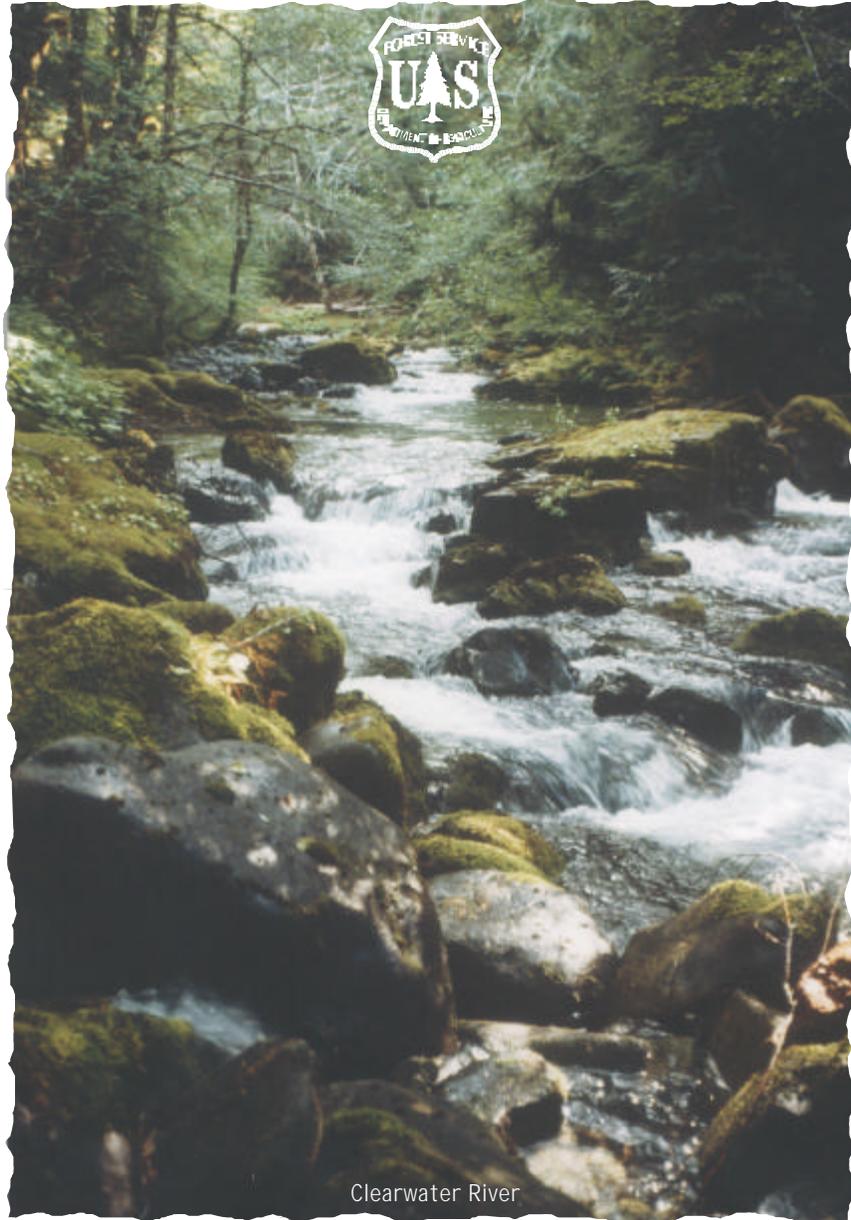


WATERSHED RESTORATION BUSINESS PLAN



Clearwater River

UMPQUA NATIONAL FOREST

8/21/00

Restoration Business Plan Umpqua National Forest

Pacific Northwest Region



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The Umpqua National Forest Executive Team members and the Forest Restoration Team Representative from the Umpqua Basin Watershed Council agree to advocate and support the implementation of this Restoration Business Plan.

Executive Team Decision Points are identified with a ✓ in document.

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Title

Restoration Business Plan for the Umpqua National Forest

Abstract

This Restoration Business Plan is designed for district restoration coordinators, restoration team members, executive team members, and partners of the Umpqua National Forest. It contains a vision of what the Umpqua's landscape will look like and a description of what is needed to restore the Forest to that vision. This plan lists the six watersheds selected for restoration on the Umpqua National Forest and describes in what order restoration work will be funded.

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Restoration Business Plan

Overview

*“The Umpqua National Forest is a landscape of unparalleled beauty, with a unique history, and diverse and dynamic ecosystems.”
Don Ostby,
Forest Supervisor*

The Restoration Business Plan establishes goals and proposes a 10-year, \$40 million investment starting in 2001 for restoring the diversity of forest and stream habitats in six watersheds on the Umpqua National Forest. The Plan proposes an integrated management scheme with activities that will mimic the effects of historic disturbance processes such as fire and insect damage.

This Plan guides the strategic development and funding of an ecosystem restoration program on the Umpqua National Forest. It outlines the learning and community involvement required for basin-scale restoration. Road maintenance, fire management, forest management, and watershed resources (fisheries, wildlife, soil and water, botany) are coordinated around a common mission. Finally, this plan contains the framework for involving partners and other stakeholders in the design, funding, decision-making and implementation of ecosystem restoration projects.

The Land, the Water and the Ecosystem

*“...high stand densities, principally caused by past timber management and decades of fire suppression, are a major contributor to heightened risk (of loss from large-scale wildfires)”
Ann Bartuska,
director of Forest Management*

Current Conditions

3.2 million acres, the Umpqua Basin is the Pacific Northwest’s largest watershed with the fewest number of dams. With nearly half of the basin under federal management, this area is the best opportunity in the Northwest for restoring health in a watershed. Resilience to change, sustainability and both species and habitat diversity are the desired properties of watershed health.

At one million mostly-contiguous acres, the Umpqua National Forest contains the headwaters of the Umpqua River and provides refuge habitat for coho salmon, steelhead trout, chinook salmon, and cutthroat trout. These headwaters also provide a source of clean water. The Umpqua also has larger areas of roadless forest areas than other federal lands in the Pacific Northwest. Most important, the basin's fishery still has high species variety and productivity compared to similar watersheds in the Northwest. These positive features provide a sound foundation for a restoration strategy.

The Present Challenge for Restoration

The Umpqua National Forest is at the juncture of several distinct geologic provinces, providing an array of habitat for a wide diversity of natural resources.

Timber harvest, road building and loss of large wood from streams have altered much of the Forest's aquatic, riparian and terrestrial habitats. There is a shortage of optimum old growth forest habitat. Managed forests have trees of similar ages, lacking diversity because of past timber harvesting techniques. Soil is damaged in old timber harvest units. The health and vigor of sugar pine and western white pine is declining. We are concerned by the hazardous fuel build-ups and stand health in dense forests due to excluding natural fires. Road densities average between 3 and 4 linear miles per square mile. Other concerns are noxious weed infestations, and loss of meadows resulting from suppressed wildfires.

We estimate it will cost between \$300 and \$400 million for restoration work to address these concerns forest-wide. This estimate includes a broad suite of activities such as road mileage reductions, road improvements, prescribed fire, restorative silvicultural treatments and instream habitat work.

Partners are involved in this restoration plan. Ongoing partnerships, listed in Appendix C, include groups such as the Umpqua Basin Watershed Council, Steamboaters, Oregon Watershed Enhancement Board, Seneca-Jones Timber Company, Coast Fork Willamette Watershed Council, City of Cottage Grove, Little River Committee, and Umpqua Valley Audubon Society. The relicensing of the North Umpqua hydropower project, federal court decisions interpreting the Northwest Forest Plan, and the Clean Water Act and Endangered Species Act implementation as well as the economics and social needs of neighboring communities are other forces that shape this plan.

The Vision – Within 10 Years

The Forest

Visitors to Steamboat and Middle South Umpqua watersheds in 10 years see a landscape in transition. Young stands in key locations are thinned, resulting in a desirable future pattern of young and old forests. Streams have lower water temperatures. Fish habitat is recovering because there are more logs in streams. Prescribed fires reduce forest fuels in key locations. The road network is smaller, well maintained and provides access appropriate for ecosystem management. Roads are better drained, reducing hazards to stream resources and human safety.

Fish Habitat

Within 10 years, 75 miles of habitat improvements for fish exist in the priority watersheds across the Forest. A map of fish distribution in the lower Steamboat watershed shows an example of stream reaches where habitat improvements are located.

The Umpqua River is one of two large coastal rivers in Oregon with a long migration of fish traveling from stream to ocean, and back to streams, covering hundreds of miles.

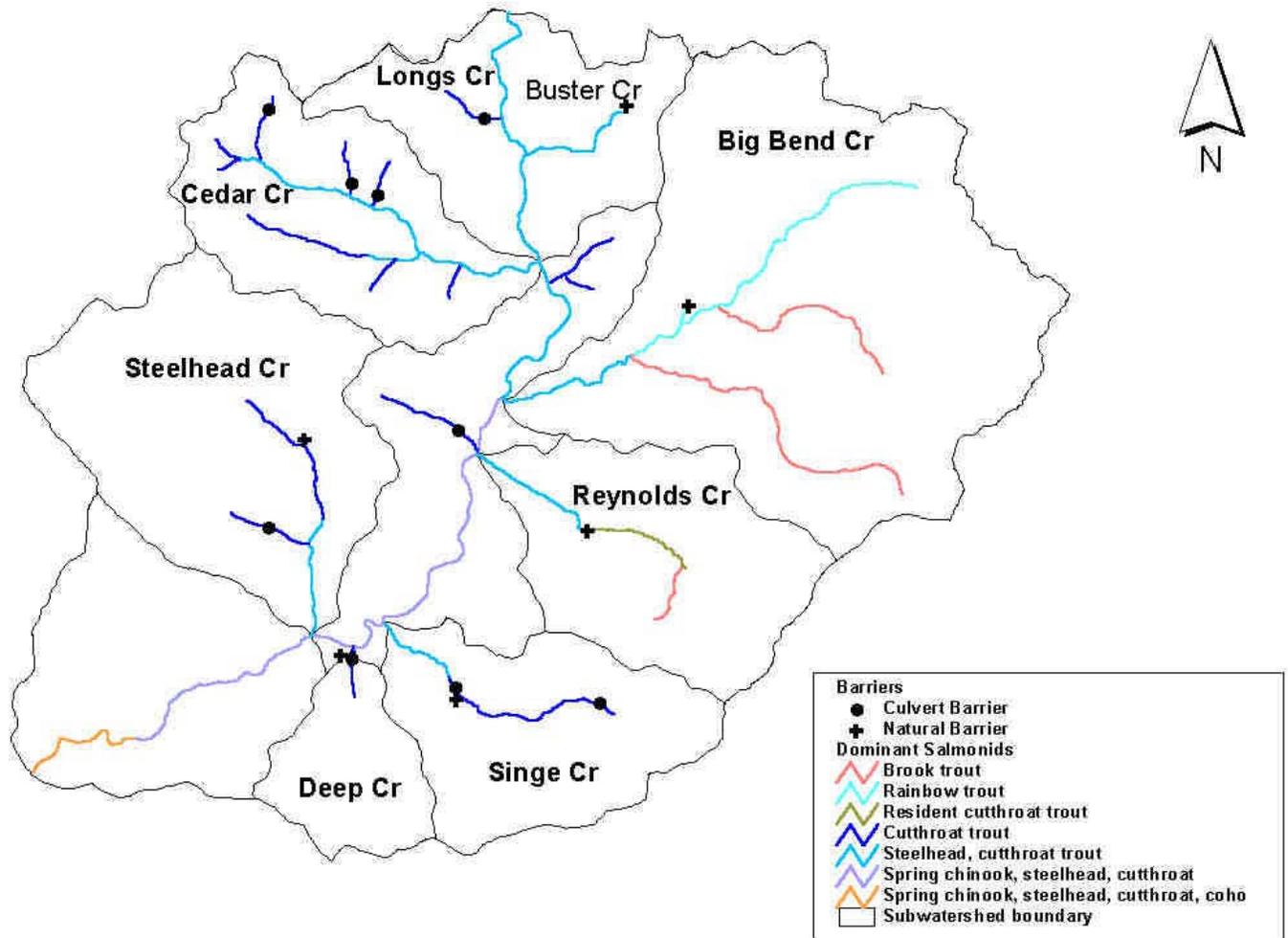


Figure 1: Historic Fish Distribution in Lower Steamboat Creek

Snags and down wood are critical to forest health. They contribute to healthy streams, wildlife, fisheries and plants. Snags and down wood connect the past and future forests.

Old Growth Forests

The use of fire in key areas such as the Lower Steamboat ecosystem benefits the remnant old forests by reducing fuel levels. These forests function as old growth habitat in a larger landscape where old forests are reduced from historic levels.

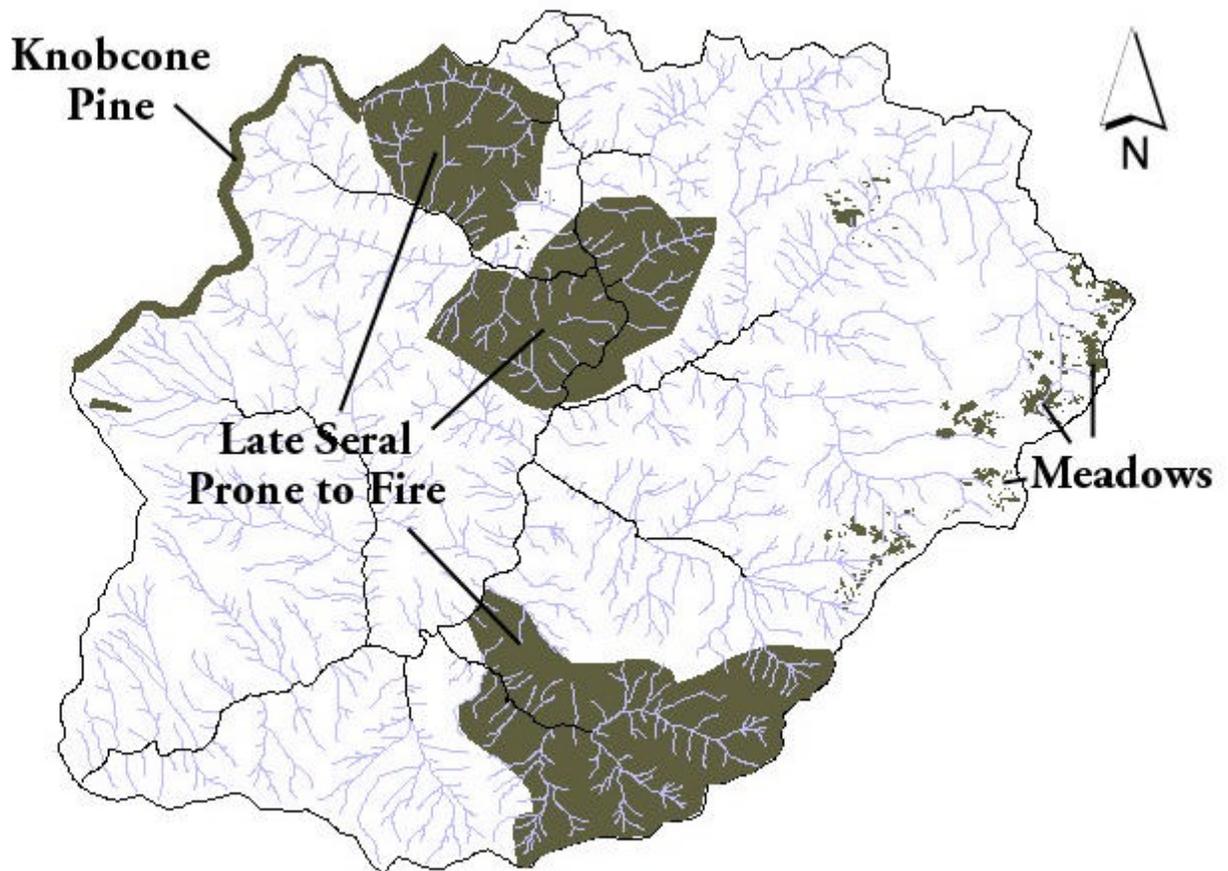


Figure 2: Old Forests Prone to Fire in Lower Steamboat Creek

The Centuries Ahead

Resilience to change, sustainability, native species and habitat diversity are desired properties of watershed health.

The Forest

By 2100, visitors see a mosaic of different ages and types of forests. Forest roads are mostly located away from valley bottoms. Mature and older forests predominate with the distribution of young, mature and older forests closer to a pre-management era. The pattern is less fragmented and more variable like the forest pictured here.

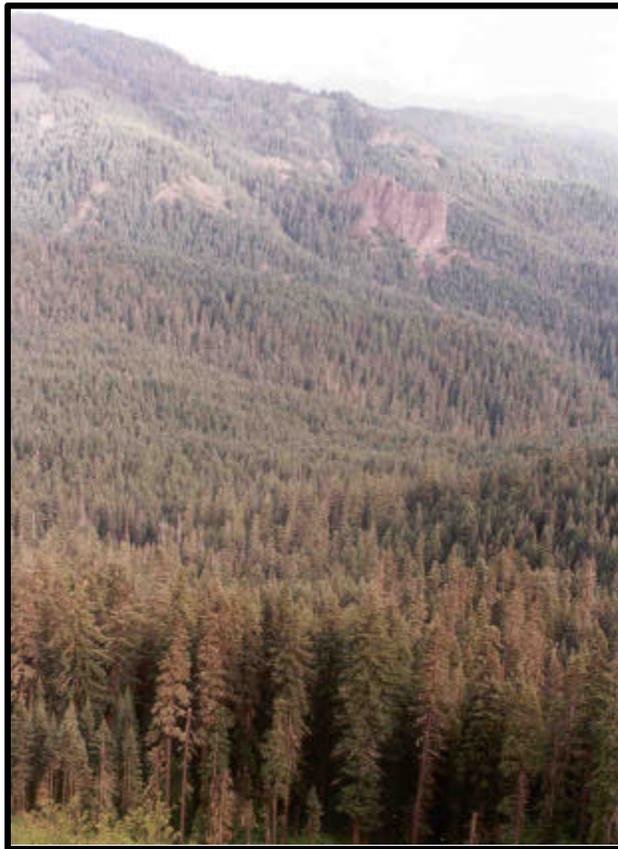


Figure 3: Upper Boulder Creek, North Umpqua River

Management of younger stands today advance the development of the old forests of the next century in places that they are more likely to persist. A prioritization of thinning treatments needed to develop the older forests of the future in the Lower Steamboat watershed shows where these restorative activities occur both near-term and in the long run. High priority areas are treated first. (See Figure 4.)

In the centuries ahead, land management and prescribed fire replicate natural disturbance processes and sustain an economy. Species formerly at risk recover. A view from space reveals a future pattern of vegetation across the Forest more like that seen today in the center of this satellite image of Boulder Creek in the North Umpqua drainage. (See Figure 5.)

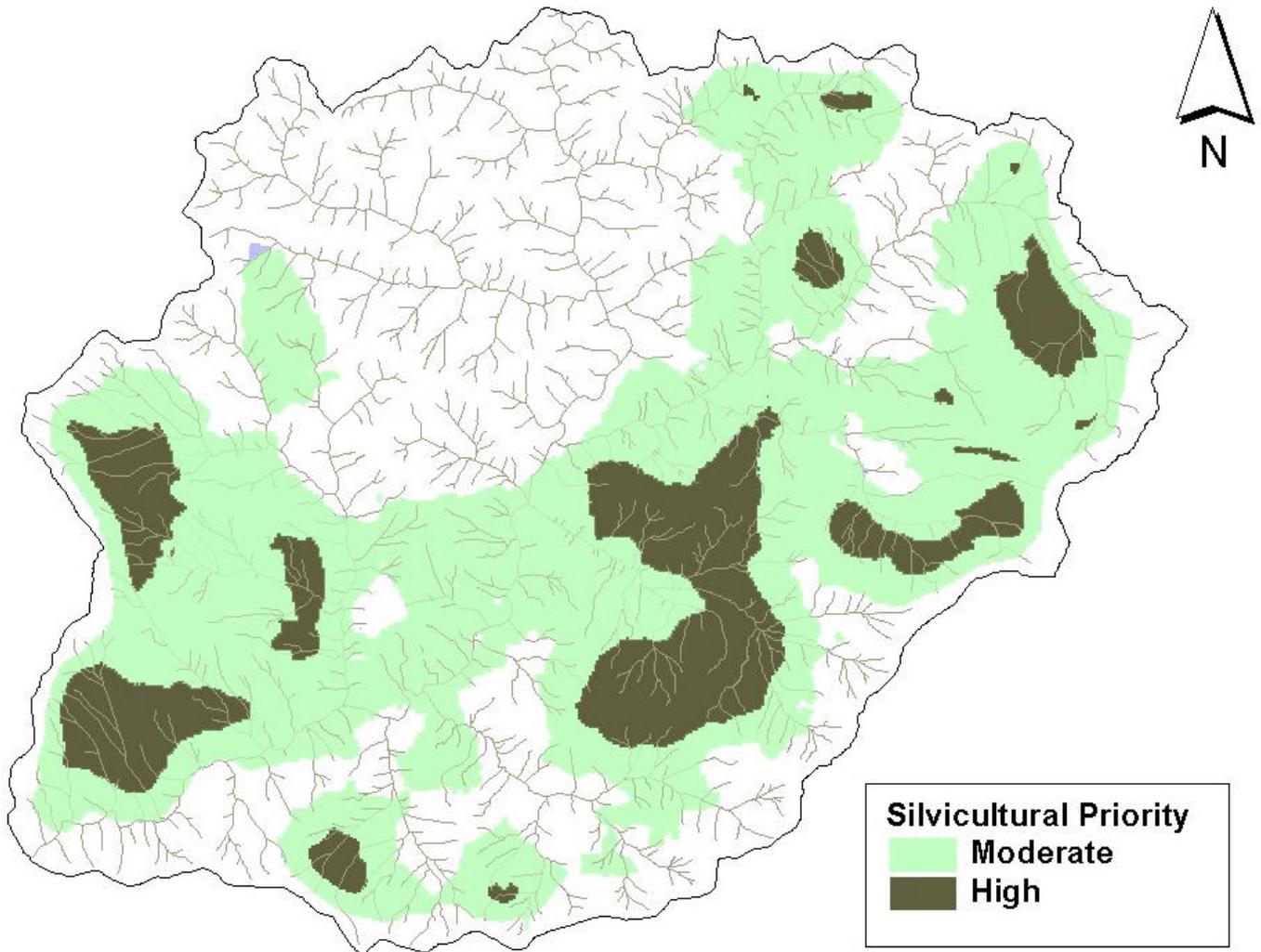


Figure 4: Priority Areas for Thinning Treatments in Lower Steamboat Creek

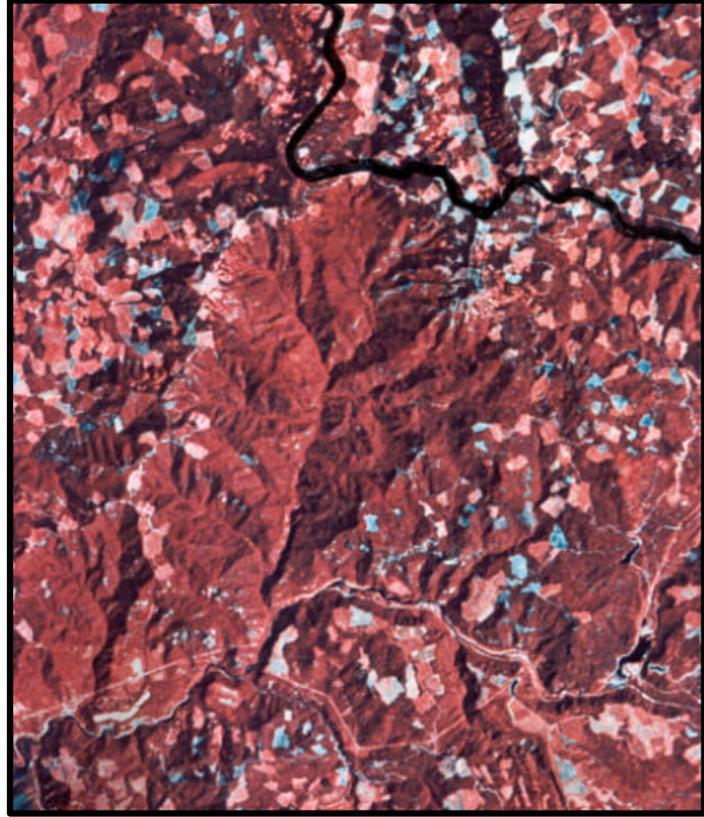


Figure 5: Satellite Image of Boulder Creek Vicinity North Umpqua River

Unlike the sharp contrast of today's patchwork of harvest areas and road corridors on Umpqua National Forest, lines between managed areas and surrounding forest are softer. Patches of vegetation of the same age and structure will vary greatly in size and shape. In general, they are larger than today's clearcuts. Mature and old growth forests that dominate the pattern are connected throughout much of this future landscape.

The Forest Visitor Experience

Visitors see more old growth forests. They find mature and old growth forests along the valley bottoms of major streams. Stream courses are shaped by jams of woody debris trapped behind fallen trees. In the uplands, travelers pass through forests of different ages and densities without sharp boundaries. Openings created by fire and vegetation management are common. The forested ecosystem appears natural and self-maintaining.

Controversies

Restoration is one of the four major elements of the Northwest Forest Plan's Aquatic Conservation Strategy.

Northwest Forest Plan – Differences of Opinion

Nearly every project on the Umpqua National Forest, including restoration, will face controversy because of how people interpret the intent of the Northwest Forest Plan. Timber interests are concerned that not enough timber is produced through the NW Forest Plan to support the local economies. Closing roads may reduce access timber. Environmental advocates are equally passionate in their belief that agencies are not moving quickly enough to implement protective measures articulated in the NW Forest Plan. Some recreationists prefer road be kept open for access to hunting, wood gathering, etc. while others would welcome the closing of roads to accentuate wilderness values. These differences of opinion often result in legal action that slows projects, including restoration.

Fire as an Ecological Tool

Fire can be an important tool for maintaining biological diversity in a landscape. The climate, forest type and fire history of the Umpqua National Forest make it the most practical and safe place for using fire on a landscape scale in the maritime Pacific Northwest. However, using fire prescriptively on a large scale highlights the following concerns and unknowns:

- Protection of “survey and manage” species
- State regulations for providing clean air
- Concerns for public safety and property loss
- Maintenance of fire-adapted ecosystems
- Reduction of long-term fire suppression costs

The Strategy

Restoration Principles

The following key principles guide the restoration plan. These principles are based on the state-of-the-art thinking about relationships between forests, streams and wildlife habitats in landscapes.

- Protect, restore and enlarge refuge areas
- Focus on effective treatments in priority areas
- Implement activities restoring ecosystem processes and natural disturbance regimes
- Learn through monitoring, research and adaptive management

Setting Watershed Priorities

Spending Restoration Dollars

The following criteria guide where to work and spend funds first. Is the watershed a . . .

- Key watershed, late successional reserve or adaptive management area as allocated by the Northwest Forest plan?
- Municipal watershed?
- Refuge for aquatic life?
- Success likely based on watershed analysis recommendations?
- Place where opportunities exist for collaboration/partnerships?



The Selected priority watersheds are listed in order with the Northwest Forest Plan land allocations in parentheses:

- **Steamboat Creek** (Key Watershed and Late-Successional Reserve)
- **Middle South Umpqua** (Key Watershed, Late-Successional Reserve, Matrix)
- **Jackson Creek** (Key Watershed, Late-Successional Reserve, Matrix)
- **Little River** (Adaptive Management Area)
- **Fish Creek** (Matrix)
- **Layng Creek**, Coast Fork Willamette (Matrix)

Effective treatments include road mileage reduction, roads improvements, prescribed burning, pre-commercial thinning, and instream habitat improvements.

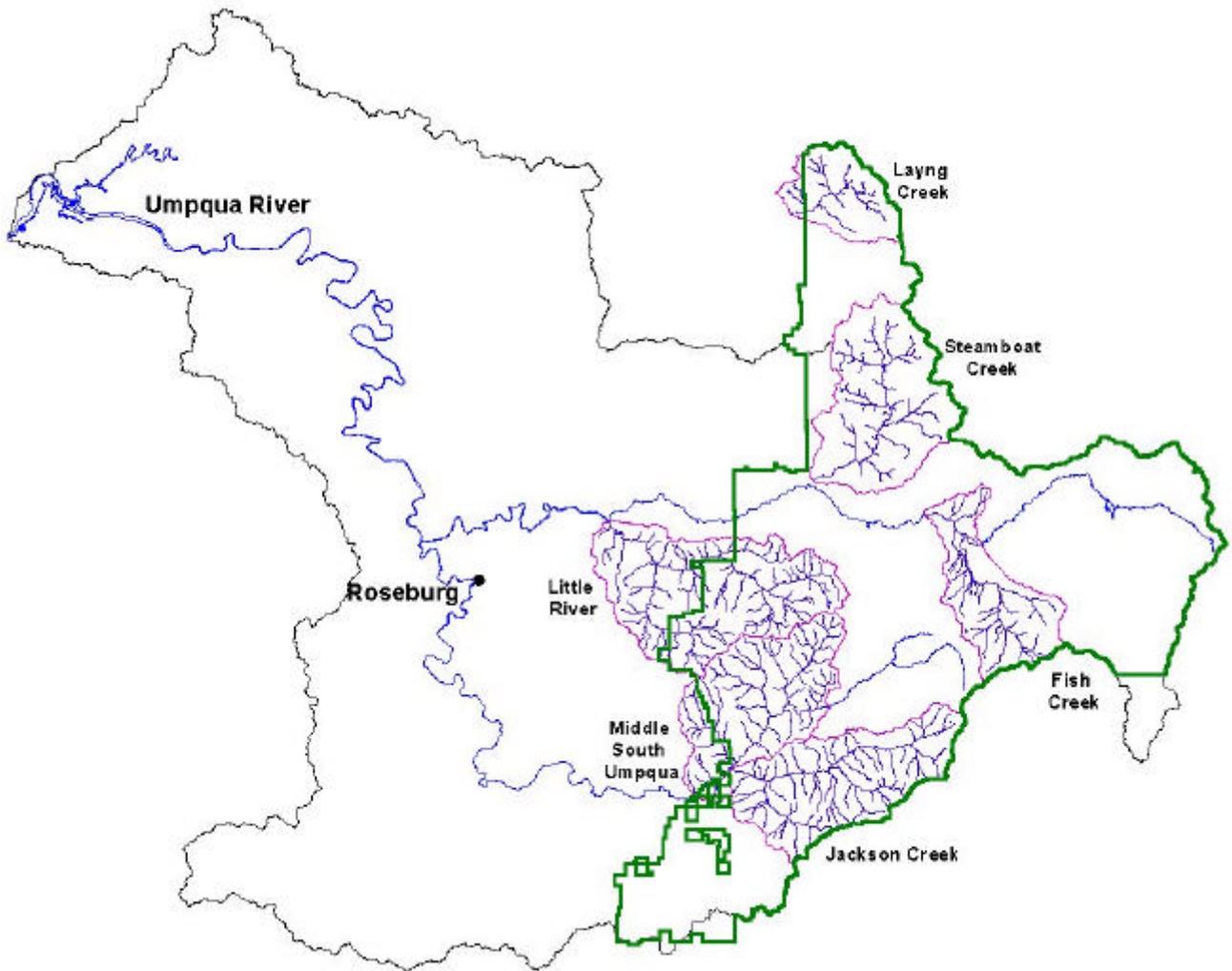


Figure 6: Priority Watersheds on the Umpqua National Forest

Table 1: 10-Year Goals for Accomplishing Restoration in Priority Watersheds

10-year Outcomes	Steamboat Creek	Middle South Umpqua	Jackson Creek	Little River	Fish Creek	*Upper Row River
Road improvements (miles)	99	35	130	69	10	2
Road reductions (miles)	62	38	114	54	9	6
Prescribed fire (acres)	8400	1200	2000	4900	750	400
Pre-commercial thinning (acres)	1390	2300	2960	3560	550	350
Instream Restoration (miles)	17	14	22	11	2	10
Millions of dollars invested through 2010 (year 2000 dollars)	12.8	6.5	12.0	7.2	1.0	1.0

*Coast Fork Willamette Sub-basin

Next Step

Steamboat Creek and Middle South Umpqua

This business plan focuses discretionary funds first in Steamboat Creek and second in Middle South Umpqua. A detailed, three-year plan identifies restoration projects valued at \$6 million. To date, approximately 20 million dollars of restoration opportunities have been identified in Steamboat Creek and Middle South Umpqua (Table 1).

Steamboat Creek Restoration

Restoration planning in Steamboat Creek identifies those sub-watersheds and landscape-scale components most important to maintaining healthy ecosystems. This includes places that historically supported old growth forests and quality aquatic habitats. Road restoration over the next several years reduces sediment delivery to streams. Large wood placement in streams stores spawning gravels and slows water velocities. Vegetation treatments restore native species composition and density.

Steamboat Creek, a Key Watershed, is a late-successional reserve and important cutthroat trout, steelhead nursery

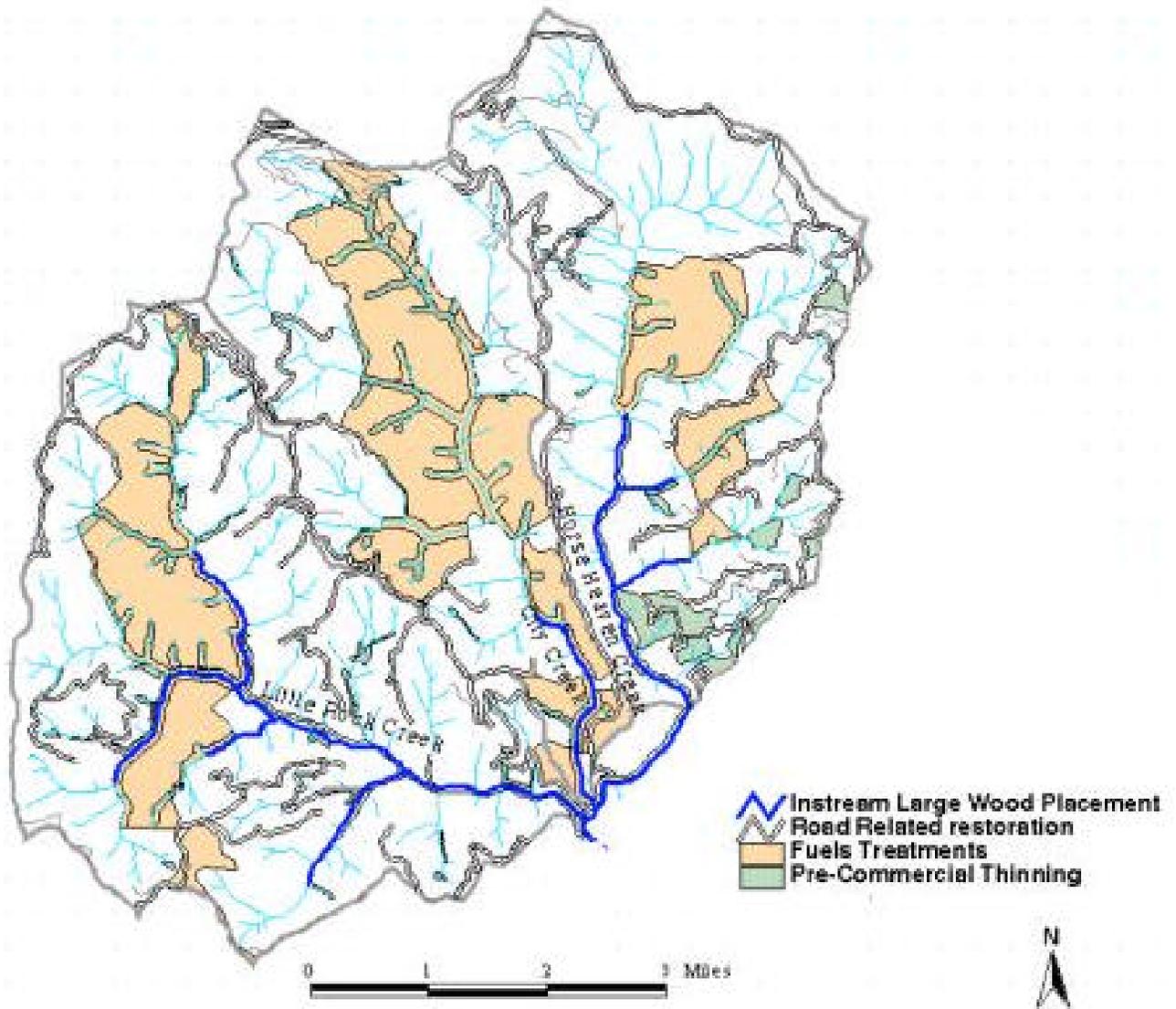


Figure 7: Restoration Opportunities in Little Rock, Horseheaven and City Creeks

Middle South Umpqua, a Key Watershed, is an important Coho salmon, cutthroat trout and steelhead nursery and a late-successional reserve.

Middle South Umpqua Restoration

Restoration projects in the Middle South Umpqua improve winter and late summer fish habitat as well as water quality, including summer water temperature and fine sediment reduction. Projects also reduce hazardous fuels and enhance stand structure and species diversity.

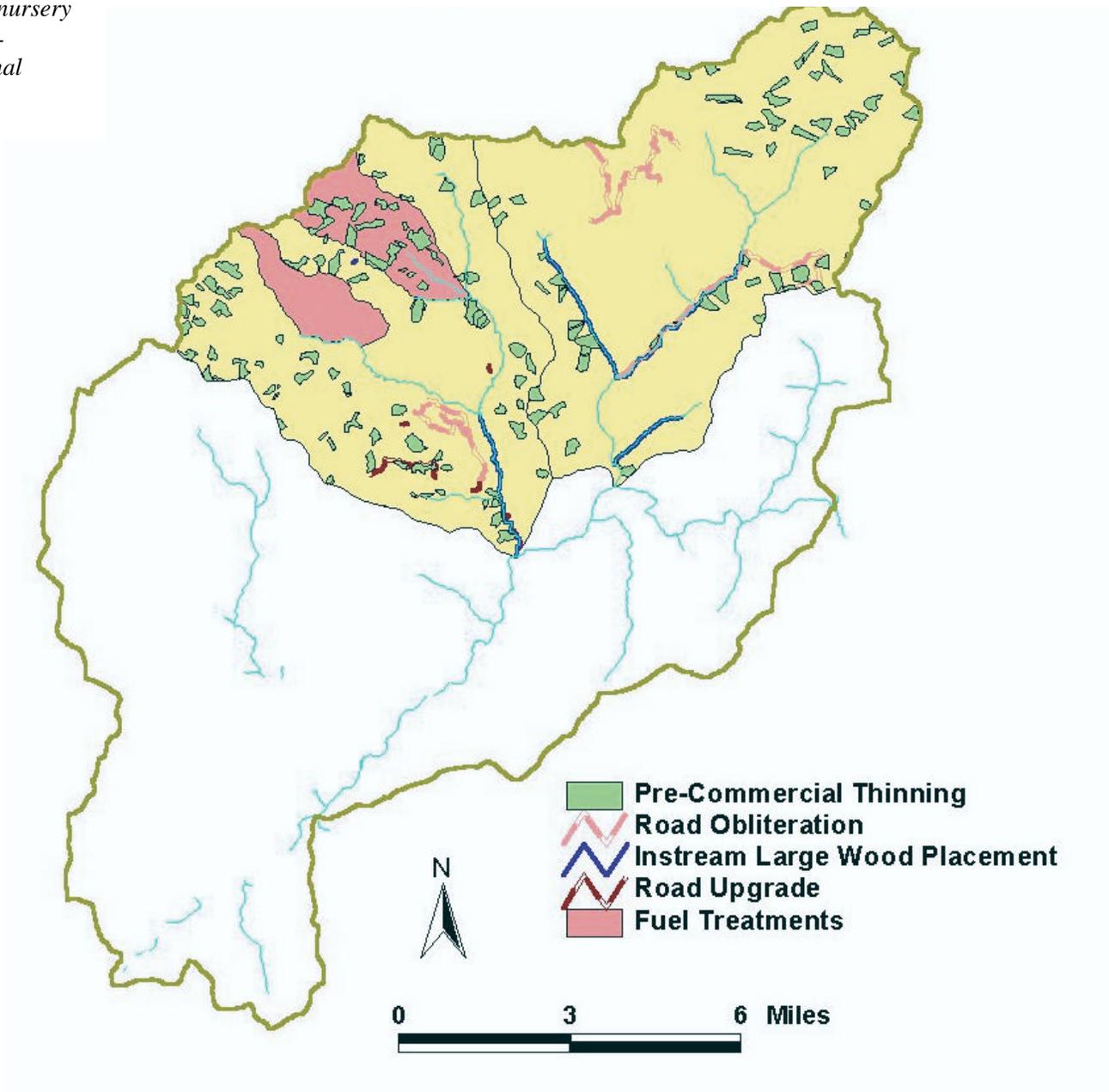


Figure 8: Middle South Umpqua Restoration Opportunities

Completing Watershed Analysis

Watershed Analyses are key to compiling, justifying and prioritizing the restoration needs of watersheds (5th field scale). Watershed analysis is completed for three ecologically significant watersheds on the following timeline:



- Middle North Umpqua (complete in 2000)
- Calf/Copeland Illahee face (complete in 2001)
- Upper South Umpqua (complete in 2004)

Narrowing the Focus

Setting Sub-Watershed Priorities

To maximize the return on a \$40 million investment, the six selected watersheds were run through another screen to identify sub-watersheds where restoration work is focused. The screening criteria include opportunities for restoring old growth forests, high quality aquatic habitat, and strong likelihood of success given funding, timelines and skills.



Table 2: Sub-watershed Focus Areas for Restoration 2001-2011

Sub-Watershed Focus Areas (6th field watersheds)	Watershed (5th field scale)
Little Rock, City, Horseheaven, Cedar, Big Bend, Reynolds	Steamboat Creek
Dumont, Boulder	Middle South Umpqua River
Beaver, Squaw, Falcon, Abbott, Middle Jackson	Jackson Creek
Cultus, Upper Cavitt, Emile	Little River
Layng	Upper Row River
Rough	Fish Creek

Listed in order of priority.



Guidelines for Selecting Projects

The following guidelines assist in selecting, funding and implementing projects from a list of restoration opportunities identified by watershed analyses:

- Implement projects consistent with the restoration strategy that have complete environmental assessments.
- Anticipate the type of funding and limitations. Initiate environmental planning to have additional projects ready if funding increases or shifts.

- Share personnel and expertise among administrative units to improve efficiency, share successes, and build a cohesive team-approach to restoration instead of functioning in a competitive mode.
- Move restoration work from watershed to watershed in order of priority when restoration is complete or additional work is infeasible. Secondary restoration activities should be accomplished on an opportunistic basis and should not detract from accomplishing primary activities.
- Leverage the additional money from multiple sources. Apply leverage based on excellent performance, marketing, and partnership relationships.

Coordination and Administration



Organization

The organization and line of accountability for all restorative work on the Umpqua National Forest are as follows:

- Forest Supervisor and Executive Team approve program of work and projects.
- Resource Staff Officer is the Program Leader for Restoration and is accountable to the Forest Supervisor and Executive Team.
- The Forest Restoration Team, working with district restoration coordinators, recommends annual and out-year program of restoration work to the Executive Team.



Forest Restoration Team

Roles

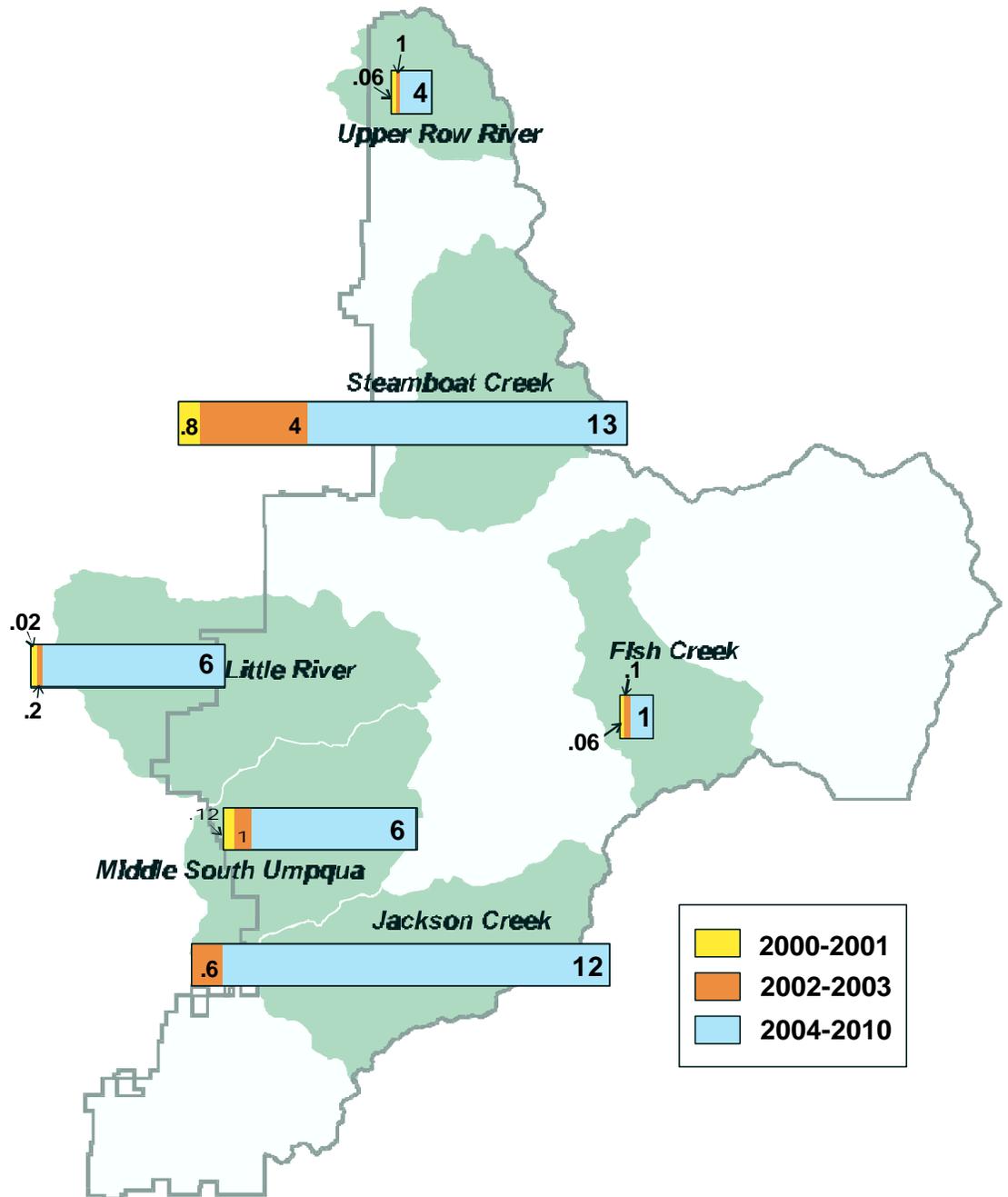
- Works with district restoration coordinators to develop the annual and three-year programs of work using the Ecosystem Restoration Activities Tracking System (E*RATS).
- Submits annual program of work for Forest Restoration to the Executive Team for consideration in the budget development process.
- Reconciles the available monies and restoration work for a given year into program of work proposals for the ET.
- Reviews all restoration proposals for consistency with the Restoration Business Plan.
- Determines when a significant portion of work is completed before shifting restorative work to next highest priority watershed.
- Works with district rangers, district restoration coordinators, and partners to market accomplishments.
- Team members serve for a three-year term.

Administration

Funding

Increased funding for restoration comes in two ways: (1) through marketing our programs to bring more money to the Forest and; (2) by shifting the focus of our current programs and funding to increase the level of restorative activities within prioritized watersheds.

Most of the Forest's discretionary funds for restoration go to Steamboat Creek first, as the highest priority watershed. Some funds are allocated to other projects that accomplish work consistent with the strategy or to other districts where critical needs arise. Recommendations from watershed analyses identify the restoration opportunities. A three-year program of work is reviewed, revised, and recommended to the Executive Team annually.



**Figure 9: Proposed Funding for Watershed Restoration, 2001-2010
(Millions of Dollars)**

Measuring Progress



Ecosystem Restoration Activities Tracking System (E*RATS)

An information management system is vital to measuring accomplishments. A clear and graphic account of both restoration opportunities as well as accomplishments is essential to communicating objectives, making choices and justifying financial decisions. Businesses and partnerships depend on such a communication tool. A database called the Ecosystem Restoration Activities Tracking System (E*RATS) has been developed to meet these information needs.

E*RATS objectives are to:

- Define and establish restoration-related terminology for ease of communication and consistency of application
- Implement a GIS information base to support strategic planning, tracking, and reporting of all restoration activities.
- Establish a monitoring process to track how restoration activities are meeting initiative objectives.

Monitoring

The immediate goals of monitoring are to define restorative activities and to track the implementation of restoration projects forest-wide. Monitoring objectives include:

- Consistency in reporting accomplishments through the use of E*RATS.
- Comparing project accomplishments with restoration goals of the Northwest Forest Plan and the restoration opportunities and recommendations compiled from Watershed Analysis, Road Analysis, and environmental assessments.
- Information sharing among districts, disciplines and stakeholders.
- On-the-ground field review of a representative subset of projects

Monitoring our achievements is best accomplished at a forest-wide level, with a team of forest representatives and partners

Measures of Progress

The following measures are used to assess the progress made implementing this Business Plan:

- A. Vegetation treatments
 - 1) Acres of intermediate treatments (pre-commercial thinning and partial harvest) done to accelerate the development of old forests
 - 2) Acres burned to reduce hazardous fuels
 - 3) Percent of total acres of vegetation treatment opportunities accomplished

- B. Roads
 - 1) Miles of roads with drainage improvements (including inactivation)
 - 2) Miles of road reduction treatments (decommissioning and obliteration)
 - 3) Percent of total miles of road treatment opportunities accomplished
- C. Streams
 - 1) Miles of improvements
 - 2) Miles of increased access for aquatic species
- D. Fiscal measures
 - 1) Dollars spent on restorative activities in Priority sub-watersheds (by Line Item and external sources)
 - 2) Dollars spent on restorative activities *outside* Priority sub-watersheds (by Line Item and external sources)
 - 3) Percentage of Forest budget spent on restorative activities
 - 4) Years to implement \$40 million dollars of restoration projects in priority sub-watersheds (projection of current fiscal year restoration budget)

The Collaborative Challenge

Learning to be just one of the members of the Partnership

To establish a true collaboration in the Basin:

- Work in tandem with the Bureau of Land Management to establish two federal landowner seats on the Umpqua Basin Watershed Council (UBWC) Management Team.
- Begin melding the separate restoration prioritization efforts of the Province Inter-agency Executive Committee (PIEC) and UBWC into a single basin-wide strategy.
- Contribute a base funding level to the UBWC partnership toward accomplishing its goals as outlined by basin-level restoration plan.

Partnerships

A number of partnerships are on going. They are listed in Appendix C. More are developed and existing ones are strengthened as this plan gains momentum.

The customers who use these watersheds love the outdoors and earn their livelihood or enjoy recreational activities in these areas.

Restoration Customers

Customers common to all of these watersheds include an active environmental advocacy community (e.g., Umpqua Watersheds, Audubon Society, Oregon Natural Resource Council), county and local governments, congressional districts, and the citizens of adjacent communities (Roseburg, Medford, Eugene, Cottage Grove, Ashland, Grants Pass, the South Umpqua Corridor towns, and the Portland area).

The types of customers who benefit from these watersheds are typical of the Pacific Northwest. They vary some by watershed. The major customers/beneficiaries are displayed in Appendix D.

Marketing

The goals of marketing are to broaden participation in restoration and to increase support, including funding.

Our Basic Marketing Tool . . . This Business Plan

This business plan is the main marketing tool when reaching out to people. Forest employees will read the plan. It will be on display and available to the public at all District Offices. Forest staff will use an accompanying PowerPoint presentation and condensed brochure to present our restoration program to the public. We will outreach to people who believe in this effort, and those who disagree, to stimulate dialogue about restoration. The Business Plan and accompanying marketing materials will be updated to include accomplishments. The plan will be used as the basis of annual restoration meeting reports (e.g., Provincial Interagency Executive Council, Provincial Advisory Council, Umpqua Watershed Council, etc.)

Marketing Strategy

It is critical that the Forest coordinate outreaching efforts to partners. The Forest's public affairs officer, district rangers, and forest supervisor will coordinate the marketing efforts. The following strategy is established:

- Strive for a consistent message and accompanying high levels of credibility when outreaching with potential partners.
- Coordinate all proposals for partnership funding such as challenge cost sharing, major demonstration proposals, Oregon Watershed Enhancement Board proposals and other proposals from other sources need through the Forest Restoration Team.

- Encourage districts to use creatively secure partners in their respective communities of interest. To minimize conflict and overlap, the following focus areas are established:
 - Cottage Grove Ranger District– the Willamette Valley, including Eugene, Cottage Grove and surrounding communities.
 - North Umpqua/Diamond Lake Ranger Districts – the Roseburg to Bend corridor, including surrounding communities.
 - Tiller Ranger District– the South Umpqua Corridor (including the Cow Creek band) and Medford/Ashland/Grants Pass area.
- Recognize partners in a timely manner, comply with promises and expectations, and use both personal contact and written reports.

Appendix A

Issues in the Six Watersheds Selected for Restoration

Steamboat Creek

- Deterioration of road system from aging and insufficient maintenance
- Degradation of fish habitat from past removals of wood from stream
- Road corridors that disrupt and fragment aquatic and old growth forest habitats
- Conflicting recreation use and stream management objectives in Riparian Reserves along Steamboat Creek
- Old Growth forest at risk of loss from wildfire

Middle South Umpqua

- Perceived conflicts between timber harvest direction for Matrix lands and protection of species and their habitats.
- Intermingled private & Bureau of Land Management lands
- Upper South Umpqua is a higher aquatic priority but lacks watershed analysis

Jackson Creek

- Perceived conflicts between timber harvest direction for Matrix lands and protection of species and their habitats.
- Strong interest in maintaining access to traditional use areas of the Cow Creek Band of Umpqua Tribe of Indians.
- Jackson Creek valley bottom road is one of the highest priorities for relocation yet is also one of the most popular access roads on the Forest.
- Intermingled private & Bureau of Land Management lands

Little River

- Intermingled private & Bureau of Land Management lands make completion of the Water Quality Mgmt. Plan and large-scale restoration projects challenging.
- Contradiction implied by Little River AMA's theme, "development and testing of approaches to integration of intensive timber production with restoration and maintenance of high quality riparian habitat".

Layng Creek

- NWFP direction for timber harvest (matrix allocation) perceived to conflict with Willamette valley recreation use and Municipal Watershed needs.

Fish Creek

- Soda Springs dam prevents access to anadromous species.
- Copeland Creek is a higher aquatic priority but lacks watershed analysis

Appendix B

Forest Restoration Team

- Don Morrison, soil scientist and team leader
- Chris Hughes, financial manager
- Bob Deane, engineer
- Ken Ferguson (Umpqua Basin Watershed Council), collaborator
- Cheryl Walters, public affairs officer, and line officers
- John Chatel, fisheries biologist
- Terry Brumley, restoration program leader

A facilitator and note taker will be present at all restoration team meetings. These responsibilities will rotate among District Restoration Staff.

Appendix C

Table of Existing Partnerships in Ongoing Business Plan Projects

Partner	Watershed	Interest	Shared Interest	Contribution
Umpqua Basin Watershed Council	Umpqua	Watershed restoration	Watershed restoration	Leadership, financing
Provincial Inter-agency Executive Council	Umpqua	Watershed restoration	Watershed restoration	Leadership
ODOT	Umpqua	Watershed restoration	Establish native grasses at Toketee airstrip	Leadership, financing
Native Plant Society	Umpqua	watershed restoration	Noxious weed control	Financing, in-kind contributions
North Umpqua Foundation	Steamboat Creek	instream restoration	Little Rock Creek instream restoration	public outreach, financing, monitoring
Steamboaters	Steamboat Creek	instream restoration	Little Rock Creek instream restoration	Financing, volunteer effectiveness monitoring
Rocky Mountain Elk Foundation	Steamboat Creek	Elk habitat	Road reduction	Financing
University of Wisconsin	Steamboat Creek	Masters thesis		Effectiveness monitoring,
University of Washington	Steamboat Creek	Masters thesis	Fire behavior in Riparian areas	Validation monitoring
Umpqua Valley Audubon Society	Steamboat Creek	Conservation	Little Rock Creek watershed restoration	Volunteer labor, financing, monitoring
Oregon Dept. of Fish and Wildlife	Steamboat Creek	instream restoration	Little Rock Creek watershed restoration	Project planning, implementation, monitoring
Oregon Watershed Enhancement Board	Steamboat Creek	Watershed restoration	Little Rock Creek watershed restoration	Financing, peer review
Umpqua Basin Watershed Council	Steamboat Creek	Watershed restoration	Watershed restoration, Little Rock Creek	Leadership, financing, peer & program review
Forest Service Region 6 Fisheries Program	Steamboat Creek	Instream restoration	Little Rock Creek watershed restoration	Project planning, implementation and peer review
Bureau of Land Management, Roseburg District	Little River	forest health, road assessment and maintenance	Sugar pine genetic improvement, Cavitt Creek road inventory, Little River Water Quality Management Plan	Leadership, Wolfpine timber sale, Cavitt Creek road inventory, WQMP, & fertilization research project implementation
Umpqua Basin Watershed Council	Little River	Road assessment and maintenance	Cavitt Creek road inventory	Leadership, financing
Seneca/Jones Timber Company	Little River	Road assessment and maintenance	Cavitt Creek road inventory	Financing, project implementation
Bureau of Land Management, Roseburg District	Little River	Road assessment and maintenance	Fertilization and water quality research	Leadership, project implementation
Oregon Department of Environmental Quality	Little River	Clean Water Act implementation	Little River Water Quality Management Plan	Leadership, facilitation with partners
Pacific Southwest Forest Research	Little River	Soil productivity research	Restoration of soil productivity	Experimental design, project implementation, effectiveness monitoring
Diamond Lake Ranger District	Little River	Soil productivity research	Restoration of soil productivity	Experimental equipment design

Partner	Watershed	Interest	Shared Interest	Contribution
Pacific Northwest Forest Research	Little River	AMA science advisor	Soil productivity research, fuels and fire management, song bird response to thinning, western red cedar silviculture, Douglas fir uneven-age management	Experimental design, project implementation, effectiveness monitoring
SW Oregon Insect & Disease Technical Center	Little River	Forest health, Insect & Disease research, adaptive management	Sugar pine genetic improvement	Leadership, Wolfpine project implementation
Dorena Tree Improvement Center	Little River	Forest health, Insect & Disease research, adaptive management	Sugar pine genetic improvement	Experimental design, project implementation, effectiveness monitoring
Wolf Creek Job Corp Forestry Crew	Little River	Forestry education	Project implementation	Forestry labor, inventory and monitoring
National Science Foundation	Little River	Landscape ecology research	Fire history Masters thesis	Financing
USGS Biological Resource Division	Little River	Water quality	Fertilization and water quality research	Experimental design, project implementation, effectiveness monitoring
Little River Committee	Little River	Forest management & water quality	Little River Water Quality Management Plan	Data collection and reporting
Private landowners				
Private landowners	Middle South Umpqua	Fish population monitoring	Outmigrant fish traps	Labor/in-kind contributions
Private landowners				
Private landowners	Jackson Creek	Fish population monitoring	Outmigrant fish traps	Labor/in-kind contributions
Wild Turkey Federation	Jackson Creek	Watershed Restoration	Early seral habitat enhancement.	Financial
Coast Fork Willamette Watershed Council				
Coast Fork Willamette Watershed Council	Layng Creek	Watershed Restoration	Watershed Restoration	Public Outreach
City of Cottage Grove	Layng Creek	Municipal Watershed	High Water Quality	Monitoring

Appendix D

Major Customers

Major customers/ beneficiaries	Watersheds					
	Steamboat Creek	Middle South Umpqua	Jackson Creek	Fish Creek	Layng Creek	Little River
Scenic Touring		X	X			
BLM						X
Private land owners						X
Research Scientists	X		X			X
Timber industry	X	X	X	X	X	X
Cow Creek Band of the Umpqua Tribe of Indians			X			
Miners	X					
Little River Committee						X
Dispersed campers	X	X	X			X
Hikers	X	X	X	X	X	X
Hunting	X	X	X	X		X
Anglers	X	X	X	X		X
Municipal water supply					X	
Developed-site campers	X	X	X		X	X
Hydropower (diversion that feeds Soda Springs reservoir)				X		
Steamboat Inn	X					
Access corridor for Wilderness users (hikers, horse packers)	X		X	X		
Wolf Creek Job Corps						X
Wildlife watchers	X	X	X	X	X	X