- Raptor nest trees (active or likely to be re-used);
- Any hardwood [*tanoak, true oak, madrone, chinquapin, and alder*] over 20 inches;
- Murrelet habitat trees (use MRC definition if in question – see Appendix K [*of Big River/Salmon Creek IRMP*]);
- Den trees (cavity greater than three inch diameter and greater than ten feet above ground);
- Trees with basal hollows or other significant features (cavities, acorn granaries, significant burn scars, significant or unusual lichen accumulation, signs of deformity, decadence, unusual bark patterns, or other unique structure or features).

Actions:

- Retain all mandatory [*retention*] trees and snags except where necessary to fall for operator safety, and protect with screen trees if appropriate.

- If below the target number, mark and retain additional recruitment trees. [*Additional wildlife trees will likely be marked in the future from the surrounding stand as it develops.*]
- [*At the discretion of the project forester live trees may be designated for girdling to accelerate snag recruitment within a THP area.*]

XI. Retention General Guidelines

- Marked wildlife trees...are not intended for future harvest and are allowed to grow beyond the crop tree target size.
- In the absence of mandatory retention trees, on average at least one conifer per acre should be retained from the largest ten percent of the diameter distribution of the stand.
- Marking of the wildlife trees (with paint or tags) is intended to communicate the recognition of the importance of that stem to future foresters, agency reviewers, and the public.
- For the next 20 years some preference for snag and downed log creation and wildlife tree recruitment will be given to cull trees and whitewoods (because of their low financial value) even though they may have a shorter lifespan.
- All retention is subject to operational considerations; the felling of any tree is permitted when necessary for operator safety, road right of way, or yarding corridors. Field foresters will attempt to avoid locating yarder corridors where they would conflict with mandatory retention wildlife trees.
- Targets shall be assessed across the entire harvest stand, not on an individual acre basis.
- Preference is for spatial grouping (clumps of downed wood, snags, and/or wildlife trees).
- The above criteria shall apply to selection harvests. When marking variable retention harvests extra screen trees may be appropriate.

All of the foregoing requirements and guidelines are subject to further review and amendment as the science and practice of forest management evolves and new research is developed and applied. Because of past practices, some portions of the Forests do not have sufficient wildlife features and the initial targets set forth above are intended to guide the long-term retention and recruitment of these features.

Two or three of anything per acre is an admittedly arbitrary number chosen to put our forestlands on the right trajectory for the development and maintenance of late-seral habitat characteristics within a managed forest; achieving some of these targets will likely take more than one entry. These distribution and size targets are not expected to be the ultimate value but merely what is appropriate to select and recruit in the next twenty years; the development of late-seral habitat elements is a long-term process and will be shaped over several harvest entries. In addition, it is unclear how the establishment of Sudden Oak Death (documented on GRF) will affect the Forests.

XII. Hardwoods

Hardwood species, including tanoak, true oaks, madrone, chinquapin, and alder, are an important ecological component of North Coast forests. Past management practices have resulted in an unnaturally high abundance of tanoak in many areas that historically were dominated by conifers. Mixed hardwoods account for 18 percent of the basal area on the Salmon Creek Forest, 23 percent on the Big River Forest, and 47 percent on the Garcia River Forest; in some stand

types in Salmon Creek and Big River it is as high as 46 percent, and on the Garcia up to 83 percent. For comparison, old growth conifer stands in the area often have ten percent or less of the basal area in hardwood species. On Salmon Creek and Big River, stands with greater than 25 percent of the basal area in hardwood species account for 23 percent of the forested acres. On the Garcia, stands with greater than 25 percent of the basal area in hardwood species account for 91 percent of the forested acres, and stand with greater than 50 percent of the basal area in hardwood species account for 45 percent of the forested acres.

In addition to the ecological imbalance, the high concentration of tanoak significantly reduces conifer growth and stocking and therefore the future financial value of the properties, since tanoaks have effectively no commercial value (it costs more to log and deliver than they are worth as firewood). The long-term goal is to maintain an appropriate level of tanoak and other hardwoods (probably around ten percent on average). It is important to not try to eliminate tanoak—merely to increase conifer site occupancy over time. To achieve these objectives, the following management measures will be implemented:

- All true oak (*Quercus* spp.) woodlands are to be preserved [*these occur on GRF but have not been identified on Big River or Salmon Creek*].
- All hardwood wildlife trees are to be retained (which includes all hardwoods 20 inches or greater), except where removal is required for safety concerns or necessary for yarding or road corridors.
- Where the post-harvest hardwood basal area would exceed 30 square feet of basal area per acre (averaged across the stand), tanoak shall be controlled through manual falling or girdling or herbicide treatment through direct basal injection (“hack-and-squirt”) or stump treatment to provide a post-harvest hardwood basal area of 15 to 30 square feet per acre. This may take more than one entry to achieve.
- Most tanoak reduction will be achieved within a selection or thinning harvest by selective falling (of tanoaks) to release existing conifers. While the tanoak stumps will likely resprout, the conifers should have established dominance and will eventually shade-out most of the sprouts. In this type of incremental treatment (selective falling), clumps of hardwoods and individual hardwoods which do not compete with desirable conifers will be left alone. [*This treatment occurred to varying degrees in almost all of THPs prepared to date, the best example of which might be the Jack’s Opening THP on GRF.*]
- There are many stands where selective tanoak felling would not be sufficient to meet the desired level of conifer site occupancy. In these situations, a more aggressive treatment will be utilized through an herbicide treatment that kills a majority of the tanoak to release either existing conifers or seedlings planted shortly before or after the tanoak treatment. Even within these prescriptions, smaller areas of intact hardwoods would be intentionally retained (for biodiversity reasons). Preference for hardwood retention will be given to large trees (greater than 20 inches), true oaks, chinquapins and madrones, and groups of hardwoods. Rehabilitation treatments (including the use of herbicides) are intended to be one-time interventions and should not need to be repeated because of the decreased openings and ground disturbance associated with subsequent harvests. [*An example of this treatment occurred within the Variable Retention units of the Jarvis Camp THP on Big River.*]

- The only herbicide to be used in tanoak control treatments currently is imazapyr (tradename Arsenal). Only licensed and insured contractors with a good track record for safety and compliance may apply herbicides. All herbicide application must be in conformance with label guidelines and applicable laws. Additional herbicides may be considered in the future as they are developed and tested and reviewed with respect to Forest Stewardship Council and Sustainable Forestry Initiative standards.
- Any planned use of herbicide will be clearly identified in the THP and THP summary.
- Reduction in the use of herbicides is an important objective; alternatives to herbicide treatment have been and will continue to be evaluated on a periodic basis. A comparison of herbicide treatment and logging of tanoaks for commercial firewood was evaluated as part of the Jarvis Camp THP. Monumented plots will allow for long-term evaluation of effectiveness but the initial impressions are that the logging method resulted in increased cost and site disturbance (exposed soil and damage to the residual stand). That said, a commercial market for tanoak would be pursued if it develops. Areas with well-established and good quality hardwoods will likely be managed for mature hardwoods instead of attempting to re-establish conifer.
- There will be no tanoak control with herbicides in WLPZs; manual falling or girdling of small tanoak may be used, but only as part of a riparian shade enhancement project (likely with conifer underplanting).
- Priority for rehabilitation treatments will be given to high site, tractor-operable ground, with existing desirable redwood growing stock. Herbicide treatments will be less than 100 acres annually (on a rolling average basis) on Big River. A similar threshold will be developed for Garcia following additional review.
- Tanoak control measures will be reviewed periodically and revised as appropriate based on knowledge and experience gained in the field over the next several years. Herbicides will likely also be used to control certain exotic invasive plants, primarily jubata grass and broom. No other uses of herbicides or pesticides are anticipated.

XIII. Timber Marking Guidelines

Timber marking (designating individual trees for harvest) is the art of shaping future forest stand conditions by extracting merchantable forest volume while protecting and enhancing wildlife habitat such that the end result is a well-stocked, rapidly-growing, and healthy forest with abundant and diverse wildlife habitat features. Approaches to timber marking vary by stand condition and silvicultural objective and it is difficult to identify a universal prescription.

Because of the thousands of individual judgment calls that are made while marking a stand, even individual foresters with the same objective would inevitably make slightly different decisions. The general goal of timber marking by the Fund is relatively simple: current (pre-harvest) conditions should be improved by the time of re-entry (typically ten to twenty years) while also increasing net growth. “Improved” is a subjective term but for our purposes it means increased values for conifer basal area, merchantable volume, snags and downed logs per acre. These are also some of the values that will be used to monitor forest trends across the properties.

Below is a summary of The Fund's timber marking criteria incorporating recommendations from two experienced local foresters (Jim Able and Craig Blencowe). These guidelines strive to capture some of the art of achieving the desired balance between habitat recruitment and retention while removing sufficient conifer volume to satisfy the economic needs of the project. Timber marking will be conducted with these criteria in mind. One of the purposes of the Field Consultations (both pre- and post- harvest) is for the forestry team to discuss the timber marking, particularly in riparian stands, understocked areas, and near NSO activity centers.

Timber marking criteria

Marking can vary according to two criteria: the type of stand and the management objectives. These two factors permit flexibility to the extent that the marking adheres to the overall management goal of maintaining a productive sustainable forest.

To this end, what we leave is more important than what we cut. Following a harvest, a stand should have a higher proportion of high-quality trees with well-developed crowns (high potential for increased growth). The key question we must answer before marking a tree is, "What is the potential for the tree to grow in the future?" Trees with little or no potential to grow (i.e. put on recoverable volume) should be removed [unless they are retained for wildlife trees]. The difficult questions arise when a tree's potential is not readily apparent (often in the case of co-dominants). For this reason, beginning timber markers (and even experienced ones) benefit from boring trees and comparing recent growth with crown size, color, and form.

There are factors other than maximum growth which determine which trees we mark. We place as much emphasis upon high quality and high future value as we do upon maximizing growth rate. For that reason, trade-offs exist and while our stands may be maximizing annual value growth, they may not necessarily be growing at the maximum rate.

In addition to the wildlife tree retention requirements, our "normal" marking scheme for selection harvests involves the following:

- Retained trees should be thrifty and of good quality (e.g. minimum 30% crown ratio). Leave best formed trees regardless of diameter and spacing.
- Focus on attaining "target sizes" of 30-36" in redwood and 26-28" in Douglas-fir. This means that you must be very cautious about marking in the 24-28" dbh classes (redwood) and the 22-24" dbh classes (fir), since these will be your "crop trees" at the next entry.
- Assume that 20% of the trees are doing 80% of the growing so it's not which trees to cut, it's which trees should be left to grow. Figure out which of the trees are in this 20% grower category, and leave them. (Percentages will vary from stand to stand.)
- Green culls, conk-infected fir, and large rough wolf trees are usually retained for wildlife.
- Trees that have reached 'crop tree' size should be harvested, along with other suppressed and intermediate trees to capture mortality and improve the growth of the residual stand. Perpetuate the development of a new age class or the growth of existing advance regeneration at each entry by introducing sunlight to the forest floor. Without the new age classes sustainable selection silviculture will not work!
- You can always opt to allow trees to grow larger than crop size; however, when leaving trees 40" dbh +, you must carefully weigh your decision. Are they to be a legacy tree? Remember trees greater than 48" are to be permanently retained and many large trees with large crowns

may reduce the growth of seedlings and future crop trees. Suggest no more than 4 large legacy trees per acre in addition to other trees retained for wildlife and snag recruitment.

- Removal of suppressed and intermediate trees with little or no growth potential. Severely suppressed trees (even redwood) do not release significantly (volume wise) or at least should not be counted on to add significant growth. Cutting suppressed trees does not generally benefit growth and timber recovery, but it will significantly increase logging costs. Cut a few with each entry.
- Removal of grand-fir overstory trees to specifically release viable redwood and Douglas-fir understory is appropriate. We will be managing for mixed-species stands but we do need to guard against encouraging grand-fir in the understory - it is shade tolerant and can dominate a redwood forest in the absence of periodic wildfires. Alternatively, grand-fir can be designated for girdling for accelerated snag recruitment (especially in poor market conditions). These treatments are designed to mimic the high natural mortality rate of grand-fir in an unmanaged forest.
- Removal of 25-35% of the stand volume with a re-entry of 10-15 years. In the field, this usually works out to marking perhaps 30-50% of the volume in a redwood clump, and leaving the well-formed trees growing in the open..
- In windy areas, we try to remove less volume and leave some kind of a wind buffer on the windward side of the stand (usually these trees are wind-beat anyway).
- Where only one large tree (e.g. 26" dbh+) occurs in a clump of smaller (12-14" trees), we mark it, especially if it is on the south side of the clump. Cutting one large high-quality tree is preferable to generating the same value by cutting three or four small high-quality trees.
- Spacing improvement becomes more important when we are returning for the 2nd or 3rd time to a stand because the trees are larger and the crowns need room to expand to maintain high growth rates.
- Do not "give up" WLPZ areas and mark them to the extent it is appropriate and consistent with WLPZ Measures in Section XIV, below.
- Mark hardwoods for removal where small redwood or Douglass- fir trees or a sprouting redwood stump will receive more light.
- It is sometimes necessary to have logistics trump silviculture (e.g. we may have to mark the tree that can be physically felled or yarded, even though it may not be the one we really want to cut). This is especially true in WLPZs
- Group selections work in places where there are few if any good trees to leave or where you need to cut volume across a low-to-medium volume stand. Better to lose the growth on 2.5 acres than to over cut 50 acres.
- Likewise, aesthetics may also trump silviculture in given locations (e.g. along county roads).
- Do not become "hung up" on whether you are doing "all age" or "even age" management. If you are truly selecting the best trees to retain for the future and perpetuating the development of the next age class you are probably doing both.

XIV. Watercourse and Lake Protection Zone (WLPZ) Measures

TCF places a very high priority on protecting and improving water quality and aquatic and riparian habitat. On the Garcia River Forest, a detailed Site Specific Management Plan (SSMP) required under TMDL regulations was submitted to and approved by the North Coast Regional Water Quality Control Board (NCRWQCB). The GRF SSMP is available from TCF or RWQCB staff; all of the harvesting and road maintenance operations on the Garcia River Forest must be in compliance with the SSMP. For Big River and Salmon Creek, we were required to develop a Water Quality Management and Restoration Plan, which was incorporated into the management plan for BR/SC and included in its entirety as an appendix. WLPZ Protection Measures are based primarily on the framework established in the Forest Practice Rules (FPR). We have chosen to supplement the FPR requirements for our policies in Big River and Salmon Creek rather than creating entirely new requirements (e.g. the GRF SSMP) so as to provide for greater consistency and clarity with existing expectations and professional practices. In all of our operations we and our contractors will comply with all applicable regulations and TCF-imposed obligations.

BR/SC WLPZ Protection Measures

[Taken, without editing, from the Big River and Salmon Creek IRMP]

The California Forest Practice Rules and other requirements of the NCRWQCB and DFG provide extensive and complex protections for watercourses. By most estimations, combined they are the world's most comprehensive and restrictive regulations governing forestry operations near watercourses. These rules are designed to protect against changes in sediment delivery, shade, large wood recruitment, late seral wildlife habitat, bank stability, and many other issues. The rules were developed in response to major declines in salmonid habitat conditions over the last three decades.

In general, aquatic conditions seem to be slowly recovering from the past practices and current regulatory protective measures should prevent further degradation. But it is unclear whether aquatic conditions are recovering quickly enough to recover and sustain salmonids, particularly in light of human impacts on other life stages. The acceleration of both aquatic and terrestrial restoration measures proposed in this Plan is intended to improve the prospects for the recovery and maintenance of salmonids in the Big River and Salmon Creek Forests.

As stated above, improvement of spawning and migration habitat for salmonid species is a key management goal for the Fund and one of the principal motivations for the acquisition of the Forests. Prohibiting development and agricultural uses on the properties will preclude the largest possible impacts on water quality, followed by comprehensive property-wide road assessments to identify and prioritize sites with sediment delivery potential (the treatment of which will occur over the next ten to fifteen years at an estimated expense of over \$5 million). In addition, the following silvicultural practices ...also will be implemented to improve water quality:

1. Upslope silviculture. Practicing principally uneven-age single-tree selection silviculture to maintain a mature forest across the Forests with minimal openings will reduce the potential hydrologic impacts of even-aged management, which studies at Caspar Creek (<http://www.fs.fed.us/psw/topics/water/caspar/>) have linked to temporary increases in peak flows, sediment yields, and ambient temperature. Uneven-aged management does, however, require more frequent entries and increased road infrastructure, which is why the next strategy is so important.

2. Increased riparian protection. In addition to standard Watercourse and Lake Protection Zone measures, forest management will include increased canopy retention across all classes of streams.

Specific Big River/Salmon Creek WLPZ Protection Measures:

Class I streams: A 150-foot WLPZ will be established. There will be no harvesting allowed within the first 50 feet adjacent to the watercourse transition line (as defined by the FPR and identified in the field). Within the next 25 feet at least 85 percent canopy cover must be maintained. Within the remaining 75 feet at least 65 percent canopy cover must be maintained. (Canopy cover, a measure of the percentage of potential open space occupied by the collective tree crowns in a stand, here includes overstory and midstory conifer and hardwoods.) The conifer component of the overstory canopy shall not be reduced below 50 percent of the total overstory retained. The California Forest Practices Rules (FPR) provide for harvest within the first 75 feet as long as 85 percent canopy cover is maintained. The remainder of the zone must contain at least 65 percent canopy cover and at least 25 percent of the original overstory conifer must be maintained within the zone.

Class II streams: Using the variable width (slope-dependent) WLPZs defined by the FPR, the Fund will retain at least 75 percent overstory canopy. The conifer component of the overstory canopy shall not be reduced below 50 percent of the total overstory retained. The FPR require 50 percent canopy to be maintained and at least 25 percent of the original overstory conifer must be maintained.

Class III streams: Using the variable width Equipment Limitation Zone (ELZ) defined by the FPR, where there are no overstory retention requirements under the FPR, the Fund will retain at least 50 percent canopy, and a minimum of 25 percent overstory conifer.

[Note: conformance with all canopy requirements will be measured as an average across not less than a 200-foot lineal WLPZ segment—the same as the FPR.]

The Fund believes these three simple measures of increased retention (one per stream class) a) complement the project goals and the process and review requirements of the existing regulations; b) are efficient for foresters to implement in the field; and c) offer higher confidence that aquatic habitat conditions will improve.

In acquisition funding agreements for Big River and Salmon Creek, the Fund committed to management practices that, among other things, “establish riparian buffers that are wider than required under the Forest Practice Rules.” The Fund’s forest management policies meet that requirement by providing greater canopy retention within the WLPZ and increased basal area and canopy retention upslope from the WLPZs. A specific example of the wider buffer is the no-cut buffer along Class I streams which has been expanded from only bank and channel trees to 50 feet from the stream—a significant expansion. Additionally, the predominant silviculture beyond the formal WLPZ buffers will be single-tree selection which substantially extends the effective riparian buffer width.

XV. Harvesting Operations

One of the key planning aspects for timber harvest operations is choice of yarding method—ground or tractor-based and cable or skyline systems. The yarding method choice for a specific harvest unit

should be based on the silvicultural system, and the site-specific topography and access. The two primary yarding methods most commonly employed are tractor yarding and cable skyline yarding. Tractor yarding includes tractors with winches and chokers, tractors equipped with grapples or rubber tired skidders with grapples or winches. Tractor yarding is generally used on gentle terrain up to 55% slope. Tractors may be used on steeper slopes where cable yarding is infeasible due to access problems or on long corners where deflection for skyline logging is inadequate. Cable skyline yarding consists of a running skyline or preferably a standing skyline with a carriage, either system should be capable of elevating the logs above the existing tree canopy. Cable logging is used on steep slopes, generally over 50%, where slopes are long and planer or concave. Cable yarding on convex slopes can result in a ground lead situation which can cause unnecessary damage to residual timber or the logging equipment. The key to successful cable yarding is to ensure that there is adequate deflection in the logging unit to suspend the logs above the ground and tree canopy.

The decision to use cable or tractor logging systems is generally an easy one to make. The coast range is very steep and highly dissected with many drainages which make for easy cable logging settings and the ridge tops are reserved for tractor logging. There is a range of slopes between 50-65% where either method may be judged to be adequate in the eyes of the forester laying out the timber harvest unit. Cable logging may be used on shallow slopes were the logs would otherwise be adverse skidded to a landing above the harvest area and conversely tractors may be employed where there are adequate roads and landings downhill of the harvest area. The decision to use one method over the other in this “gray” area is generally made by using the equipment that is required on the rest of the job for example a shallow slope may be cable logged if the rest of the job is predominately cable logging. Or tractors may be used on steeper slopes if there is so little steep ground that bringing in a cable yarding machine for a few acres is deemed infeasible or uneconomical. Tractor long lining is a common practice where winch lines are pulled down hill and the logs are winched up to the tractor sitting in a stationary position. This technique is generally used when the slopes are very short and do not justify the expense of a cable machine and the tractor itself does not operate on the steep slope. Other methods which are suitable for unevenage management techniques are helicopter or balloon yarding which are used when access is limited or there is no access because of excessive road construction or stream crossings requirements to get road access to a harvest unit.

Yarding method decisions are reviewed by the Senior Forester and are discussed in the field consultations. Yarding method and any unusual access situations are described in THPs and are also included in our more readily-available THP summaries.

XVI. Contractor Selection

TCF will utilize contractors in several roles in the management of these properties—from forestry and wildlife surveys to logging and road maintenance. There are several reasons for this—as a relatively new enterprise TCF is not in a position to take on significant staff obligations and many of the most experienced professionals already have contract businesses set up. Additionally we can not guarantee year-round work in some areas. We will strive to use the highest quality professionals available—from owl calling to bridge repair. At least initially we will put most logging jobs out to bid, although we will select the firm that offers the best combination of price, performance, and experience. Other contracts, such as for road maintenance and security, will likely be negotiated directly with the professionals who have the most experience in the area and want the work. Especially for logging, road, and security

contracts, ensuring safe working conditions and selecting contractors with good safety records will be an important concern. Additional forestry project work (e.g. owl surveys, preparing and supervising a THP) will be drawn from the area's experienced consulting biologists and foresters. In those situations we will seek to utilize the consultant as a full team member to solicit their ideas on how to meet our objectives. In all roles we have a strong preference for local expertise because it helps support local communities and the timber-based economy. We are concerned about the relative lack of young professionals in the field and will seek to create opportunities that encourage viable business opportunities for young loggers and technicians. In all our efforts we will strive to pay a good and fair wage, to reward performance, and to encourage professional development.

XVII. Forest Certification

The Conservation Fund has committed to seeking dual certification under the Forest Stewardship Council and Sustainable Forestry Initiative programs. All properties are to be managed in compliance with the 2005-2009 SFI Standard and the FSC Pacific Coast Regional Standard, version 9.0 (available at www.sfiprogram.org and www.fscus.org respectively). An initial scoping audit was completed on the Garcia River Forest in May 2006. A full audit and two annual surveillance audits were successfully completed on the Garcia River, Big River, and Salmon Creek forests in 2007, 2008, and 2009.

XVIII. Community Engagement

TCF seeks involvement from the local community at several stages of its activities. A public meeting was held to review the management plan for BR/SC, much like a meeting was held in Point Arena to review the GRF IRMP prior to adoption. Interested parties are invited to participate in a tour of each THP either before or shortly after submission, and again following completion of the operation. In addition, TCF staff is available to respond to questions or concerns raised by the local community. TCF plans to prepare and broadly disseminate an Annual Report that describes major activities on the properties, changes to policies, and monitoring results. Should a dispute arise between TCF and a local citizen, neighbor, partner organization, current or potential contractor, or other interested entity, TCF will first seek to resolve the dispute through open communication, prior to more formal dispute resolution through mediation or litigation. Records of disputes will be made available to the lead certification auditor. In all situations, TCF strives to be a good neighbor and fair employer, and will hold itself to high professional standards in its dealings with the local community, contractors, Native American tribes, public agencies, and all other interested parties.

***** REVIEW DRAFT *****
May 24, 2007
ROAD MANAGEMENT POLICIES
For The Conservation Fund's North Coast timberland—
Garcia River, Big River, and Salmon Creek, Mendocino County, CA
Primary author: Scott Kelly

Introduction

The Conservation Fund owns approximately 40,000 acres in Mendocino County California. The tracts consist of the 24,000 acre Garcia River Forest, the 12,000 acre Big River Tract and the 4,000 acre Salmon Creek Tract. The Garcia River Forest was acquired by The Conservation Fund in 2004; the previous landowner conducted some minor road maintenance activities and remediation projects however the forest land and roads have been essentially inactive since 1998. The Conservation Fund acquired the Big River and Salmon Creek tracts in 2006 from Hawthorne Timber Company in Fort Bragg who were actively managing the forest for timber production. The Conservation Fund intends to actively manage the timber resources to improve stocking and growth across the ownership and to actively manage the road system and riparian conditions to improve watershed health and use by anadromous fish. Therefore, it has become a priority to improve and maintain access to the timberlands from the existing road system.

It has been documented that forest roads can contribute significant sediment to streams. Increased stream sediment can result in cemented gravels reducing salmonids ability to spawn and/or inhibiting salmonid fry emergence. High sediment levels can also cause pool filling and associated reduction in pool habitat. Extreme sediment loads can cause stream temperatures to be elevated due to the reduction in stream depth. Near stream roads can also reduce stream shading where the road is very wide or very close to the stream. Reduced stream shading has been shown to be linked to increased water temperature which stresses juvenile salmonids. Compacted fill surfaces used in road construction or culverts and crossings can fail and deliver a large amount of sediment to streams at one time.

The Garcia River and Big River are listed as threatened and impaired by the EPA and are on the 303(d) list of impaired waterbodies. Placement of a waterbody on the 303(d) list acts as the trigger for developing a sediment control plan, called a TMDL, for each water body and associated pollutant/stressor on the list.

Recent management practices on the property have reduced road related stream sedimentation and improved long-term stability. Specifically many bridges and multi-plate culverts have been installed to replace standard culverts on class I streams. Class II watercourse crossings have been rock armored and new culverts buried to grade. Watercourse and Lake Protection Zone (WLPZ) roads have been rocked or otherwise improved to reduce stream sedimentation caused by near stream roads. Many other forest roads have also been rocked and crossings or ditch relief culverts properly dipped out and stabilized.

Objectives

The Conservation Fund is committed to continue this trend of road improvement over time and has developed and will continue to refine this Road Maintenance and Improvement Plan to:

- 1) Reduce sediment inputs resulting from the existing road network as well as reduce inputs from new roads.
- 2) Develop proactive measures to help reduce stream sedimentation as a result of road runoff and cooperate with regulatory agencies involved with timber harvest planning.

- 3) Develop a timeline for road maintenance activities.
- 4) Act as a guide to foresters who are actively developing timber harvest plans or other treatments on the properties.

Planned road maintenance will be in conformance with The Conservation Funds overall forest management goals. The Conservation Funds immediate goal is to maintain access through grading and maintaining existing mainline roads. These roads form the core of the road system and provide access for fire suppression, log hauling, wildlife surveys, future road improvement and abandonment projects and other management activities. It is expected that maintenance and improvements of secondary roads will be carried out in conjunction with Timber Harvest Plans or as part of larger Watershed Improvement projects partially funded by California Department of Fish and Game or the North Coast Regional Water Quality Control Board.

Timeline

It is The Conservation Fund's long-term goal is to develop a road system which provides access to the property for timber harvest, fire protection and wildlife resource monitoring while reducing annual maintenance activities and expense and potential watershed impacts. It is expected that the property will generally be managed with unevenage silvicultural systems and a 10-20 year re-entry period. Most road improvement projects will generally be done in conjunction with THP's and therefore the timeline to rotate through the property with road upgrades will be similar as the overall harvest schedule. Projects which require a 1603 stream alteration permit and do not otherwise qualify as an emergency repair will necessarily be conducted in conjunction with THP's.

The Conservation Fund will use the road inventory system developed by Pacific Watershed Associates to evaluate sites and as a planning tool to prioritize sites and conduct effectiveness monitoring over time. It is expected that some grant money will be available to correct road systems in which case roads will be upgraded as money is available. It is unknown what effect grant funds will have on the overall timeline to improve the road system.

Road Maintenance and Improvement Guidelines

The purpose of this section is to aid resource professionals to identify logging road attributes that will assist in determining whether a road should be maintained in its current configuration, reconfigured with upgraded drainage structures, permanently abandoned or abandoned and replace with a new road in an alternate location. Some of the primary objectives and constraints identified during land management planning were: 1) Improve fisheries and wildlife habitat. 2) Maintain or improve the current level of access as opposed to reducing access. 3) Cost is a factor and always considered but is not the determining factor when evaluating road improvements. 4) The landowner is willing to bear higher management costs in the future that arise from reconfiguring the roads if it results in other operational benefits.

To reduce sediment delivery from the road system emphasis will be placed on increasing the number of drainage points along roads and reducing the potential for diversion at culverted watercourse crossings. On low gradient roads (0-4% grade) roads will be primarily drained by out sloping with occasional dips or ditch relief as necessary. On higher gradient roads (5-10+% grade) roads will be drained primarily with rolling dips in combination with out sloping and inboard ditch relief culverts as necessary. It is expected that within a 20 year period most roads will be improved so as to be drained by a combination of out sloping with rolling dips. However ditch relief culverts cannot be completely abandoned and will be used as drainage structures on roads where necessary. Reducing diversion will be implemented in three ways: 1) New culverts and culverts proposed for replacement will be sized to meet the 100 year storm event. 2) New or

replaced culverts will be installed such that the culvert is installed at stream grade and deep enough that a critical dip can be constructed to provide protection against stream diversions. 3) A trash rack or stake shall be installed upstream of the culvert to catch or turn debris prior to reaching (and blocking) the pipe.

New roads will be designed with gentle grades where possible, long rolling dips will be constructed into the road and outsloped to relieve surface runoff. Where possible watercourse crossings will be designed such that road grades dip into the crossing and then climbs out of the crossing eliminating the need for abrupt critical dips. Crossings will be rock fords or temporary crossings on secondary roads which see only periodic activity to reduce maintenance requirements. Minor crossings on permanent roads can be converted to rock fords over time.

The Handbook of Forest and Ranch Roads prepared by Weaver and Hagans 1994 will be used as a guideline for all proposed road construction and improvement projects. Specific projects and locations will be mapped and site specific prescriptions for each project will be included in the TMDL SSMP and/or within THP's as appropriate.

Road Abandonment Plan

There are three criteria to consider in determining which roads can be abandoned. The first is focused on environmental considerations. Roads located near (within the WLPZ) of a class I or class II stream or constructed on unstable slopes such as active landslides or headwall swales are likely candidates for abandonment due to their potential contribution to in-stream sediment. Road construction across headwall swales and unstable slopes can result in mass wasting events, delivering large amounts of sediment to the watershed. They pose an ongoing maintenance problem caused by constant bank sloughing which block roads and plug ditches and culverts.

The second criterion is that roads to be abandoned must not cutoff or substantially reduce access to areas where future management is anticipated. In the case where a road has been determined to be undesirable due to its location but access is still required the landowner is obliged to maintain the existing road or find another route. Reconfiguring the road network is the most difficult task and will have long term effects on management activities. The likely result is that the new road system will be designed for yarder logging.

The third criteria is that road abandonment does not result in the construction of a replacement road that is also environmentally unsound. Removing a road from a stream zone with the intent of moving upslope can require that the landowner make a value judgment between a near stream road and a road constructed on steep slopes with multiple watercourse crossings. Road improvement with rock surfacing, rolling dips and oversized culverts or bridge installation is generally the least cost alternative compared to relocation. If access is necessary improving the road should be considered before constructing an alternate route especially if the alternate route results in a poorly located road.

In areas with excess roads it may be desirable to abandon roads or reduce their status to "temporary" to reduce potential sediment delivery and increase growing space. These types of roads are considered to be a low priority if they do not meet the above mentioned criteria for abandonment and are generally abandoned after timber harvest has occurred or abandoned by simple lack of use.

The economics of road abandonment also contributes to the decision making process. Unfortunately it is not practical to use a "one size fits all" prescription for road abandonment. Some roads, which appear to be poorly located, may have to remain in place because they service

a larger area with good arterial roads. While it may be physically possible to relocate a road it may not be in the best interests of the landowner to do so due to the excessive cost involved (those funds could be used for other improvement projects). The types of roads which will be a priority to evaluate as potential candidates for abandonment are listed below.

1. Roads that parallel watercourses and dead end in landings are good candidates for abandonment or repair because of their proximity to streams and their lack of arterial roads. These are the highest priority because they can be abandoned without impact to future management.
2. Roads that cross unstable areas or headwall swales can be abandoned if alternate routes exist to both ends of the subject road. In some cases this can be done with only a minor loss of access and can be accomplished without (much) concern of relocating the road higher up the slope. Roads crossing unstable areas are deemed to be the second priority for abandonment because there are fewer roads on unstable slopes than WLPZ roads. Further the management implications and fieldwork necessary to make an informed decision will delay the decision making process.
3. Long term plans should include abandonment and replacing or upgrading roads that are poorly located but are necessary in the short term for forest management.

It is felt that proper implementation of this plan will reduce the potential for excess runoff and diversions common to forest roads. Over the long term the reduction in stream sedimentation will improve salmonid habitat conditions and reduce yearly maintenance costs.

**COMMITMENT TO SAFETY AND HEALTH
OPERATING POLICY, December 20, 2007
The Conservation Fund's North Coast Forest Conservation Program
Garcia River, Big River, and Salmon Creek Forests, Mendocino County, CA
Primary authors: Evan Smith and Scott Kelly, as adopted from MRC**

Commitment to Safety and Health

A. Safety and Health Policy

The Conservation Fund (TCF) is firmly committed to maintaining a safe and healthful working environment across all its offices and programs. This document guides TCF activities on its Mendocino County, California, timberlands to ensure safe operations. To achieve this goal TCF has implemented a comprehensive Injury and Illness Prevention Program. This program is designed to prevent work place incidents. The North Coast Senior Forester is responsible for monitoring the performance of each team member to ensure compliance in conducting an affective Injury and Illness Prevention Program.

Special statement on forestry-related risk-- The field of forest management inevitably involves travel, heavy equipment, challenging terrain, and variable weather conditions—all serious contributors to risk. All employees and contractors should be cognizant of those risks and develop the judgment to evaluate conditions and act in a safe manner. Driving to and from the forest is probably the most dangerous activity we engage in—it is very important that we slow down and pay attention. The most important piece of safety equipment is what sits under the hardhat, behind the safety glasses, and between the ear plugs—use your brain! Every team member is responsible for thinking about the safety of themselves and everyone else present. TCF's North Coast program is a loosely-organized team of employees, contractors, consultants, partners, and volunteers—we rely on these individuals to exercise good safety skills. It is critical that we be cognizant of the conditions around us and the safety preparedness of those around us and those that might visit the site later. We owe it to ourselves and the families of those we work with to conduct all our activities safely.

Each individual is responsible for their own safety at the work place. The safety coordinator can assure that programs and policies are in place to provide for a safe working environment however it is the responsibility of the individual to implement the safety policies and make their own working environment as safe as possible.

Specific policies—

- 1. No alcohol or drug use on the property.*
- 2. Maintain a log of where people are working and an emergency contact system in the event of an emergency or someone not returning in a timely fashion.*
- 3. Remind visitors and tour participants of potential risks and necessary precautions.*

4. *Annual safety training will be developed for everyone that works in the woods if it is not already part of their professional licensing requirements (eg Licensed Timber Operator).*
5. *First Aid Kits are available in the TCF office and vehicles.*
6. *Indications of illegal marijuana cultivation will not be investigated by field staff but reported to the property's security patrol who will report it to law enforcement personnel.*

B. Vehicle Operation

Driving to and from the forest is probably the most dangerous activity we engage in it is very important that we slow down and pay attention while operating company vehicles on the street or on company lands. Driving in the forest exposes the driver to narrow winding gravel roads which can be very slick when wet and require extra caution when operating a motorized vehicle.

- All persons operating a vehicle on company property are required to possess a valid driver's license.
- All persons operating an ATV or other off road vehicle shall have received proper training from a certified ASI Rider Course Instructor. To enroll in an ATV [Rider Course](#), call the national, toll-free enrollment number, 1-800-887-2887.
- Use common sense, do not drive in dangerous conditions or terrain beyond your ability to safely operate the vehicle, when in doubt, slow down or walk.

C. Personnel Safety

Many minor injuries such as cuts, scratches, bee stings, and ankle sprains can be prevented by wearing proper safety equipment or protective clothing. When working in the woods around heavy equipment all personnel shall wear hardhats and boots. Long pants or jeans are required while working in the forest. Other recommended personal safety items include:

- Eye Goggles
- Ear Plugs
- Long sleeve shirt
- Gloves
- Tecnu or other poison oak prevention treatments.

D. Contractor Safety & Training Policy

The Conservation Fund shall only employ contractors that have good safety records and up-to-date training. Specifically, only Licensed Timber Operators in good standing may conduct timber harvesting operations and only Certified Pesticide Applicators may apply herbicides. Prior to the start of each work project (e.g. logging job, road opening, weed control treatment, etc) the Safety Officer will conduct a discussion of the safety concerns and ensure contractors are aware of TCF's safety expectations. For professions that do not have formal licensing requirements that address safety, such as consulting biologists and botanists, The

Conservation Fund will emphasize the importance of accident avoidance and communication and seek to resolve any safety concerns they may have.

E. Company Housekeeping Policy

Good housekeeping is a critical part of the safety program. Keeping work areas neat and clean reduces the risk of on the job injuries. Well organized work areas increase the ability of employees to perform their jobs efficiently and safely. In addition a clean workplace is a source of good morale, improved quality and partner satisfaction. Each employee is responsible for keeping his or her work area neat and orderly. Housekeeping inspections may be conducted as part of regularly scheduled or impromptu safety inspections.

II. PERSON(S) WITH AUTHORITY AND RESPONSIBILITY FOR IMPLEMENTING THE PROVISIONS OF THIS INJURY AND ILLNESS PREVENTION PROGRAM (IIPP)

The North Coast Senior Forester shall serve as the Safety Officer, with authority and responsibility for implementing the provisions of this program. Responsibilities assigned to the Safety Officer, Site Supervisors, and Employees are described in general on the following pages.

All employees and contractors of TCF are responsible for working safely and maintaining a safe and healthful work environment. It is a condition of employment.

The NORTH COAST SENIOR FORESTER will assume the overall responsibility for this program as the SAFETY OFFICER. These duties include:

- Ensuring that adequate financial, personnel and material resources are available, including identifying safety leads for projects and training needs.
- Ensuring employees receive specific training for each task they are expected to perform, and whenever new processes or chemicals are introduced into the workplace.
- Leading by example.
- Recognizing safe work practices as part of performance reviews.
- Encouraging employee involvement.
- Investigating and correcting any unsafe action or condition reported to them.
- Holding employees accountable for poor safety performance by utilizing re-training and company disciplinary procedures.

All TEAM MEMBERS (employees, contractors and lead partners) will be responsible for the implementation of this program at his/her work area. These duties include:

- **TAKING PERSONAL RESPONSIBILITY FOR THEIR OWN SAFETY AND THE SAFETY OF OTHERS.**
- Understanding that working safely is a condition of employment.
- Participating in developing safety rules, procedures, and improvements.
- Obeying safety rules, procedures and work practices.
- Wearing all required Personal Protective Equipment (PPE).
- Reporting all injuries, no matter how minor, to their supervisor immediately.
- Reporting all “near-misses” and hazardous conditions to their supervisors.
- Participating in the safety effort by demonstrating an understating of training received and the ability to perform tasks safely.
- Participating in tailgate and general safety meeting.
- Learning to manage “self-safety” by developing proactive (prevention) skills in decision-making.
- Communicating safety suggestions to supervisors or contract representatives.

III. SYSTEM FOR ENSURING THAT ALL WORKERS COMPLY WITH SAFE AND HEALTHY WORK PRACTICES:

- A. Informing employees of the provisions of our Injury and Illness Prevention Program (IIPP):
- B. Recognizing employees who perform safe and healthful work practices.
- C. Training employees whose safety performance is deficient; and
- D. Disciplining employees for failure to comply with safe and healthful work practices.

IV. SYSTEM FOR COMMUNICATING WITH EMPLOYEES:

- A. Safety Meetings

TCF requires frequent tailgate meetings with individual work-groups to discuss safety issues and resolve problems. At a minimum, employees will be exposed to ½ hour per month of safety training/discussion. Also, tailgating will be held whenever work conditions change – e.g. foresters moving from burning to marking trees, contractors working at a mill site in an area which affects employees, special construction or maintenance projects are taking place, etc. to alert and/or remind employees to potential hazards.

B. Training

All employees will receive an overview of the IIPP during their initial orientation and can review a copy provided by their supervisor. Additional training, such as First Aid and Interagency Wildland Fire Certification, will be made available on an as needed basis. Employees and contractors that desire additional training should notify their supervisor or the Safety Officer.

C. Written Communications

TCF produces informational memos and handouts covering various safety topics. These sources of communication are posted for review by all employees. They include safety inspection reports and safety committee meeting minutes.

TCF's written IIPP is also assessable to all employees.

D. Anonymous Notification Procedures

TCF has a system of anonymous notifications whereby an employee who wishes to inform TCF of work place hazards may do so anonymously by notifying Safety Officer in writing or over the phone. The Safety Officer shall investigate, or cause to be investigated, all such reports in a timely manner.

V. HAZARD IDENTIFICATION

TCF will identify and evaluate work place hazards when the program is first established; whenever new substances, processes, procedures, or equipment are introduced to the work place that represents a new occupational safety and health hazard and whenever TCF is made aware of a new or previously unrecognized hazard.

A. General Elements To Identify and Evaluate Work Place Hazards

1. Review of applicable General Industry Safety Orders and other safety orders that apply to the operation.
2. Review of industry and general information (including Material Safety Data Sheets for chemicals used) about potential occupational safety and health hazards.
3. Investigation of all incidents and unusual events that have occurred at these facilities.
4. Periodic and/or scheduled inspections of general work areas and specific work stations.

5. Evaluation of information provided by employees.

B. New Safety and Health Concerns

It is a requirement of all employees and contractors to notify the Safety Officer and provide appropriate documentation (location, MSDS, potential hazards, etc.) regarding any new substance, process, or equipment prior to its introduction to the workplace.

C. Employee Reporting of Hazards

Employees are required to immediately report any unsafe condition, unsafe action or other hazard that they discover in the work place to their supervisor or any safety committee member. No employee will be disciplined or discharged for reporting potential work place hazards or unsafe conditions.

Employees who wish to remain anonymous may report unsafe conditions as described above.

VI. PROCEDURE TO INVESTIGATE OCCUPATIONAL INJURY OR ILLNESS

A. Employee Responsibility

Employees shall immediately report all injuries occurring at work, no matter how slight, to their supervisor.

B. Supervisor's Responsibility

It is the Supervisor's responsibility to complete an Incident Investigation Report and, **IF THE INJURED NEEDS TO GO TO A MEDICAL PROVIDER OFF-SITE, TO ACCOMPANY THE INJURED.** The Supervisor will immediately alert the Safety Officer of any injuries requiring treatment other than first aid.

C. Incident Investigation Procedure

Incident where a hazard or condition persists after the occurrence of an incident, incidents where there is a potential for recurrence, and incidents where the Safety Officer judges that procedural or training deficiencies may have contributed to the incident will be investigated.

They may be investigated by the supervisor and employee only, an appointed investigator, or an incident review team depending on the nature and/or severity of the incident.

Employees have the right to an independent investigation by someone other than their supervisor if they feel additional investigation is necessary. All incidents will be investigated at the time of occurrence, or as soon thereafter as possible, but in no case later than twenty-four hours.

When appropriate, these investigations may include complete statements from the employee(s) involved, any witnesses to the injury and the injured employee's supervisor. A copy of all Incident Investigation Reports will be forwarded to the Safety Officer for review. Employees who do not cooperate with incident investigations will be subject to TCF's disciplinary policy.

VII. PROCEDURE TO CORRECT UNSAFE OR UNHEALTHY CONDITIONS, WORK PRACTICES, AND WORK PROCEDURES IN A TIMELY MANNER BASED ON THE SEVERITY OF THE HAZARD.

A. Workplace Hazards

The causes of all incidents will be documented and reviewed immediately. Corrective actions including condition repair/modifications, retraining or disciplining for unsafe actions will be initiated immediately. Safety procedures will be reviewed, if necessary, by the combined efforts of the affected employees, supervisors and safety manager and or safety committee. Training programs and safe job operating procedures will also be modified, if appropriate, to prevent reoccurrence.

B. Imminent Hazards

When an imminent hazard exists which cannot be immediately abated without endangering employees and or property, all exposed employees will be removed from the area except those necessary to correct the existing condition. Employees needed to correct the hazardous condition shall be provided with the necessary training and Personal Protective Equipment. All such actions taken and dates they are completed shall be documented.

VIII. PROVISIONS FOR TRAINING AND INSTRUCTION

A. Policy

Awareness of potential health and safety hazards as well as knowledge of how to control such hazards is critical to maintaining a safe and healthful work environment. TCF is committed to instructing all employees in safe and healthful work practices. To achieve this goal, TCF shall provide training to each employee with regard to general safety and emergency procedures. Training shall also be provided by the effected employees' supervisor for any hazard or safety procedure specific to the employees work assignments as mandated by regulations or company safety programs. Records of all training shall be maintained in employee files.

B. When Training Will Occur.

1. When the program is first established.
2. To all new employees.
3. To all employees given a new job assignment for which training has not previously been received.
4. Whenever new substances, processes, procedures or equipment which represent a new hazard are introduced into the workplace.
5. Whenever TCF is made aware of a new or previously unrecognized hazard.
6. Whenever an employee, through observation or investigation is found deficient, they will be retained.

Supervisors must familiarize themselves with the safety and health hazards to which employees under their immediate direction and control may be exposed. Supervisors shall be responsible to provide their employees with safety training to minimize or eliminate such exposure.

C. Areas of Training

All areas or items identified in the IIPP.

All areas or items identified as specific to the performance of any task.

IX. RECORDS OF THE STEPS TAKEN TO IMPLEMENT AND MAINTAIN THE PROGRAM

Records of scheduled and periodic inspections to identify unsafe conditions and work practices, including person(s) conducting the inspection, the unsafe conditions and practices that have been identified and the action taken to correct the identified unsafe conditions and work practice. These records shall be maintained for at least one year. Documentation of safety and health training for each employee, including employee name or other identifier, training dates, types of training, and training providers. This documentation shall be maintained at least one year.

**PROGRAM ON HIGH CONSERVATION VALUE FORESTS
AND REPRESENTATIVE SAMPLE AREAS**

**The Conservation Fund's North Coast Forest Conservation Program
Garcia River, Big River, and Salmon Creek Forests, Mendocino County, CA
Original version December, 2008; expanded September, 2010 and September 2011**

Distribution: Auditors, field staff, interested public

Primary author: Evan Smith

Document background

This program description was prepared to assist the audit team in evaluating compliance with the requirements of the SFI & FSC forest certification systems and to guide the forest planning and monitoring conducted by The Conservation Fund. It builds on an earlier version (12/28/2008) with expanded sections detailing Representative Sample Areas. This document references and expands upon the "*Garcia River Forest Integrated Resource Management Plan*," the "*Big River and Salmon Creek Forests Integrated Resource Management Plan*," and "*Conservation Prospects: A review and analysis of existing conservation plans, land use trends and strategies for conservation on the north coast of California*." All three plans are available in the reference documents section of the North Coast Program website-- http://www.conservationfund.org/north_coast_forests. While some of the material in this summary is duplicative of the management plans it provides additional detail that is of specific interest to FSC/SFI auditors; this is intended to be a stand-alone policy applicable across all three properties (and any additional acquisitions in Mendocino County, CA).

Introduction

The Conservation Fund (TCF) is required to identify areas that because of significant conservation values should have special management practices. This requirement is imposed by TCF's internal forest management planning approach (see Forest Management Policies section IV, Critical Landscape Features) and by the requirements for sustainable forest management certification. For consistency purposes this document will reference language from the Forest Stewardship Council (FSC) standard, especially Principle 9; we prefer the term "features" over "forest" because many of the highest priority conservation elements are the non-forested features within a forested landscape. The basis for most of this program comes from two important conservation planning exercises, "*Conservation Prospects for the North Coast*" and the Conservation Action Planning assessment in the "*Garcia River Forest Integrated Resource Management Plan*," described in more detail below.

Conservation Prospects

In August 2005, after two years of research and review, TCF completed "*Conservation Prospects for the North Coast: a review and analysis of existing conservation plans, land use trends, and strategies for conservation on the North Coast of California*." This plan was prepared under a contract for the California State Coastal Conservancy. The principal author of the plan was Jenny Griffin, then a consultant to TCF and now TCF's North Coast Program Manager. "*Conservation Prospects*" systematically identifies the highest conservation values for the region based on a broad set of past conservation plans and develops recommendations for future conservation efforts. The two principal recommendations are to:

- Move quickly to establish "working landscape" conservation management on large, strategically located forest and agricultural properties in resource-rich watersheds in Humboldt, Mendocino and Del Norte counties.
- Focus other fee or easement acquisitions on unique resources that are essential to conserving high-priority coastal resources, such as coastal estuaries, old-growth redwood forest stands, coho salmon refugia, floodplains, and California Coastal Trail segments.

In addition to these general recommendations, the report reviews and catalogs 154 individual conservation plans for the region and provides a detailed spatial synthesis assessment of the seven plans deemed to be the most broadly relevant and instructive. The seven plans were chosen on the basis of data quality, scientific principles, format, and mandate and consist of:

1. *California North Coast Ecoregion Aquatic Conservation Strategy Recommendations*, The Nature Conservancy of California, Fall 2003;
2. *California North Coast Ecoregional Plan*, The Nature Conservancy of California, June 2001;
3. *Completing the California Coastal Trail*, California State Coastal Conservancy, January 2003;
4. *Mendocino County Coastal Conservation Plan*, Mendocino Land Trust, April 2003;
5. *A GIS-Based Model for Assessing Conservation Focal Areas for the Redwood Ecoregion*, Conservation Biology Institute and Save-the-Redwoods League, 1999;
6. *Recovery Strategy for California Coho Salmon*, California Department of Fish and Game, 2004; and
7. *Strategic Plan Update*, Pacific Coast Joint Venture, 2004.

The 13-page chapter of “*Conservation Prospects*” on the Mendocino Coast Hydrologic Unit (which contains all of three of the TCF properties) draws from 15 local plans in addition to the seven core regional plans. In general, “the Mendocino Coast HU is consistently one of the most highly valued regions of the North Coast” by the conservation plans synthesized. Specific features that are recognized as of high conservation value include pygmy forest, coastal dunes, coastal estuarine wetlands, seabird rookeries, spawning areas for anadromous fish, and old growth forests.

The report was developed over a 24 month period in collaboration with state agencies and conservation groups; 41 organizations or individuals provided technical review for the assessment. The report is frequently cited by newer conservation plans and initiatives on the North Coast.

Garcia River Forest Conservation Action Planning

Occurring nearly simultaneous with the development of “*Conservation Prospects*” was a much more targeted exercise in conservation planning for the Garcia River Forest (GRF) led by The Nature Conservancy and utilizing their “Conservation Action Planning” process (also known as “5-S”). As described in the GRF Integrated Resource Management Plan (Section II, Identification of Conservation Targets and Associated Indicators) this was “designed to help identify conservation targets, develop strategies to protect those targets, take action, measure success, and adapt.” Among the numerous features evaluated, five were identified as Conservation Targets: anadromous fish bearing stream, redwood/Douglas-fir forest, oak woodland/grassland, non-riverine wetlands, and Northern spotted owl.

Each conservation target has identified indicators with quantitative monitoring metrics relating to distribution, viability, and quality. For example, the selected indicators for anadromous fish bearing streams include percent fines less than .85mm (spawning sites); percent fines less than 6.5mm (spawning sites); mean weekly average water temperature (Class I streams); mean pool shelter rating (Class I streams); primary pool frequency (Class I streams); riparian canopy cover (Class I streams). Nine additional indicators were identified for further evaluation.

The primary references used in the Conservation Action Planning process were:

- Low, Greg. 2003. *Developing Strategies, Taking Action & Measuring Success. Landscape – Scale Conservation: A Practitioner’s Guide*. The Nature Conservancy, Arlington, Virginia.
- The Nature Conservancy. 2005. *Conservation Action Planning Workbook, Version 4b*. The Nature Conservancy, Arlington, Virginia.

The Conservation Action Planning process is the premier tool for conservation and restoration planning within a conservation biology framework. It has been used at thousands of sites across the world.

As part of the GRF Integrated Resource Management Plan (IRMP), the Conservation Action Planning process was led by Mark Reynolds and Jen Carah, ecologists with The Nature Conservancy. The GRF planning team included an additional twelve experts from the fields of forest management, land conservation, and watershed restoration. A well-attended public meeting to solicit comment on the draft plan was held in nearby Point Arena, CA, and numerous additional consultations were provided by recognized experts and the local community. The plan has been approved by the State Coastal Conservancy, the California Department of Fish and Game, and The Nature Conservancy.

Land Acquisition Evaluations

In order to document the conservation values of the property, TCF prepared a Land Acquisition Evaluation prior to commitment of acquisition funding from the state agencies. These documents include detailed descriptions of vegetation types and species occurrences, as well as more general information about physiographic features and local ecology. They are developed in consultation with staff from the California Department of Fish & Game (DFG) and need to be approved by DFG. Land Acquisition Evaluations prepared for the Garcia River Forest and Big River / Salmon Creek have formed the basis on ongoing ecological monitoring and planning. Relevant information from the Land Acquisition Evaluations is excerpted below in the sections on specific conservation features.

HCVF definition from the Pacific Coast FSC Regional Standard

High Conservation Value Forests are those that possess one or more of the following attributes:

- a) Forest areas containing globally, regionally, or nationally significant: concentration of biodiversity values (e.g. endemism, endangered species, refugia); and/or large landscape level forests, contained within, or containing the management unit, where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance;*
- b) Forest areas that are in or contain habitat for rare, threatened, or endangered ecosystems;*
- c) Forest areas that provide basic services of nature in critical situations (e.g. watershed protections, erosion control);*
- d) Forest areas fundamental to meeting basic needs of local communities (e.g. subsistence, health) and/or critical to local communities' traditional cultural identity (areas of cultural, ecological, economic, or religious significance identified in cooperation with such local communities).*

TCF Definition of HCVF

The Garcia River, Big River, and Salmon Creek properties were acquired by TCF expressly because of their conservation value. The properties possess significant conservation values, as documented in the Land Acquisition Evaluations prepared for the property, including habitat for numerous endangered species. It could be argued that all of the North Coast should be considered High Conservation Value Forests, but more realistically only the most exceptional and sensitive areas of this exceptional and sensitive landscape should be classified as HCVF. The TCF team used this exercise to identify those elements that deserve more than just recognition and protection as part of a conserved working forest but are truly critical conservation values, significant at a regional level. Based on the analysis done as part of *Conservation Prospects* and the GRF IRMP, TCF has identified the following areas as High Conservation Value Forest features:

- a) Oak woodlands and grasslands
- b) Pygmy cypress forest
- c) Old growth coniferous forest
- d) Salmonid spawning streams.

Grasslands and salmonid spawning streams are obviously not “forest,” but occur within or on the edge of forests and are recognized as HCVF features because of their critical importance and sensitivity to management practices.

In addition to this list, many additional areas and elements were considered. All portions of the properties have some degree of ecological value—whether it is habitat for the Northern spotted owl or ability to support carbon storage. And all of the properties are used for recreation, public education, and to a limited extent, foraging. And there are many fine-scale elements that have significant conservation value—snags, trails, etc. The above definition is designed to recognize those elements that are regionally-significant and deserve special management attention. The definition also considers the degree of threat—many of the above-listed elements are still vulnerable under current laws and regulations. Public drinking supplies are not present on the property but probably would not be considered as a separate HCVF element because they would likely be correlated with and enveloped by the salmonid spawning area designations and because of the high degree of existing stream and watershed protections under the Forest Practice Rules, Regional Water Quality Control Board requirements, and TCF Forest Management Policies.

TCF Inventory of HCVF

Oak woodlands and grasslands. Oak woodlands and grasslands were mapped on the Garcia River Forest as part of the planning process for the Ecological Reserve Network (ERN). All significant areas (>10 acres) were included in the ERN and are to be managed solely for their ecological value. More fine-scale mapping of the hardwood and grassland community types was completed in 2008 by The Nature Conservancy under a research grant from the USDA Forest Service related to the distribution and control of Sudden Oak Death. This digital imagery-based vegetation mapping has been groundtruthed by TNC staff and represents a significant advancement in the field of plant community mapping. Currently we track 233 acres of Oak Woodland and 480 acres of Grasslands on the Garcia in our GIS—not all Grasslands are natural meadows, a small portion are probably old landings. Big River / Salmon Creek is situated farther west than Garcia and consequently is primarily a coniferous forest with less of these arid forest types. No oak woodlands or grasslands were identified as part of the forest stand typing (using aerial photos) completed by John Nickerson in 2007. Analysis of the Department of Fish & Game California Vegetation database (CalVeg) indicates 6 acres of Canyon Live Oak vegetation type on the Big River tract and 523 acres of Annual Grass/Forbs on Big River and 24 acres on Salmon Creek. CalVeg is notorious for overstating oak and grassland areas because of the difficulty in using remote sensing to differentiate oak from tanoak and early seral forest conditions from native grasslands. Based on initial field review these sites are not true oak woodlands or grasslands, but brushy former clearcuts and landings. Currently we track 0 acres of Oak Woodland and 0 acres of Grasslands on BR/SC in our GIS.

Pygmy cypress forest. Salmon Creek contains the only known occurrence (on TCF properties) of this rare natural community type, which are limited to former marine terraces with thin, nutrient-poor, acidic soils underlain by a hardpan. According to CalVeg, there should be 122 acres of pygmy forest on Salmon Creek but the entire area was assessed as part of the field work for the Lower Salmon Creek THP and amendment and only stands 57718 and 57719 (reported as 11 gross acres, but 3 acres of roads/landings) were identified as having pygmy cypress forest characteristics. This community type does not usually grade into commercial forest types; typically there is a fairly sharp demarcation, but field staff are knowledgeable of the characteristics of pygmy forest and will readily observe any additional stands if they are present. If field surveys reveal additional pygmy forest areas, they will be added to this inventory. Currently we track 8 acres of Pygmy Cypress Forest in our GIS, a single location on Salmon Creek.

Old growth coniferous forest. Unfortunately, due to the extensive logging of coastal Mendocino County, there are no old growth stands on the property. Old growth stands are defined as having the majority of the canopy in trees established prior to 1800—even if harvest or other disturbance has occurred within the stand. Individual old growth trees do occur on these properties—although to a very limited extent. They usually result from the release in the early to mid-1900s of suppressed trees when the old growth overstory was removed. They are not mapped but are protected under the wildlife tree retention

requirements (see TCF Forest Management Policies). Currently we track 0 acres of Old Growth in our GIS.

Salmonid spawning streams. While there is excellent mapping of fish-bearing streams (Class 1 watercourses) and there is decent understanding of salmonid distribution within these watersheds, there has not been a detailed assessment of individual spawning areas. Precise location of spawning areas is not critical to the HCVF policies but will likely be the subject of future monitoring. Surveys by Department of Fish & Game, The Nature Conservancy, and North Coast Regional Water Quality Control Board have indicated coho presence in North Fork, Signal, Blue Waterhole, and Inman creeks on the Garcia River Forest (as well as the mainstem), whereas steelhead are widely documented (assume they are using just about every Class 1 stream on our properties). On Big River, coho are documented in the mainstem, Two Log, North Fork and Laguna Creek. Coho are documented along most of the length of Salmon Creek and Hazel Creek. Currently we use our GIS to track the number of miles of Class I stream (36 on Garcia, 24.5 on Big River, 10 on Salmon Creek); this approach slightly overstates the amount of actual salmonid spawning streams, because some portions of Class I streams are above fish passage barriers, but is the best information currently available. The most significant barrier is a waterfall and logjam in the upper North Fork of Garcia; other barriers (usually culverts, but a couple of waterfalls as well) typically restrict less than a few hundred yards of potential spawning habitat.

TCF Protection Measures for HCVF

General measures. The most significant threats to any HCVF element would be residential development, forest fragmentation, vineyard conversion or grazing—all have been prohibited by TCF’s acquisition and the permanent conservation restrictions on the properties. This limits the number of potential threats to the much smaller subset of forest management, road building and/or maintenance, recreation, trespass and neglect. Appropriate protection measures for HCVF are incorporated in the TCF Forest Management Policies, as described below. New road building projects carefully reviewed by TCF staff (both because of its expense as well as the potential environmental impact) and are included in proposed THP’s or Department of Fish and Game projects such as Fisheries Restoration Grant Projects. Guidelines for road construction and maintenance are described in the TCF Road Management Plan. Recreation policies have been developed for these properties, to date we have a pedestrian and equestrian access permit system for Big River and Salmon Creek. Garcia is favored for hunting and a small number of permits to hunt are issued each year, primarily to neighbors. Trespass is a major concern on the property, particularly as it relates to illegal marijuana cultivation. All the properties are actively patrolled by TCF staff and contractors and thoroughly gated to discourage trespass. Fortunately, marijuana cultivation is not common in pygmy cypress or oak woodlands and grasslands. Sudden Oak Death does occur on the Garcia River Forest and will likely infect the HCVF oak woodlands. At this time SOD occurs in isolated areas and does not appear to threaten the oak woodlands. Thus, protection of the HCVF is well-integrated with the design and implementation of the projects. Additional specific references are provided below.

Oak woodlands and grasslands. TCF Forest Management Policies (Section IV) states, “All true oak (*Quercus* spp.) woodlands and native grasslands are to be preserved.” In addition, the vast majority of the oak woodlands and grasslands on TCF property are included within the Ecological Reserve Network (ERN) on the Garcia River Forest. Management of the ERN is described in the GRF IRMP but all management activities must be designed and implemented to further the ecological goals. In the case of oak woodland and grassland this means that prescribed fire or selective harvest to address conifer encroachment or to control the spread of Sudden Oak Death would be permitted under direction of TNC.

Pygmy cypress forest. TCF Forest Management Policies (Section IV) states, “All pygmy forest is to be preserved.” Salmon Creek contains the only known occurrence of this rare natural community type on TCF properties. The area northwest of the Lower Salmon Creek THP Unit A (also mapped as stand #57719) and north of Units D and F (approximately mapped as stand #57718) are to be protected from

future harvest and monitored for potential impacts. Pygmy forest occurs along a gradient, according to soil and hydrological variations, and there may be pygmy characteristics within the adjoining managed forest. Unique pygmy features that are encountered within a harvest area would be retained under Forest Management Policies Section X, Retention Requirements.

Old growth coniferous forest. Unfortunately, this does not exist within the TCF ownership. Should any new stands be identified or new property be acquired, all old growth coniferous forest would be preserved.

Salmonid spawning streams. Protection for salmonid spawning streams is provided for by the Forest Management Policies Section XIV, WLPZ Protection Measures, and includes measures related to upslope silviculture, road improvements, and increased riparian buffer protection. Additional details are available within the Forest Management Policies and the GRF Site-Specific Management Plan approved by the North Coast Regional Water Quality Control Board.

TCF Monitoring of HCVF

Periodic monitoring of HCVF will be integrated into ongoing monitoring activities on the properties and will occur at different scales and timeframes as necessary. Two categories of monitoring will occur: 1) biophysical—related to the distribution and condition of the HCVF features, and 2) programmatic—related to the effectiveness of the protection measures.

Biophysical monitoring will consist of:

- Ongoing vegetation mapping as part of forest inventory updates and Timber Harvest Plan preparation, with an updated forest stratification approximately every ten years.
- Ongoing rare plant surveys in the areas within and adjoining planned Timber Harvest Plans.
- Occasional evaluations of Sudden Oak Death distribution and mortality on Garcia River Forest by The Nature Conservancy and or TCF.
- Aquatic habitat typing by The California Department of Fish and Game have been completed on Garcia, Big River and Salmon Creek, and are tentatively scheduled to be re-assessed approximately every ten years.
- EMAP aquatic monitoring on Garcia River Forest by The Nature Conservancy and the North Coast Regional Water Quality Control Board—initial assessments completed, re-assessments in approximately ten years.
- Annual summer season stream temperature monitoring at multiple sites on all properties (multiple partners).

Programmatic monitoring will consist of 1) an annual evaluation of whether the HCVF features are being sufficiently protected and if there are any new threats to consider and 2) a long-term evaluation of the water quality and stream habitat condition response to TCF forest management and watershed restoration practices. The former will occur as part of the January Program Review; the latter will be developed over the next decade based on observations in the habitat assessment and EMAP measurements (see the GRF Aquatic Monitoring Plan in the IRMP).

Consultation regarding HCVF

The FSC standard explicitly expects some level of stakeholder consultation as part of the HCVF identification and protection process. As described above, the identification of the four HCVF features was based on two well-respected conservation biology planning efforts which were openly developed, are publicly available and have been thoroughly reviewed by natural resource agencies, environmental organizations and the local communities. In addition the HCVF features descriptions and protection measures have been part of the TCF Forest Management Policies, which is a publicly available document

that has benefited greatly from community and agency review. The most significant contributors to the policies include: Jen Carah (The Nature Conservancy), Linda Perkins (Sierra Club), and Alan Levine (Coast Action Group). The TCF Forest Management Policies are discussed as part of every THP field review (which includes both an internal staff and an open tour); the public tours draw a broad range of stakeholders, including students, neighbors, and local environmentalists. More recently, we have also benefited from the extensive HCVF and RSA consultation and analysis conducted by the Mendocino Redwood Company which manages an adjoining and much larger landbase.

Representative Sample Areas. Ecosystem type definition

Identification and protection of Representative Sample Areas (RSA) are explicitly required as part of the FSC Standard (6.4) in order to ensure the conservation of ecosystem types that are not protected through HCVF or other requirements. [Definition from FSC Standard: **Representative Sample Areas (RSAs)** are ecologically viable representative samples designated to serve one or more of three purposes: 1) To establish and/or maintain an ecological reference condition; or 2) To create or maintain an under-represented ecological condition (i.e., includes samples of successional phases, forest types, ecosystems, and/or ecological communities); or 3) To serve as a set of protected areas or refugia for species, communities and community types not captured in other Criteria of this Standard (e.g., to prevent common ecosystems or components from becoming rare)]. In the context of the North Coast there are many ecosystem types and conditions present, from ocean shore to old growth forest. The TCF Forests all occur within the Northern California Coastal Forest Ecoregion (NA0519), as defined by Rickets et al, “*Terrestrial Ecoregions of North America: a conservation assessment*” (Island Press 1999). More traditional forest classification systems show similar categorization, e.g. Northern California Coast Section (263A) in “*Description of the ecoregions of the United States*” (Bailey, R.G., US Forest Service, 1995).

Northern California Coastal Forest Ecoregion conservation status

Ricketts et al describe the Northern California Coastal Forest Ecoregion as a Class 1 ecoregion, or “Globally outstanding ecoregion requiring immediate protection of remaining habitat and extensive restoration.” Urgent action priorities developed by the WWF include greatly increasing “...the number of certified forests where timber is being harvested sustainably,” which is “...essential for maintaining the integrity of ecosystems outside protected areas.” At 18.7% protected, the Northern California Coastal Forest Ecoregion is one of the most protected forest types in the world (Schmitt, C.B., et al. “*Global analysis of the protection status of the world’s forest*,” Biological Conservation, 2009). The Convention on Biological Diversity targets 10% protection of each ecoregion as necessary to maintain biological diversity, thus the Ecoregion can be considered well-protected.

The vast majority of the Northern California Coastal Forest Ecoregion is analyzed as part of “*Conservation Prospects*,” which recognized two principal recommendations as conservation priorities

- Move quickly to establish “working landscape” conservation management on large, strategically located forest and agricultural properties in resource-rich watersheds in Humboldt, Mendocino and Del Norte counties.
- Focus other fee or easement acquisitions on unique resources that are essential to conserving high-priority coastal resources, such as coastal estuaries, old-growth redwood forest stands, coho salmon refugia, floodplains, and California Coastal Trail segments.

It does not recommend the additional preservation of redwood forest unless it contains some of the high value features (where they occur, those same features are protected within the TCF Forests through the HCVF program).

Identification of Representative Sample Areas

For the purpose of this program we classify the following as Representative Sample Areas—Mendocino Headlands State Park, Jackson State Demonstration Forest, Maillard State Reserve, and the Ecological

Reserve Network of the Garcia River Forest. These are large-scale formally-protected landbases containing a diversity of representative natural habitat conditions.

There are countless habitat conditions and successional stages that could be considered for the purpose of defining Representative Sample Areas. The most significant of these, such as oak woodlands, are protected through the HCVF program described above. Less significant examples could include riparian alder stands and natural (not herbicided and planted) early successional stands. Within the portion of the Northern California Coastal Forest Ecoregion that is actually forested (so setting aside the coastal scrub, pygmy cypress, oak woodlands and other non-forest ecosystem conditions) there is relatively little spatially-explicit variation—almost everything is dominated by redwood, Douglas fir, and tanoak and is less than 100 years old. Other tree species do occur but are almost never a large component of a stand. In addition to vegetation typing, certain ecological processes create significant features to consider, for example forest fires and landslides can and do create successional pathways with some different characteristics.

The process of identifying RSAs within this somewhat indistinctive landscape becomes somewhat irrelevant when looking at the conservation status and management of surrounding lands. In addition to all TCF properties being permanently conserved, there are a number of other large landholdings with similar features which are also permanently conserved. For example, adjoining the Big River property is the Big River unit (7,334 acres) of the Mendocino Headlands State Park and the Jackson Demonstration State Forest (48,652 acres). Due to the shared management history, the State Park is almost identical in conditions to TCF's Big River tract, and is permanently protected with little to no harvesting or road building expected. Comparatively, the State Forest is thirty to fifty years more developed, with significantly older and denser forest conditions prevalent, and will be managed for both continued late-seral forest development as well as some modest level of harvesting (both even-aged and uneven-aged). While the Garcia River Forest does not have the same level of protected land nearby it does adjoin an old growth reserve and contain a 8,264 acre Ecological Reserve, which in addition to being permanently protected from development and conversion can also only be managed for late-seral and other desired ecological conditions. Looking beyond the protected lands, due to the significant land use and forestry restrictions imposed on the surrounding landscape a wholesale change in ecological patterns is unlikely.

As it relates to designating RSAs, it is possible that some existing but niche habitat type is unlikely to persist on the landscape. For example red alder stands less than 30 years old are very uncommon because red alder stands are almost exclusively located in riparian zones and due to the Forest Practice Rules (dating to the 1970s), new clearings in riparian zones are relatively rare (only triggered by flood scouring). However it would likely be illegal to try to encourage the development of new alder stands and it would certainly be impractical to try to freeze in time the existing stands. The habitat types that are most likely to decrease in abundance are early successional stands, due to the decrease in even-aged management practices. However early successional stand conditions are still being perpetuated to some extent on private lands and were likely an almost non-existent component of the pre-European landscape. The ecological process least represented is probably fire, due to 50+ years of aggressive fire suppression. Reintroducing low-intensity ground fires is a long-term objective for TCF but will require a significant shift in forest structure and community acceptance. And despite the suppression efforts, fires still occur, as shown by the summer of 2008 when over 54,000 acres burned in Mendocino County—so recently burned areas are not lacking and will continue to persist on the landscape. The more pervasive threat to habitat conditions and distribution will likely be climate change, which cannot be prevented through the designation of RSAs, and an extensive network of protected lands already provides the best hope for adaptation and species persistence.

Given the protection status of the ecosystem, the regulatory system restricting land use change and harvest practices, and the existing pattern of habitat conditions and ecological processes present on the

landscape, we do not think the designation of additional Representative Sample Areas is necessary or ecologically beneficial.

Protection and management of Representative Sample Areas

Ongoing preservation and management of the Representative Sample Areas is the responsibility of the landowner, California State Parks Department, California Department of Forestry and Fire Protection, and The Conservation Fund, respectively. All properties are covered by management plans consistent with the public mission of the organization; in addition management plans and actions are reviewed by outside advisory groups.

Social Benefit/Impact Assessment
Memo to certification team, August 25, 2008
The Conservation Fund's North Coast Forest Conservation Program
Primary authors: Jenny Griffin and Evan Smith

social: L socialis, fr. socius companion, ally, associate; akin to L sequi to follow. Of or relating to human society, the interaction of the individual and the group, or the welfare of human beings as members of society (Websters Seventh New Collegiate Dictionary, 1972).

The Conservation Fund's North Coast Forest Conservation Program endeavors to have a very positive impact in our local community. This is due in part to our charitable mission as a non-profit organization, which is broader than just environmental protection, and references economic development and education. It is also explicitly addressed as part of the Garcia River Forest Integrated Resource Management Plan:

"The Plan identifies and describes in detail the following general management goals:

- Improve ecological conditions by increasing the viability of selected "conservation targets" identified during the planning process.*
- Generate sufficient revenue to cover the costs of property taxes, on-site maintenance, management and restoration projects and, potentially, generate net revenues for other conservation initiatives.*
- Practice continual improvement through adaptive management based on monitoring of ecological, financial and social values.*
- Support the local business community by utilizing local contractors and suppliers.*
- Engage the local community by providing compatible public access, educational and recreational opportunities."*

We pride ourselves on being very cognizant of and sensitive to the potential social impacts (positive and negative) of our forest management activities and the role we play in the community.

We have identified five primary social elements as integral to our program and organize our evaluation of potential social impacts/benefits around these elements. We have not had a formal prioritization of these elements—all are important for our evaluation and monitoring. The five elements, and examples of how they are addressed, are:

- Creative arts (eg. College of the Redwoods and Mendocino Art Center photography and painting workshops, elementary school writing and art projects, etc.)
- Economic/financial (e.g. employment, log sales, carbon sales, etc.)
- Recreational (e.g. interpretive walks, passive recreational access, Boy Scouts and Sierra Club hikes, Audubon trips, etc.)
- Science/education (e.g. EMAP project, UC Davis research, Humboldt State and other surveys, SONAR projects, PWA workshops, stakeholder tours, etc.)
- Spiritual (e.g. open space values, Children and Nature programs, Leopold and Thoreau philosophy-based programs, and access/utilization by Native tribes)

We consider social benefits as an integral part of our management planning. The social elements are assessed and described in various sections of our forest management plans, which include policies on such issues as recreational access, scientific monitoring priorities, and preference for

local goods and services. In addition to management planning, our operational decision-making also includes evaluation of potential social impacts—ranging from maintaining a viable logging industry to resolving the concerns of a neighbor. Our forest management policies have very clear requirements for community engagement and local procurement—we require that every timber harvest plan and major watershed restoration project have publicly available summaries and provide opportunities for field tours before and after operation. We continually ask for feedback from the local community through tours and informal meetings and routinely adjust programs or projects to address concerns. As described above, having a positive impact in the community is a program objective; we evaluate our success at meeting this objective as part of our annual operations review. The discussion and results of the annual operations review then inform the next year’s workplan and as appropriate will be included in updates to the management plans.

***** OPERATIONAL POLICY *****
September 17, 2007
CERTIFIED PRODUCT CHAIN-OF-CUSTODY PROGRAM
For The Conservation Fund's North Coast timberland—
Garcia River, Big River, and Salmon Creek, Mendocino County, CA
Principal author: Evan Smith

Note to Licensed Timber Operators, Log Haulers, and Log Buyers

This document is being provided to you because it is required by The Conservation Fund's certification under the Forest Stewardship Council standard for forest management and chain-of-custody for logs. The purpose of this policy is to ensure that wood products which originate on our properties are appropriately accounted for and do not become inappropriately labeled. All logs generated on our Mendocino properties are certified under the Forest Stewardship Council standard. Use of the Forest Stewardship Council logo or other origin claims is restricted to those facilities that have undergone an independent certification of their compliance with the Forest Stewardship Council Chain-of-Custody standard. The Conservation Fund's participation in this program should not impose any additional burdens on our contractors and customers other than standard log security and accounting. If you have any questions about this policy, please contact Scott Kelly at (707)272-4497.

Provisional Status

References to Forest Stewardship Council (FSC) certification assume successful certification, which is still pending as of the writing of this policy. All requirements hold true regardless of the outcome or timing of a final approval. *[This section will be removed following final certification approval.]*

Section 1, Control System Documentation

- 1.1 The Conservation Fund has implemented a documented control system in order to responsibly track log sales under Generally Accepted Accounting Principles (GAAP) and to address the Principles of Chain-of-Custody control as set forth by the FSC.
- 1.2 The Conservation Fund's designated Chain of Custody Control Administrator is Scott Kelly, the senior forester responsible for, among other things, log sales and harvest administration. Scott Kelly is responsible for education of employees and contractors, as well as for implementation of the documented control system for Chain of Custody of FSC-certified wood products sold by The Conservation Fund from its properties in Mendocino County, California.
- 1.3 Scott Kelly is assisted in this documentation by Margery Hoppner, consulting accountant, who manages the log sale accounting process and reconciles trip tickets, scale records, mill receipts, and contractor payments.
- 1.4 A sample Trip Ticket and Log Sales Record are attached at the end of this document. Instructions for the trip ticket are provided to the log hauler. Instructions for the Log Sales records are contained in The Conservation Fund's accounting procedures manual.

Section 2, Confirmation of Inputs

- 2.1 The Conservation Fund is engaged in the business of selling logs and does not purchase logs or any other FSC-certified wood products. Therefore, confirmation of inputs is not applicable, except that The Conservation Fund will be responsible for ensuring that log decks in the forest contain only logs originating on that property and that log trucks exiting the property only contain logs that originated on the property.
- 2.2 It may be required for The Conservation Fund or its partners to purchase small quantities of conifer logs for installation in streams as restoration projects. Those logs are intended

for permanent installation and will not be considered an input for the purpose of Chain of Custody accounting.

Section 3, Separation/Demarcation of Inputs

- 3.1 The Conservation Fund has a system for ensuring that FSC-certified products are clearly identified. The Conservation Fund timber harvest and log sale activity is only conducted for The Conservation Fund's properties, all of which are certified. Thus, there are no non-FSC products involved.
- 3.2 Physical separation/segregation of certified and non-certified products is achieved by not involving any non-certified logs in The Conservation Fund's activities. There are no inputs (either certified or not), thus no non-certified logs will ever be brought on the property and mixed with certified logs.
- 3.3 Logs will be identified as certified through paperwork supplied by The Conservation Fund to the purchasing mill.

Section 4, Secure Product Labeling

- 4.1 The Conservation Fund does not use on-product labels during the sale of logs.
- 4.2 The Conservation Fund accepts the responsibility to ensure that the FSC Logo Pack and labels are not used by unauthorized users or for any unauthorized use.

Section 5, Identification of Certified Outputs

- 5.1 Certified products are identifiable by field marking and trip ticket paperwork that clearly identifies the purchaser and seller of the logs. The certified status of the logs is communicated in writing (through the log sales agreement and by sharing this document) by The Conservation Fund to the purchaser.
- 5.2 The Conservation Fund operates an accounting system that records log species, volume, and grade information for all log deliveries. This includes reconciliation between the trip tickets provided by the LTO and log hauler, scale records provided by the scaling bureau, and payment receipts provided by the purchasing mill.
- 5.3 Payment is issued by the purchasing mill upon receipt (and scaling) according to the terms of the log sales agreement. Because no invoices are issued it is incumbent on The Conservation Fund to communicate the certified status of the logs to the purchaser (which is done through this document and the log sales agreement). A copy of The Conservation Fund's Chain of Custody certificate will be provided to the purchasers upon request.

Section 6, Record Keeping

- 6.1 The Conservation Fund maintains appropriate records of all log sales (which is the same as outputs of certified products) in accordance with Generally Accepted Accounting Practices (GAAP).
- 6.2 The Conservation Fund's records are sufficient to satisfy a financial auditor or an independent assessor seeking to trace back any given certified product output pool or load back to the specific certified forest of origin.
- 6.3 The Conservation Fund's records are sufficient to allow an independent assessor to determine the rate of production of certified logs from the certified forest, as well as to determine the certified product delivered to each manufacturing facility.

6.4 All records related to certified products sold by The Conservation Fund will be kept for a minimum of five years.

THE CONSERVATION FUND TRIP TICKET BOOK TEMPLATE August 3, 2007

TEMPLATE -- TRIP TICKET:

<u>THE CONSERVATION FUND</u>		TRIP TICKET
<i>America's Partner in Conservation</i>		150
14951 "A" Caspar Road, Box 50, Caspar, CA 95420 (707) 962-0712		
DATE ____/____/____	TRUCK NO./ DRIVER _____	
TRACT NAME _____	THP NAME _____	
LOGGER _____	SOURCE CODE _____	
BUYER _____	DESTINATION _____	
# OF LOGS RW__ DF__ WF__ ww__ HW__ OTHER_____		
RECEIVED BY _____		DECK NO. _____
White - Logger	Canary - Trucker	Pink - Mill
		Goldenrod - Owner

THE CONSERVATION FUND
Daily Log Summary
July, 2007

THP Name: Lower Salmon Creek
THP #: 01-06-099
FORESTER: Craig Blencowe

LOGGER VERIFICATION REQUIRED	
Logging System: _____	
Acres Logged: _____	
Verified by: _____	Date: _____

Scaling Date	Trip Ticket #	Scaling Ticket #	Redwood			Douglas Fir			White Fir			Totals			# Loads	Bureau Number
			Linear Ft	Gross MBF	Net MBF	Linear Ft	Gross MBF	Net MBF	Linear Ft	Gross MBF	Net MBF	Linear Ft	Gross MBF	Net MBF		
MILL: Willits Redwood																
7/2/2007	616	45236	296		4.85							296	0.00	4.85	1	8507-01
7/5/2007	628	45297	300		5.28							300	0.00	5.28	2	8626-02
7/5/2007	629	45298	272		4.74							272	0.00	4.74		8626-02
7/6/2007	636	45324	276		4.54							276	0.00	4.54	1	8638-06
7/6/2007	638	45327	256		4.30							256	0.00	4.30	1	8679-02
7/9/2007	644	45353	292		4.68							292	0.00	4.68	1	8693-05
7/10/2007	651	45371	274		4.86							274	0.00	4.86	1	8752-09
7/11/2007	658	45410	214		4.74							214	0.00	4.74	1	1025-06
7/13/2007	663	45447	200		4.69							200	0.00	4.69	1	1161-09
Semimonthly (1)			2380	45.34	42.68	0	0.00	0.00	0	0.00	0.00	2380	0.00	42.68	9	203858
7/17/2007	668	45492	240	5.41	5.04							240	5.41	5.04	3	1322-07
7/17/2007	669	45499	284	4.55	4.25							284	4.55	4.25		1322-07
7/17/2007	670	45507	294	4.50	4.14							294	4.50	4.14		1322-07
7/19/2007	675	45525	248	5.31	5.07							248	5.31	5.07	2	1456-04
7/19/2007	676	45529	280	5.64	4.97							280	5.64	4.97		1456-04
7/20/2007	678	45541	296	5.03	4.79							296	5.03	4.79	2	1523-04
7/20/2007	681	45542	220	5.72	5.33							220	5.72	5.33		1523-04
7/23/2007	685	45562	256	5.24	4.93							256	5.24	4.93	2	1583-05
7/23/2007	687	45572	222	5.07	4.56							222	5.07	4.56		1583-05
7/24/2007	688	45584	220	5.01	4.16							220	5.01	4.16	4	1643-05
7/24/2007	689	45587	260	5.21	4.59							260	5.21	4.59		1643-05
7/24/2007	690	45588	280	4.89	4.34							280	4.89	4.34		1643-05
7/24/2007	691	45590	280	5.66	5.04							280	5.66	5.04		1643-05
7/25/2007	695	45604	308	5.54	5.19							308	5.54	5.19	2	1714-04
7/25/2007	697	45606	344	5.24	4.87							344	5.24	4.87		1714-04
7/26/2007	700	45617	260	6.61	5.39							260	6.61	5.39	3	1776-07
7/26/2007	852	45618	320	4.86	4.42							320	4.86	4.42		1776-07
7/26/2007	851	45619	248	5.03	4.63							248	5.03	4.63		1776-07
7/27/2007	858	45642	428	4.28	4.04							428	4.28	4.04	2	1836-05
7/27/2007	860	45649	280	5.06	4.83							280	5.06	4.83		1836-05
7/30/2007	862	121578	264	5.32	4.97							264	5.32	4.97	2	1899-04
7/30/2007	865	121583	302	5.79	5.16							302	5.79	5.16		1899-04
7/30/2007	863	121580	356	4.81	4.32							356	4.81	4.32	1	1942-03
7/31/2007	867	45665	320	4.96	4.54							320	4.96	4.54	3	1967-04
7/31/2007	868	45568	202	4.67	4.27							202	4.67	4.27		1967-04
7/31/2007	869	45569	240	4.63	4.38							240	4.63	4.38		1967-04
												0	0.00	0.00		
												0	0.00	0.00		
Semimonthly (2)			7252	134.04	122.22	0	0.00	0.00	0	0.00	0.00	7252	134.04	122.22	26	
Total Month			9632	179.38	164.90	0	0.00	0.00	0	0.00	0.00	9632	179.38	164.90	35	
MILL: Redwood Empire																
	617- 7/2/2007	621,623	7202		21.31							7202	0.00	21.31	6	8473-10
	624, 625, 7/3/2007	627	3018		10.13							3018	0.00	10.13	3	8527-09
	630- 7/5/2007	634	5298		17.48							5298	0.00	17.48	5	8593-09
	637, 639,640 642,64	7/6/2007	5276		18.91							5276	0.00	18.91	5	8639-07
	645- 7/9/2007	648	4718		12.94							4718	0.00	12.94	4	8694-08
	652- 7/10/2007	654	3836		9.84							3836	0.00	9.84	3	8753-10
	656- 7/11/2007	657,659	3582		9.10							3582	0.00	9.10	3	1026-08
	660-															

THE CONSERVATION FUND
Daily Log Summary
July, 2007

THP Name: Lower Salmon Creek
THP #: 01-06-099
FORESTER: Craig Blencowe

LOGGER VERIFICATION REQUIRED	
Logging System: _____	
Acres Logged: _____	
Verified by: _____	Date: _____

Scaling Date	Trip Ticket #	Scaling Ticket #	Redwood			Douglas Fir			White Fir			Totals			# Loads	Bureau Number
			Linear Ft	Gross MBF	Net MBF	Linear Ft	Gross MBF	Net MBF	Linear Ft	Gross MBF	Net MBF	Linear Ft	Gross MBF	Net MBF		
7/25/2007	699	260417	1096		3.16							1096	0.00	3.16		1715-12
7/26/2007	853	260449	912		3.23							912	0.00	3.23	4	1777-12
7/26/2007	854	260450	1286		3.37							1286	0.00	3.37		1777-12
7/26/2007	855	260465	1304		3.16							1304	0.00	3.16		1777-12
7/26/2007	856	260466	1074		3.19							1074	0.00	3.19		1777-12
7/27/2007	859	260487	1472		2.93							1472	0.00	2.93	1	1837-10
7/30/2007	864	260530	1064		2.88							1064	0.00	2.88	2	1900-15
7/30/2007	866	260549	1262		3.33							1262	0.00	3.33		1900-15
Semimonthly (2)			22318		68.78	0	0.00	0.00	0	0.00	0.00	22318	0.00	68.78	21	
Total Month			59784		182.60	0	0.00	0.00	0	0.00	0.00	59784	0.00	182.60	54	
MILL: Harwood Produc																
7/2/2007	615	879037										0	0.00	0.00		
7/2/2007	622	879079										0	0.00	0.00		
7/5/2007	626	979138										0	0.00	0.00		
7/6/2007	635	979189										0	0.00	0.00		
7/6/2007	641	979217										0	0.00	0.00		
7/10/2007	649	879294										0	0.00	0.00		
7/10/2007	650	879291										0	0.00	0.00		
7/11/2007	655	879354										0	0.00	0.00		
7/13/2007	662	879394										0	0.00	0.00		
Semimonthly (1)			0	0.00	0.00	0	36.30	33.10	0	1.24	1.11	0	37.54	34.21	0	
												0	0.00	0.00		
												0	0.00	0.00		
												0	0.00	0.00		
												0	0.00	0.00		
												0	0.00	0.00		
												0	0.00	0.00		
Semimonthly (2)			0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	
Total Month			0	0.00	0.00	0	36.30	33.10	0	1.24	1.11	0	37.54	34.21	0	
Semimonthly (1)Totals			39846	165.77	156.5	0	36.3	33.1	0	1.24	1.11	39846	37.54	190.71	42	
Semimonthly (2)Totals			29570	134.04	191	0	0	0	0	0	0	29570	134	191	47	
GRAND TOTALS			69416	179.38	347.50	0	36.30	33.10	0	1.24	1.11	69416	37.54	381.71	89	

.5 pine??

# 16' scaling segments	4338.50	0.00	0.00	4338.50
Average Volume per log: excludes cull logs includes SSM (small sawlogs)	80.10	#DIV/0!	#DIV/0!	87.98

The Conservation Fund
North Coast Forest Conservation Program
Herbicide Policy: Big River and Salmon Creek Forests

Overview

The 16,000-acre Big River and Salmon Creek Forests were acquired in November 2006 by The Conservation Fund (the Fund) as part of the Fund's North Coast Forest Conservation Initiative which seeks to demonstrate that large, under-stocked tracts of coastal forest can be returned to ecological and economic viability through patient, adaptive management by a non-profit organization in partnership with private and public entities and community stakeholders.

In addition to the current under-stocked condition of these forests, past land use practices have also resulted in the introduction of invasive non-native species and an unnaturally high abundance of native tanoak in many areas that historically were dominated by conifers. Restoring these forestlands to a healthy ecological balance will require many years plus the dedication of financial and personnel resources to thoughtfully and patiently develop long-term solutions. Like other conservation organizations including The Nature Conservancy, the California Native Plant Society, and the California Pest Plant Council, The Conservation Fund recognizes herbicides as one of many tools for managing invasive plants, each with its own advantages and disadvantages. Reduction in the use of herbicides is an important objective of the Fund and alternatives to herbicide treatment have been and will continue to be evaluated on a periodic basis. The Fund will use herbicides only to control invasive, non-native plants and tanoak on a plant-by-plant basis.

To ensure that herbicide use conforms to our policy, the following operational guidelines for herbicide application are to be followed by TCF staff in addition to the more detailed management measures described below:

1. All applications must be by a licensed pesticide applicator with a good safety track record and in compliance with EPA-approved label recommendations.
2. Work orders will include detailed contract specifications (to minimize risk of over-application or misapplication).
3. Indicator dye will be used to enable better monitoring, and applications areas will be flagged in advance,
4. No herbicides will be applied within 50' of neighborhood property lines.
5. Work will be closely supervised by TCF staff or consulting foresters.
6. Notification signs will be posted in logical locations.
7. Records on all applications will be compiled by TCF staff and available upon request.
8. The effectiveness of treatments will be monitored by TCF staff.

All policies are to be reviewed on a regular basis and adapted as needed in order to best meet the project goals.

* * * * *

The following detailed information on the management of invasive weeds and tanoak is drawn from the Fund's *Big River and Salmon Creek Forests: Integrated Resource Management Plan*, available after August 15, 2009 (hnewberger@conservationfund.org or 707-962-0712).

Invasive Weed Management

In their field surveys of the Forests, consulting botanists Geri Hulse-Stephens and Kerry Heise have identified two invasive plants that are the highest priority for treatment: jubata or pampas grass (*Cortaderia jubata*) and French broom (*Cytisus* spp.), both of which can have a severe ecological impact and are commonly found on both Forests in natural and manmade openings. Both have airborne seeds but are commonly spread through road grading and other vehicle use. Invasive species management will initially focus on the control of these two species.

The Fund will employ chemical and mechanical control techniques to reverse the spread of invasive species, with a preference for mechanical (including manual) control measures where they will be effective. Only licensed and insured contractors with a good track record for safety and compliance may apply herbicides. All herbicide application must be in conformance with label guidelines and applicable laws. The Fund has used Roundup to control invasive species on the Big River Forest and manual control techniques on Salmon Creek; additionally, Mendocino Land Trust volunteers have manually removed invasives on the west end of the Big River Forest. Due to the small size of the Salmon Creek Forest, our preference for mechanical treatments, and the availability of volunteers, the Fund does not expect to use herbicides on Salmon Creek.

The highest priority for treatment will be areas planned for upcoming timber harvest or road improvement projects so as to discourage the further spread of invasives. If done prior to flowering, the physical removal of plants during road grading can reduce the spread of invasive species. However, this generally does not permanently remove the plant from a site once established and subsequent treatments to reduce the population will be required. General road maintenance such as grading and roadside brushing will be the second line of defense to prevent invasives from re-invading a site once the initial treatment has occurred.

Addressing the high priority invasives promptly is a high priority because climate change is expected to make these species more competitive at occupying openings and roadsides. Ultimately, forest management which promotes dense forest cover to shade out invasive plants like jubata grass and French broom, will have the greatest and most long-lasting impact on controlling invasive species.

Invasive Weed Monitoring

Ongoing monitoring will focus on the distribution of invasive plants and the effectiveness of treatment efforts. Project botanists and field foresters will continue to identify and record locations of invasives. Additional evaluation projects will monitor the effectiveness of treatment efforts by long-term survivorship of individual populations, similar to the monitoring occurring along Olsen Gulch Road on the GRF (Heise and Hulse-Stephens, 2008).

Tanoak Management

Hardwood species, including tanoak, madrone, chinquapin, and alder, are an important ecological component of North Coast forests. Past management practices have resulted in an unnaturally high abundance of tanoak in many areas that historically were dominated by conifers. Mixed hardwoods account for 18 and 23 percent of the basal area on the Salmon Creek Forest and Big River Forest, respectively; in some stand types it is as high as 46 percent. For comparison, old growth conifer stands in the area often have ten percent or less of the basal area in hardwood species. Stands with greater than 25 percent of the basal area in hardwood species account for 23 percent of the forested acres.

In addition to the ecological imbalance, the high concentration of tanoak significantly reduces conifer growth and stocking and therefore the future financial value of the Forests, since tanoaks have effectively no commercial value (it costs more to log and deliver than they are worth as firewood). The long-term goal is to maintain an appropriate level of tanoak and other hardwoods (probably around ten percent on average). It is important to not try to eliminate hardwoods—merely to increase conifer site occupancy over time. To achieve these objectives, the following management measures will be implemented:

- All true oak (*Quercus* spp.) woodlands are to be preserved [none are known to occur on the Forests].
- All hardwood wildlife trees are to be retained (which includes all hardwoods 20 inches or greater), except where removal is required for safety concerns or necessary for yarding or road corridors.
- Where the post-harvest hardwood basal area would exceed 30 square feet of basal area per acre (averaged across the stand), hardwoods shall be controlled through manual falling or girdling or herbicide treatment through direct basal injection (“hack-and-squirt”) or stump treatment to provide a post-harvest hardwood basal area of 15 to 30 square feet per acre. This may take more than one entry to achieve.
- Most hardwood reduction will be achieved within a selection or thinning harvest by selective falling of tanoaks to release existing conifers. While the tanoak stumps will likely re-sprout, the conifers should have established dominance and will eventually shade-out most of the sprouts. In this type of incremental treatment (selective falling), clumps of hardwoods and individual hardwoods which do not compete with desirable conifers will be left alone. [This treatment occurred to varying degrees in the Riverbends and North of 20 THPs on the Big River Forest.]
- There are many stands where selective hardwood felling would not be sufficient to meet the desired level of conifer site occupancy. In these situations, a more aggressive treatment will be utilized through a herbicide treatment that kills a majority of the tanoak to release either existing conifers or seedlings planted shortly before or after the hardwood treatment. Even within these prescriptions, smaller areas of intact hardwoods would be intentionally retained (for biodiversity reasons). Preference for hardwood retention will be given to large trees (greater than 20 inches), true oaks, chinquapins and madrones, and groups of hardwoods. Rehabilitation treatments (including the use of herbicides) are intended to be one-time interventions and should not need to be repeated

because of the decreased openings and ground disturbance associated with subsequent harvests. [An example of this treatment occurred within the Variable Retention units of the Jarvis Camp THP on Big River.]

- The only herbicide to be used in hardwood control treatments currently is imazapyr (tradename Arsenal). Only licensed and insured contractors with a good track record for safety and compliance may apply herbicides. All herbicide application must be in conformance with label guidelines and applicable laws. Additional herbicides may be considered in the future as they are developed and tested and reviewed with respect to Forest Stewardship Council and Sustainable Forestry Initiative standards.
- Any planned use of herbicide will be clearly identified in the THP and THP summary.
- Reduction in the use of herbicides is an important objective; alternatives to herbicide treatment have been and will continue to be evaluated on a periodic basis. A comparison of herbicide treatment and logging of tanoaks for commercial firewood was evaluated as part of the Jarvis Camp THP. Monumented plots will allow for long-term evaluation of effectiveness but the initial impressions are that the logging method resulted in increased cost and site disturbance (exposed soil and damage to the residual stand). That said, a commercial market for tanoak would be pursued if it develops. Areas with well-established and good quality hardwoods will likely be managed for mature hardwoods instead of attempting to re-establish conifer.
- There will be no hardwood control with herbicides in WLPZs; manual falling or girdling of small hardwoods may be used, but only as part of a riparian shade enhancement project (likely with conifer underplanting).
- Priority for rehabilitation treatments will be given to high site, tractor-operable ground, with existing desirable redwood growing stock. Herbicide treatments will be less than 100 acres annually (on a rolling average basis).
- Hardwood control measures will be reviewed periodically and revised as appropriate based on knowledge and experience gained in the field over the next several years. Herbicides will likely also be used to control certain exotic invasive plants, primarily jubata grass and broom. No other uses of herbicides or pesticides are anticipated.