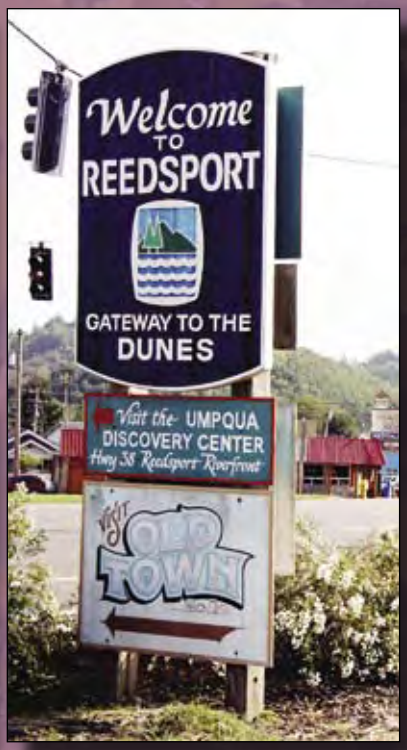
NORTHWEST FOREST PLAN
THE FIRST 10 YEARS (1994–2003)

Socioeconomic Monitoring of Coos Bay District and Three Local Communities

Rebecca J. McLain, Lisa Tobe, Susan Charnley, Ellen M. Donoghue, and Cassandra Moseley



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Northwest Forest Plan—The First 10 Years (1994–2003): Socioeconomic Monitoring of Coos Bay District and Three Local Communities

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Abstract

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This case study examines the socioeconomic changes that took place between 1990 and 2000 in and around lands managed by the Bureau of Land Management (BLM) Coos Bay District in southwestern Oregon for purposes of assessing the effects of the Northwest Forest Plan (the Plan) on rural economies and communities in the Coos Bay region. The case study included an analysis of changes in the district's programs, as well as socio-economic changes that occurred within the communities of Coos Bay, Myrtle Point, and Reedsport. Data were gathered during 2003 and 2004 from multiple sources including U.S. census databases, county and state criminal justice and economic development databases, and BLM annual reports. Interviews with BLM employees and community residents provided additional insights on how the Plan affected local socioeconomic conditions and the district's interactions with local communities.

The study indicates that by the time the record of decision for the Plan was signed, the Coos Bay region's timber sector had already lost a substantial portion of the wood products processing capacity and employment opportunities. Additionally, the changes in socioeconomic conditions that took place in the mid and late 1990s—an outflow of younger workers, inmigration of older workers and retirees, school closures, increased levels of educational attainment, declines in manufacturing sectors, and expansion of the services sector—are changes that took place during the same period in rural communities across much of the Western United States. It is thus likely that the types of overall socioeconomic changes observed in the Coos Bay region between 1990 and 2004 would have occurred with or without the Plan.

Owing to legal challenges, the Coos Bay District was unable to provide a steady and predictable supply of timber from 1994 onward. District foresters shifted their focus toward developing thinning techniques for density management of stands less than 80 years old. Barring legal action, sales from these younger stands will enable the district to provide a predictable supply of smaller diameter timber in future years. In the post-Plan years, the Coos Bay District also significantly expanded its capacity to carry out multiple-use land management. It played a key role in community-based watershed restoration and recreation and tourism development efforts. As a result, the district is now in a much better position to provide the public, including residents of local communities, with a broad array of forest values and opportunities (i.e., improved fish habitat, more recreation sites, more cultural sites, etc.). Key factors in the success of post-Plan community-district partnerships included ongoing and substantial support from upper level leadership, a stable district budget (in marked contrast to the budget declines in neighboring national forests), and a relatively stable staffing level (in contrast to the downsizing that occurred in neighboring national forests).

Keywords: Social assessment, economic assessment, regional planning, rural development, Coos Bay.

Preface

In the early 1990s, controversy over harvest of old-growth forests led to sweeping changes in management of federal forests in western Washington, Oregon, and northwest California. These changes were prompted by a series of lawsuits in the late 1980s and early 1990s, that effectively shut down federal timber harvest in the Pacific Northwest. In response, a Presidential summit was held in Portland, Oregon, in 1993. This summit led to issuance by President Clinton of a mandate for federal land management and regulatory agencies to work together to develop a plan to resolve the conflict. The President's guiding principles followed shortly after the summit in his Forest Plan for a Sustainable Economy and Sustainable Environment,[1] now called the Northwest Forest Plan (the Plan).

Immediately after the summit, a team of scientists and technical experts were convened to conduct an assessment of options.[2] This assessment provided the scientific basis for the environmental impact statement and record of decision (ROD)[3] to amend Forest Service and Bureau of Land Management planning documents within the range of the northern spotted owl (*Strix occidentalis caurina*).

The ROD, to be implemented across the 24 million federal acres (9.7 million hectares), put in place a whole new approach to federal land management. Key components of the ROD included a new map of land use allocations—late-successional reserves, matrix, riparian reserves, adaptive management areas, and key watersheds. Plan standards and guidelines provided the specific management direction regarding how these land use allocations were to be managed. In addition, the Plan put in place a variety of strategies and processes to be implemented. These included adaptive management, an aquatic conservation strategy, late-successional reserve and watershed assessments, survey and manage, an interagency organization, social and economic mitigation initiatives, and monitoring.

Monitoring provides a means to address the uncertainty of our predictions and compliance with forest management laws and policy. The ROD clearly states that monitoring is essential and required:

> Monitoring is an essential component of the selected alternative. It ensures that management actions meet the prescribed standards and guidelines and that they comply with applicable laws and policies. Monitoring will provide information to determine if the standards and guidelines are being followed, verify if they are achieving the desired results, and determine if underlying assumptions are sound.

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[1] Clinton, W.J.; Gore, A., Jr. 1993. The Forest Plan for a sustainable economy and a sustainable environment. In: Tuchmann, E.T.; Connaughton, K.P.; Freedman, L.E.; Moriwaki, C.B. 1996. The Northwest Forest Plan: a report to the President and Congress. Washington, DC: U.S. Department of Agriculture, Office of Forestry and Economic Assistance: 231–238. App. A.

[2] Forest Ecosystem Management Team [FEMAT]. 1993. Forest ecosystem management: an ecological, economic, and social assessment. Portland, OR: U.S. Department of Agriculture; U.S. Department of the Interior [et al.]. [Irregular pagination].

[3] U.S. Department of Agriculture, Forest Service; U.S. Department of the Interior, Bureau of Land Management [USDA and USDI]. 1994. Record of decision for amendments to Forest Service and Bureau of Land Management planning documents within the range of the northern spotted owl. Standards and guidelines for management of habitat for late-successional and old-growth forest related species within the range of the northern spotted owl. [Place of publication unknown]. 74 p.

Finally, Judge Dwyer reiterated the importance of monitoring in his 1994 decision declaring the Plan legally acceptable:[4]

> Monitoring is central to the [Northwest Forest Plan's] validity. If it is not funded, or done for any reason, the plan will have to be reconsidered.

The ROD monitoring plan provided a very general framework to begin development of an interagency monitoring program. It identified key areas to monitor, initial sets of questions, types and scope of monitoring, the need for common protocols and quality assurance, and the need to develop a common design framework. In 1995, the effectiveness monitoring program plan[5] and initial protocols for implementation monitoring[6] were approved by the Regional Interagency Executive Committee. Approval of the effectiveness monitoring plan led to the formation of technical teams to develop the overall program strategy and design[7] and monitoring protocols for late-successional and old-growth forests (older forests),[8]

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[4] Dwyer, W.L. 1994. Seattle Audubon Society, et al. v. James Lyons, Assistant Secretary of Agriculture, et al. Order on motions for Summary Judgment RE 1994 Forest Plan. Seattle, WA: U.S. District Court, Western District of Washington.

[5] Mulder, B.; Alegria, J.; Czaplewski, R. [et al.]. 1995. Effectiveness monitoring: an interagency program for the Northwest Forest Plan. Portland, OR: U.S. Department of Agriculture, Forest Service and U.S. Department of the Interior, Bureau of Land Management [et al.]. Research and Monitoring Committee, Regional Ecosystem Office. 51 p. + appendixes.

[6] Alegria, J.; Hyzer, M.; Mulder, B.; Schnoes, B.; Tolle, T. 1995. Guidance for implementation monitoring for management of habitat for late-successional and old-growth-related species within the range of the northern spotted owl. Draft. On file with: Regional Ecosystem Office, 333 SW First Avenue, Portland, OR 97204.

[7] Mulder, B.; Noon, B.; Spies, T.; Raphael, M.; Palmer, C.; Olsen, A.; Reeves, G.; Welsh, H. 1999. The strategy and design of the effectiveness monitoring program for the Northwest Forest Plan. Gen. Tech. Rep. PNW-GTR-437. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 138 p.

[8] Hemstrom, M.; Spies, T.; Palmer, C.; Kiester, R.; Teply, J.; McDonald, P.; Warbington, R. 1998. Late-successional and old-growth forest effectiveness monitoring plan for the Northwest Forest Plan. Gen. Tech. Rep. PNW-GTR-438. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 37 p.

northern spotted owls,[9] marbled murrelets (*Brachyramphus marmoraturs*),[10] tribal,[11] and watershed condition.[12] Socioeconomic monitoring protocols continue to be tested.[13]

Periodic analysis and interpretation of monitoring data is essential to completing the monitoring task. This important step was described in the overall monitoring strategy (see footnote 7), and the regional interagency executive committee approved a 5-year interpretive reporting cycle. In 2005 and 2006, 10-year reports were published that contain the first comprehensive analysis and interpretation of monitoring data since the ROD.

This report is linked to the socioeconomic monitoring 10-year interpretive report (see footnote 13). It contains detailed results from one of four case-study areas in which local-scale monitoring was conducted to complement regional-scale monitoring, the focus of the interpretive report.

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[9] Lint, J.; Noon, B.; Anthony, R.; Forsman, E.; Raphael, M.; Collopy, M.; Starkey, E. 1999. Northern spotted owl effectiveness monitoring plan for the Northwest Forest Plan. Gen. Tech. Rep. PNW-GTR-440. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 43 p.

[10] Madsen, S.; Evans, D.; Hamer, T.; Henson, P.; Miller, S.; Nelson, S.K.; Roby, D.; Stapanian, M. 1999. Marbled murrelet effectiveness monitoring plan for the Northwest Forest Plan. Gen. Tech. Rep. PNW-GTR-439. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 51 p.

[11] U.S. Department of Agriculture, Forest Service; U.S. Department of the Interior, Bureau of Land Management [USDA and USDI]. 2002. Tribal monitoring under the Northwest Forest Plan. Interagency executive letter. http://www.reo.gov/. (August 31, 2004).

[12] Reeves, G.; Hohler, D.; Larsen, D.; Busch, D.; Kratz, K.; Reynolds, K.; Stein, K.; Atzet, T.; Hays, P.; Tehan, M. 2004. Effectiveness monitoring for the aquatic and riparian component of the Northwest Forest Plan: conceptual framework and options. Gen. Tech. Rep. PNW-GTR-577. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 71 p.

[13] Charnley, S., tech. coord. 2006. Northwest Forest Plan: the first 10 years (1994–2003): socioeconomic monitoring results. Gen. Tech. Rep. PNW-GTR-649. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 6 vols.

Executive Summary

In 2003 and 2004, the Forest Service and Bureau of Land Management (BLM) commissioned an assessment of the socioeconomic impacts of the Northwest Forest Plan (hereafter, the Plan) on rural economies and communities within the range of the northern spotted owl. The Forest Service and BLM adopted the Plan in 1994 to address a federal court injunction to provide adequate protection for the northern spotted owl, a federally endangered species. The Plan was put forth as a solution to a decade of intense controversy over the harvesting of old-growth timber on federal forests in the Pacific Northwest. The socioeconomic assessment was commissioned to respond to two socioeconomic monitoring questions posed in the Plan record of decision (ROD). The first focused on use levels of natural resources: "Are predictable levels of timber and non-timber resources available and being produced?"[1] The second evaluation question related to rural economies and communities: "Are local communities and economies experiencing positive or negative changes that may be associated with federal forest management?" (see footnote 1).

To answer these two questions, the socioeconomic monitoring team conducted in-depth case studies of three national forests (Olympic, Mount Hood, and Klamath) and the BLM's Coos Bay District as well as three communities associated with each of the four management units. This report describes case-study results from the Coos Bay District and the communities of Greater Coos Bay, Greater Myrtle Point, and Greater Reedsport. Data were gathered during 2003 and 2004 from multiple sources including U.S. census databases, county and state criminal justice and economic development databases, and BLM annual reports. Interviews with BLM employees and community residents provided additional insights on how the Plan affected local socioeconomic conditions and the district's interactions with local communities.

The key changes in terms of forest commodity outputs from the Coos Bay District between 1994 and 2002 were a tenfold drop in the volume of timber sales and a fourfold drop in the volume of salvage and firewood sales. Sales of most nontimber forest products, such as floral greens, boughs, and wild mushrooms, were not affected by the Plan. The off-take of forage, minerals, and game also did not change substantially.

Between 1990 and 2000, all three case-study communities experienced sharp declines in the number of jobs in manufacturing primarily owing to the loss of jobs in the wood products sector. Some of the decline in wood products employment, particularly the loss of jobs in small mills that had specialized in processing larger diameter logs originating on federal land, is attributable to changes in forest management linked to the Plan. However, the contraction in forest-products-related employment within the three communities was already in full swing in the 1970s and was linked primarily to mechanization, off-shoring of processing operations, and a shift toward the use of smaller diameter wood. Similarly,

[1] U.S. Department of Agriculture, Forest Service; U.S. Department of the Interior, Bureau of Land Management [USDA and USDI]. 1994. Record of decision for amendments to Forest Service and Bureau of Land Management planning documents within the range of the northern spotted owl. Standards and guidelines for management of habitat for late-successional and old-growth forest related species within the range of the northern spotted owl. [Place of publication unknown]. Page E-9.

small mills in the area started to shut down in the 1960s and 1970s, well before the Plan and even before the Endangered Species Act. The evidence thus suggests that forest industry jobs would have declined and many mills would have shut down in the Coos Bay area during the 1990s regardless of how much timber the district had offered for sale. Nonetheless, interviews with community members suggest that if the district had been able to provide the maximum permissible allowable sales quantity (ASQ), or a volume close to it, the transition would have been more gradual and less disruptive of the overall social fabric.

In the realm of noncommodity forest uses, the district now offers a much more diverse set of opportunities than it did prior to the Plan, particularly in recreation and environmental education. In the 1990s, district recreation employees refurbished existing managed recreation sites and added four new sites. They also expanded the miles of maintained trail from virtually none prior to the Plan to nearly 30 miles. In addition, the district has greatly expanded the number of nationally significant cultural and natural history interpretive sites that it operates, typically in partnership with community groups or federal and state agencies. Many community members stated that the rehabilitation of existing sites and the development of new sites had added an important dimension previously missing from the region's tourism infrastructure.

Also difficult to quantify, but nonetheless important, are the socioeconomic benefits associated with the district's investments in the production of scientific knowledge about local forest and aquatic ecosystems. As a result of the Plan's survey and manage program, for example, biologists now have a much more detailed understanding of the range of plants, bryophytes, fungi, mammals, birds, reptiles, and amphibians present on the district's holdings. These data provide a foundation for scientific management of a broad range of forest resources. Likewise, stream surveys and fish population monitoring work have provided data necessary for evaluating the effects of watershed restoration techniques. In the long run, the capacity to acquire and analyze such data has the potential to improve the district's ability to manage its holdings for multiple forest values. In the short run, inventory and monitoring programs have enhanced the quality of interpretive programs available to local communities and tourists.

The Coos Bay District's budget remained relatively stable between 1993 and 2003 despite the drop in the volume of timber harvested. The number of jobs in the district declined in the 1990s, but stabilized at roughly 160 full-time permanent positions in the early 2000s. The 15-percent drop in full-time positions was partially compensated for through an increase in seasonal jobs. The Coos Bay District thus continued to provide nearly 200 high-paying family wage jobs at a time when neighboring Forest Service offices experienced substantial workforce reductions.

Between 1990 and 2000, Greater Coos Bay, Greater Myrtle Point, and Greater Reedsport experienced outmigration of younger, largely blue collar workers and families and inmigration of older retireees or professional service workers. Unemployment levels decreased in the three communities, but the number of individuals living in poverty increased. Both Greater Reedsport and Greater Myrtle Point experienced an overall decline in population, as well as substantial decreases in school enrollments. Greater Coos Bay,

which had the most diverse economy of the three communities prior to the Plan, had a slight increase in population and school enrollments. The economic structures of the three communities also changed substantially during this period, with declines in the manufacturing and wholesale trade sectors and growth in the health and education services sectors. These changes mirror trends observed in rural communities throughout the United States. It is thus likely that changes of this type would have occurred in these communities with or without the Plan, although the Plan may have played a role in accelerating the changes.

The communities of Greater Coos Bay, Greater Myrtle Point, and Greater Reedsport benefited from three economic mitigation measures associated with the Plan: Owl payment guarantees, Northwest Economic Adjustment Initiative (NEAI) grants, and Jobs-in-the-Woods (JITW) funding. County payments declined through the mid and late 1990s, but the drop occurred gradually rather than all at once because of the owl adjustment payments. In 2001, the level of county payments nearly doubled as a result of the decoupling of county payments from timber receipts under the Secure Rural Schools Act.

The BLM did not have a program for funding economic diversification through the NEAI. However, the district played an important role in helping organizations in Greater Coos Bay, Greater Myrtle Point, and Greater Reedsport obtain tens of millions of dollars in NEAI funds from other agencies. NEAI funds enabled the communities to develop a variety of locally important projects, such as improvements to the Winchester Bay marina near Reedsport, development of a business incubator and computer training programs in North Bend and Coos Bay, and the construction of a university extension office in Myrtle Point.

The district also contributed several million dollars for watershed restoration contracts carried out through the JITW program. The majority of these contracts went to locally based contractors working independently or through local watershed associations. Although the JITW program employed displaced timber and fishery workers, the number of full-time jobs provided was insignificant relative to the demand for woods-based employment in all three study communities.

Owing to legal challenges to the Plan, the Coos Bay District has been unable to provide a steady and predictable supply of timber since 1994. To address this issue, district foresters have shifted their management focus toward developing density management sales in stands less than 80 years old. Such sales are less likely to be subjected to appeals by environmental groups. The district anticipates that sales from these younger stands will provide a predictable supply of smaller diameter timber in future years. In the post-Plan years, the Coos Bay District also significantly expanded its capacity to carry out multiple-use land management. It played a key role in community-based watershed restoration and recreation and tourism development efforts. As a result, the district is now in a much better position to provide the public, including residents of local communities, with a broad array of forest values and opportunities (i.e., improved fish habitat, more recreation sites, more cultural sites, etc.). Key factors in the success of post-Plan community-district partnerships included ongoing and substantial support from upper-level leadership, a stable district budget, and a relatively stable level of staffing.

Contents

Chapter 1: Introduction to the Northwest Forest Plan Socioeconomic Assessment

This case study was undertaken as part of the Northwest Forest Plan Socioeconomic Monitoring Program. It is one of four case studies conducted during 2003 for the purpose of assessing the effects of the Northwest Forest Plan (the Plan) on rural economies and communities within the range of the northern spotted owl (see app. B for species scientific names). This document is a supplement to Charnley (2006), which presents socioeconomic monitoring results for the Plan area (i.e., Washington, Oregon, and parts of northern California) from 1990 to 2003.[1] It contains local details about socioeconomic changes that took place between 1990 and 2000 in and around land managed by the Bureau of Land Management (BLM) Coos Bay District in southwestern Oregon.

This report centers on identifying the changes that took place on the Coos Bay District during the 1990s. The report also examines the changes that took place in three communities located near the Coos Bay District. The three communities include Greater Coos Bay, which encompasses Coos Bay, North Bend, and Empire; Greater Reedsport, which encompasses Reedsport, Winchester Bay, and Gardiner; and Greater Myrtle Point, which encompasses the town of Myrtle Point and several outlying settlements (see fig. 1). To the extent possible within the financial and timing constraints imposed upon the researchers, the study also assessed the degree to which the changes occurring on the district and in the three communities were related to the Plan.

The USDA Forest Service and BLM adopted the Plan in 1994 to address a federal court injunction requiring adequate protection for the northern spotted owl (see app. B for scientific names), a federally endangered species. The Plan was put forth as a solution to a decade of intense controversy over the harvesting of old-growth timber on federal forests in the Pacific Northwest. This case study was developed to respond to two socioeconomic monitoring questions posed in the Plan record of decision (ROD). The first focuses on use levels of natural resources: "Are predictable levels of timber and non-timber resources available and being produced?" (USDA and USDI 1994: E-9). The second evaluation question relates to rural economies and communities: "Are local communities and economies experiencing positive or negative changes that may be associated with federal forest management?" (USDA and USDI 1994: E-9).

The evaluation questions posed in the record of decision are based on a set of goals and expectations that were associated with the Plan when it was designed. One goal was to produce a predictable and sustainable supply of timber, nontimber forest resources, and recreation opportunities. These would then help meet a second goal: to maintain the stability of local and regional economies on a predictable and long-term basis (USDA and USDI 1994: 26), and contribute to community well-being. Third, where timber sales could not proceed, the goal was to minimize adverse impacts on jobs by assisting with long-term economic development and diversification opportunities in the rural communities most affected by cutbacks (USDA and USDI 1994: 3). The Northwest Economic Adjustment Initiative (NEAI) aimed to promote this goal and was expected to provide both immediate and long-term relief to rural people, businesses, and communities suffering from reductions in federal timber harvests (Tuchmann et al. 1996: 155–156). The fourth socioeconomic goal of the Plan was to establish a system of terrestrial and aquatic reserves that would protect forest values and environmental qualities associated with late-successional forest ecosystems (USDA and USDI 1994: 8–10). Fifth, the Plan aimed to usher in a new approach to federal forest management. In particular, the Plan called for federal agencies to collaborate with one another in managing federal forests in the Pacific Northwest (Tuchmann et al. 1996: 6, 44–48). It also emphasized

[1] The Plan calls for the Forest Service and BLM to monitor the socioeconomic impacts of the Plan. However, the agencies did not identify socioeconomic indicators for monitoring, nor did they conduct a baseline study of socioeconomic indicators that could form the basis of a monitoring effort. In 2001, the Forest Service commissioned a pilot study to develop recommendations for how the agencies could structure a long-term socioeconomic monitoring program (Jackson et al. 2004). However, implementing the suggested recommendations would have required a level of funding not forthcoming from the Forest Service and BLM. Consequently the two agencies limited the socioeconomic monitoring portion, of which this case is one element, to a one-shot study rather than a full-fledged monitoring effort.

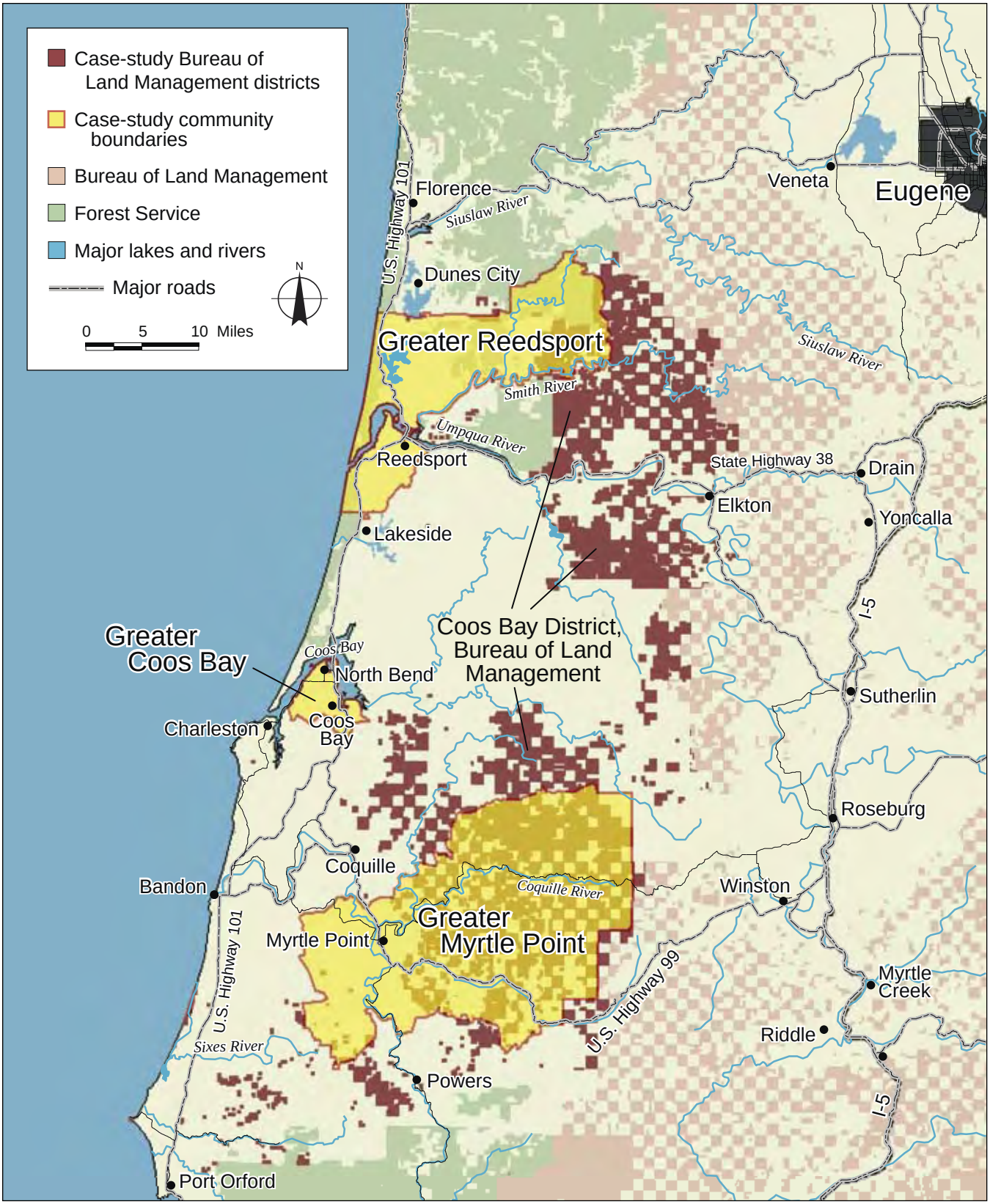

Figure 1—Coos Bay District and three case-study communities.

greater collaboration in forest management between agencies and citizens (Danks and Haynes 2001: 54).

One component of the monitoring program uses case studies to investigate how the Plan has been implemented on individual national forests and BLM districts within the Plan area. It also examines how the shifts in forest management have affected forest users and surrounding communities. This document reports the results of one of those case studies. Specifically, we looked at how the Plan has affected the flow of socioeconomic benefits associated with the Coos Bay District. The socioeconomic benefits we examined included the production of forest commodities (timber, nontimber forest products, grazing, and minerals) and forest-based recreation; jobs and income associated with the production of forest commodities and recreation; agency jobs; contract work focusing on ecosystem management activities; grant money for community economic assistance; benefits associated with payments to county governments; and opportunities to engage in collaborative forest management.

Methods

The research design and methods adopted in this assessment, including the Coos Bay case study, emerged in part from the experiences of four of the team members with a regional assessment of the NEAI conducted in the early 2000s (Kusel et al. 2002). Based on the NEAI experience and given the limited time and financial support for the project, the team opted for a small sample size and a clustered sampling approach to reduce the amount of time needed to gather contextual data about the case-study forests and communities. The extensive field-based knowledge that team members involved with the NEAI study brought with them of changes that had taken place in numerous communities in the Plan region also facilitated the development of the community and forest data gathering protocols.

The baseline year for the socioeconomic monitoring program is 1990. To answer the first evaluation question (Are predictable levels of timber and nontimber resources available and being produced?), we obtained quantitative and qualitative data on timber sales, special forest products, grazing, mining, and recreation from Forest Service and BLM databases, planning documents, and resource specialists. All of the monitoring teams associated with the Pacific Northwest Interagency Regional Monitoring Program were directed to obtain agency data from corporate databases, publications, or other sources available from agency national, regional, or state offices, rather than requesting data from individual Forest Service and BLM field units (unless warranted by special circumstances). For the Coos Bay District, however, we had access to annual program reports posted on their public Web site dating back to 1996. These reports provided much of the data needed to describe trends in various program areas covering most of the post-Plan period. When we compared these data with the case-study forest data from corporate databases, we sometimes found differences in the numbers. In such cases, we used the data from forest units for our analysis.

The analytical framework adopted by this module calls for showing that changes reflected by the trend data were caused by management actions under the Plan, or for providing alternative theories that could explain the changes observed. The team investigated links between trends in resource and recreation outputs, management actions under the Plan, and other explanatory variables by using a case-study approach. We selected four forests from different planning provinces in the Plan area for detailed study: the Olympic National Forest, the Mount Hood National Forest, the Klamath National Forest, and the BLM Coos Bay District. For this case study, we interviewed 22 BLM employees from the Coos Bay District. We discussed trends in the indicator data for each resource area with program specialists, asking their perspectives on the reasons behind the trends observed and the role of the Plan in influencing them.

Fully researching the causes of trends in resource and recreation outputs from federal forest lands since the Plan was adopted was beyond the scope of this exploratory study. However, the interview results provide a starting point for developing and testing hypotheses about how the Plan has affected the ability of the Forest Service and BLM to produce predictable quantities of timber and nontimber resources.

Our ability to answer the monitoring question (Are predictable levels of timber and nontimber resources available and being produced?) and to evaluate the Plan goal (produce a predictable and sustainable level of timber sales and nontimber resources) was limited by the availability and quality of agency data. For some resource indicators (i.e., much of the recreation data), we could obtain status but not trend data. We report the status data to provide a baseline for future monitoring. In some cases (such as minerals and special forest products), the resource data tracked by the agencies did not serve as adequate indicators for answering the monitoring question directly. Nonetheless, we believe that providing some information about trends in these resource areas is better than providing no information at all. Thus, we made the most of the available data, assessing what we could learn related to the monitoring question and goal.

The second evaluation question has two components (Are local communities and economies experiencing positive or negative changes, and are these changes associated with federal forest management?). To assess whether local communities and economies were experiencing positive or negative changes, the team used social and economic indicators from the U.S. census to analyze change in the communities between 1990 and 2000. The team also developed a community socioeconomic well-being index, and analyzed differences in well-being between 1990 and 2000. The socioeconomic well-being index consists of six measures: employment by industry diversity, percentage of the population with bachelor's degree or higher, percentage of the population unemployed, percentage of the population in poverty, household income inequality, and average travel time to work (see Donoghue and Sutton 2006 for a description of methods used to develop the index).

Finding direct connections between changes in forest management policy and socioeconomic change is difficult. To assess whether social and economic change in local communities and economies was associated with the Plan, the team examined trends in socioeconomic benefits from federal forests that potentially affect the well-being of forest communities. These benefits included jobs and income associated with forest resources and recreation, agency jobs, and procurement contracting opportunities. We examined local-scale trends for the Coos Bay District by using quantitative data from agency databases and other secondary sources. In addition, we evaluated the success of Plan mitigation measures designed to support rural communities and economies dependent on jobs in the wood products industry during a period of economic transition. These mitigation measures included (1) integrating forestry and economic development goals by creating new jobs in ecosystem restoration; (2) the NEAI, which provided economic assistance to workers and their families, businesses, and communities; and (3) providing safety net payments to counties to help compensate for the loss of revenue sharing based on timber receipts.

To supplement the quantitative monitoring data, the team employed a community case-study approach to gather and analyze qualitative data from interviews with BLM employees and a diverse set of community members. The qualitative data provided a more detailed understanding of the social and economic conditions and trends described by the quantitative data, how changes in the flow of forest benefits had contributed to change in local communities, and how the Plan affected the flow of socioeconomic benefits. These data describe the social and economic effects of the Plan on local communities, and how agency efforts to mitigate Plan impacts did or did not help communities adapt to change. Using the qualitative data, we identify key patterns, themes, and insights that emerge from the cases and use them to advance our understanding of how federal forest management policy is linked to socioeconomic well-being in forest-based communities. These interviews are also the main source of data for evaluating progress in agency-citizen collaboration under the Plan, and how effective the Plan has been in protecting forest values and environmental qualities associated with older-forest and aquatic ecosystems.

Selection of Case-Study Forests

Case-study forests were chosen to represent one national forest in each of the three states that lie within the Plan area, and one BLM unit in Oregon, the only place that the BLM has significant land holdings inside the Plan area. They

were also chosen to represent different provinces (the Plan area is broken up into 12 planning provinces). The monitoring program team leader sent a letter to all of the national forests and BLM districts in the Plan area and asked for volunteers to participate in socioeconomic monitoring. We adopted this approach because the monitoring effort was considered a pilot program, and we wanted to conduct it on forests that were interested in participating and making use of the resulting information. Two of the four case-study forests (the Olympic and Mount Hood National Forests) volunteered to participate, and were chosen for that reason. We chose the Klamath National Forest because it was previously a high timber-producing forest, and the forest supervisor was supportive of social science work. We selected the Coos Bay District because the BLM Oregon State office recommended it, and the district manager was supportive of social science work. The Coos Bay District also had been a major timber-producing district prior to the Plan.

Selection of Case-Study Communities

Case-study communities associated with each forest were chosen based on a number of criteria. First, the team identified a sampling frame of communities that included all of the census block group aggregates (BGA) whose polygons lay, at least partially, within a 10-mi radius of the case-study forest boundaries. The team chose this distance because it wanted to focus the monitoring work in forest-based communities, and assumed that communities close to federal forests would have social, economic, or cultural ties to those forests. We then met with agency employees from each case-study forest to discuss communities within our sample frame that currently or historically maintained some kind of relations with the case forest and the managing agency.

We selected three communities associated with each case-study forest from the sample frame for monitoring because time and budget constraints did not allow for a larger community sample. We recognize, however, that in choosing only three communities around each forest, we might not capture all of the variation in community "types," or in community-forest relations in each case-study area. We initially chose case-study communities randomly from a stratified sample based on their socioeconomic well-being measure in 1990 in three categories: high, medium, and low. We randomly chose one community from each stratum, unless there were no communities in one of the strata. In the Coos Bay case, which had no communities in the high socioeconomic well-being stratum, we randomly chose two communities from the middle stratum, as it contained the largest number of communities.

Once in the field, however, it soon became apparent that the communities selected through this approach would provide only a very narrow understanding of the impacts of the Plan on communities within the Coos Bay District's boundaries. We thus drew upon the advice of key informants at the Coos Bay District, as well as upon our own observations during preliminary fieldwork, to identify three communities that would illustrate a broader range of responses to the socioeconomic changes taking place along Oregon's south coast during the 1990s. We then used the census block group delineations that encompassed the selected communities for the purposes of bounding the communities and analyzing census data.

For logistical reasons, we focused on communities located in the northern two-thirds of the Coos Bay District, where BLM's holdings are most concentrated. The Greater Coos Bay community case study illustrates the response of a large regional economic and political center, with a relatively well-developed transportation and business infrastructure and a diversity of human and financial resources to draw upon. Greater Reedsport and Greater Myrtle Point serve as examples of how much smaller communities, with only limited infrastructure and many fewer human and financial resources, responded to the same forces of socioeconomic transformation. Although similar in size, Greater Reedsport and Greater Myrtle Point have very different economic histories. Greater Reedsport was founded originally as a railroad hub and mill town in the early 1900s, whereas the community of Greater Myrtle Point developed as an economic center for farmers and ranchers in the middle Coquille Valley during the mid-1850s. Greater Reedsport also serves as an example of a community that appears to be gradually transitioning into a tourism-based

economy. All three case communities have a long history of economic and cultural reliance upon resources derived from lands managed by the Coos Bay District. Ideally we would have included Bandon, which has been quite successful in developing a tourist-based economy. However, the funding available for the project did not permit us to include a fourth case community.

Once we selected the case communities, we talked with community members to determine whether the community had historical or present ties to the Coos Bay District. We also used the interview process to determine how the communities should be defined for case-study purposes. The BGA delineations were used for initially selecting case communities; however, the model we used did not necessarily correspond geographically to the place that community members considered to be their community. Thus, we adjusted the BGA community delineations once we got to the field and learned how local residents conceptualized their community. In the case of all three Coos Bay communities, we further aggregated the original BGA with surrounding BGAs in response to feedback from local residents to more accurately define the case-study community boundaries. Chapter 4 provides a more detailed description of the final community boundaries for each case study.

Census Statistics

We compared U.S. census statistics from 1990 and 2000 for the case-study communities (i.e., BGAs) to determine changes in socioeconomic conditions. We selected demographic indicators, such as total population, median age, school enrollment, percentage of population that completed high school, percentage of population with a bachelor's degree or greater, age distribution, ethnicity, population by race, and Hispanic population. We also looked at economic indicators, such as median household income, percentage unemployed, percentage living in poverty, household income distribution, and employment by industry. In addition to comparing changes over time within communities, we also compared how the community indicators had changed relative to the same indicators at the county level.

Interviews

We selected interviewees purposefully, rather than randomly, because we wanted to interview local experts who could provide information relevant to the monitoring questions posed in this chapter. We chose interviewees so as to capture as much of the potential range of variation in the populations under study as was feasible given funding and time constraints. We interviewed 15 community members in Greater Coos Bay, 15 in Greater Myrtle Point, and 19 in Greater Reedsport. Not all interviewees were residents of the communities.[2] Some interviewees were individuals who worked in the community or had a strong connection to either the community or the portion of the district that surrounded the community.

Owing to time and funding limitations, we centered our efforts on understanding how people who live and work on a daily basis in the case-study communities perceived the Plan. As a result, we conducted interviews with only two stakeholders living outside the Coos Bay region. One of these interviewees worked for an organization that has played a lead role in challenging BLM's implementation of the Plan in southwestern Oregon. The other worked for a timber company that operates one of the few remaining mills in the Coos Bay area, and is a member of a timber industry association that has challenged the BLM and Forest Service's legal right to implement the Plan on Oregon and California Railroad Company (O&C) lands. Appendix A provides a general description of the interviewees from the three communities. Because of the potentially sensitive nature of some of the interview questions, we have kept the names of interviewees confidential.

[2] Social scientists have engaged in debates over the concept of community for more than a century. Numerous definitions of community exist; all of them are problematic from the standpoint of how to use them in field studies (Jackson et al. 1994). As noted by Jackson et al. (1994: 226), "Conceptualizations of community range from the conventional community of place (a town) to communities of interest (people sharing common interests), and occupational communities (people united by shared identification and interactions within an occupation)." Drawing on Wilkinson (1991) Jackson et al. pointed out that a local community can encompass multiple social fields (i.e., place, occupation, membership in civic groups, religious affiliation, etc.). For the purposes of this case study, we adopted a broad definition of community that encompassed social fields in addition to residency in a particular location (e.g., occupation, civic action, forest management interests).

After identifying categories of informants to be interviewed in each community and on the district, we used a snowball sampling approach to locate interviewees (Bernard 2002). Snowball sampling entails locating key individuals in a community, and asking them to identify people who would be appropriate to interview about the topics under study. However, to avoid selecting interviewees belonging to only a narrow segment of the community (a hazard of snowball sampling as pointed out by Jackson et al. 2004), we also reviewed planning documents and newspaper articles to identify interviewees likely to be knowledgeable about various aspects of community change. The criteria we used to develop our sample frame included people who represented one of the informant categories initially identified; people who had lived in the case community or worked on the case forest at least since 1994, when the Plan was adopted; people who were knowledgeable about the topics under study; people who were considered able to provide a window into the community or the district; and people who were willing to talk with us.

The team gathered names of potential interviewees and contacted those people whose names were repeatedly mentioned. We conducted semistructured interviews and used an interview guide that contained a list of questions and topics to be covered during the interview (see Charnley 2006).

Interviews with community members covered the following topics:

- The role of forest management policy in the socioeconomic changes taking place in their communities between 1990 and 2000.
- How their communities have responded to those changes.
- How well the Plan has provided the forest values stakeholders consider important.
- Current issues and concerns relating to management of the forest.
- Trends in Forest Service–community collaboration.

During the interviews, we also showed interviewees charts of quantitative data from the U.S. census comparing socioeconomic conditions in 1990 and 2000, and asked them to comment on both the accuracy of the data relative to their community and possible explanations for observed changes. One of the field researchers took handwritten notes during the interviews and transcribed the notes into a computer wordprocessing file for later analysis. The other field researcher typed notes directly into a wordprocessing program while interviewing community members. Interviews ranged in length from 45 minutes to 2 hours, depending on the interviewee's range of involvement in community activities of relevance to this study and knowledge of forest management and policy. We adopted Mishler's (1986) approach to interviewing, in which interviews are viewed as discourse, or "meaningful speech between interviewer and interviewee as speakers of a shared language" (Mishler 1986: 10–11). Interviews of this sort tend to take on the form of a conversation between the interviewer and informant (Riessman 1993).

Archival Data

We also gathered archival data, including community and agency planning documents, Web sites, newspaper articles, and government statistics on environmental and social parameters (e.g., fisheries data, drug use statistics), to shed light on the types of changes taking place in the communities and potential causes of those changes. The archival data served as an important cross check to interview data, allowing us to verify, clarify, and contextualize statements made by interviewees.

Analysis

In presenting our data, we used a style that Emerson et al. (1995) referred to as a thematic narrative. In thematic narratives, the "writer organizes some of these themes into a coherent 'story' about life and events in the setting studied" (Emerson et al. 1995: 173). In developing thematic narratives, the writer selects "only some small portion of the total set of fieldnotes and then [links] them into a coherent text representing some aspect or slice of the world studied" (Emerson et al. 1995: 173). Thematic narratives allow the researcher to illustrate "distinctions and interconnections between related phenomena" (Emerson et al. 1995: 173).

Limitations of the Study

Three key limitations of the study include:

1. We conducted this study to develop an indepth contextualized understanding of the effects of agency management actions, policies, and programs on forest-based communities in different locations. As such, the case-study findings cannot be used (nor were they intended to be used) as the basis for making generalized statements about socioeconomic changes and the ways in which those may have been affected by the Plan to the entire universe of communities located within the Plan area. However, the results do serve as a foundation for developing hypotheses to be tested in future research projects. We view the case communities as an initial sample that will form part of a larger community sample to be monitored in the future as part of the Plan socioeconomic effectiveness monitoring program.
2. Because most of the people we interviewed lived in and around the three case-study communities, the findings tend to privilege the perceptions of members of these particular communities of place over the perceptions of other citizens (e.g., members of more distant communities of place who may, nonetheless, have been affected by the Plan). As a result, the impacts of the Plan on people living at a distance from the Coos Bay District (e.g., residents of the Willamette Valley, Roseburg, Portland, and other areas of the United States) are not addressed in this study. We recognize that from an economic impact standpoint alone this is problematic; given that wood products processing activities were already shifting away from the Coos Bay area prior to the Plan, it is quite possible, and indeed probable, that millworkers outside the immediate Coos Bay area were affected by the district's decreased timber harvest. Similarly, from the standpoint of sociocultural benefits, it is also problematic. For example, it is probable that the district's increased investments in recreation and tourism have benefited residents in Portland, the Willamette Valley, and other parts of the country. However, timing and funding constraints did not permit us to describe the impacts of the Plan on people located at a distance from the district.
3. In the Coos Bay area, the diversity of timber stakeholders and the differential impacts of the Plan within the timber industry alone required that we include a range of timber stakeholders (i.e., large landholding companies, smaller companies, small woodland owners, public forest managers, former timber and mill workers, etc.). With limited time to conduct the study, this meant that we had to substantially narrow the range of other stakeholders included in the study. We sought to address this shortcoming by selecting some interviewees occupying work or leadership positions that brought them into close contact with a broad range of community members. For example, chamber of commerce, economic development, and cooperative extension employees could reasonably be expected to be familiar with how a range of business and services sectors within the community were affected by the Plan. Similarly, county and municipal politicians as well as social service providers would likely have knowledge about diverse population subgroups and the impacts that the Plan may have had upon different groups.

Presentation of Case-Study Findings

The remainder of chapter 2 of this report describes the history and key socioeconomic characteristics of the Coos Bay region and the three case-study communities. Chapter 3 discusses the flow of socioeconomic benefits from Coos Bay District from the early 1990s to the early 2000s, as well as how the Plan affected that flow. Chapter 4 examines the socioeconomic changes that took place in Greater Coos Bay, Greater Myrtle Point, and Greater Reedsport during the same period. Chapter 5 provides a general discussion of the

changes that have taken place in the district's approach to forest management and how community members perceive those changes. Topics addressed include community-district collaboration, perceptions of how well the district is providing forest values and environmental qualities community members perceive as important, current issues and concerns related to the district's management, and community members' views regarding what has and has not worked well with the Plan. Chapter 6 returns to the two monitoring questions and the five socioeconomic goals of the Plan. It assesses how well these goals have been met and attempts to answer the monitoring questions within the context of the Coos Bay District case study. Chapter 7, the concluding section of the report, discusses the lessons learned from this case study that can help inform adaptive management efforts in the northern spotted owl region.

Chapter 2: The Coos Bay Cluster Area

The Coos Bay study area encompasses Oregon's south coast and its adjacent uplands (see fig. 1). The Bureau of Land Management (BLM) Coos Bay District includes Coos and Curry Counties, as well as a sizeable portion of Douglas County and a tiny sliver of Lane County. Most people living within the district's boundaries reside in the twin cities of Coos Bay and North Bend, located at the mouth of the Coos River. Other major towns along the south coast include Bandon, Port Orford, Gold Beach, and Brookings to the south of Coos Bay, and Reedsport to the north. The towns of Coquille and Myrtle Point, both in the Coquille River Valley, are the two largest inland settlements in the region. Coos Bay is one of two deep-water harbors between San Francisco and the Columbia River (Smyth 2000: 17).

Physiography and Ecology

Most of the district's holdings fall within the Coast Range Province, which begins at the Middle Fork of the Coquille River and extends north into Washington; the remainder is located in the Klamath Mountain Province (Franklin and Dyrness 1984: 11). Very steep and highly dissected mountains dominate the two ecological provinces, and the area has a high potential for landslides (USDA and USDI 1998: 12). Elevations range from sea level to 3,400 feet (USDI 1994: 3-4). Rainfall ranges from an average of 60 inches per year along the ocean shore to more than 100 inches per year in the higher elevations of the Oregon Coast Range (USDI 1994: 3-3).

The District has two major forest types, the Sitka spruce and western hemlock zones (Franklin and Dyrness 1984: 44). The Sitka spruce zone consists of a narrow band along the coast, with fingers extending into the Coos, Coquille, and Umpqua River valleys (Franklin and Dyrness 1984: 58–63). The Sitka spruce zone provides excellent growing conditions for large coniferous trees, such as Sitka spruce (see app. B for species scientific names), western hemlock, western redcedar, Douglas-fir (Franklin and Dyrness 1984: 59). The district's upland areas occur within the western hemlock zone, which runs in a band parallel to the coast (Franklin and Dyrness 1984: 70–88). Douglas-fir is the dominant conifer in this zone. Hardwoods such as red alder, bigleaf maple, and golden chinkapin are common in riparian areas or heavily disturbed sites. Myrtle, which local wood carvers use extensively, grows in the lowlands.

A large percentage of the district's holdings are located in the upland portions of the Umpqua, Coos, and Coquille Rivers. All three rivers end in large estuaries, consisting of tidal flats, salt marshes, and sand dunes. Most of these lowland areas are held in private ownership. Although substantial areas of all three estuaries have been diked or drained to create land suitable for farming, transportation corridors, and residences, the remaining wetlands provide habitat for fish and a variety of insects, birds, reptiles, and mammals.

Land Ownership Patterns

The Bureau of Land Management, Coos Bay District

The Coos Bay District administers 324,800 ac stretching 150 mi from north to south starting from a line just south of Florence, Oregon, to just north of Brookings, Oregon (see fig. 1). Most of the district's holdings are concentrated in a band roughly 25 mi wide in the uplands of the west slopes of the Coast Range. However, unlike the adjacent national forests, which tend to have large contiguous holdings, most of the Coos Bay District's holdings are distributed in a checkerboard pattern with mile-square sections of BLM land alternating with mile-square sections of privately owned land. The district also administers several sites along the Pacific coast, including Floras Lake, which is located north of Port Orford; the New River Area of Environmental Concern between Langlois and Bandon; and the North Spit across from the town of North Bend.

The BLM's Coos Bay holdings fall into three land management categories based on how they entered BLM's administrative jurisdiction: Oregon and California Railroad Company (O&C) land, Coos Bay Wagon Road (CBWR) land, and public domain (PD) land. The O&C land makes up the largest percentage of the district's holdings, amounting to 68 percent of the total acreage.

The district is divided into two smaller administrative units known as resource areas. The Umpqua Resource Area comprises the northern portion of the district and the Myrtlewood Resource Area the southern part. The Coos Bay District office and both resource area offices are in one large building complex in North Bend. Roughly half of the district's holdings are in Coos County, 40 percent are in Douglas County, and 10 percent are in Curry County.

Other Public Forest Holdings

Other public land management agencies with holdings in the Coos Bay cluster include the Siuslaw National Forest, the State of Oregon, and Coos, Curry, and Douglas Counties. The Siuslaw National Forest administers land in the northern part of the district, as well as the Oregon Dunes National Recreation Area along the coast north of Coos Bay. The Siskiyou National Forest manages most of the higher elevation forest land from Port Orford south to the California border in the southern part of the district. The Siuslaw and Siskiyou National Forests are also managed under the Northwest Forest Plan (the Plan). The Oregon Department of Forestry administers the 93,000-acre Elliott State Forest, which is located between Coos Bay and Reedsport. Coos County manages several thousand acres of forest land. The National Oceanic and Atmospheric Administration and the Oregon Department of State Lands jointly manage the 4,700-acre South Slough National Estuarine Reserve near the town of Charleston (SSNERR 2003).

Private and Tribal Forest Holdings

Industrial forest products companies, including international and national firms, such as Weyerhaeuser, Plum Creek Timber Company, and Menasha, as well as smaller regional firms, such as Roseburg Forest Products and Lone Rock Timber, own most of the privately held checkerboard sections intermixed with Coos Bay District holdings. Numerous smallholders own land in the lowland areas of the region's major rivers and along the coast.

In 1996, the U.S. government transferred title of roughly 5,400 acres of BLM land in the Myrtlewood Resource Area to the Coquille Tribe. The transfer took place as an amendment to the Coquille Restoration Act (PL 101-42) of 1989, which restored tribal status to the Coquille people. The Coquille Forest consists of 14 parcels scattered through the uplands of the Coquille River watersheds. The Coquille Tribe manages its forest holdings for the benefit of Coquille tribal members. Under the terms of the land transfer, the Plan's standards and guidelines also apply to the Coquille Forest.

Historical Overview

The Suppression of Indigenous Cultures: The 1850s

Humans have lived in the Coos Bay region for at least 8,000 years (USDA and USDI 1998: 32). Groups occupying Oregon's coast from Florence to Brookings in the early 1800s included the Siuslaw, the Lower Umpqua, the Hanis Coos, the Miluk Coos, the Kwatami, the Tututni, the Chetco, and the Tolowa (Zucker et al. 1987: 9). The Upper Coquille lived in the uplands of the Coquille River valley, where the towns of Myrtle Point and Coquille are presently located (Zucker et al. 1987: 9).

Pioneers moved into the Coos Bay region in large numbers after the Oregon Territory's Provisional Government passed the Donation Land Act of 1850, which allowed settlers to establish land claims within the Oregon Territory (Dicken and Dicken 1979: 99). The discovery of gold in 1852 brought a large influx of miners to the upper reaches of the Rogue River Valley, near present-day Jacksonville (Douthit 1999: 17). By 1853, the miners had fanned out into coastal Oregon, establishing settlements on the mouths of the rivers along the coast from the Umpqua River south to Gold Beach (Douthit 1999: 17).

In 1855, the U.S. government initiated treaty negotiations with the Rogue River Indians and other indigenous groups, including bands living along the lower Umpqua, Coos, Siuslaw, and Coquille Rivers (Zucker et al. 1987: 85). Once the Indians had signed the treaty, the U.S. government forcibly moved them, first to the mouth of the Umpqua, and then to the newly established Siletz and Grand Ronde Reservations in northern Oregon (Douthit 1999: 18). The U.S. government signed the 1855 treaty, but never ratified it, leaving the lower Umpqua, Coos, Siuslaw, and Coquille

Tribes without land or federal recognition as sovereign nations until the late 20th century (Ruby and Brown 1986: 46; Zucker et al. 1987: 85).[1]

Constructing an Industrial Economy: 1850-1900

From the 1850s to the 1890s, the newcomers to Coos Bay constructed an industrial economy based on a combination of logging, wood processing, shipbuilding, agriculture, ranching, coal mining, and commercial salmon fishing, along with the retail and other services needed to support these activities (Douthit 1999: 18). The need for raw materials to supply the California gold fields sparked outside investment in the development of industrial-scale lumber mills in Coos Bay during the early 1850s (Douthit 1999: 18–20). In 1858, Asa Simpson set up a shipyard in the area that is now the city of North Bend (Wagner 1986: 5). The Simpson shipyard, and others that followed it, constructed ships that transported large quantities of lumber and coal to San Francisco (Wagner 1986: 5).

Over the next 30 years, a number of mill operators set up sawmills in settlements along the coast and the region's major rivers (Beckham 1990: 49–51). In addition to shipping to the San Francisco lumber market, Coos Bay mill owners also established markets for the region's Port Orford cedar in Japan by the 1870s (Richardson 1980: 6). Studies of Coos Bay's economic history indicate that the region's reliance on natural resource exports tied the prosperity of local businesses and workers to the economic ups and downs of distant markets as early as the late 19th century (Douthit 1999: 146, Robbins 1988: 19–20).

Once the brief gold rush to the south coast subsided in the mid-1850s, agriculture emerged as an important element in Coos Bay's economy. Domesticated cranberries became a key component of the agricultural sector around Bandon and Port Orford (Douthit 1999: 20). Livestock enterprises, including beef cattle and dairy operations, also had become important components of the region's agricultural economy by the late 1880s (Douthit 1999: 20).

Coal mining and commercial salmon fishing constituted two additional elements of Coos Bay's industrializing natural resource economy of the late 1800s. Coal mining remained an important economic driver in Coos Bay until the 1920s, when oil replaced coal as the main source for residential and industrial heat (Douthit 1999: 20). Salmon became an important export commodity from Oregon's south coast in the 1870s, and canneries operated along all the major rivers from Gold Beach north to Florence by the 1880s (Douthit 1999: 19).

To encourage wagon road and railroad companies to connect the south coast with the rapidly expanding Willamette and Rogue Valley towns, the federal government made several large grants of land in southern Oregon during the 1860s. One land grant, made in 1866, went to the Oregon and California Railroad Company on the condition that they construct a railroad through northern California and Oregon to connect Oregon's timberlands with California's cities and ports (Richardson 1980: 2). Similarly, in 1869, the U.S. government granted 93,000 acres to the Coos Bay Wagon Road Company to finance the construction of a wagon road connecting Roseburg with Coos Bay (Richardson 1980: 2).

By 1900, the current towns of Bandon, Coos Bay, Coquille, Charleston, Empire, Myrtle Point, Gardiner, Elkton, Scottsburg, Gold Beach, and Port Orford had all been platted (Douthit 1999: 68, 86–87, 96, 172). The Brookings Timber and Lumber Company established Brookings in 1913 as a mill company town (Curry Coastal Pilot 2001). W. Reed platted Reedsport in 1913 to serve as a hub along the railroad line under construction between Eugene and Coos Bay (Douthit 1999: 166).

The Rise of an Industrialized Wood Products Economy: 1900–1950

The creation and expansion of the federal forest reserve system in the late 1890s and early 1900s, coupled with rising lumber prices and fears of a national timber famine,

[1] The Coquille obtained federal recognition as a tribe in 1950, but the U.S. government terminated their tribal status in 1954. The U.S. Congress restored the group's tribal status in 1989. Congress recognized the Siletz in 1977, and the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw in 1984 (CLUS 2002: 5). Congress restored portions of their ancestral territories to the Siletz in 1977, the Grand Ronde in 1988, and the Coquille in 1999 (CLUS 2002: 5). The Confederated Tribes are presently seeking restoration of roughly 63,000 acres of the ancestral territories of the Siuslaw and Lower Umpqua, located in what is now the Siuslaw National Forest (CLUS 2002).

sparked a wave of speculation in timber holdings in the Pacific Northwest at the turn of the 19th century (Robbins 1988: 26–27). Timber companies entering the south coast markets in the 1900s, such as Weyerhaeuser, C.A. Smith, and Menasha, sought to control the wood products industry in the Northwest by acquiring rights to large tracts of timber (Robbins 1988: 27–28). The opening of C.A. Smith's lumber mill in Coos Bay in 1908 marked the beginning of Coos Bay's economic transformation from a region supported by several diverse and relatively independent economic sectors to a region dependent primarily upon the harvesting, processing, and shipping of forest products (Douthit 1999: 20). Over the course of the next 10 years, mills operated by companies with large timber holdings were established in Bandon (Moore Mill) and Brookings (Brookings Timber and Lumber Company) (Douthit 1999: 32). Logging firms also established an extensive system of splash dams and logging booms in the Coquille and Coos River watersheds during the early 1900s, with devastating effects on the region's salmon fisheries (Beckham 1990).

The dynamics of the south coast's wood products economy changed again in 1916 when unsold portions of the O&C and CBWR land grants reverted to the U.S. government (Richardson 1980: 22). Angered at the railroad and wagon road companies for selling lands to large outside timber companies, sometimes illegally, local lumber companies joined forces with farm and labor associations, county governments, and Oregon state legislators to advocate for a federal settlement to remove the unsold lands from the hands of Southern Pacific, which had taken over the O&C company and its holdings (Richardson 1980: 22). In 1916, the U.S. Congress passed legislation transferring the unsold O&C lands to the federal government under the administrative authority of the General Land Office, which later merged with the U.S. Grazing Service to become the Bureau of Land Management (Richardson 1980: 28). In 1919, the U.S. Congress also reconveyed the unsold CBWR lands to the federal government (Richardson 1980: 33).

The boom period of the early 1900s tapered off into a period of intermittent cycles of depressed lumber prices, layoffs, and worker strikes between 1907 and 1917 (Robbins 1988: 48–50). However, the outbreak of World War I boosted the south coast lumber economy once again (Robbins 1988: 48-50). By the 1920s, the wood products industry's role in Coos Bay had shifted from supplying California and Japan with raw timber and rough-milled lumber to producing a variety of value-added products, such as veneer, plywood, and pulp (Douthit 1999: 146–147). At the same time, ownership of private timber holdings became increasingly concentrated. By the end of the 1920s, four companies—Coos Bay Lumber Company, Southern Oregon Company, Weyerhaeuser Timber Company, and the Buehner Company—controlled the bulk of the remaining stands of old-growth timber in the region (Robbins 1988: 52).

The 1930s depression hit the Coos Bay area very hard, with roughly half the mills closing between 1920 and 1933 (Douthit 1999: 175) and as much as half the population out of work (Robbins 1988: 78). To survive, many people turned to harvesting a variety of nontimber forest products, such as cascara bark, huckleberry brush, cedar boughs, and blackberries for subsistence and market (Robbins 1988: 79). During the 1930s, lumber industry representatives worked with the Department of the Interior to develop the 1937 Sustained Yield Act, which placed the administration of the O&C and CBWR lands under the jurisdiction of the Secretary of the Interior (Richardson 1980: 52–53). The act required that 1,400,000 of the 2,219,743 acres be managed according to sustained-yield methods (Richardson 1980: 53) "for the purpose of providing a permanent source of timber supply, protecting watersheds, regulating streamflow, and contributing to the economic stability of the local communities and industries, and providing recreational facilities." (Section 1181(a)). The act thus laid out a threefold mandate for the management of the Coos Bay District's O&C land: provision of timber, watershed protection, and provision of recreational facilities. Under the terms of the 1937 Sustained Yield Act, the counties were to receive 75 percent of the receipts from timber sold off the O&C land (Richardson 1980: 54). The remaining 25 percent of the receipts went to the U.S. Department of the Interior to manage the sustained-yield timber program (FCPC 2003: 14). During the next 10 years, the administrators of the O&C lands set into place a system of sustained-yield timber management

that would dominate the management of those lands for the next 50 years.

Tourism also emerged as an economic industry on the south coast between 1900 and 1950 (Douthit 1999: 119, 124). The town of Charleston, for example, originated as a resort area for Coos Bay residents, and only transformed itself into a fishing village after 1924 when the federal government built a jetty along the south side of the Coos Bay harbor inlet (Douthit 1999: 124). The development of the region's road system in the 1920s served as a catalyst for the development of a strong sport fishery and the creation of a series of parks and nature reserves along the coast and at key sites along the major rivers (Douthit 1999: 3, 21, 53). Bandon, in particular, became a popular resort town for Willamette Valley residents in the 1920s (Douthit 1999: 76).

Getting Out the Cut: 1950-1990

Weyerhaeuser and Menasha, two large midwestern lumber companies, initiated large-scale timber harvesting operations on their Coos Bay holdings during the post-World War II building boom. A third multinational company—Georgia Pacific—also became a major player in the Coos Bay wood products economy when it bought out Coos Bay Lumber Company in 1956 (Sandine 2003: 34). A shortage of labor during the 1940s and 1950s attracted thousands of workers into Coos Bay and the Coquille Valley. The influx of workers created a sustained local housing boom that kept woods and mill workers employed through much of the year and provided the conditions needed for a variety of retail and service operations to thrive (Robbins 1988: 109, 120). During this same period, however, technological innovations, such as the introduction of the chainsaw, bulldozer, more powerful and more reliable trucks, and high-quality steel cables, made it possible for logging operators to cut and transport more timber with fewer workers (Robbins 1988: 130–131). Similarly, the conversion from steam- to electric-powered milling operations allowed mills to process more wood with less labor (Robbins 1988: 114).

Although the large companies dominated the postwar Coos Bay lumber economy in terms of production volume, the expanding demand for lumber also provided the conditions for new, smaller companies to establish mills and acquire timberlands in the Coos Bay region (Robbins 1988: 108-109). Gyppo logging and sawmill operations, often family-run businesses, thrived in the postwar lumber economy (Robbins 1988: 110). Small mills in Coos and Curry Counties during the 1950s numbered around 500 (Robbins 1988: 111). Many of them worked on subcontract to the larger mills, which purchased rough lumber for final processing and export (Robbins 1988: 111).

By the late 1940s, timber supplies on private lands had decreased to the point where Coos Bay operators began to call for access to a greater supply of timber from the BLM O&C lands (Richardson 1980: 113). In 1949, the BLM met these demands by increasing the allowable cut on the O&C lands (Richardson 1980: 110). Owing to problems with large timberland holders refusing to grant other operators rights of way over the roads passing through their lands built to access public timber, in 1949 BLM also required operators to enter into reciprocal rights of way agreements covering the contractor's land and the relevant BLM land as part of any O&C sales agreements. Timber sales agreements outlined road construction and maintenance obligations, as well as ecological safeguards for road building (Richardson 1980: 110).

Over the next few years, timber sales from the O&C lands, as well as the receipts paid to the 18 O&C lands, expanded greatly (Richardson 1980: 116). In 1953, the U.S. Congress passed legislation that earmarked 25 percent of the county timber sale receipts for reinvestment in the productivity of the land (Richardson 1980: 128). These funds are known as plowback funds, and were used for forest protection, reforestation and the development of recreational sites (FCPC 2003: 14).

The cutting of timber on private land in the Coos Bay area exceeded the regrowth rate on that land during the 1950s (Robbins 1988: 133). Georgia Pacific, for example, tripled the pace of timber harvesting on its newly acquired land in order to gain a quick return on its investment, dropping to a 35- to 40-year rotation by 1958 (Robbins 1988: 117). The company sold much of this timber to mills in the Willamette Valley, which were running short of supplies of their own (Robbins 1988: 132–133). In the early 1960s, Weyerhaeuser followed suit, stepping up the harvest of

its Coos Bay holdings to supply Willamette Valley mills and log importers in Japan (Robbins 1988: 134–135). The introduction of grading standards, state requirements that mills install waste burners to prevent fires, a decline in the California construction industry, and the dwindling supply of timber on small private holdings during the 1950s forced many of the smaller operations to shut down by the 1960s (Robbins 1988: 112–115).

Wages for mill workers and woodworkers remained high through this period, despite the trend toward mechanization and the closure of many small milling and harvesting operations. The presence of strong unions in the area, notably the International Longshoremen and Warehousemen's Union, the Lumber and Sawmill Workers, and the International Woodworkers of America from the mid-1930s to the 1970s contributed to the ability of forest product industry workers to ask for and receive much higher wages and more benefits than they had in previous decades (Robbins 1988: 145-151).

Population growth slowed considerably in the 1960s, but rose again to about 13 percent in the 1970s. Unlike previous population increases, which were linked to the rise in forest product industry employment, the population increases of the 1970s were tied to the availability of service and public sector jobs associated with retirees and others moving into the area (Robbins 1988: 154). By the 1970s, Coos Bay's forest products economy was experiencing major difficulties, with mills shutting down increasingly often as production became more concentrated and mechanized (Robbins 1988: 153).

Transitioning to a Services-Oriented Economy: 1980–2004

In the post-World War II timber boom, the Coos Bay District developed a reputation within the BLM for its expertise in "getting out the cut." By the 1970s and 1980s, the district supported a staff of several hundred full-time and seasonal employees, primarily forestry and engineering specialists and technicians. Their combined skills permitted the district to design and lay out timber sales and roads, as well as carry out subsequent reforestation and road maintenance tasks associated with the prevailing regeneration harvest approach to forest management. Starting in the late 1970s, the Coos Bay District gradually broadened its inhouse forest management expertise by hiring specialists, such as wildlife biologists, fisheries biologists, recreation planners, and archeologists, to conduct legally mandated interdisciplinary environmental assessments for management actions, including timber sales. Initially these specialists primarily provided support for the timber management program, with the bulk of their time spent ensuring that timber sales and related activities complied with the National Environmental Policy Act (1969), the Endangered Species Act (1973), the National Historic Preservation Act (1966), and other federal legislation.

A nationwide recession in the late 1970s and early 1980s forced many Coos Bay logging and milling operations to shut down permanently (Robbins 1988: 157–159). These closures severely burdened the region's social services offices as individuals and families sought to cope with domestic violence and alcoholism linked to widespread layoffs in the forest products industry (Robbins 1988: 159–160). Many residents left the area at this time. The mill closures of the 1970s and early 1980s coincided with declines in the region's shipping and fishing sectors. Although Coos Bay's tourism and services sectors expanded during the late 1970s and early 1980s, they were unable to meet the employment demand created from the simultaneous collapse of the forest products, fisheries, and shipping sectors.

A few years later, Coos Bay's forest products economy entered another boom cycle as interest rates dropped, and housing starts in the domestic market expanded. Simultaneously, a rapidly growing Japanese economy increased demand for Pacific Northwest timber. From 1984 to 1989, the annual cut on the Coos Bay District averaged 261 million board feet (mmbf) (USDI 1994: 3-120 to 3-121). The district set the annual cut at an abnormally high level over the allowable cut to allow companies to harvest the buyback sales from the late 1970s and early 1980s (USDI 1994: 3-120 to 3-121).

From 1984 to 1988, the district supplied about 35 percent of all timber harvested from private and public land in Coos County, 6 percent in Curry County, and 9 percent

in the part of Douglas County within the boundaries of the district (USDI 1994: 3-121). This amounted to 25 percent of all timber harvesting within the area, directly supported approximately 1,500 jobs, and contributed roughly $40 million to local personal incomes (USDI 1994: 3-121). Economists estimated that the wood coming off the district's holdings also contributed indirectly to the creation or maintenance of 880 jobs outside the timber industry and $12 million more in personal income (USDI 1994: 3-120 to 3-121).

In 1989, a federal court injunction stopped any new harvesting on federal land until the BLM and Forest Service developed an acceptable plan to protect the northern spotted owl (see app B. for species scientific names) (USDI 1994: 3-120 to 3-121). During the next 5 years, timber continued to come onto the market from district holdings because of the 5-year period allotted for harvesting. By October 1993, however, little timber remained under contract, and the BLM could not enter into any new contracts until the District Court lifted the injunction.

The federal court injunction on timber harvesting on federal land went into effect at a time when the wood products industry was in the midst of restructuring in response to a combination of factors unrelated to federal forest policies. The 1994 Resource Management Plan Environmental Impact Statement identified the following factors as key contributors to the changes taking place in Coos Bay's timber economy in the late 1980s and early 1990s: a decrease in labor owing to mechanization, an increase in demand for smaller diameter wood, increased competition within the wood products sector, increased reliance on international wood products supplies, increase in demand for hardwoods, and increased use of engineered wood products and oriented strand board (USDI 1994: 3-123, 3-127).

The region's shift away from a timber-dominated economy, as measured by a percentage of total employment and income, began in the late 1970s and picked up speed in the 1980s and early 1990s. During this time, the population of Coos and Curry Counties also became more concentrated into North Bend, Coos Bay, and Brookings (USDI 1994: 3-127). Both the commercial and recreational fisheries in the area collapsed as stocks of coho and Chinook salmon and steelhead continued to decline. In 1993, the Oregon Department of Fish and Wildlife closed the commercial coho fishery. In 1994, it shut down the commercial Chinook fishery and the recreational coho fishery. Thus the Plan went into effect at a time when the region's economy was already undergoing massive restructuring in two major employment sectors, wood products and fisheries. In the next chapter, we examine the details of the management changes the Plan imposed upon the Coos Bay District, as well as how those changes affected the ability of the district to provide a range of commodities and forest values.

Chapter 3: Socioeconomic Benefits From the District

Overview of the Northwest Forest Plan

The Northwest Forest Plan (the Plan) established six major land management allocations for the Coos Bay District (table 1): late-successional reserves, riparian reserves, general forest management areas, district-defined reserves, connectivity/diversity blocks, and congressional reserves (USDI 1995: 6). General forest management areas and connectivity/diversity blocks correspond to the matrix land use allocation in the Plan. The Plan has two basic harvest objectives—promoting the development of late-successional stands in the reserve allocations and providing a predictable sustainable supply of timber from matrix allocations. The matrix allocations make up the harvest land base underlying the allowable sales quantity (ASQ) calculation in the district resource management plan (RMP). The Plan thus placed 80 percent of the land area in the Coos Bay District into some form of reserve status. The district integrated the Plan standards and guidelines into its formal planning process almost immediately in the form of an updated RMP issued in 1995.

The 1995 RMP directs the district to "…maintain healthy, functioning ecosystems from which a sustainable production of natural resources can be provided" (USDI 1995: 5). It further specifies that management activities should focus on producing environmental conditions specified in the 1995 RMP (USDI 1995: 5). The objectives underlying the district's new management direction included maintaining and restoring late-successional habitat, biodiversity, and watershed health (USDI 1995: 6).

The 1995 RMP required the district to manage the late-successional reserves, riparian reserves, and district-defined reserves, or roughly 76 percent of the district's land area, in ways that would "enhance and/or maintain late-successional forest conditions" (USDI 1995: 6). Management activities conducted on general forest management area lands and connectivity/diversity blocks were to contribute toward these three purposes by retaining late-successional forest legacies, such as green trees, snags, and coarse woody debris (USDI 1995: 6). The Plan also contained provisions aimed at protecting salmon and steelhead habitat on federal lands within the district's boundaries. The Aquatic Conservation Strategy required the district to identify key watersheds, prepare watershed analyses for key watersheds, and restore fish habitat, riparian habitat, and water quality in key watersheds (USDI 1995: 6-8).

Table 1—Major land allocations in the Coos Bay District

Major land allocations	Area	
	Acres	*Percent*
Late-successional reserves	136,800	44
Riparian reserves	89,600	29
General forest management area	55,300	18
District defined reserves	20,400	7
Connectivity/diversity block	6,600	2
Congressional reserves	600	<1
Total area	309,300	100

Source: USDI 1995: 6.

The Plan guidelines called for the district to integrate landscape-level planning into its day-to-day planning and management activities, rather than limiting planning and management to a site-by-site basis. The drafters of the Plan included this requirement so that planners could begin to identify the cumulative effects of land management activities on entire watersheds and ecological provinces. In 1995, the Coos Bay District initiated the four major landscape-level analysis processes called for in the Plan: watershed analyses, a late-successional reserve assessment, survey and manage studies, and a transportation system management plan.

Of these four planning processes, the survey and manage requirement proved the most controversial and eventually was revised to address challenges to its legality. The survey and manage guidelines laid out a framework for the Forest Service and Bureau of Land Management (BLM) to begin gathering data about a variety of potentially rare, threatened, and endangered species to forestall future challenges to management actions under the Endangered Species Act (ESA). The Plan identified species of special concern and specified four measures for land managers to take to ascertain and address potential risks to these species (USDA and USDI 1994: C-4 to C-5). The four measures included managing known sites, predisturbance site-specific surveys, extensive surveys to locate priority management sites for sensitive species, and regional surveys to gather information needed to develop protection measures.

Resource and Recreation Outputs and Investments

Timber Resources

In 1994, 16 percent of the Coos Bay District was classified as old growth, and nearly half (48 percent) of the district land area was in early- or mid-seral forest conditions (USDI 1994: 3–42). The early- and mid-seral stands had fewer snags and less complex structure than the stands they had replaced (USDI 1994: 3–33). In addition, fire suppression policies had increased stand densities and fuel loadings in mature and late-successional stands (USDI 1994: 3-36). Harvesting and road construction practices in the post-World War II era had damaged riparian vegetation and aquatic habitat (USDI 1994: 3-33) and the development of an extensive network of log haul roads had contributed to the spread of Port Orford cedar root rot (*Phytophthora lateralis*) (USDI 1994: 3-37) (see app. B for plant and animal species names).

According to our interviews with BLM employees, the district provided roughly 25 percent of the timber processed in local mills prior to the Plan. However, they noted the percentage of BLM timber used in local mills started to decline in the mid-1980s, well before the Plan went into effect. Coos Bay District employees attributed the decline in local demand for federal timber to a shift in forest product industry demand toward small-diameter logs. They stated that access to the larger diameter logs on BLM land remained important to small-scale processors, particularly smaller mills with no timber holdings.

Under the Plan, timber management on the Coos Bay District changed dramatically in terms of the amount of timber cut, the size of timber harvested, and the spatial distribution of harvests. The Plan initially established an estimated ASQ for timber harvested from matrix land allocations (i.e., general forest management areas and connectivity/diversity blocks) at 32 million board feet (mmbf) of coniferous species per year (USDI 1995: S-14). Volumes harvested from the reserves (i.e., from thinnings) did not figure into the calculation of the ASQ. The district subsequently reduced the ASQ estimate to 27 mmbf after transferring several thousand acres of its holdings to the Coquille Tribe and setting aside marbled murrelet buffers in the late 1990s. The RMP envisioned that it would take several years before the district would be able to offer timber sale volumes at or near the ASQ, and thus set target volumes of 24 mmbf for 1995, 27 mmbf for 1996, and 28.2 mmbf for 1997. The RMP anticipated that the district would be able to offer 32 mmbf annually starting in 1998.

The RMP (USDI 1995: 52) noted that the ASQ is only an estimate of the "annual average timber sale volume likely to be achieved from lands allocated to planned, sustainable harvest." It stresses that the figure is "surrounded by uncertainty" (USDI 1995: 52) and that the "actual timber sale levels may differ" (USDI 1995: 52). It further noted that the "ASQ represents neither a minimum level that must be met nor a maximum level that cannot be exceeded" (USDI 1995: 52). The RMP anticipated that the actual timber sale level that could be harvested from the matrix land allocations might "deviate as much as 20 percent from the identified ASQ" (USDI 1995: 52). In addition, the RMP recognized that it would take several years before the district would be able to offer the estimated ASQ for timber.

The Plan prohibited timber harvesting in forest stands more than 80 years old (USDA and USDI 1994: C-12). However, it permitted precommercial and commercial thinning in late-successional reserve stands less than 80 years old to create and maintain late-successional forest conditions (USDA and USDI 1994: C-12). The Plan also limited timber harvesting and thinning in riparian reserves to areas with degraded habitat or where harvesting or thinning would facilitate meeting Aquatic Conservation Strategy objectives (USDA and USDI 1994: C-31 to C-32, USDI 1995: 13).

The Plan also directed foresters to treat dead and diseased trees as a natural and necessary part of the forest ecosystem (USDA and USDI 1994: C-13 to C-14). The Plan permitted tree salvage operations in late-successional reserves, but only to "…prevent negative effects on late-successional habitat" (USDA and USDI 1994: C-13). The Coos Bay RMP further restricted salvage operations in late-successional reserves to situations where "…stand-replacing events exceed 10 acres in size and canopy closure has been reduced to less than 40 percent," or where dead or diseased trees along trails, roads, or in recreational sites pose a hazard to humans (USDI 1995: 19).

The Plan and the Coos Bay RMP emphasized the need for foresters to retain trees, dead and alive, in matrix land allocations, as well as in late-successional and riparian reserves. For example, they required the district to retain or create sufficient snags to support cavity-nesting bird populations, and to leave or add specified amounts of large woody debris across harvested areas (USDA and USDI 1994: C-40; USDI 1995: 22–23). In addition, the RMP prohibits harvesting in 100-acre circles around known northern spotted owl nesting sites and activity centers (USDI 1995: 23). The RMP directs the district to manage the 640-acre connectivity/diversity blocks on a 150-year rotation, and to keep 25 to 30 percent of each block in late-successional forest conditions at all times (USDI 1995: 54). These guidelines are aimed at decreasing forest fragmentation resulting from the checkerboard pattern of ownership on the district. The guidelines also call for the use of harvesting and site treatment practices that disturb the forest floor litter and coarse woody debris components as little as possible (USDI 1995: 22–23).

From 1995 to 2002, the amounts of timber the district offered through the Plan allocations varied substantially from year to year, ranging from a high of 42.5 mmbf in 1998 to a low of 1.7 mmbf in 2000 (fig. 2). The low figure in 2000 was due to legal challenges concerning whether the sales offered adequately met survey and manage and the Aquatic Conservation Strategy provisions. Overall, the pattern of sales offered by the district shows an erratic trend from 1995 onward.

The volume of timber harvested annually on the district has been considerably lower than the estimated ASQ. Between 1996 and 2002, timber operators harvested an average of 15.6 mmbf in timber annually, roughly half the estimated ASQ. Annual timber volumes harvested ranged from a high of 27.4 mmbf in the years when the Rescissions Act was in effect,[1] to a low of 3.6 mmbf in 2001.

Data provided in the district's annual program summaries for 1996–2002 show a marked downward trend in the revenues the district collected for timber harvested. Timber revenues dropped from a high of $16.6 million in 1997 to a low of $1.8 million in 2001. The value of silvicultural contracts entered into by the district also dropped, from a high of $2.3 million in 1996 to a low of $0.9 million in 2002.

The Plan called for regeneration harvest as the main timber harvesting technique in the matrix, and thinning in the reserves. The district uses an approach known as density management thinning in the reserves instead of traditional commercial thinning. As described in the District's 1996 annual program summary (USDI 1996a: 7), "Commercial thinning objectives include increasing the growth rates of remaining trees for future commodity production purposes." Density management, by contrast, aims to "change the growth characteristics or forest stand condition for noncommodity purposes" (USDI 1996a: 7). A Coos Bay District employee noted that in density

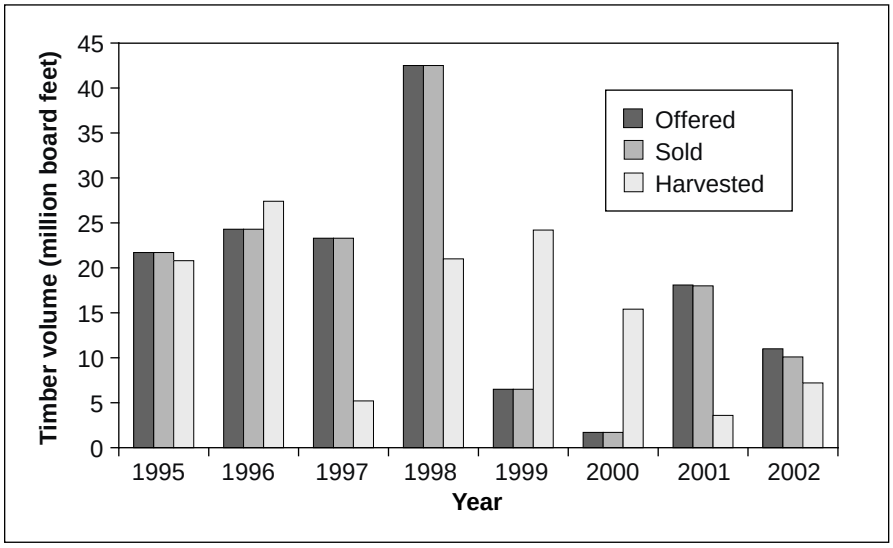

Figure 2—Timber sales and harvest volumes, 1995–2002. Source: BLM State Office.

[1] The 1995 Recissions Act allowed the district to go forward with sales offered in 1989–1991, but not awarded because of litigation at the time. Under the act, the district prepared replacement volume sales for units where biologists had identified northern spotted owl or marbled murrelet activity. The Recissions Act harvests took place between 1995 and 1999. The district completed precommercial and release thinning on these units in 2001.

management, "thinning focuses on creating structure and processes," with timber viewed as a byproduct rather than the main objective.

During the period immediately following the issuance of the Plan, forest management program employees spent much of their time assisting in the development of watershed analyses and the late-successional reserve assessments. Additionally, they worked with biologists, botanists, and hydrologists to determine what forest management practices, if any, could take place in the late-successional and riparian reserves. Their ability to develop and lay out appropriate harvesting units immediately following the issuance of the Plan record of decision was hampered by the lack of survey and manage protocols for the known category 2 species on the Coos Bay District. Interviewees reported that implementing the survey and manage process in proposed sale areas also increased the time needed to put sales on the market.

Forest management program employees interviewed expressed skepticism about the direct utility of the watershed analyses for site-specific timber sales planning. However they noted that these analyses have proved useful for overall district-level planning. In addition, they stated that meeting the watershed analysis requirement no longer significantly affects timber sales planning and implementation as most of the district's watershed analyses have been completed.

The two forest management employees interviewed noted that the survey and manage provisions and the Aquatic Conservation Strategy requirements had significantly hindered the district's ability to offer the probable sales quantity (PSQ) estimated in the Plan. One forest management employee noted that the survey and manage provisions were so cumbersome that they ground operations to a snail's pace, "We call it 'survey and say no' because it brought us to a halt." He observed that the Aquatic Conservation Strategy was equally difficult to apply on the ground, "The terms and language are very vague. It says the guidelines have to be met at the project or site level, but it isn't explicit about what it meant."

Another forest management program employee commented that disagreement over the meaning of the term "reserve," as well as the kinds of management practices allowable in late-successional and riparian reserves, also played a significant role in slowing down timber sales in the early years of the Plan.

> During the first few years, everyone and their brother thought reserve meant to preserve. It's taken a long time for managers and preservation-oriented staff members to get on the same page. Now we are letting more harvesting happen. People who didn't know much about forest management realized that harvesting was okay. People got more comfortable with the idea that you could manage, not just protect on reserves.

A series of legal challenges further hampered the district's efforts to provide the Plan's estimated ASQ. In addition to appeals of individual timber sales, the district faced legal action on the sales permitted under the Rescissions Act, as well as challenges of its implementation of the Plan's survey and manage provisions and its approach to managing the spread of Port Orford cedar root rot. According to one resource planner, "Virtually every decision within the timber management realm has been protested." Although these appeals had a negative impact on the district's ability to meet the ASQ target, one employee pointed out "the good side to the lawsuits is that they forced us to look at our plans."

Nontimber Forest Products

The Coos Bay District's Small Sales program administers sales of a variety of forest products besides timber, including boughs, burls, Christmas trees, edible and medicinal plants, floral greens, moss, mushrooms, ornamentals, seed and seed cones, and transplants. The Small Sales program also sells small amounts of wood products, such as firewood and salvage logs.

The drafters of the 1995 RMP final environmental impact statement (EIS) identified 49 species of nontimber forest products (NTFPs) harvested on the district. They

rated 10 of these species (Douglas-fir, Port Orford cedar, western redcedar, western hemlock, incense-cedar, red alder, tanoak, madrone, myrtle, bigleaf maple, evergreen huckleberry, swordfern, and salal) as "most important." The tree species in the "most important" list are harvested for firewood, boughs, or transplants. Evergreen huckleberry, swordfern, and salal leaves are common materials in floral arrangements.

The RMP EIS also listed a variety of "less important" species, including cascara, vine maple, rhododendron, elderberry, blackberry, Oregon grape, moss, beargrass, various ferns, various medicinal plants, six species of mushrooms (king boletes, chanterelles, matsutake, cauliflower, lobster, hedgehog), and Oregon white truffle (USDI 1994: 3-46 to 3-48). People harvest these species for a variety of uses, including for food, medicines, and crafts. Small quantities of salvage wood, which the BLM categorizes as a NTFP, brought in most of the Coos Bay District's NTFP sales revenue prior to the Plan.[2]

The Plan record of decision did not specify an ASQ for NTFPs. However, the record of decision standards and guidelines put forth the following three parameters to guide NTFP activities permitted on lands covered by the Plan (USDA and USDI 1994: C-18):

- The activities must not have an adverse effect on late-successional reserve objectives.
- Sales of NTFPs must be compatible with resource sustainability of the harvested product, as well as protection of special status plant or animal species.
- Resource managers can evaluate whether harvesting will have any negative effects on late-successional habitat, and if so can restrict harvest activities.

The late-successional reserve assessment further directed the Coos Bay District to adhere to the basic principle of allowing NTFP harvesting and management activities only "when such an activity is neutral or beneficial to meeting late-successional reserve objectives and neutral or beneficial to the species itself" (USDA and USDI 1998: 93). The late-successional reserve assessment also established restrictions on the harvesting of firewood, boughs, and Christmas trees. Under late-successional reserve assessment guidance, for example, firewood cutting can only take place on existing logging cull decks, in thinnings where the firewood trees are marked, on roads only if blow-downs are blocking passage, and in recently harvested timber sale units" (USDA and USDI 1998: 93). The late-successional reserve assessment also limited the areas where the district can allow harvesters to cut Christmas trees and boughs to areas along or close to existing roads (USDA and USDI 1998: 93).

The Coos Bay RMP EIS provided further guidance for managing NTFPs in compliance with Plan standards and guidelines. For example, the RMP states that district employees should limit NTFP harvesting in connectivity/diversity blocks, late-successional reserves, and riparian reserves (USDI 1994: 2–62). In addition, the RMP requires managers to limit the harvesting of plants belonging to the lily and iris families, as well as truffles, mushrooms, lichens, mosses, ferns, conifer boughs, conifer wildlings, Port Orford cedar boughs, hardwood brush boughs, and hardwood wildings (USDI 1994: 2–62).

The Coos Bay area has long served as an important source of raw materials for domestic and export market floral greens and ornamental bough industries. Since the mid-1980s, it has also functioned as a key source of supply for fall and winter mushrooms for the domestic and export market wild mushroom industry. Additionally, prior to the 1990s, the Coos Bay area supported a number of independent small milling operations, which relied heavily on access to very small volumes of timber through the district's salvage sales program. A brief overview of the permitting

[2] Prior to the mid-1990s, forest scientists and managers paid little attention to nontimber forest products (NTFPs), despite their long-standing culturally, economically, and ecologically important role in rural communities around the United States (Jones et al. 2002). Prior to 1996, the Coos Bay District devoted few resources to gathering information about NTFPs present on and quantities sold from its holdings. We were thus unable to obtain consistent data on NTFP sales for the years preceding the Plan. As a result, we cannot compare pre- and post-Plan sales levels for various products. However, the Coos Bay District has good records for NTFP sales for the period 1996–2002. We can thus compare how product sales patterns changed over that 7-year period.

trends for these products since the Plan went into effect is provided below.[3] [4]

Between 1996 and 2002, the Coos Bay District's Small Sales program brought in roughly $342,000 in permit revenues for salvage logs, firewood, and a variety of NTFPs such as mushrooms, floral greens, and Christmas trees. Roughly 72 percent ($247,500) of the NTFP permit revenues came from salvage log and firewood sales. Of the remaining $94,500 in permit revenues, mushroom and floral greens permits generated the most income (50 percent and 40 percent, respectively).

Annual revenues from the sales of these permits varied from a high of $90,206 in 1996 to a low of $15,100 in 2000 (fig. 3). The district received an average of $48,900 per year from the sale of NTFP permits during this 7-year period. Overall, the district has experienced a strong downward trend in the revenues received for its NTFP sales. The decline in NTFP permit revenues is linked primarily to a sharp decrease in sales of salvage wood and firewood (fig. 4).

On average, the district issued 1,263 NTFP permits annually between 1996 and 2002. This represents a decline of roughly 5 percent from the average of 1,335 permits issued annually from 1987 to 1991 (USDI 1995: 3–49). Increased wild mushroom permit sales and a small rise in floral greens permit sales have kept the district's permit sales from declining sharply despite the reduction in salvage and firewood permit sales. Overall, the district experienced a level, but fluctuating trend between 1996 and 2002 in the number of permits it issued for all NTFPs (fig. 5).

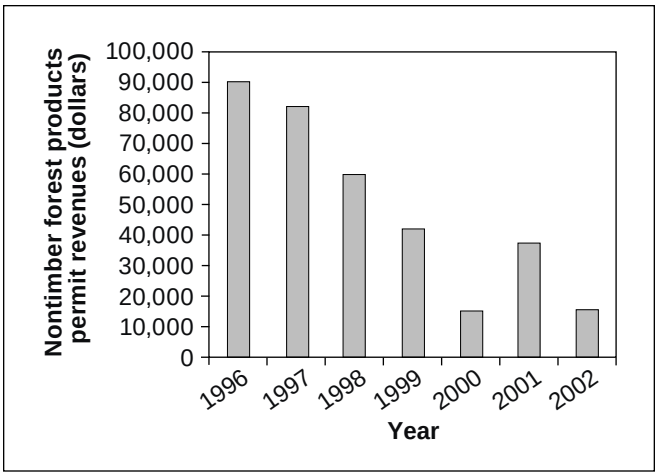

Figure 3—Nontimber forest product revenues, 1996–2002. Not adjusted for inflation. Source: USDI 1996a–2004a.

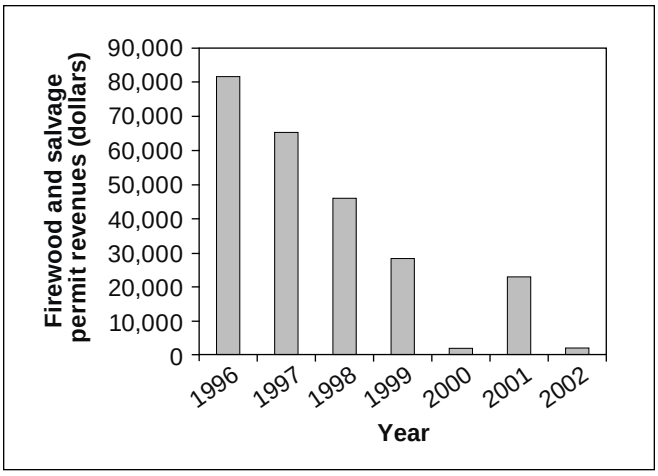

Figure 4—Permit revenues from firewood and salvage wood sales, 1996–2002. Not adjusted for inflation. Source: USDI 1996a–2004a.

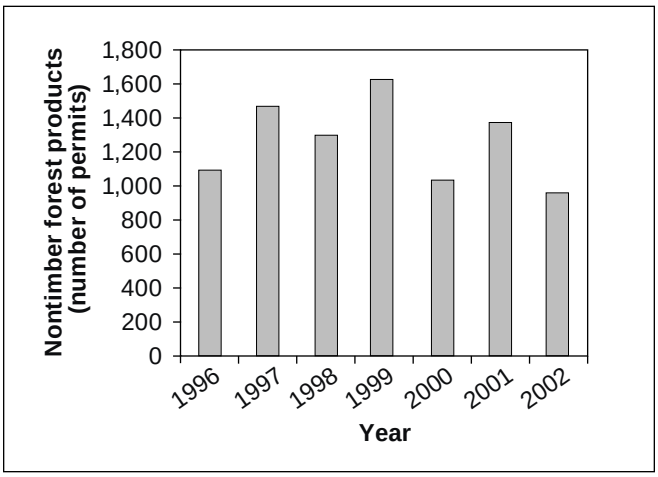

Figure 5—Number of nontimber forest products permits issued, 1996–2002. Source: USDI 1996a–2004a.

[3] We were able to obtain only partial data on NTFP permit quantities, values, and number of permits and contracts sold in 1995. To maintain comparability across product categories, we have used only those years (1996 through 2002) for which we have complete data to analyze NTFP trends on the district.

[4] Prior to 1994, the Coos Bay District, and the BLM as a whole, put very few resources into tracking and enforcing special forest product permits for materials other than salvage logs and firewood. It is thus unclear for those products that show an increase in permitting activity whether such increases represent an increase in the number of commercial harvesters seeking access to products on district lands, or whether pickers who had previously not gotten permits opted to obtain permits owing to expanded enforcement efforts and a broad regional trend for forest landowners to require commercial permits.

The district sold permits for 821,000 ft^3 of salvage wood and firewood between 1987 and 1991, an average of 164,000 ft^3 per year (USDI 1995: 3-49). Between 1996 and 2002, this figure dropped to an average of 42,000 ft^3 per year, roughly one-quarter of the amount formerly available (fig. 6). As with the timber volume, the volume of salvage wood available from the district was unpredictable from year to year after the Plan went into effect, ranging from as low as 16,800 ft^3 in 2000 to a high of 61,700 ft^3 in 2001.

The average number of salvage/firewood permits issued per year in the post-Plan period also dropped substantially, from 987 permits issued per year during 1987 to 1991 (USDI 1995: 3-49) to 199 permits issued per year between 1996 and 2002. The following quotes from Small Sales program employees on the Myrtlewood and Umpqua Resource Areas illustrate the negative effect that the Plan had on the availability of salvage wood from the district.

> We dealt with a variety of materials—Port Orford cedar, western redcedar. We were booked up all day. Now we have none of those. People can't take snags anymore.

> Small Sales has gone from 20 loggers who do it more or less for a living to one or two.

> For small sales, people were as heavily affected if not more so than the big sales. People were operating on a shoestring and now they're gone.

Trend data on the district's revenues from sales of special forest product permits and the number of permits sold for various products during 1996 to 2002 illustrate the degree to which access to floral greens and wild mushrooms may have been affected in the years following the implementation of the Plan (figs. 7 and 8). The district's sales of other products (boughs, moss, burls, Christmas trees) were negligible.

Floral greens—

From 1987 to 1991, the district sold an average of 186 floral greens permits each year (USDI 1995: 3-49). Sales of floral greens permits rose from 1996 to 1999 and then declined from 2000 to 2002. The district issued an average of 500 permits each year. The poundage of floral greens sold under

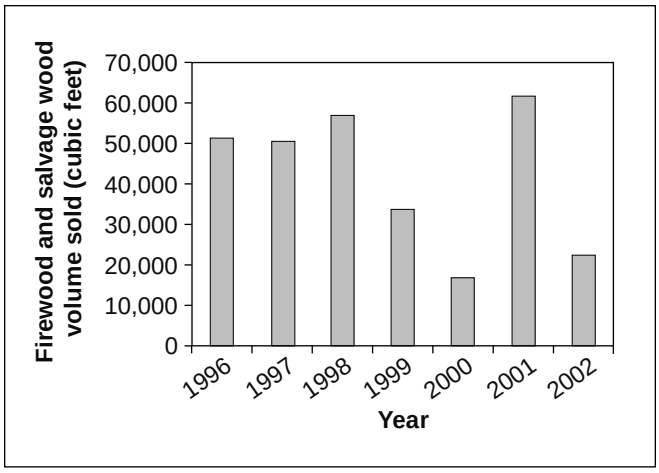

Figure 6—Quantity of firewood and salvage wood sold, 1996–2002. Source: USDI 1996a–2004a.

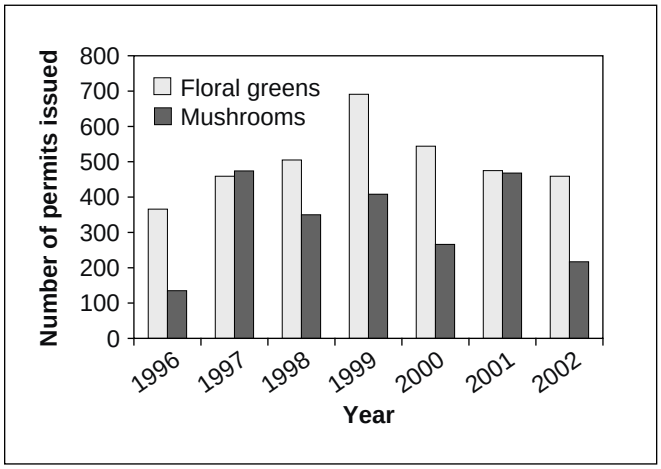

Figure 7—Number of floral greens and wild mushroom permits, 1996–2002. Source: USDI 1996a–2004a.

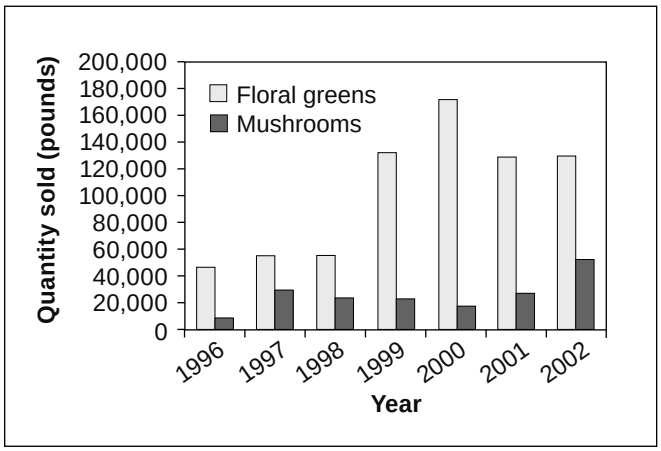

Figure 8—Quantities of floral greens and wild mushroom sold, 1996–2002. Source: USDI 1996a–2004a.

permit remained relatively flat from 1996 to 1998 but rose sharply in 1999. It increased in 2000 but dropped off to 1999 levels in 2001 and 2002. Prior to the mid-1990s, the district tracked floral greens by using bundles rather than pounds as a unit of measure. Thus a comparison cannot be made between the post- and pre-Plan periods.

Mushrooms—
The district did not have a system in place for tracking wild mushroom harvesting prior to the early 1990s. Consequently, it is not possible to compare wild mushroom permitting trends during the post-Plan years with activity prior to the Plan. Annual program report data for the years 1996 to 2002, however, indicate that the district has experienced erratic levels of demand for commercial wild mushroom permits. The district sold permits for an average of 25,900 pounds of wild mushrooms per year, with a low of 8,600 pounds in 1996 and a high of 52,000 pounds in 2002. District employees attributed this increase to an increase in market demand for wild mushrooms.

Other products—
During 1987 to 1991, the district sold permits for 319,952 pounds of boughs, or an average of 64,000 pounds per year. By contrast, from 1996 to 2002, the district sold permits for an average of 17,300 pounds of boughs per year, a drop of roughly two-thirds in the amount previously sold each year. District employees attributed the change in bough sales to shifting market conditions. In implementing the Plan, the Coos Bay District eventually eliminated access to moss and burls. Few people have approached the district for permits to harvest other NTFPs, such as cascara bark, seed cones, and Christmas trees.

According to the Small Sales program employees interviewed, the late-successional reserve and riparian reserve standards and guidelines had a disproportionately negative effect on the district's ability to sell certain materials, notably small amounts of downed timber, firewood, moss, and burls.

> On small sales we had a drastic reduction in our ability to sell salvage materials. For example, how we handle blow-down in road rights of way has changed. Earlier we could remove downed timber in rights of way. Now we can't extract anything if it's in an LSR or riparian reserve. In anything outside those areas, we can only take portions out of the right of way if we maintain some of the right of way in downed wood.

> You have to have 10 acres or more with 40 percent or less crown closure in order to salvage. We had a blowdown in an LSR but it wasn't 10 acres. So the blowdown is on the ground and we can't touch it.

> Most of the moss is in riparian reserves.... The riparian reserves were an important factor in shutting down burls and moss.

Although the survey and manage provisions also prevented the district from offering some small sales, the impact of the survey and manage provisions on the Small Sales program appeared to be much less than on regular timber sales. The Small Sales program employees reiterated the view of timber management employees that a key constraint of the Plan was not its substance per se, but the way in which the biologists on the district have chosen to interpret its provisions.

Fish, Wildlife, and Special Status Plants

Between 1945 and 1989, the Coos Bay District centered its forest management efforts on harvesting older stands and replacing them with younger trees by using sustained yield management techniques in vogue at the time. An unintended consequence of this forest age conversion was a reduction in wildlife diversity on BLM lands owing to the disappearance of suitable habitat and protective cover for many species (USDI 1994: 3-53). From the standpoint of wildlife and special status species plant management, the difficulty posed by the shift from more mature to younger stands on the district was that it resulted in forest stands with different plant composition, as well as less vertical and horizontal structural complexity (USDI 1994: 3-55). The district's application of management practices that substantially reduced the quantities of dead and down wood on the forest floor, such as shorter harvest rotations, slash burning,

and thinning, further reduced habitat suitable for certain species of plants and wildlife (USDI 1994: 3-53 to 3-57).

During the RMP EIS process, botanists identified 77 special status plants that they knew or suspected might be in the district. Of these, seven species, including pink sand verbena, bensonia, salt marsh bird's beak, waldo gentian, western bog lily, Wolf's evening primrose, and silvery phacelia, were candidate species for listing under the federal ESA (USDI 1994: 3-63 to 3-64). None of the seven species for listing are forest species. The district's increased attention on their management stemmed from a legal mandate to implement special status species programs rather than Plan directives. In addition, biologists identified 84 wildlife species that use old growth as their primary habitat (USDI 1994: 3-55). They also documented the presence of 16 endangered, threatened, or protection candidate wildlife species (USDI 1994: 3-66 to 3-79). Fish biologists identified four priority species of fish—Chinook and coho salmon, steelhead, and cutthroat trout—for the Coos Bay District's fish habitat restoration efforts (USDI 1994: 3-59).

The Plan's standards and guidelines laid the foundation for a significant change in the amount of resources the Coos Bay District invested in understanding the biology and ecology of forest species. Prior to the Plan, biologists served primarily as support for the timber program. By focusing the district's management attention on creating and maintaining certain forest conditions rather than a high level of timber harvest, the Plan laid the foundation for a much more proactive role in forest management on the part of wildlife, fisheries, watershed restoration, and botanical specialists.

The Plan had three components that fundamentally changed how the district managed wildlife, fisheries, and special status plants. First, the Plan required that the district complete late-successional reserve assessments and watershed analyses prior to conducting any timber management projects in an area. Second, the Plan and the subsequent Coos Bay RMP called for biologists and botanists to take a proactive role in species protection. The survey and manage requirement constituted the cornerstone of this component in that it mandated the district to take the steps to acquire a much more comprehensive understanding of the components of local forest ecosystems. Third, the Plan and 1995 RMP required that BLM employees coordinate and consult with federal, tribal, and state fish and wildlife management agencies in efforts to identify and eliminate impacts associated with habitat manipulation, poaching, and other activities that threaten the existence and distribution of terrestrial and aquatic species (USDA and USDI 1994: C-30, C-38; USDI 1995: 27, 33). In short, the Plan directs the district's biologists and botanists to retain habitat for special status species where they can; to coordinate wildlife, fisheries, and special status plant management activities when possible; to avoid actions that would lead to the relisting of species; to educate the public; and to reintroduce species when necessary (USDI 1995: 33).

Landscape-Level Planning

The Plan required the Coos Bay District to shift a substantial amount of its funding and human resources into landscape-level planning before it could implement new timber sales, or other major ground-disturbing land management actions. The district's biologists and botanists thus focused much of their attention during the mid-1990s on developing the district's two late-successional reserve assessments and a series of watershed analyses. By the end of 1999, district employees had produced both of the required late-successional reserve assessments and 22 first-iteration watershed analyses (USDI 2003a: 11). The first-iteration watershed analyses covered roughly 93 percent of the district's lands, and their completion again opened lands in matrix allocation for timber sale activities. The district's watershed analysis coordinator noted that developing the first watershed analyses presented a considerable challenge, in part because district-level data for many of the sections was limited: "It was traumatic when we first started. We had no data."

A district administrator observed that internal disagreements over forest management approaches initially slowed down the watershed analysis process considerably:

> There was also a philosophical difference between how silviculturalists managed and how biologists managed. The plant buffer issue was another contentious item. There was always a fight on it. Finally they arrived at a more communal based definition...

> The plant buffer issue linked with survey and manage, especially for fungi and lichens. Again it is a case of a philosophical difference between a forester and a botanist. When you find a mushroom on the list, how big of an area do you remove from cutting? The teams got together to work this out. We had foresters, biologists, and ecologists on them. We needed a defensible reason, and the team hammered that out. We finally came to a method that we thought could pass the red-face test. Much of that tension was internal.

One employee noted that he had seen a marked change in the attitude of other employees toward the watershed analyses as they realized the long-term benefits of investing their time into developing sections related to their program. He also commented that the time needed to develop and review watershed analyses has decreased as district employees have become familiar with the process.

The watershed analyses and survey and manage guidelines emerged as important tools allowing the district's employees to modify the Plan's standards and guidelines to suit local conditions and to develop the knowledge needed to provide additional protections when needed. For example, through the watershed analyses and survey and manage process, the district determined that the Lower Coquille and Middle Main Coquille watersheds did not meet the 15-percent requirement for the minimum area in late-successional forest conditions. As a result, the district restricted regeneration harvesting in those two watersheds, as well as in several other watersheds that also did not meet the minimum requirements (USDI 2000a: 15). One employee also noted that the watershed analysis process has had the unintended, but beneficial effect of providing an opportunity for district employees to stay up to date with their fields of expertise.

Proactive species protection efforts—
The Plan's survey and manage requirement quickly emerged as one of the most hotly contested elements of the Plan. On the Coos Bay District, survey and manage procedures generated tension between employees and prompted legal challenges from outside groups. Because biologists and botanists had not identified any category 1 survey and manage species on the district during the mid-1990s, the district focused on developing the interim management guidelines and survey protocols for category 2 species, including the red tree vole, five amphibian species, and nine species of mollusks (USDI 1997a: 18). Simultaneously, the district's botanists developed management recommendations for 29 fungi and 18 bryophyte species, about which the district employees had little or no knowledge (USDI 1997a: 18). By 2001, district botanists had documented the presence of 88 vascular special status plants and 33 nonvascular special status plants on the district (USDI 2001a: 38). The district also contracted out surveys for the marbled murrelet, resulting in the delineation of an additional 19,775 acres of late-successional forest habitat on the district as of 2003 (USDI 2003a: 10). District fish biologists conducted surveys of young and adult coho, Chinook, and steelhead populations, as well as spawning surveys for fall Chinook, coho, and winter steelhead. Wildlife biologists also inventoried down logs and snags, and conducted surveys to monitor green-tree retention rates and to localize the spread of Port Orford cedar root disease.

The district simultaneously embarked on a district-wide effort to monitor and enhance species and habitats needing protection. Using Jobs-in-the-Woods (JITW) funding, the district implemented a variety of fish and aquatic habitat enhancement projects, as well as a tidegate monitoring and installation project in the Coos and Coquille watersheds. As part of its habitat protection and enhancement efforts, the district expanded its special management areas from 3 in 1994 to 12 in 1997. The fish and wildlife biologists interviewed during this study had a positive view of the survey and management requirements, which they noted had played a key and, in their view, necessary role in preventing timber harvesting in old-growth habitat. Additionally, the biologists also stated that the late-successional reserves and riparian reserves provided biologists with the leverage they needed to negotiate adequate buffers for species protection.

A 10-year timeframe is too short to accurately measure the ecological impacts of the habitat enhancement efforts described above. However, district biologists observed

indications that habitats of two protected species, pink sand verbana and western bog lily, had begun to stabilize by 2002 (USDI 2002a). The green-tree retention, snag recruitment, and snag creation monitoring work had advanced sufficiently by 2002 to permit district biologists to identify a clear need for stricter quality control measures. The district implemented these measures, and the district's fiscal year 2003 review found that all but one of the projects carried out in 2003 complied fully with Plan requirements (USDI 2003a: 89–92).

Coordination—

The Plan's requirements for coordination and consultation among the various agencies responsible for implementing the Plan provided the impetus for district biologists and botanists to develop new partnerships and strengthen preexisting collaborative efforts to inventory and monitor species and to enhance and protect sensitive species' habitat. For example, the district joined forces with several state and federal agencies and nonprofit groups in the mid-1990s to develop habitat enhancement, monitoring, and protection projects for the western lily, the western snowy plover, and the Roosevelt elk. Starting in 1996, representatives from the BLM, the USDA Forest Service, National Marine Fisheries Service (NMFS), and U.S. Fish and Wildlife Service (USFWS) began meeting regularly to streamline the Section 7 consultation process for addressing ESA concerns. Similarly, from 1996 onward, the agencies also consulted NMFS regarding proposed activities that would occur within the range of several species of fish being proposed for federal listing (USDI 1996a: 14).

Implementing the Plan required scientific data that the BLM historically did not collect, and for which it lacked data-gathering and analysis structures. In 1996, the BLM sought to address this weakness in its institutional capacity to carry out scientific natural resource management by developing a watershed-based strategy to identify the agency's research needs and by laying out suggestions for how managers could form partnerships with science agencies, universities, and other scientific institutions. The BLM also developed a research and monitoring committee at its state office to evaluate and support research projects. As part of this research development effort, the Coos Bay District initiated collaborative partnerships with forest scientists at Oregon State University in the late 1990s to conduct studies of promising density management and commercial thinning approaches (USDI 1996a: 20–21; USDI 1997a: 30). In 2002, the district sold its first density management sales.

In the view of some district employees interviewed during this study, the Plan has had no clear discernible effects on hunting, fishing, or birding opportunities. A resource planner stated that the closure of roads for aquatic protection purposes had made road-hunting for elk more difficult, but noted that some hunters considered that a good thing. One of the road engineers commented that many hunters had expressed positive feelings about proposed road decommissioning on the grounds that the quiet would enhance their chances for finding game. The district fish biologist observed that both the local sports and commercial fisheries have improved since the Plan's implementation, but noted that those improvements likely were at least partly associated with other policy changes (i.e., restrictions on commercial and recreational fishing).

One employee, however, noted that the regeneration harvest practices of previous decades combined with the decline in precommercial thinning in late-successional reserve portions of the district has resulted in large areas of very dense young stands that make very poor deer and elk habitat. Such stands are also very difficult to hunt in. He stated that, as a result, many hunters wish that the BLM would harvest significant amounts of timber again so as to open up more ground for hunting. Forest management under the Plan's standards and guidelines is likely to lead to significant changes in forest stand structure and composition in the long term. These changes, in turn, are likely to affect the abundance and distribution of game species, as well as fish and bird populations. However, it is too early, and insufficient data exist to determine how those changes affect hunting, fishing, and birding opportunities on the district.

Range Resources

Very little grazing takes place on the Coos Bay District's holdings, most of which are too steep or too heavily forested to provide good grazing land for livestock. In 1994, the

district had six long-term leases of 10 years each, and one short-term lease of a year's duration (USDI 1994: 3-111). Four of the leases encompassed less than 10 acres each. The seven leases combined encompassed 270 animal unit months of forage on 439 acres (USDI 1994: 3-111). One employee, who works only part time on grazing issues, handles the range resource program for the entire district.

In 2003 the district maintained four long-term leases, providing 496 animal unit months of grazing use (USDI 2003a: 82). Relative to the amount of pastureland available on private lands in the area, the increase in animal unit months is insignificant for the region's agricultural economy. The district replaced two additional grazing leases in the southern part of the district near the New River Area of Critical Environmental Concern with cooperative management plans with the livestock owners. These plans allowed the district to ensure that management on those areas is consistent with riparian reserve objectives under Plan guidelines and the 1995 RMP. The district charges minimal fees for the four grazing leases remaining in the northern end of the district. It thus does not generate any net revenues from the grazing lease program.

Energy and Minerals

The Coos Bay District's energy and minerals program administers recreational gold mining claims, commercial mining claims, oil and gas leases, coal and coal bed methane leases, and sand and rock quarrying activities. One employee, a geologist, manages the program for the entire district. He also provides technical assistance to local and state government agencies and neighboring national forests. During the past two decades, mining companies have carried out explorations on the Coos Bay District for a variety of minerals, including nickel, cobalt, gold, silica, and platinum (USDI 1994: 3-108 to 3-110). However, none of these explorations have yielded commercially viable finds at current mineral prices and market conditions. In 1993, just prior to the Plan, 40 mining claims existed on BLM lands (USDI 1994: 3-108 to 3-110).

The Coos Bay District has some potential for developing oil and gas, as well as coal and coal bed methane production. Indeed, coal mining on the southern end of the Coos Bay contributed significantly to the local economy between 1860 and 1920. The district experienced a flurry of oil and gas lease activity in the early 1980s, when energy prices were high, but the holders of most of the leases dropped them when oil prices fell in the 1990s. As of 1994, the district had only 14 oil and gas leases on file, each covering only a few hundred acres. In 1994, the BLM had 20 rock pit sites, from which road builders quarried construction materials. However, the geologist noted that the district has a limited need for rock, other than for logging road construction. In places where the district has high-quality rock, the distance to urban centers makes transportation uneconomical. If the price structure for quarried rock becomes more favorable for suppliers, the economic importance of the district's rock resources could increase sufficiently to make commercial operations attractive.

The Plan record of decision lays out a variety of restrictions on minerals management, primarily guidelines for minimizing surface disturbance and waste disposal in riparian reserves. However, because provisions of the 1872 Mining Act supersede the record of decision, the 1995 RMP has somewhat less stringent guidelines than the Plan. The RMP key restrictions on mining and energy resources management include the following items (USDI 1995: 57–60):

a) Within riparian reserves, the RMP requires that mining operations develop a plan of operations, and limit road construction, buildings, and waste disposal operations so as to minimize damage.
b) The RMP directs the district to only permit sand and gravel sales in riparian reserves if proposed activities are compatible with Aquatic Conservation Strategy objectives.
c) The RMP states that the district should not issue new leases for surface occupancy for oil, gas, and other energy resources, and should seek to ensure that activities on existing surface occupancy leases meet Aquatic Conservation Strategy objectives.

The district had 33 mining claims in fiscal year 2003 (USDI 2003a: 80) compared with 40 claims in 1993 (USDI 1995: 3-108). However, none of the claims were active in either year. Since the Plan's implementation, the district has

approved one plan of operations (for sand exploration on the North Spit) submitted for mining and signed one oil and gas lease. The district issued eight permits for 79,400 yd^3 of rock quarry materials and conducted seven sand and gravel sales between 1997 and 2003.

The district geologist identified three aspects of the Plan guidelines that pose potential barriers to minerals development:

- The "no surface occupancy" requirements in riparian reserves and "key watersheds" restriction, which hinders development of coal methane beds in the Myrtlewood Resource Area.
- The "plan of operations" requirement, which entails expensive and time-consuming analysis and thus affects small-scale mining operations disproportionately.
- Timing restrictions for wildlife and riparian reserve protection purposes governing when quarrying operations can take place.

According to the district geologist, the "no surface occupancy" requirement discouraged the holder from exploring the recently issued oil and gas lease, and thus the holder has opted to make no bids on the lease. Thus the lack of mining on the district at this time may be linked in part to restrictions of the Plan.

The district geologist noted that recreational mining is an important resource use activity for local residents and outsiders. He stated that recreational mining opportunities, particularly for dredging operations, have decreased since the early 1990s owing to instream timing restrictions for fish protection. Under state laws aimed at protecting fish habitat, instream work, including dredging operations for recreational mining, is allowed only between July 1st and September 15th in the northern part of the district. Dredging operations are allowed in streams located in the southern part of the district between July 15th and September 30th. Nonmotorized mining, such as gold panning, is not restricted.

Recreation

Prior to the Plan, most recreational use on the Coos Bay District consisted of dispersed recreation activities, such as camping, picnicking, hiking, riding, sightseeing, hunting, fishing, and off-road driving. In 1990, analysts estimated recreational visits on the district at roughly 1.3 million visits (USDI 1994: 3-97 to 3-99). Until the 1990s, the district invested few resources into its recreation program.

The Plan's direction for recreation management is simple and broad relative to the complex and specific direction regarding timber harvesting: "...manage recreation areas to minimize disturbance to species" (USDA and USDI 1994: C-6). The Plan drafters stated that dispersed recreation uses were generally consistent with late-successional reserve objectives (USDA and USDI 1994: C-18). However, in cases where conflicts between recreation practices and late-successional reserve objectives arose, the Plan directs recreation managers to "[u]se adjustment measures such as education, use limitations, traffic control devices, or increased maintenance...." (USDA and USDI 1994: C-18). Similarly the Plan specifies that new recreational facilities meet Aquatic Conservation Strategy objectives, and directs managers to mitigate or eliminate existing recreation use patterns and facilities that interfere with achieving Aquatic Conservation Strategy objectives (USDA and USDI 1994: C-34).

The 1995 RMP guidelines for the Coos Bay District reiterated the Plan's emphasis on keeping recreational uses consistent with late-successional reserve and Aquatic Conservation Strategy objectives. However, the RMP also called for managers to take a proactive approach to recreation management in all land allocations by "...enhanc[ing] travel and recreation management through increased emphasis on interpretive and informational signs and maps" (USDI 1995: 46). In addition, the RMP directed the district to limit off-highway vehicle use in late-successional reserves, riparian reserves, and areas of critical environmental concern to designated roads (USDI 1995: 50).

In the late 1980s, the district's upper level managers had already started to shift more attention and resources toward developing a full-fledged recreational program. In 1986, for example, the Oregon-Washington BLM implemented the bureau's recreation area classification system in which it designated high-use sites, such as Loon Lake in the Coos Bay District, as special recreation management areas

(USDI 1994: 3-89). All other district lands were categorized as extensive recreation management areas.

With the Dwyer injunction in 1989, and the prospects of a long-term decline in the district's timber management program, the district manager and key staff members began exploring the possibilities of developing a full-fledged recreation and tourism program that would complement local community efforts to create a more diverse, but still natural-resource-based economy. The upper level managers at the time felt it was important to adapt the district's management priorities to reflect the changing economic situation.

Data in the Coos Bay District's annual program reports and the 1995 RMP EIS indicate that the number of recreation visits increased from an average of roughly 674,000 per year immediately prior to the Plan to an average of 820,000 per year between 1998 and 2003 (table 2), an increase of 22 percent. (Program reports for 1995, 1996, and 1997 did not provide estimates of the number of recreational visitors.) However, it is unclear whether the 1998–2003 increase is due to the development and improvement of recreational facilities and sites in the district made possible in part through the Plan, or whether the number of visitors would have increased without these changes.

The number of miles of trail built and maintained on the district increased from just over 1 mile prior to the Plan to 30 miles in 2003. The number of trail visits per year has also increased since 1999, the first year for which trail visit statistics are available. The number of special recreation management areas also increased from 11 to 15 since the Plan went into effect. However, all of these changes were underway before the Plan went into effect.

In the 1990s, the district approached its recreation and tourism program with the same "get it done" attitude that had served it so well in timber management. The Coos Bay District's recreational program started with a cohesive community-based vision of nature-based tourism being a viable component of the south coast's economy. The district and surrounding communities worked closely together to assemble the pieces needed to help realize that vision. The supporters of the nature-based tourism economy vision sought to expand income-earning opportunities for residents while supporting forms of recreation and tourism that meshed with the natural environment and cultural values of the existing population.

The vision was homegrown, having emerged through years of conversations, interactions, and reflections on the part of key community residents from Reedsport to Brookings and BLM employees. One BLM employee, a native of the area familiar with local activities and politics, played a prominent role in helping the district and the communities along the south coast bring the vision to life. As another recreation planner on the district pointed out, having a community insider working with the district was essential in that "…. he was able to identify opportunities for us."

Table 2—Recreation program trends

Year	Number of recreational visits	Recreation fee demonstration receipts	Number of permits	Maintained trails	Estimated trail visits	Number of managed sites[b]
		Dollars[a]		*Miles*		
Pre-1995	673,900	—	—	0.5	—	11
1995	—	—	—	—	—	11
1996	—	—	—	—	—	11
1997	—	—	—	—	—	10
1998	702,570	91,219	—	9.0	—	12
1999	691,351	124,022	11,217	18.3	5,377	12
2000	1,018,163	112,977	10,467	26.3	8,388	15
2001	832,159	127,433	12,739	26.3	9,293	15
2002	824,750	128,167	13,043	22.3	9,477	15
2003	856,958	141,448	14,715	30.3	9,477	15

Note: — = no data.

[a] Adjusted for inflation, 2003 dollars.

[b] One campground closed during 1997 for repairs owing to storm damage.

Source: USDI 1996a–2003a.

The south coast nature-based tourism vision emerged from a recognition of Coos Bay's disadvantages from the standpoint of most destination tourist spots in Oregon: it lacked the spectacular mountain landscapes of the central Cascades and was too remote from the Portland metropolitan area to attract day and weekend tourists in the numbers that have contributed to the prosperity of many north coast Oregon towns. However, a few key people in the Coos County planning staff, the Port of Coos Bay, the South Slough National Estuarine Reserve, the Coos Bay BLM, and a few other groups also recognized that while the area had no one particular spectacular draw, it did have a diverse set of attractions that if packaged and marketed as a set of recreational and cultural experiences could potentially bring in large numbers of people for several days or weeks at a time:

> The key is that you have to look at the whole vision, rather than looking at one attraction. We've got ocean shore, scenic roads, trails, fishing, all of these things. It's the mass of the attractions that the vision is about. It creates the gravity needed to bring people in. [We] saw the mountain bikes [and] kayaks and canoes going down the highway on top of cars. Going other places. No one knows what we have here. The idea is that we want to stop people.

The district began to turn the vision into reality in the late 1980s and early 1990s when the district had the opportunity to acquire Dean Creek and develop public recreation opportunities at New River and the North Spit—three environmentally and culturally significant sites. Thus, in 1994 when the Plan took effect, the district had already started to invest resources in improving or developing its existing special recreation management areas, including Loon Lake Campground, Dean Creek Elk Viewing Area, Coos Bay Shorelands, and the New River Area of Critical Environmental Concern.

With the Plan in place, recreation program employees further expanded their activities in these four management areas, while simultaneously developing other components of the nature-based tourism vision. Over the next 8 years, the district metamorphosed from its pre-Plan role as the operator of a few scattered and poorly maintained campgrounds to a key player in a regional community-based tourism and environmental education development effort. In addition to taking on a lead role in regional tourism and recreation planning activities, the district also invested heavily in improving its existing special recreational sites and smaller campgrounds, developing two additional special recreation management areas at Sixes River and Hunter Creek Bog; constructing a 30-mile network of hiking, mountain biking, and interpretive trails; and creating a professionally staffed interpretive and environmental education program.

Although the Plan created an important window of opportunity for enhancing the district's recreation opportunities, it also expanded the spaces in which the very presence of humans became defined as potentially detrimental. Moreover, one recreation specialist commented that many botanists and biologists who had come onto the district after the Plan, brought with them a strong bias against human use of forest ecosystems. The alliance that previously existed between the "ologists" and recreation specialists in the face of the much more powerful timber management program has broken down as a result of the reluctance on the part of biologists and botanists to allow recreational activities at environmentally sensitive sites such as New River, Floras Lake, and the North Spit.

Echoing comments made by timber and Small Sales program employees, however, the recreation employees noted that the plan itself isn't at fault. Instead, they see the problem as linked to the reluctance of biologists and botanists to recognize that humans are part of the landscape. In the view of one recreation specialist, implementing the Plan as if humans were not part of the landscape contributes to local resentment of the BLM's management approach: "That's what angers people, when they are left out of the landscape." In the view of one upper level administrator, the Plan's implicit view of human actions as inevitably detrimental to ecosystem integrity also has had the unintended consequence of limiting the district's ability to contribute toward the development of a strong regional tourism economy.

Heritage and Cultural Resources

The Plan record of decision provides very little direction regarding cultural resources management, with the exception of treaty rights resources. The Plan standards and guidelines cannot impinge on treaty rights except under certain conditions, such as when species listed under the ESA are at stake and if voluntary tribal conservation measures are insufficient (USDA and USDI 1994: C-16). The record of decision also requires the Forest Service and BLM to monitor whether ecosystem management activities provide adequate protection for religious and heritage sites, as well as ensuring tribal access to traditional species harvested and places of cultural significance (USDA and USDI 1994: E-9). The 1995 RMP provides no additional guidance other than stating that planners must include cultural resources in watershed analyses (USDI 1995: 40).

During the 1970s and 1980s, the cultural resources program focused primarily on conducting cultural resources clearances for proposed surface disturbance activities, such as timber harvesting and commercial thinning. Although the Plan virtually ignores cultural resources with the exception of tribal treaty rights, indirectly it has allowed the district's cultural resources program to evolve into a management program in its own right, rather than a support activity for timber harvesting. This shift has occurred in part because the decrease in timber harvesting has reduced the need for clearance work, thus freeing up time for the cultural resource specialist to do other cultural resources management activities. The cultural resource specialist also noted that the Plan's emphasis on plants, fish, and wildlife rather than timber "can translate into more funding for cultural resources."

In 1996, the Coos Bay District entered into a partnership with the Oregon Parks and Recreation Department, the Coquille Tribe, and the Confederated Tribes of Siletz Indians to manage the Cape Blanco lighthouse, which the U.S. Coast Guard wished to dispose of. The cultural resources program took charge of restoring the lighthouse and developing it as an interpretive site. The lighthouse has consistently attracted more than 20,000 visitors per year. In the same year, the district also began working with the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw to develop a cultural heritage museum on Gregory Point, also known as Bal'diyaka. The district has since dropped the Bal'diyaka project, but assisted the tribe in obtaining the property.

The requirement that the newly established Coquille Forest adhere to the Plan standards and guidelines also helped broaden the cultural resources program's scope to include developing an ongoing working relationship between the Coquille Tribe and the Coos Bay District. The following observation from the cultural resource specialist illustrates the importance of these new relationships with tribes:

> We do have a few sites, and I've been spending the past 4 to 5 years managing those in coordination with the Coquille. I've been especially involved with the Coquille since we did the land transfer. The first 2 years we had a legal responsibility to assist the tribe, to make sure it was done well. The understanding is that BIA doesn't often provide assistance. We tried to be different. We've developed a relationship that is very strong, and helpful to each other. For example, when the crisis came up over Cape Blanco lighthouse, they helped out.

Since the mid-1990s, the cultural resources program has played a key role in deepening understanding of both historical and prehistoric cultural lifeways on the south coast and coastal uplands. For example, the district took an active role in the excavation and analysis of sites at New River, Sixes Rivers, Cape Blanco, Bal'diyaka, Euphoria Meadows, Bridge, Wells Creek, and Vincent Creek. The development of closer working relationships with the local tribes, as well as with local history associations and historians, has thus significantly expanded the Coos Bay District's capacity, in terms of its staff's knowledge of local lifeways and the existence and importance of various resource use traditions, to manage the cultural resources on BLM lands.

Scenic Quality

Owing to the checkerboard ownership pattern, most of Coos Bay District's holdings are adjacent to industrial forest lands managed intensively for timber production.

As a result, approximately 75 percent of the district's lands are categorized as class IV lands within the BLM's Visual Resource Inventory System (USDI 1994: 3-86). The Plan-related management changes have not affected the visual qualities of these lands. Only 1 percent of the district's lands are rated as class I (USDI 1994: 3-86), for which the objective is to preserve the existing character of the landscape (USDI 2003b).

Fire Management

In the moist forests of the Coast Range, the risks of catastrophic fire are low. For example, between 1995 and 2003, 29 fires occurred on the Coos Bay District, burning a total of 52 acres. Nonetheless, fire always has been an important ecological process even in Coos Bay's moist forests, particularly on drier slopes (USDI 1994: 3-131). Historically, warmer, drier sites tended to have more frequent but less intense fires than the moister sites (USDI 1994: 3-131). However, when timber companies joined with the state, federal, and local governments in the 1900s to actively suppress fires, fuel loadings in drier sites gradually built up to the point where the risk of a large, intense fire is higher now than it would have been without human intervention (USDI 1994: 3-131). Recent work on fire occurrences in the southern coast range suggests that a very patchy, 95- to 145-year fire rotation is normal for the area's ecological conditions (USDI 1994: 3-131).

The Plan standards and guidelines direct forest managers to treat fire as an integral part of ecological processes. However, the Plan also provides for different management objectives depending on the type of land allocation (i.e., late-successional reserve, riparian reserve, matrix). The record of decision directs managers to create fire management plans for the late-successional reserves so that fire is managed in ways that maintain late-successional habitat, while limiting large, high-intensity fires and causing as little damage as possible when suppressing fires (USDA and USDI 1994: C-17). Similar guidelines apply to riparian reserves, where managers are required to manage fire in ways that meet Aquatic Conservation Strategy objectives, such as minimizing water contamination and riparian area disturbance. In matrix land allocations, the primary fire management objective is to ensure protection of dwellings and structures while seeking to maintain important ecological structures such as snags and down coarse woody debris.

Coos Bay District managers in the mid-1990s took a much more proactive view of fire as a management tool than the Plan record of decision. This proactive approach to fire is reflected in the 1995 RMP, which specifies that the district use fire and fuel management activities as tools to accomplish Plan ecosystems management objectives for late-successional reserves, the Aquatic Conservation Strategy, riparian reserves, and matrix lands. In accordance with the record of decision, the RMP requires that when fire managers suppress fires, they take steps to minimize any adverse effects on ecosystem management objectives. The RMP also requires the fire management program to take actions, such as modifying fuel profiles, to reduce the risks for high intensity.

Between 1995 and 2003, the district completed prescribed burns on roughly 3,100 acres, primarily for silvicultural treatments. For silvicultural treatments, "... prescribed burning activities are implemented to improve seedling plantability and survival, reduce brush competition as well as activity fuel reduction" (USDI 1998a: 45). Starting in 1996, the Coos Bay Fire Management program also worked to reduce fire hazards in riparian reserves, by using "various combinations of fire trail construction, fuel reductions, and alternate treatment such as brush slashing, hand or machine piling" (USDI 1996a: 13-14). The Hazardous Fuels Reduction (HFR) program, which began in 2000, meshes with Plan and RMP objectives. As part of the HFR mandate, the district has stepped up fuel reduction in areas "to protect, enhance, restore and/or maintain plant communities and habitats that are critical for endangered, threatened, or sensitive plant and animal species" (USDI 2002a: 82).

The fire management program manager noted that the Plan has changed some of the ways the district does fire management, but that the impact on the fire program has been small. Some of the changes have to do with where fire crews put through fire trails, the kinds of materials used to extinguish fires, and the types of fuel reduction treatments used in thinnings. In addition, he noted that under the Plan guidelines, district fire personnel "need more

time to plan and organize and get people going." Indeed, in his view, the major shortcoming of the Plan has been the increase in time it takes to do planning, which then cuts down on the time that he has to devote to activities on the ground. On the other hand, he also believes that the landscape-level planning was both useful and necessary in that it has enabled the district to do a better job of managing its land as a whole. The fire program manager also expressed concern about the current reluctance of managers to conduct harvesting or vegetation management activities in late-successional reserves. In his view, if left alone, the stands harvested of timber in the 1970s and 1980s develop fuel loads and profiles that will increase the risk of larger, more intensive wildfire.

Roads

In 1994, the Coos Bay District had 389 miles of arterial roads, 700 miles of collector roads, and 651 miles of BLM-controlled local roads (USDI 1994: 3-8). The district's 1,740-mile road system provided access to 90 percent of the district lands. Owing to the area's steep topography and unstable soils, the district had developed a forest road network with an unusually high percentage of paved roads. When the Plan was implemented, the district's forest road system thus constituted a key component of the regular transportation system, allowing much greater year-round access to the region than would otherwise have been possible.

The Plan called for keeping new roads and landings to a minimum in key watersheds and in late-successional and riparian reserves (USDA and USDI 1994: C-7, C-16, C-32 to C-33). The new guidelines directed transportation system engineers to reconstruct roads that interfered with Aquatic Conservation Strategy objectives and to reduce road densities in reserves and key watersheds through road closures and decommissioning (USDA and USDI 1994: C-7, C-16, C-32 to C-33; USDA and USDI 1998: 90). In addition, the Plan specified that road engineers should leave coarse woody debris when felling hazard trees (USDA and USDI 1994: C-16), improve or build culverts for 100-year flood levels, and provide and maintain fish passage (USDA and USDI 1994: C-32 to C-33).

The Plan further required the Forest Service and BLM to refrain from building new roads in riparian reserves until the appropriate watershed analyses had been completed (USDA and USDI 1994: C-32 to C-33). The Plan also extended landscape-level planning to the transportation system network, requiring the district to develop a district-wide transportation management plan, and to manage the road system on a watershed basis, rather than solely on a road-by-road basis as had previously been the practice (USDI 1995: 70). This approach emphasized a much lighter touch on the land than had historically been the case and required road engineers to envision a system in which a much greater percentage of roads would be temporary rather than permanent.

During the first few years of the Plan, district engineers spent much of their energy developing a transportation management plan (TMP) to comply with the Aquatic Conservation Strategy objectives. Completed in 1996, the TMP specified guidelines for categories of road closure and decommissioning, ranging from temporary or seasonal closures to limited access decommissioning (i.e., where access will be limited for more than 5 years) to full decommissioning (permanent) to obliteration (i.e., restoration to original slope) (USDI 1996b). Once the engineers completed the TMP, they shifted more of their energy into watershed analyses and developing transportation management objectives to guide road management within each watershed. They also began reconstructing and decommissioning roads in priority watersheds, with the primary reconstruction focus on culvert replacements and modifications to facilitate fish passage (USDI 1996a: 18-19).

In 1997, the roads program received a setback in meeting its Plan goals and objectives when a series of severe winter storms severely damaged large portions of the district's riparian reserves. For the next 4 years, district engineers worked to repair the damage caused by the 1996–97 winter storms while also developing transportation management objectives and decommissioning roads. By 2001, the district had developed transportation management objectives for 97 percent of roads. In addition, between 1995 and 2003, the district built 15 miles of new permanent roads, and decommissioned, closed, or gated 92 miles.

Using the base figure of 1,740 miles of road in 1994, we find that the district now has roughly 1,643 miles of accessible road, or 95 percent of its pre-Plan mileage.

The two road program employees interviewed during the study indicated that the Plan had negatively affected the district's ability to maintain an adequate road system in a variety of ways. First, reduced timber harvesting greatly decreased the funds available for road construction, maintenance, and decommissioning, activities that previously had been funded primarily through timber sales and commercial thinning operations. Second, the survey and manage requirements greatly increased the time needed to process requests for road rights-of-way. Third, riparian reserve and other wildlife habitat protection requirements have limited where the district can construct new roads, as well as how and where it can maintain roads.

The following quote from one of the road program employees illustrates how the Plan's low ASQ relative to the timber volumes harvested during the 1980s had the side effect of reducing the funds available for road maintenance.

> Because we're cutting less timber our roads are being less extensively maintained. Under a timber program, the private industry pays for maintenance. For example, on our resource roads, we're not making entries every 10 years or so because we're no longer going in that often. It used to be a 50-50 private-government split and also projects [sales] that funded mainline and collector roads. Then we'd leave them open until we did a commercial thin, and then decommission them. But since we haven't been doing the thinning, the roads aren't getting decommissioned...Even if we had maintained the allowable cut level under the Plan, we still had an 80-percent drop from the roads that we were putting in under the 250 million board feet we were cutting in the 1980s.

Although funding for road construction and maintenance has declined, the amount of staff time needed to review and grant requests for rights-of-way over existing haul roads or to build new roads over BLM's holdings has increased. The road engineers interviewed during this study noted that survey and manage requirements are a key contributor to lengthy review and approval process. However, they also noted that the increased review time was linked to ESA concerns as well as Plan requirements.

Both road program employees interviewed also observed that the riparian reserve restrictions had a disproportionately negative impact on road construction and maintenance programs in Coast Range forests. They noted that riparian reserve issues are linked in part to the failure of the Plan to adequately differentiate between east- and west-side forests when developing riparian protection standards. One of the road program employees also stated that the Plan has increased project costs "because you have to add in the costs of doing a reconstruction of road rather than having maintenance," and thus reduced the capacity of the district to accomplish its late-successional reserves restoration objectives.

Road program employees observed that the district's inability to maintain its roads has long-term negative environmental consequences owing to the risk of culverts getting plugged up and the subsequent increase in the likelihood that roads will wash out. Additionally, under the new requirements, engineers have to provide specific locations for roads, rather than granting approval for a section through which a right-of-way can pass. Both of the engineers interviewed indicated that this tended to increase the number of stream crossings included during the road design, precisely those areas that are the most environmentally sensitive. One of the engineers cited an example of how the extensive review process functions as a perverse incentive for landowners to bypass the federal process and build much longer and much more damaging roads on their own lands. As with other aspects of the Plan, the key issue in the minds of the engineers is less that the review process is unnecessary, and more that it is currently overly cumbersome and thus alienates community members and provides incentives for landowners and forest users to develop environmentally damaging alternatives.

Decreased access to district lands owing to road closures and decommissioning linked to the Plan does not yet appear to be happening on the Coos Bay District. Although the Plan calls for extensive decommissioning of roads, with

limited funding and other more pressing work to take care of, the road system is at 95 percent capacity of the pre-Plan level. Moreover, although an increasing number of roads in the Coos Bay region are being gated, most of the gating is taking place on private lands. One district planner noted that the gating of private land can result in de facto elimination of general public access to some BLM land. However, he stressed that such de facto withdrawals are unrelated to the Plan. As noted earlier, the Plan has led to a substantial decrease in funding for road maintenance, which in the long term is likely to affect public access to BLM land. However, during the first 10 years of the Plan, flood recovery funds, coupled with JITW and, more recently, resource advisory committee (RAC) funds targeted at road repairs, helped offset the decline in timber sale receipts that previously supported road maintenance activities.

Invasive Species

The Plan record of decision directs forest managers to refrain from introducing nonnative species into late-successional reserves. If they do introduce such species, then the presence of such plants must be compatible with late-successional reserve objectives. In areas where nonnative plant populations already exist, the record of decision specifies that forest managers should evaluate whether the presence of such plants is consistent with late-successional reserve objectives. If not, then forest managers should develop plans to control or get rid of them, provided that the control measures are also compatible with late-successional reserve objectives. The Plan record of decision provides no explicit direction for how nonnative plants should be treated on riparian reserves or matrix lands. The 1995 RMP reiterates the Plan record of decision guidelines, and calls for the use of integrated pest management approaches to controlling invasive species (USDI 1995: 21, 72).

The 1994 Resource Management Plan EIS (USDI 1994 3-44, 3-45) noted the presence of five noxious weeds categorized as priority treatment species on the Coos Bay District: tansy ragwort, purple loosestrife, Canadian thistle, gorse, and Scotch broom. In addition, botanists noted concerns about the presence of European beachgrass with respect to its negative effects on western snowy plover and native plant populations on coastal dunes (USDI 1994: 3-44; 3-45).

According to the noxious weed specialist on the Coos Bay District, prior to the Plan, the district subsumed noxious weed control activities into its road maintenance and silvicultural programs. Noxious weed control thus did not surface in the minds of BLM managers as an issue worthy of a program in its own right until the mid-1990s when timber harvesting, along with associated road maintenance funding and activities, declined sharply from the previous four decades.

In 1996, the district brought on a noxious weed specialist to develop a noxious weed inventory, research, and management program. The noxious weeds program's control efforts have focused on inventorying and controlling Scotch broom, gorse, and purple loosestrife along the forest road system, which serves as the primary avenue for the spread of invasive species. The district funded a noxious weed inventory along 2,100 miles of road in 1997, followed by manual treatment to remove the broom species in subsequent years. A pilot crew from the Coquille Watershed Association conducted the inventory and later provided the labor for manual treatment of broom species at problem sites. In addition, each year the district provides the funding for a prison crew to remove noxious weeds from the Deans Creek Elk Viewing Areas.

In 1999, the district worked with the Coos watershed association to conduct an inventory of purple loosestrife in the Coos subbasin. This inventory, as well as followup inventories contracted out in 2001 and 2002, served as the basis for the district to apply biocontrols on purple loosestrife. By 2001, the silvicultural program had reinitiated chemical treatments for noxious weeds along roadsides where site preparation and reforestation activities were taking place. The district thus currently makes use of a broad array of approaches to invasive plant species management, including chemical, manual, and biocontrol treatments.

The Plan has significantly affected the noxious weed program, albeit indirectly. Prior to the Plan, the BLM had

developed a timber harvesting and reforestation system based on an extensive transportation network of well-constructed haul roads. This network greatly facilitated the spread of noxious weeds. However, as indicated in the quote below, prior to the Plan, the district also could rely on its timber sales program to control the spread of undesired nonnative plant species, such as gorse, brooms, and purple loosestrife:

> The bottom line is that we're not doing active silviculture any more and that promotes the spread of weeds. When we were harvesting actively, the timber sales paid for brush removals. Now the weeds are left unchecked and untreated. It's a large issue. Scotch broom, gorse, and purple loosestrife are so heavily populated now, and once you let it go it becomes difficult to manage. The idea is to keep it from spreading in the first place.

The Coos Bay District now finds itself in a dilemma: its transportation infrastructure is constructed in a way that encourages the spread of invasive species, but the district no longer has the institutional infrastructure to adequately control or minimize their expansion. Not only does this present a problem from the standpoint of noxious weed populations expanding along roadsides, but a new forest management problem has also surfaced: the spread of noxious weed populations within stand interiors. Another related dilemma is that noxious weeds constitute a threat to restoring and maintaining native habitat in riparian reserves, yet the Plan standards and guidelines restrict the use of the treatments that have been proved most effective in stopping their spread.

The noxious weed program manager noted that local interest in organic farming also has played a role in the district's decision to develop an integrated pest management program that relies primarily on a combination of manual and biocontrol treatments. In short, during the past decade, the district's ability to control the spread of noxious weeds has decreased in part because of legal mandates and social pressures to reduce its use of herbicides, and in part because the BLM is still struggling to develop a viable weed control infrastructure adapted to a forest management regime based on less frequent timber harvesting and decreased road densities.

Jobs and Income Associated With District Management Activities

Changes in the District Budget

The Coos Bay District obtains funds from a variety of sources. In addition to annual allocations through congressional appropriations, since 1994 the district has received substantial amounts of funding linked to the Plan and the cessation in timber sales activity owing to the Dwyer injunction. These include JITW and and Timber-Recreation Pipeline Restoration funds.[5] Since 1998, the district has also obtained funds each year through the recreation use fee demonstration project. During the late 1990s, the district received several million dollars a year in emergency funds to repair damages caused by massive floods in the winter of 1996–97. When adjusted for inflation, the Coos Bay District's annual budget exhibited a generally flat trend between 1993 and 2003 (fig. 9). The budget ranged from a high of $16.9 million in 1997 to a low of $13.8 million in 2002, averaging $15.4 million annually during those 11 years. However, distribution of the funds among the

[5] Revenues generated through the 1995 Recissions Act sales went into a fund, known as the Timber-Recreation Pipeline Restoration Fund. Under the conditions of the act, the district had to use 75 percent of the funds to prepare sales to meet the ASQ. The remaining 25 percent of the funds were earmarked for work on recreation projects.

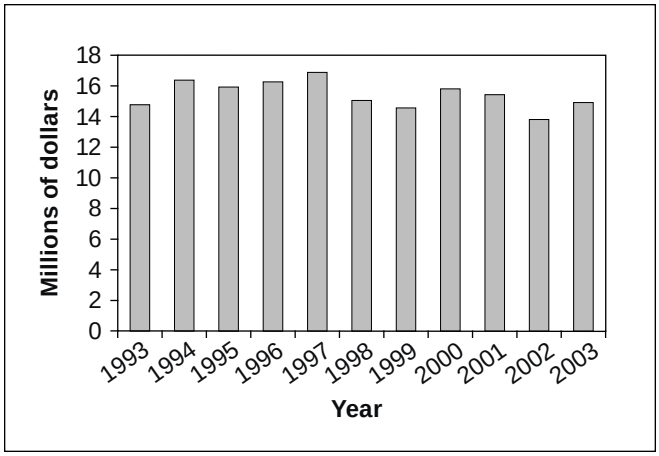

Figure 9—BLM Coos Bay District budget, 1993–2003. Adjusted for inflation, 2003 dollars. Source: BLM State Office.

district's programs changed substantially from pre-Plan budget allocation patterns, with several programs experiencing substantial increases in their budgets and others remaining flat or declining.

According to interviews with BLM program managers, programs experiencing substantial increases in funding owing largely to the Plan included fish and wildlife; recreation; and soil, water, and air quality. The fish and wildlife program's habitat restoration budget, for example, rose rapidly, from roughly $30,000 a year prior to the Plan to $1.9 million dollars annually in the mid and late 1990s. Similarly, the recreation budget increased from roughly $300,000 in the early 1990s to $1.2 million in the mid and late 1990s. The soil, water, and air program budget also expanded so that the district could meet the Plan's requirements for watershed analyses.

The minerals program budget expanded slightly to meet the increased demand under the Plan for technical input on geomorphology. The fire management program's budget increased abruptly in the late 1990s, as emerging concerns about fire hazards in late-successional and riparian reserves in the east-side forests increased the funds available for all fire programs. Similarly, increases in funding nationwide to control or eliminate invasive species during the early 2000s translated into more funds for the district's noxious weed program. Although timber management and roads budgets initially dropped substantially from pre-Plan levels, they remained stable after the mid 1990s.

Many district employees expressed concern that future budgets will decline or remain flat, thus effectively increasing their workload and hindering their ability to carry out their programs effectively. They noted that the impact on the district's ability to carry out its mandates would be gradual, and thus difficult to readily identify as a problem. One administrator pointed to the district's inability to provide marketable commodities as a potential justification for the BLM to cut the district's budget allocations: "…we're not putting out a product any more. So we don't have the same immunity that the district used to have to budget cuts." He also noted that key sources of restoration funding, such as the JITW and Secure Rural Schools monies, originated with the Plan and may not be renewed when the appropriations for them run out. He expressed additional concern that the fee demo project is due to sunset, and that failure to renew it would leave recreation under-supported.

Changes in District Employment

As indicated in figure 10, the number of people employed directly by the Coos Bay District declined from 206 in 1993 to 175 in 2002. This represents a 15-percent decline in the number of employees working for the district. The district experienced an abrupt decline in employees in the first 2 years after the Plan's implementation. The number of employees rose again to nearly pre-Plan levels from 1997 to 2000, but has been declining gradually since 2000.

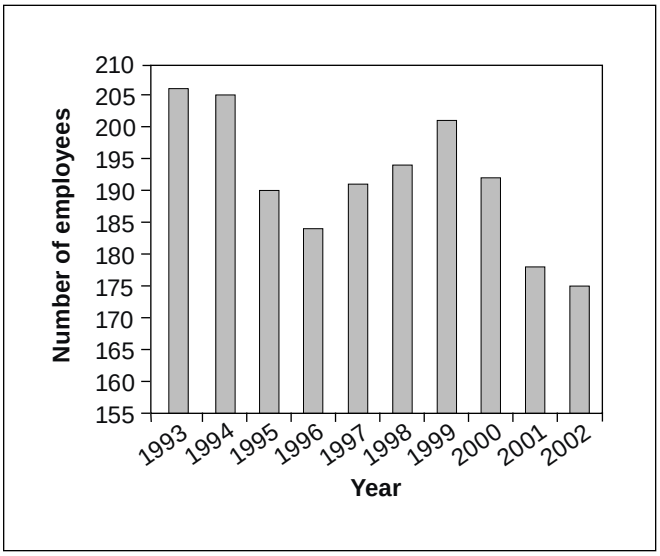

Figure 10—BLM Coos Bay District employment, 1993–2002. Source: BLM State Office.

Although the district did not experience the same level of reductions in staff that took place in the neighboring national forests in the wake of the Plan, the distribution of employees among the different programs changed significantly. For example, the district shifted forestry and engineering employees into the recreation, watershed restoration, and fish and wildlife programs. The district thus avoided the severe morale problems that emerged in neighboring national forests in the wake of massive staff reductions.

Another major change observed by district employees since the implementation of the Plan, is the shift from promoting and transferring employees primarily from within the Oregon and California Railroad Company (O&C) districts in Oregon to actively recruiting new personnel from non-O&C BLM units and other agencies. Several employees noted that an increased emphasis on integrating work across programs has developed from the simultaneous introduction of new blood among upper level managers and the need to meet the Plan's requirements for landscape-level, interdisciplinary planning.

Although the number of permanent full-time employees exhibited a slight downward trend between 1993 and 2002, the number of seasonal and part-time employees initially dipped downward when the Plan went into effect, and then increased in the late 1990s when the district carried out the broad-scale surveys required under the survey and manage provisions. In 2000, after the backlog of survey and manage work had been completed, the district cut back again on seasonal and part-time employees.

The district, which was divided into three resource areas during the late 1980s, consolidated into two resource areas in 1996. In addition, district administrators had anticipated decreasing the number of positions on the district gradually by not replacing retiring or transferring forestry and engineering personnel. The need for additional wildlife and recreation positions in the initial years of the Plan likely helped reduce the rate at which the district downsized during the 1990s. However, as one employee noted, even in recreation and wildlife, the effects of gradual attrition had become visible by 2003: "The trend is that we're likely to be stable on the budget, but we'll have a net decline in employees."

Cognizant of the likelihood that annual budgets will stay flat or decline, BLM is engaged in an agency-wide workforce planning effort. Other options that the district is investigating for getting the same amount or more work done with fewer employees include sharing offices and staff with other federal agencies, such as the U.S. Forest Service, and contracting more of the work currently done by employees, such as road and recreation maintenance. The district will be hiring fewer full-time permanent employees and making more use of temporary and term employees.

Changes in Contracting

The Coos Bay District spent $39.7 million obtained through the BLM State Office's procurement program on land management activities in Coos and Curry Counties from 1990 through 2002.[6] Although the district spent an average of $3.3 million each year, the amounts spent per year varied considerably. The district spent the bulk of the funds in the mid-1990s, and then reduced spending from 1999 onward. Spending was approximately $3 million in 1990, peaked at $4.3 million in 1996, and tapered off to roughly $1.4 million in 2002 (fig. 11).

In addition to the BLM State Office's procurement on behalf of the Coos Bay District, district staff also procured numerous contracts valued below $25,000. Unfortunately,

[6] Although the Coos Bay District is located in Coos, Curry, and part of Douglas Counties, this analysis only includes contracts issued in Coos and Curry Counties because the Coos Bay District contracts for work performed in Douglas County could not be distinguished from Salem District contracts. Because the Salem District manages more land in Douglas County, any contract performed in Douglas County was more likely to have been awarded by the Salem District.

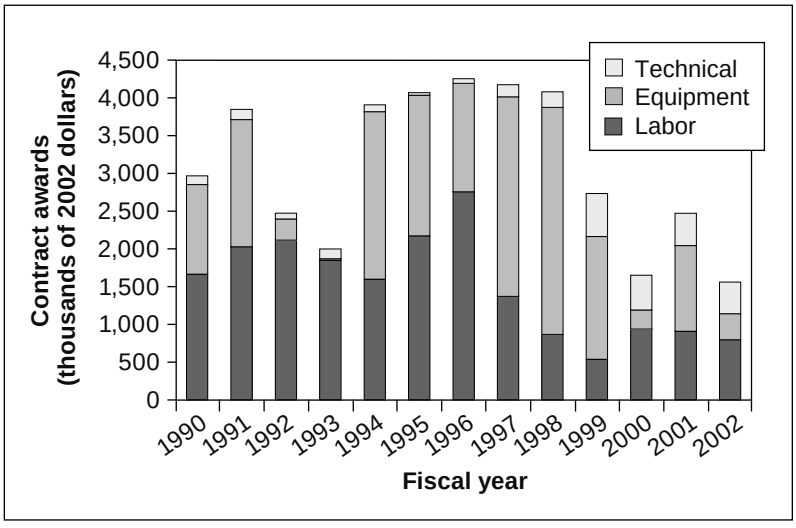

Figure 11—Land management procurement spending by work type, Coos Bay District, fiscal years 1990–2002. Adjusted for inflation, 2002 dollars. Source: Moseley 2006.

we were unable to obtain district-level procurement data for the years prior to 2000. However, during 2000–2002, the district staff handled on average about 10 percent of the district's total procurement per year. If this same 10-percent rate held throughout the study period, we can estimate that the combined total procurement of the district by district and state office staff from the period 1990–2002 would have been $44.4 million rather than $39.7 million.

The district concentrated its procurement investments in Coos County, where most of the district's land is located. In 1990–92, the BLM spent $44 dollars per acre for work performed in Coos County and none in Curry County. By 2000–2002, per-acre spending had fallen to $25 per acre in Coos County and had risen to $1 in Curry County. The relative proportion of spending for equipment-intensive, labor-intensive, and technical contracting changed over time (fig. 12).

Over time, the Coos Bay District shifted its spending away from activities associated with intensive timber management to those associated with surveys and restoration. Unexpectedly, labor-intensive contracting remained relatively constant until 1997. After 1997, labor-intensive contracting began to decline and technical contracting began to increase. This continued funding of labor-intensive contracting was largely the result of increased investment in thinning in the mid-1990s as other labor-intensive activities declined. Tree planting declined from $2.6 million in 1990–92 to $684,000 in 1995–97. But procurement spending on thinning during 1995–97 was more than double ($5.4 million) the spending in the earlier and later periods ($2.4 million and $2.3 million, respectively) (fig. 13).

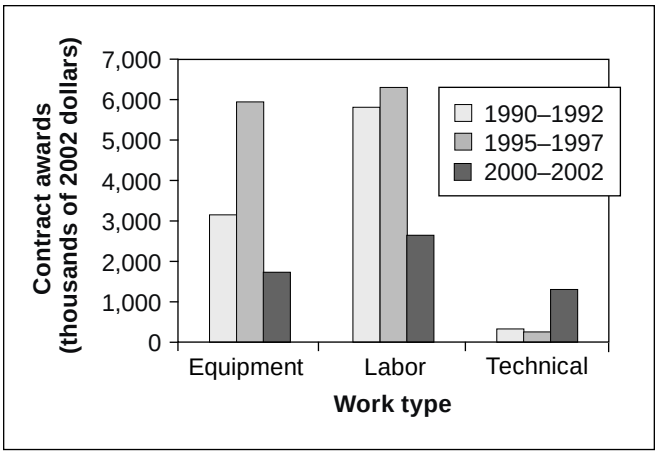

Figure 12—Land management procurement spending by work type, Coos Bay District; fiscal years 1990–1992, 1995–1997, and 2000–2002. Adjusted for inflation, 2002 dollars. Source: Moseley 2006.

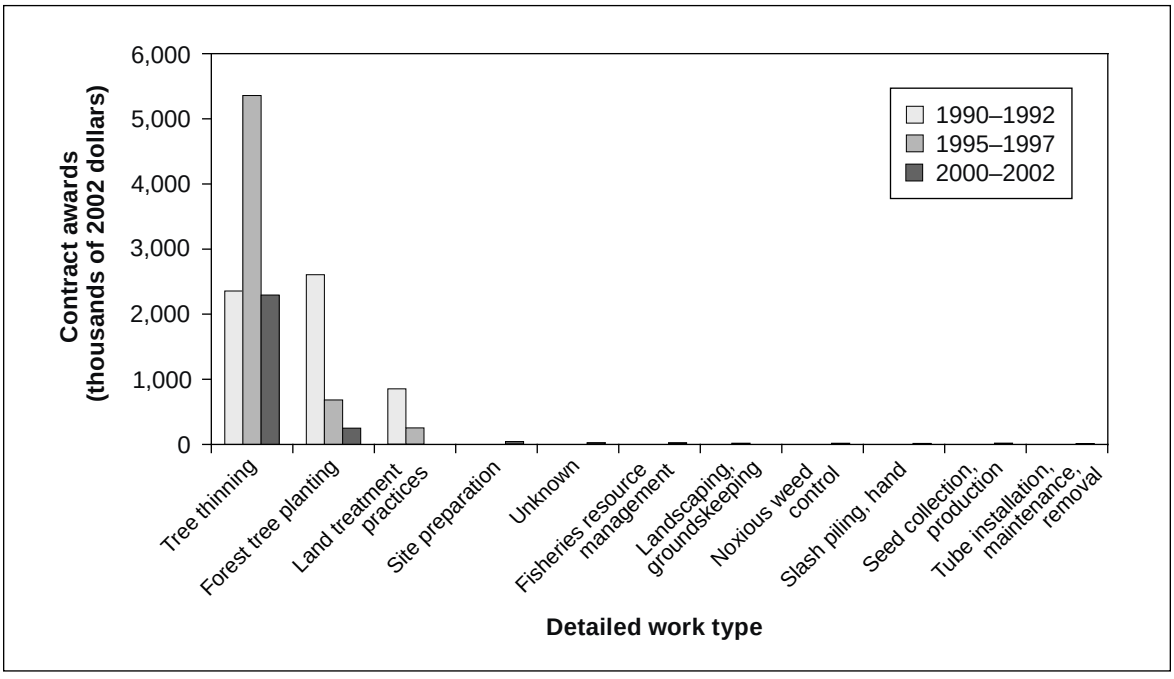

Figure 13—Labor-intensive contracting by detailed work type Coos Bay District, fiscal years 1990–1992, 1995–1997, and 2000–2002. Adjusted for inflation, 2002 dollars. Source: Moseley 2006.

The Coos Bay District increased its spending on technical activities in 1997 and 1998 and further expanded technical procurement spending in the early 2000s. Spending on species surveys and studies increased over time, especially in the early 2000s. In addition, spending on "other natural resource management and conservation activities" increased substantially, but it is unclear from this general categorization what type of activities this work actually involved (fig. 14). This is somewhat later than one might have expected given the Plan's direction for extensive species surveys, but it is similar to the BLM's regional pattern. However, we cannot tell from these data if these surveys were performed with in-house crews, with assistance agreements, or not at all during the early to mid-1990s. Most likely, the relatively late arrival of procurement spending on technical activities is explained by the use of in-house crews and assistance agreements with the Coquille Watershed Association and other watershed councils.

Coos Bay District spending on equipment-intensive activities peaked in 1995–97, similar to the pattern of labor-intensive spending. However, a shift in the type of equipment-intensive activities occurred early in the study period. Equipment-intensive activities related to intensive forest management such as aerial fertilization diminished rapidly while road maintenance and construction increased from zero to $4.0 million in the mid-1990s and then fell off again by the early 2000s (fig. 15).

Assistance agreements—

In addition to using a contracted external workforce for land management, the Coos Bay District also used assistance agreements with the local watershed council to meet land management objectives while training a local workforce and enhancing business capacity. Beginning in 1996 on the south coast, the Coquille Watershed Association and its partners developed a training program using the opportunities created by the JITW and Hire the Fisher programs (Hallock 1998). Their training program has been one of the longest standing efforts of its kind in the Plan area. The Coos Bay District partnered early with the local watershed councils and continued to provide restoration work to

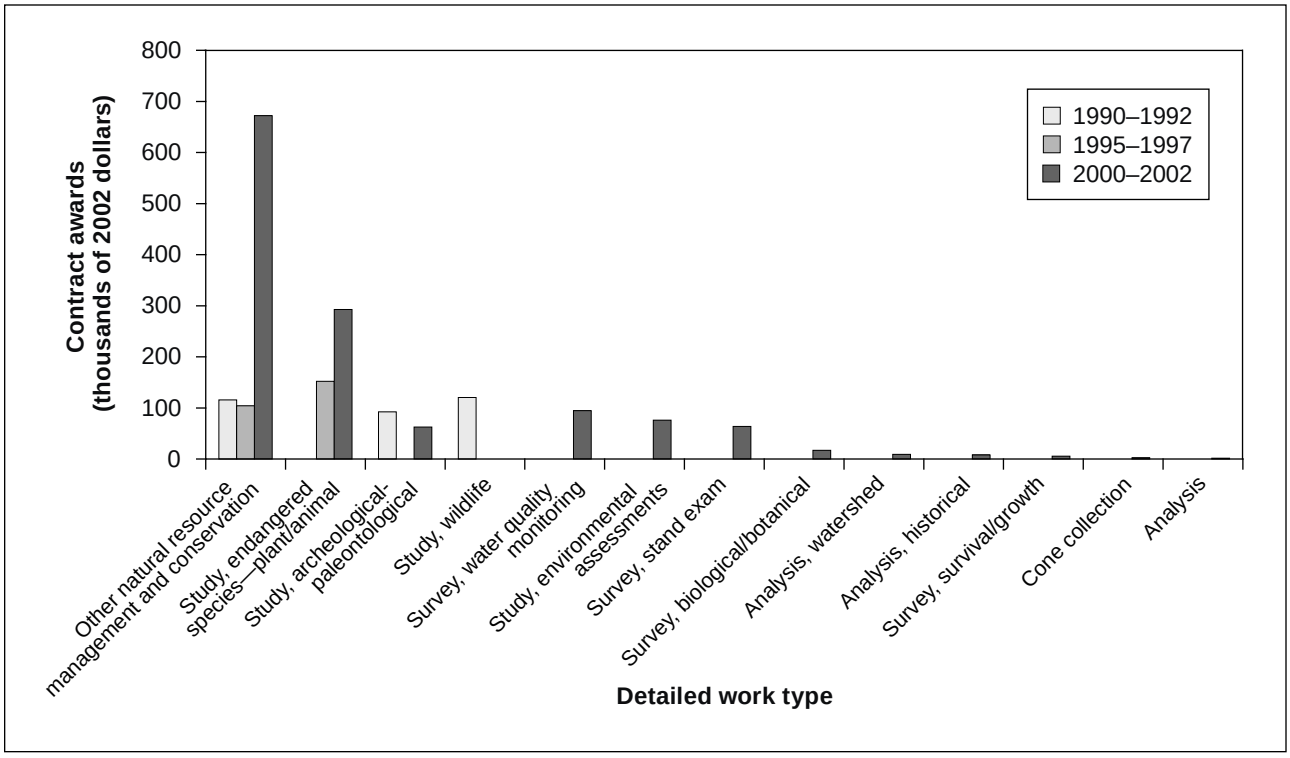

Figure 14—Technical contracting by detailed work type, Coos Bay District, fiscal years 1990–1992, 1995–1997, and 2000–2002. Adjusted for inflation, 2002 dollars. Source: Moseley 2006.

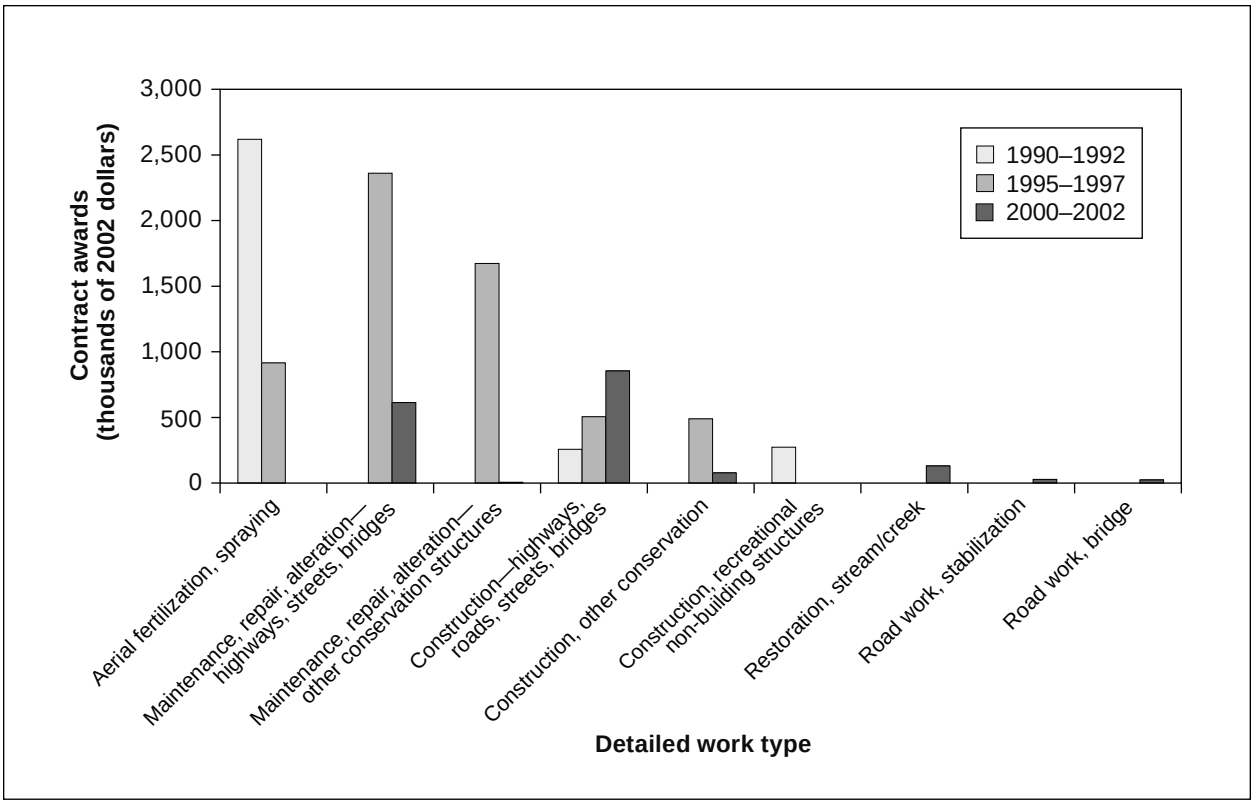

Figure 15—Equipment-intensive contracting by detailed work type, Coos Bay District, fiscal years 1990–1992, 1995–1997, and 2000–2002. Adjusted for inflation, 2002 dollars. Source: Moseley 2006.

local watershed councils by using assistance agreements throughout the 1990s and 2000s. In these assistance agreements, both the cooperating organization and the district bring resources to the table, with the cooperator usually providing at least a 20-percent match in funds. We have little detailed information about spending via agreements with the local watershed councils. However, we do know that between 1998 and 2002, the Coos Bay District spent $1.3 million on land management restoration on BLM land through agreements with local watershed councils. Of this amount, the Coos Bay District spent $973,000 for equipment-intensive activities such as road decommissioning and stream restoration, $423,000 for labor-intensive work such as tree planting, snag creation, and noxious weed removal, and $92,000 for technical activities such as noxious weed inventories and red tree vole surveys (fig. 16).

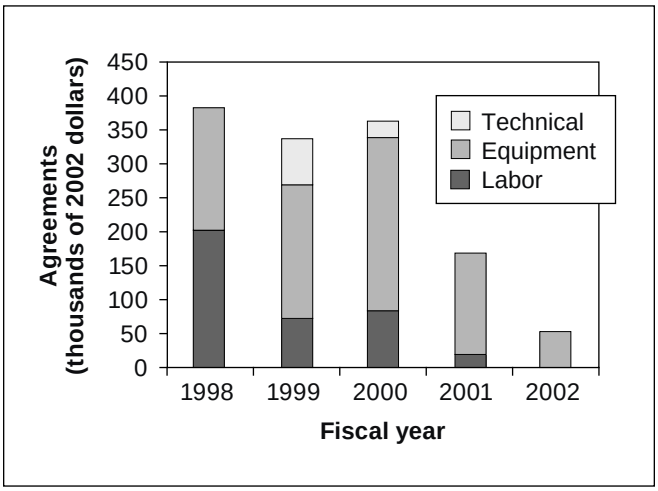

Figure 16—Land management spending via assistance agreement, Coos Bay District, fiscal years 1998–2002. Adjusted for inflation, 2002 dollars. Source: Moseley 2006.

Contractor turnover and concentration—
In 1990–92, the Coos Bay District awarded 28 contracts (table 3). By 2000–2002, that number had increased to 42. In the first period, three contractors (11.7 percent of contractors) captured 50 percent of the contract value. In 2000–2002, seven contractors (16.7 percent of contractors) captured 50 percent of the contract value, suggesting that the concentration of contract awards declined over time. However, a chi-square test did not show a statistically significant change. This pattern is surprising given that the Coos Bay District's spending declined between the two periods. The increasing number of contractors, the decreasing concentration of contract awards, and the decline in overall procurement spending means that contractors working in 2000–2002 were typically awarded considerably less contract value than contractors were awarded a decade before. By 2000–2002, the contractors earned an average of $124,000, whereas contractors had earned an average $312,000 from the district a decade prior.

Table 3—Contracting awards by size of contractor Coos Bay District, BLM, fiscal years 1990–1992, 2000–2002

Period	1990–1992		2000–2002	
	Number	*Percent*	*Number*	*Percent*
1st quartile	1	3.57	2	4.76
2nd quartile	2	7.14	5	11.90
3rd quartile	5	17.86	8	19.05
4th quartile	20	71.43	27	64.29
Total	28	100.00	42	100.00

Note: This table groups contractors by size of contractors' awards. The largest contracts that together capture one-fourth of the contract value are in the first quartile. The smallest contracts that together capture one-fourth of the contract value are in the fourth quartile. Thus, for example, the largest contractor in 1990–1992 captured the same total value as the smallest 20 contractors.
Chi square: $p < 0.611$.

Of the 28 contractors awarded contracts in 1990–92, 4 were working for the district a decade later, a turnover rate of 85.7 percent. As was the case regionwide, the contractors who performed work for the district in both periods earned more money in each period from the district than those who had not. That is, the long-time contractors earned more from the district on average than the shorter term contractors. The average total award to repeat contractors in 1990–92 was $448,000, whereas the overall average was $312,000. By contrast, in 2000–2002, the average total award was $130,000 compared to $124,000 overall. This makes sense given the overall decrease in procurement spending during the study period.

Location of contractors who worked on the Coos Bay District—
Although the Coos Bay District is not right next to the Interstate-5 (I-5) corridor, the district awarded much of its contract value between 1990 and 2002 to contractors located along I-5, particularly in the Willamette Valley. Contractors in the coastal communities also captured a considerable portion of the contract dollars. Most contractors performing labor-intensive contracts were located along the I-5 corridor and were from more distant communities than were equipment-intensive contractors. Local contractors were more likely to capture equipment-intensive contracts (fig. 17). This follows the patterns of national forests in Oregon and Washington located across mountain ranges from I-5 (Moseley and Shankle 2001).

It is difficult to discern a clear pattern to Coos Bay District contract awards from 1990–92 to 2000–2002. It seems as though awards along I-5 in Oregon decreased, whereas the value of contracts in southern Oregon and away from I-5 may have increased. However, the level of information on contracts in the district does not allow reliable statistical tests to be performed.

In 1990–92, 19.1 percent of Coos Bay District's contract value was awarded to contractors from rural communities (population less than 5,000) (table 4). Another 28.5 percent of the value was awarded to contractors from communities with 5,000 to 10,000 people. In 2000–2002, contractors in rural communities captured 3.2 percentage points less of the total contract value than they did a decade earlier, and contractors in communities with 5,000 to 10,000 people captured 7 percentage points less. The decline in Coos Bay procurement spending led to a decrease of $942,000 awarded to rural contracts in the early 2000s, compared to 10 years earlier. Although the percentage of

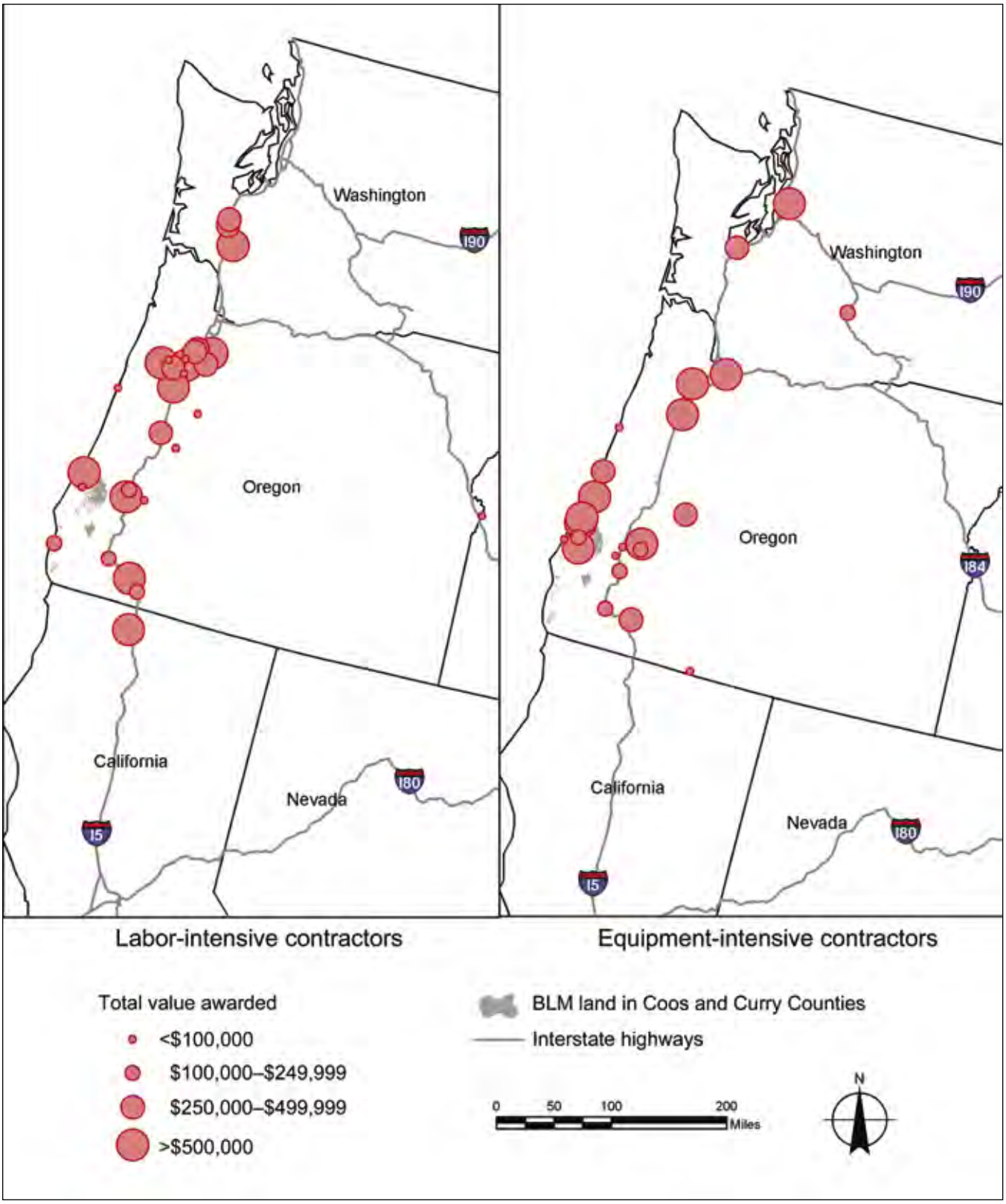

Figure 17—Comparison of labor- and equipment-intensive contractors by location (ZIP code), Coos Bay District, 1990–2002. Adjusted for inflation, 2002 dollars. Source: Moseley 2006.

Table 4—Contract value by contractor's community size, BLM Coos Bay District, fiscal years 1990–1992, 2000–2002

Community population (1998)	1990–1992		2000–2002	
	Real dollars	*Percent*	*Real dollars*	*Percent*
<5,000	1,772,000	19.1	830,000	15.9
5,000–9,999	2,651,000	28.5	1,126,000	21.6
10,000–50,000	306,000	3.3	340,000	6.5
>50,000	4,559,000	49.1	2,656,000	50.9
Unknown	0	0	268,000	5.1
Total	9,288,000	100.0	5,220,000	100.0

Chi square: $p < 0.097$.

Chi square (excluding unknown category): $p < 0.450$.

contract value awarded to smaller communities did drop over the study period, chi square tests on the distribution of contract awards among communities were not statistically significant, both including and excluding the amount of contract dollars awarded to communities of unknown size, suggesting that awards to smaller communities did not decrease significantly.

Contract awards to affected counties—

The Coos Bay District awarded virtually all of its contracts to contractors in the Plan-affected counties throughout the study period (figs. 18 and 19). The percentage of awards to contractors in the affected counties ranged from 97.4 to 100 percent, with a few years when the location of some contractors was unknown. During 1995–97, the Coos

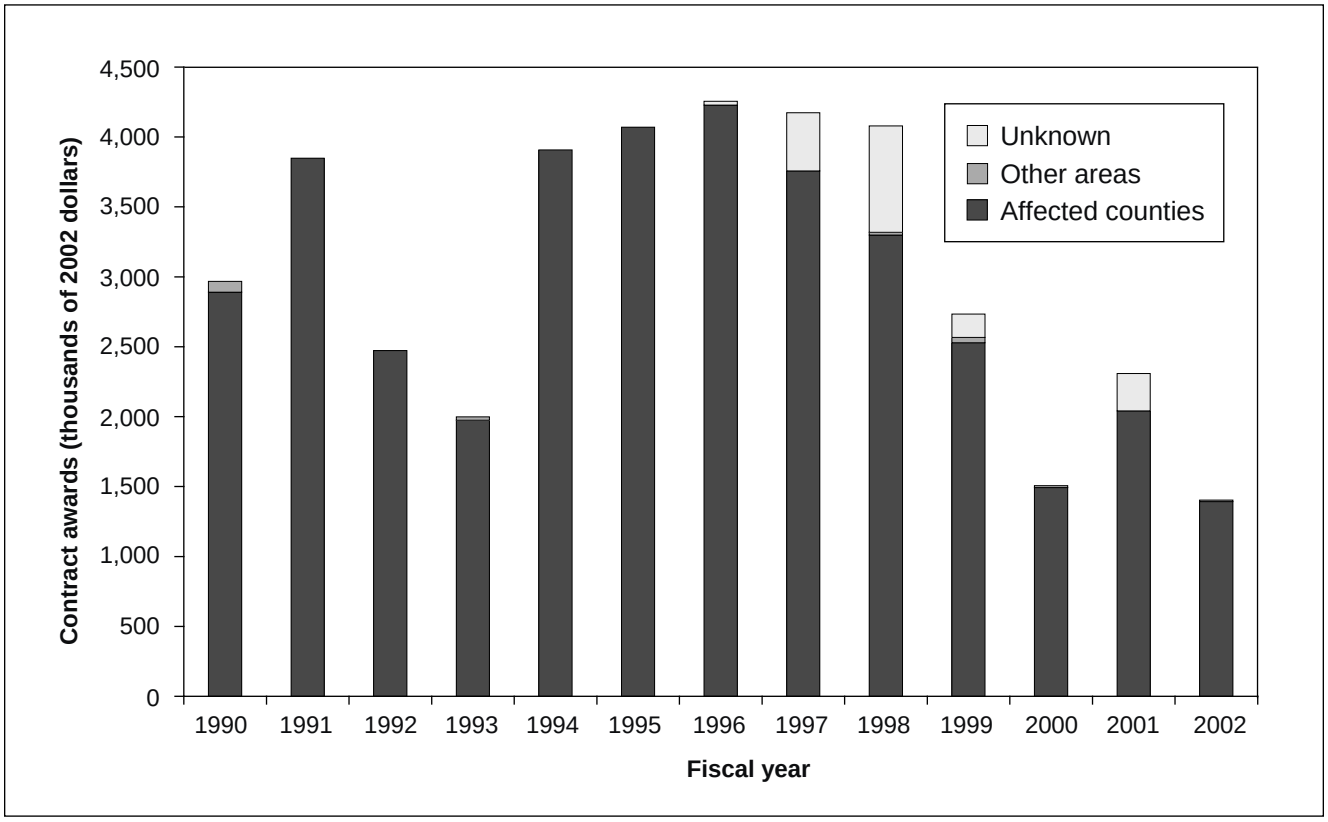

Figure 18—Contract awards to the Plan-affected counties, Coos Bay District, fiscal years 1990–2002. Adjusted for inflation, 2002 dollars. Source: Moseley 2006.

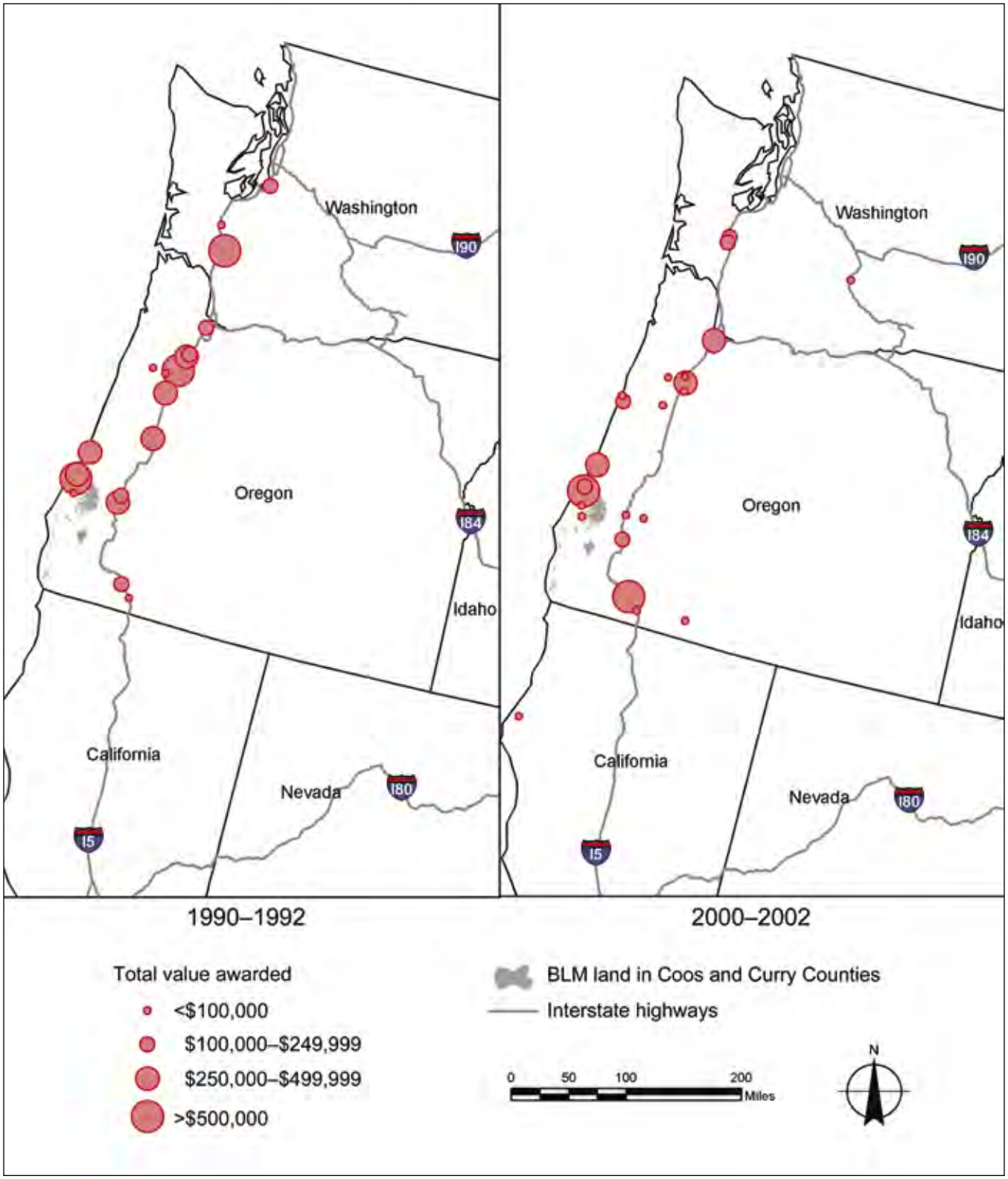

Figure 19—Contract awards by location of contractors. Adjusted for inflation, 2002 dollars. Source: Moseley 2006.

Bay District awarded 100 percent of the contract value to contractors in affected counties, excluding those contractors whose offices could not be located. In 1990–92, the district awarded 99.2 percent of contract value to affected counties and, in 2000–2002, 99.5 percent. An increase of 0.8 percentage points between 1990–92 and 1995–97 cannot be considered significant because some of the contractor locations were unknown during 1995–97, which created some uncertainty. Regardless, this small difference had little impact on the Coos Bay District procurement patterns because the Coos Bay District already awarded nearly all of its contracts to contractors from the affected counties.

Interview data provided additional insights into how contracting on the district has changed over the past decade. The restoration coordinator noted that the term "local" has come to mean contractors located in Roseburg and Newport, as well as the Coos Bay communities:

> Remember that for us, local is as far away as Roseburg. We just don't have that many people in the Coos Bay-North Bend area.... Most of the contractors come from Roseburg, Coos Bay, and Newport. It's not really local. There hasn't been a huge development in the number of local contractors.

However, he stated that the district makes a special effort to ensure that JITW and RAC funds go to contractors in and around Coos Bay. He observed that the Title II funds from the Secure Rural Schools Act are the easiest to target to contractors in nearby communities, as they have the leeway to limit the contracts to contractors from the counties involved. The restoration coordinator also observed that the watershed associations have developed into important contracting entities in their own right, developing a set of subcontractors that they use for carrying out JITW and RAC-funded projects.

According to the fisheries biologist, contracting for biological work increased considerably after the Plan went into effect. He noted that contracts for restoration and instream enhancement typically went to displaced loggers, whereas stream survey and monitoring contracts went to the Oregon Fish and Wildlife Department.

He reiterated the restoration coordinator's observation that the district has increased the contracts that it awards to watershed associations for restoration work. However, he noted that the district accomplished most of the survey and manage work by using in-house crews. Watershed analysis work also remained in-house and is likely to continue being done internally in the future. According to the watershed analysis coordinator, upper level administrators are reluctant to contract out watershed analysis work because of the training opportunities that it provides to district employees.

By contrast, the Recreation Program has relied much less on contractors and more on its own workforce to refurbish and develop recreation and interpretive facilities on the district. The district's interpretive specialist noted that work on interpretive signs has been done in-house primarily because the local capacity to develop the kinds of signage needed does not exist. However, she also observed that the district works with the Oregon Coastal Environmental Awareness Network (OCEAN) to locate and support local businesses for the development of brochures and other interpretive materials.

District employees in most programs and at all administrative levels stated that the district was likely to expand contracting opportunities in the future because of the pressure from the Executive Office to outsource more services. One recreation planner observed that from the standpoint of helping local communities, such an approach might be counterproductive in that the district has historically provided well-paying jobs to local people:

> The real issue to me is—are we taking care of the local communities? This A76 [competitive sourcing] thing—probably we will end up with some contractor from outside. [From an economic savings standpoint] we should have contracted out long before. But the people in the jobs were local people, the GS-9s.

He also noted that the recreation jobs likely to be contracted out would most likely pay much less than those currently held by many district recreation technicians, many

of whom were mid-level forestry technicians displaced when the need for their timber sales skills disappeared in the early 1990s.

Coordinators of the noxious weed control and fire programs, two of the district's currently expanding programs, both indicated that contracting was and would continue to be an important means for them to accomplish their program activities. The noxious weed coordinator observed that contracting has substantial advantages for the district in that it shifts licensing and chemical storage costs to the contractors.

The fire program manager noted that the district has always relied heavily upon contractors to carry out fire-related work, such as prescribed burns. He stated that under the National Fire Plan, at least 50 percent of the work would continue to be contracted out. However, he expressed some concern over whether sufficient local capacity exists to carry out such contracts. In particular, he noted that the requirement for a performance bond on contracts over $25,000 might prevent local contractors from competing successfully.

Overall contracting trends—

The Coos Bay District, reflects the larger regional BLM patterns of spending in several ways. First, spending peaked in the mid-1990s at the height of the JITW era and declined thereafter as the BLM shifted its procurement emphasis to drier, more fire-prone lands. The swings in Coos Bay procurement spending are larger than those of the region as a whole. The procurement data does not, however, explain the source of the Coos Bay peak in spending in the mid-1990s. In the regional analysis, we hypothesized that the BLM's peak in spending in the mid-1990s may have resulted from emergency money made available after the January 1997 flood. Coos Bay District procurement spending increased before 1997, suggesting that additional factors were at work. Also, following the BLM's regional pattern, the district shifted from procuring activities associated with intensive timber management to surveying and watershed restoration. Accordingly, procurement of technical activities rose in the late 1990s.

Despite the shift in spending priorities, the awards to contractors in rural and small communities did not change much, nor did the proportion of contract value awarded to local contractors. Instead, the most striking difference between the early 1990s and a decade later was the increase in the number of contractors working for the Coos Bay District, despite the decline in the district's procurement spending.

Jobs-in-the-Woods and Watershed Restoration

The JITW component of the Plan offered a platform for the BLM to address economic and ecological objectives of the Plan simultaneously, a goal summarized in the 1998 assessment of the Coos Bay District's JITW program (USDI 1998b: 3):

> The JITW program is designed to accomplish ecosystem restoration and, at the same time, provide economic assistance to the workers in the region covered by the Plan. This program brings all of the components of the Plan together: ecosystem management, economic development, and interagency coordination.

The JITW program provided the district's fish biologists and hydrologists with the combination of funds, labor, and community partners needed to engage in an intensive large-scale watershed restoration effort. In addition to funds, the district offered its community partners, notably local watershed associations and councils, in-kind support in the form of technical expertise in the design, implementation, and review of projects, access to material and equipment, and access to geographic information systems databases.

The Coos Bay District received $1.8 million dollars, not including overhead costs, for JITW projects in 1994, the year it began its JITW program. As indicated in figure 20, JITW funding declined steadily every year from 1994 to 1999, the year with the lowest level of funding ($728,000 with overhead costs included). The JITW funding rose slightly in 2000 and 2001, but dropped again in 2002 to $738,000.

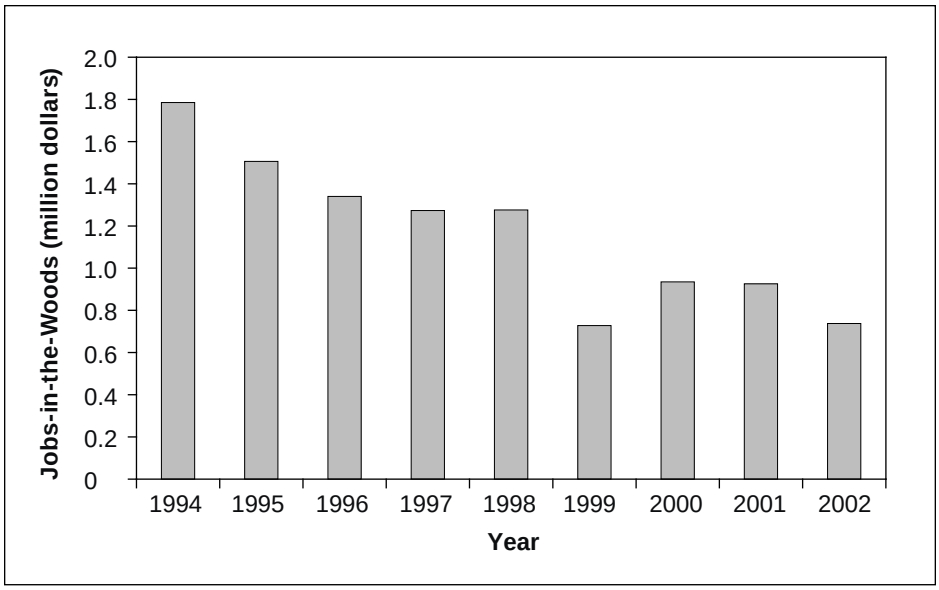

Figure 20—Jobs-in-the-Woods funding, 1994–2002. Data for 1994 and 1995 do not include overhead costs; the remaining years do. Not adjusted for inflation. Source: USDI 1996a–2004a.

We were unable to locate a breakdown on project category spending that covered the entire period. However, an assessment conducted in 1998 by the BLM (USDI 1998b) indicated that during the first 5 years of the program, the vast majority of funds (61 percent) went toward fish enhancement and passage projects, with road stabilization and repairs constituting the second largest category of spending (21 percent) (fig. 21).

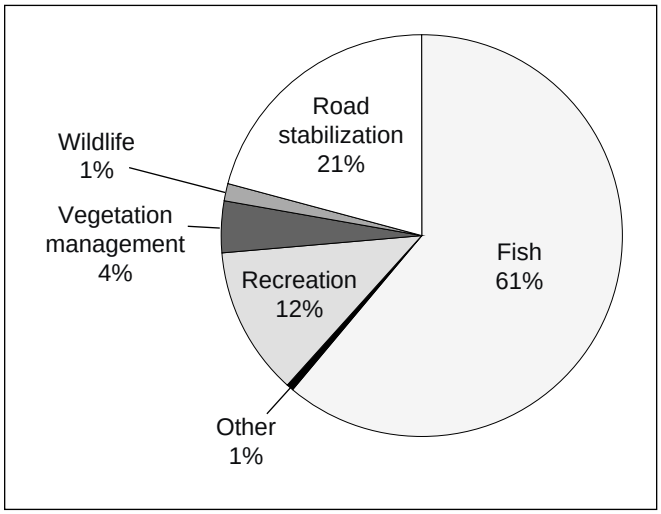

Figure 21—Coos Bay District distribution of Jobs-in-the-Woods funding, 1994–1998. Not adjusted for inflation. Source: USDI 1998b.

Over the years, JITW has funded a variety of projects, including stream enhancement, fish passage construction, road stabilization and upgrading, riparian habitat improvement, tree planting and release thinnings, snowy plover habitat enhancement, interpretive and recreation facilities construction and rehabilitation, and noxious weed inventory and management. Prior to 1997, most of the JITW work was accomplished through contracts with individuals and firms. In 1997, the Coquille Watershed Association hired a pilot crew of displaced timber and fisheries workers to carry out restoration work.

According to the Coos Bay District's annual program summaries for 1998–2002, during this 5-year period, the district's JITW program created 7,506 workdays, or roughly 6 full-time jobs per year. The district's JITW program developed assistance agreements to work with the Coos, Coquille, Southwest Coos, and the South Coast Coordinated Watershed Councils during the mid and late 1990s (USDI 1996a to 2000a). In 2002, the district established new assistance agreements with the Coos and Coquille Watershed Associations and Smith River, South Coast, and Umpqua Basin Watershed Councils. In addition to providing funding, district employees attend association and council meetings monthly and participate in technical field reviews. Employees of BLM also serve on the technical advisory committees for the South Coast and Umpqua Basin Watershed Councils.

The passage of the Wyden amendment in 1998, which permitted the district to spend JITW funds for restoration on private lands in situations where such activities would also benefit public lands, encouraged greater local participation in watershed restoration (USDI 1998a: 9). To spend these funds, the district developed templates for memoranda of understanding for cooperative restoration for work

conducted through watershed organizations and land use agreements for participating landholders. The memoranda of understanding and land use agreement system proved so successful that numerous federal units active in watershed restoration efforts requested templates so they could adapt the system to their areas (USDI 1998a: 9).

By 2001, the job demands associated with watershed restoration had grown sufficiently that the district hired a full-time restoration coordinator to manage both the JITW program and the BLM's involvement in the Title II program created under the Secure Rural Schools legislation. In late 2001, Curry, Coos, and Douglas Counties formed the Coos Bay RAC to prioritize and allocate the Title II funds (USDI 2002a: 14–15). The RAC makes all the decisions regarding these funds.

As noted in the contracts section above, the JITW program in the Coos Bay District supported two of the most successful watershed organizations in Oregon, the Coos and Coquille Watershed Associations. The employees who had worked with the watershed associations noted that a key reason for their success is that the associations formed before the Plan was implemented and thus had organizational visions, missions, and projects already developed when JITW funds became available in 1994.

The restoration coordinator noted that although the JITW program has been successful in the Coos Bay area, it has not provided the level of year-round employment that its designers had envisioned. Another district employee noted that a shortcoming of the JITW program is that it simply does not provide the district with the funds needed to adequately accomplish the work that needs to be done. Despite its shortcomings, the district is sufficiently satisfied with the way in which the JITW program has worked over the past decade to use it as a model for contracting the newly funded fuels reduction program.

Grants

The BLM has no programs analogous to the U.S. Forest Service's Rural Community Assistance Program (RCAP), in which the agency provides grants to local communities for resource conservation or economic diversification projects. However, two national forests—the Siuslaw and the Siskiyou—fall within the Coos Bay District's boundaries. Consequently many communities that relied on timber harvested from the district benefited from the availability of RCAP and other Northwest Economic Adjustment Initiative (NEAI) funds. A multiyear study conducted by Kusel et al. (2002) provided a comprehensive analysis of the strengths and weaknesses of the NEAI based on an indepth study of NEAI projects in 32 communities located within the Plan region. Time and funding constraints, as well as the much broader scope of this assessment, prevented us from carrying out a similar analysis for the NEAI investments that went into the case-study communities. Moreover, owing to gaps and inconsistencies in how the many agencies involved with the NEAI recorded and maintained their NEAI project databases (Kusel et al. 2002), it is difficult to accurately measure the amounts of NEAI funding that went into the Coos Bay region between 1994 and 2000, the 6 years that the initiative was in effect.

The Forest Service's RCAP database (USDA 2004) constitutes one readily accessible source of data on NEAI projects, and includes a list of RCAP-funded projects as well as amounts of funding leveraged for those projects from other agencies and organizations. The RCAP database lists 34 projects funded in the three Coos Bay case-study communities, including 16 in Greater Coos Bay, 5 in Greater Myrtle Point, and 13 in Greater Reedsport. The RCAP portion of the funding amounted to $1.8 million dollars, and an additional $4.3 million was leveraged for a total amount of $6.7 million for these 34 projects.

Because RCAP funds were often used to pay for planning and feasibility studies, as well as to cover gaps in the funding of much larger projects, the list of RCAP projects likely captures a large percentage of the projects funded through NEAI in the case-study communities. However, the database does not provide a very accurate assessment of the total amount of NEAI funds that went into the communities as it does not include several capital-intensive projects, such as construction of an administrative building for the Confederated Tribes of the Coos, Lower, Umpqua, and Siuslaw, funded largely through USDA Rural Development. It also does not include other NEAI-funded projects, such as worker retraining programs

at Southwest Oregon Community College and guaranteed small business loans. The details of several key NEAI-funded projects are discussed in subsequent sections of this report on community impacts and collaboration.

The Coos Bay District successfully sought several hundred thousand dollars in challenge cost share[10] contributions from the BLM since the early 1990s (table 5). Annual program report data from 1996 onward indicate that the district brought in an average of $96,000 in challenge cost share funding per year from 1996 through 2003. These funds helped support a variety of inventory and monitoring projects on BLM land, as well as community-based fisheries enhancement activities and environmental education.

Table 5—Challenge cost share funding, 1996–2002

Year	Amount[a]	Types of activities funded
	2003 dollars	
1996	49,372	Snowy plover monitoring and restoration
1997	74,841	Snowy plover monitoring and restoration
1998	40,156	Bryophyte and *Carex* inventories, snowy plover monitoring, elk habitat enhancement
1999	70,793	Inventories, nesting surveys, elk habitat enhancement, rare plant species reintroduction
2000	179,582	Inventories, fish surveys, fish habitat surveys, habitat enhancement, snowy plover study and protection, rare plant species reintroduction
2001	144,419	Environmental education, presettlement vegetation mapping, stream restoration, aquatic habitat surveys, fish surveys, snowy plover studies, rare plant species reintroduction
2002	157,085	Fish studies and monitoring, snowy plover monitoring and habitat protection, environmental education, presettlement vegetation mapping, rare species reintroduction
2003	51,000	Snowy plover population restoration, rare species reintroduction

[a] Adjusted for inflation.

Payments to County Governments

Prior to the Plan, the Coos Bay District made three types of annual payments to the counties: O&C payments for timber sale revenues generated from the revested O&C lands, Coos Bay Wagon Road (CBWR) payments for the reconveyed CBWR lands, and payments in lieu of taxes (PILT) for public domain lands. The amounts of these payments are calculated by using formulas fixed through legislation. Under the 1937 O&C Act, BLM retained 25 percent of the revenues generated from O&C lands, and the remaining 75 percent went to the counties. In 1953, the U.S. Congress amended the 1937 O&C Act so that 50 percent of the timber sale revenue was distributed to the O&C counties, while BLM retained the remaining 25 percent originally sent to counties to spend on road construction and reforestation on O&C lands. The portion allocated to the counties is distributed based on the portion of the O&C acres in each county. Counties receive a fixed percentage of the total O&C funds each year, regardless of which BLM districts collect the O&C land timber receipts.

Revenue sharing associated with timber receipts from CBWR lands is more complex. It is based on local property tax formulas and a severance tax. Coos County contains about 80 percent of the CBWR land and Douglas County contains the remainder. Counties can use the O&C and CBWR monies however they choose. The PILT are based on a formula based on the acreage of federal land in a county, the population, and prior-year revenue-sharing payments. Often these payments are not fully funded by Congress.

In 1993, Congress passed the Omnibus Budget Reconciliation Act, which provided an alternative payment to 72 counties in Washington, Oregon, and northern California affected by the drop in federal timber harvest and associated timber revenues that resulted from administrative and judicial decisions designed to protect the northern spotted owl. These payments were known as "spotted owl safety nets" or "owl guarantee payments." Under this Act, counties received a declining percentage of the average annual payment they received between 1986 and 1990. This

[10] Since 1990, the BLM has received appropriations to support a challenge cost share program aimed at implementing conservation projects in partnership with other agencies or organizations on BLM lands. Nonfederal partners must contribute at least 50 percent of the total project cost. The funds are used to support wildlife, fisheries, botany, and riparian projects.

percentage declined until 2003, when it reached 58 percent of the 1986 to 1990 average. The owl guarantee payments then expired.

In 2000, Congress replaced the spotted owl safety net measures with the Secure Rural Schools and Community Self-Determination Act, which expires in 2006. Under the Secure Rural Schools Act, counties receive money each year that is equal to the average of the payments received during the three highest years between 1986 and 1999. At least 85 percent of this money must be used to fund education and transportation projects (Title I). The remaining 15 percent is used to fund resource advisory committees and their activities (Title 2), and the general county budget (Title 3). Resource advisory committees were established by the act to promote collaborative relationships between the counties and the BLM and Forest Service, as well as to advise the Secretaries of Agriculture and Interior on the use of Title II money. They comprise 15 members that represent a balance between the environmental community, industry, commodity, and recreation interest groups, government officials, educators, and general members of the public. The RACs review and recommend projects and associated funding that are proposed by members of the public. These projects must focus on enhancing or restoring forest ecosystem health (including water quality), promoting land stewardship, or maintaining or improving existing infrastructure. The projects can occur on federal land, or on nonfederal land if they also benefit federal land.

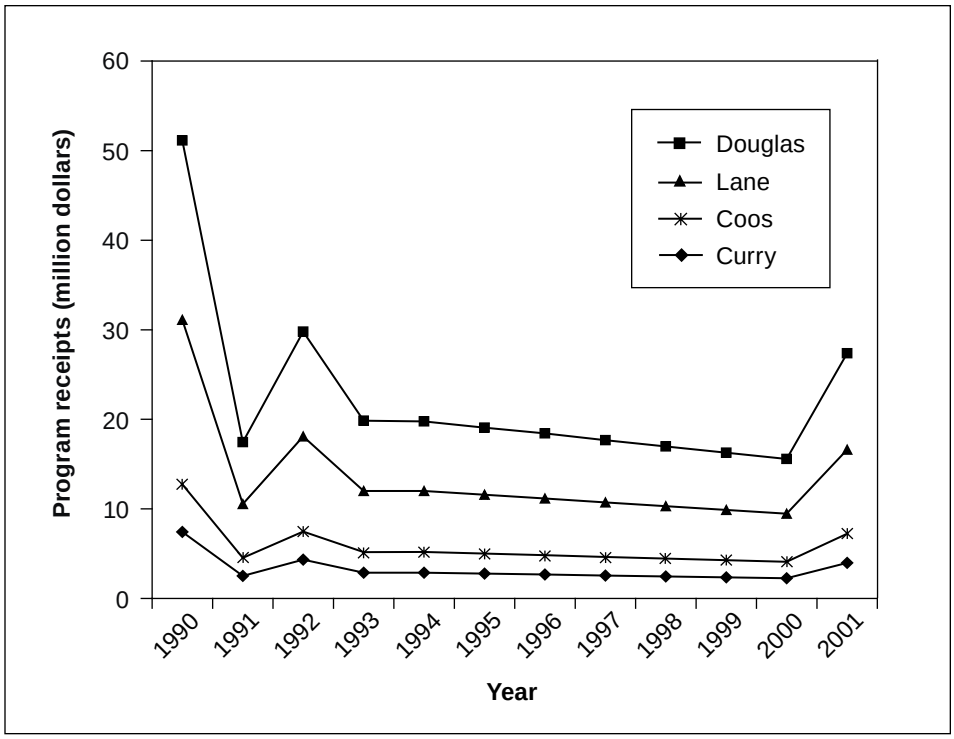

Figure 22—Oregon and California Railroad Company and Coos Bay Wagon Road allocations, 1990–2001 (with owl safety net). Not adjusted for inflation. Source: USDI 1990–2002.

Figure 22 depicts the generally downward trend in O&C and CBWR revenues for Coos and Curry Counties from 1990 to 2001. During 1991 through 2000, both counties received roughly half the revenues they had received in 1990 from O&C and CBWR lands. Figure 23 indicates what the payments would have been without the owl safety net legislation. The spotted owl safety net measures resulted in substantially higher payments to counties than they would have received through forest revenue sharing alone, in many cases at least doubling this amount. Under the Secure Rural Schools Act, annual payments rose sharply again to approximately two-thirds of the 1990s level, the highest level of payments since 1990.

As indicated in figure 24, PILT for both counties declined substantially from 1996 to 1999. Beginning in FY 2000, the PILT payments to Coos and Curry Counties have increased each year. However, PILT payments constitute a small fraction of the BLM's annual payments to the counties. Changes in PILT revenues thus do not substantially affect the ability of the counties to provide services. The effects of the decrease in county payments are discussed in the community chapters.

Payments to counties under the Secure Rural Schools Act have contributed a significant amount of money to

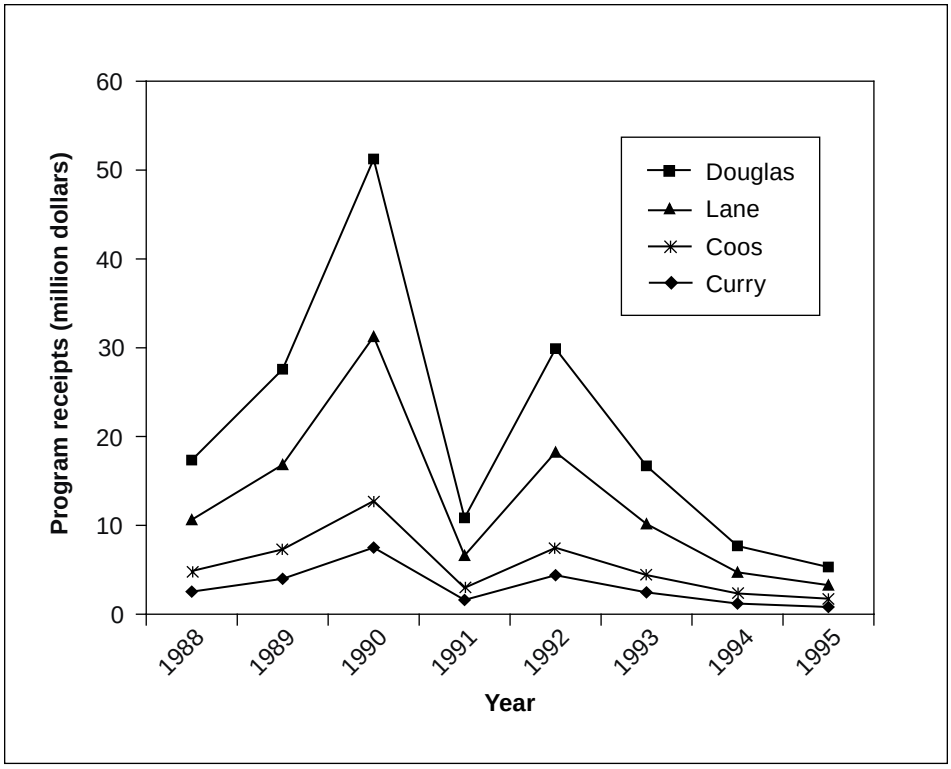

Figure 23—Oregon and California Railroad Company and Coos Bay Wagon Road allocations, 1988–1995 (without adjusting for owl safety net). Not adjusted for inflation. Source: USDI 1990–2002.

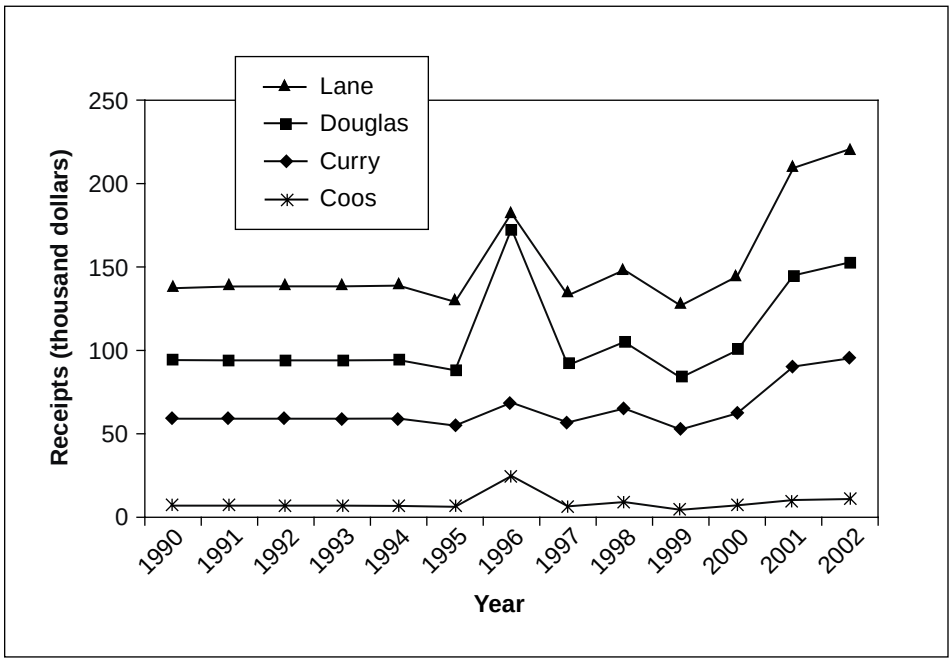

Figure 24—Payments in lieu of taxes. Not adjusted for inflation. Source: USDI 1990–2002.

support local resource-related projects in the Coos Bay area. The Coos Bay District participates in the Coos Bay RAC, which is composed of representatives from Coos, Curry, and Douglas Counties. The RAC identifies projects to be funded through Title II of the Secure Rural Schools Act. Each county provides funding for projects within the RAC's jurisdiction.

In 2002, the Coos Bay RAC approved projects in Coos County costing a total of $521,000. The projects included road and trail maintenance, fish passage, instream wood placement, noxious weed removal, restoration effectiveness monitoring, and natural history book purchases for the local library. The RAC allocated $616,000 to projects in Douglas County during 2002, including road maintenance, fish passage, and noxious weed removal. In 2003, the RAC invested nearly $500,000 in Title II funds into watershed restoration and monitoring in Douglas County, whereas most of the Title II funds allocated for Coos County projects went primarily toward paving county roads and repairing culverts. In 2003, the RAC allocated most of the Title II funds for Curry County, which amounted to $76,500, to watershed restoration and trail maintenance projects.

Collaborative Efforts

A review of the Coos Bay District's annual program summaries from 1996 to 2003 provides a sense of the extent to which the district has come to value the use of collaborative efforts to accomplish the Plan's objectives. Initially the report compilers mentioned partnerships in passing, focusing their narratives instead on specific outputs, such as acres covered by survey and manage work or number of new management plans developed for recreation and interpretive sites. Since 1998, however, report editors have listed collaborative stewardship efforts as a stand-alone component of the district's accomplishments in report introductions.

The district participates in collaborative efforts ranging from administratively mandated groups (provincial advisory committee) to legislatively mandated entities (RAC) to ad hoc organizations (Coos County Tourism Committee). The collaborations span the gamut from nation-to-nation memoranda of understanding with the two local tribes, to interagency collaborative efforts, to partnerships with local governments and national, regional, and local nongovernmental organizations. Examples of collaborative efforts undertaken between 1994 and 2002 are listed below.

Projects	Collaborators
Watershed restoration	Coos Watershed Association Coquille Watershed Association South Coast Coordinating Watershed Councils Smith River Watershed Council Umpqua Watershed Council Assistance Agreement with the Coos Soil and Water Conservation District
Fish and Wildlife management	Western Snowy Plover Working Team Oregon Bat Working Group Northwest Forest Plan Taxa Teams Dean Creek Elk Viewing Area Agreement
Special status plant management	Western Lily Introduction *Carex* Inventory Bryophyte Inventory
Recreation and tourism	Coos Regional Bikeway and Trails Partnership Cape Blanco Lighthouse Partnership Coos County Tourism Committee Coos Head Working Group
Environmental education	Oregon Coastal Environmental Awareness Network Umpqua Discovery Center Tsalila Participating Agreement Crest to Coast Interpretive League
Vegetation management	Density management research with Oregon State University (Cooperative Forest Ecosystem Research program) Noxious weed control research with USDA-Animal and Health Inspection Science (APHIS) and Cornell University
General resource management	Southwest Oregon Provincial Advisory Committee Resource Advisory Committee Coquille Tribe Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw

The following discussion touches briefly on district employees' perceptions of the district's collaborative efforts. We describe the collaborative efforts, as well as community members' perceptions of them, in more detail in chapter 5.

Interviews with employees whose tenure on the district preceded the Plan indicate that upper level administrators began shifting resources toward developing and expanding community and interagency partnerships in the late 1980s and early 1990s. According to one management team member who arrived on the district in the early 1990s, the federal injunction on timber sales prompted interest in broader and more collaborative forms of interaction between the district and other local, state, and federal entities:

> Several of us new folks all came at once. I was the last of the new team. The management held a futuring retreat about the time I got here. The DM said, "the world is changing, we need to figure out where we're headed." That's when we started bridge building with counties and looking for other forms of assistance.

A former timber sales administrator who shifted into watershed planning in the mid-1990s concurred that the district's efforts to reach out to a broader set of community stakeholders pre-dated the Plan. He attributed the shift to the local communities' attempts to come up with mechanisms for dealing with the possibility of state-level listing of salmon species as threatened or endangered:

> The wake-up call for watershed associations was the threat of having the salmon listed. The need arose outside of the government for us to become more involved. The salmon pre-dated the owl here as an impetus for community outreach. The community asked us for help. That happened at the same time as the Plan. It wasn't just a federal issue though, it was also a state and local issue. Through watershed associations we've been able to show that we can be team players, and that we will stay out of the way.

Numerous employees observed that the changes brought on by the Plan had opened up a variety of avenues and forms of collaboration. Many of the district employees viewed the shift into collaborative forms of working with a broad array of community partners as a permanent change in how the BLM will be doing business. For example, the weed control coordinator noted an expanding demand for partnering on weed control issues:

> Private landowners and BLM have to work together [for weed control]. The RAC money is coming in via our noxious weed authority. The dollars are now being channeled to the state and counties. People have been coming to us, both private and state organizations. We're doing public-private matches. The days of pure federal activities are closing.

Similarly, the fire program coordinator indicated that collaborative partnerships were likely to expand in the arena of fire prevention over the next few years. In addition, he noted that the watershed associations, which had laid the legislative groundwork for making it possible to use public funds to do projects on private lands, had played a key role in setting the stage needed to encourage broader collaboration in fire protection.

Volunteer Program

Owing to inconsistencies in the criteria used to track volunteer hours during the past decade and the lack of data on volunteer use prior to 1997, we were unable to develop an accurate quantitative picture of trends in volunteer opportunities since the implementation of the Plan. Information from the annual program reports for 1996, combined with interview data, however, indicates that Coos Bay District programs have provided substantial opportunities for volunteers interested in gaining or applying natural resource management skills. The recreation program, for example, has consistently provided opportunities for people interested in volunteering as campground hosts, doing recreational site maintenance, and presenting interpretive programs and tours at special sites. In addition, during the late 1990s and early 2000s, the recreation program offered opportunities for Resource Assistance for Rural Environments (RARE), AmeriCorps, and Northwest Youth Corps volunteers in trails planning and construction. The Wildlife, Fisheries and Botany program, the Soil, Water,

and Air program, and the Reforestation and Stand Development program have also taken on volunteers to assist with inventory, monitoring, and restoration projects. The district volunteer coordinator position is a collateral duty for one of the district employees, rather than a full-time position with dedicated funding.

According to the district's volunteer coordinator, most of the individual volunteers are long-term volunteers, who contribute 80 to 95 percent of the volunteer hours. She estimated that 50 percent of the volunteers on projects are locals, and most of the camp hosts at recreational sites are local residents. In most years, the district also has relied on county prison volunteers to clear the Dean Creek Elk Viewing Area of invasive species. Table 6 summarizes the number of volunteers, volunteer hours, and the estimated value of volunteer effort associated with program activities from 1997 to 2003. County prison volunteer hours were not included in the calculations.

Table 6—Coos Bay District volunteer data, 1996—2003

Year	Volunteers (individuals/groups)[a]	Volunteer	Estimated value[b]
	Numbers	*Hours*	*2003 dollars*
1996	—	—	291,858
1997	—	17,000	262,383
1998	—	37,600[c]	509,657
1999	68/2[d]	19,204	267,322
2000	37/1	8,600	117,269
2001	40/1	9,600	102,054
2002	33/1	21,000	377,129
2003	29/3	15,140	297,567

Note: — = no data.

[a] The district tracks volunteer activity carried out by large groups, such as Girl Scouts or Boy Scouts, as group efforts rather than as individual efforts.

[b] Adjusted for inflation.

[c] Volunteer hours likely included prisoners from a nearby county facility.

[d] The 1999 figure counted couples as two volunteers, whereas in succeeding years they were counted as one volunteer.

Source: USDI 1996a–2003a.

The number of volunteers working on the district each year varied greatly between 1997 and 2003. It is difficult to compare volunteer numbers across years because in some years county prison crews were included in the calculations and in other years they were not. The volunteer coordinator noted that BLM is reluctant to use volunteers for species surveys as volunteer-gathered data might not hold up as well in court. In addition, the increasing sophistication of restoration work has decreased the district's use of volunteers on reforestation and stream improvement projects.

Other factors affecting the availability of volunteer opportunities with the district include the complexity of the training required for many tasks and potential liability issues related to health and safety. The volunteer coordinator also observed that some residents still distrust the district and federal agencies in general, which may be another factor in the decline of the number of people willing to serve as volunteers over the years. However, she noted that the revitalization of "National Public Lands Day" had increased the number of local residents volunteering with the district and expressed optimism that the trend would continue.

Summary and Synthesis

The story of the Coos Bay District in the 1990s and early 2000s is first and foremost the tale of how the district transformed itself from a single-use resource management organization focused on timber production into a multiple-use resource management organization with full-fledged programs in recreation, environmental education, wildlife and fisheries management, watershed restoration, and cultural resources management. It accomplished this transformation while maintaining a reduced, but still respectable, level of expertise in timber management, silviculture, and forest engineering.

Interview and archival data indicate that upper level managers in the Coos Bay District laid the foundation for this transformation in the late 1980s and early 1990s. With new management visions already partially developed, strong administrative support, a steady level of funding, and a relatively minor decline in staffing, the district was able to capitalize on the opportunities that the Plan provided to construct a new identity for itself as a multiple-use resource organization.

This transformation did not take place easily, nor was it accomplished without considerable internal struggle. Our interviews with district employees suggest that they are still

struggling with what the district's identity is and should be. Nonetheless, the evidence on the ground indicates that a significant set of changes have taken place with respect to how the district manages the lands in its charge. Whatever the Coos Bay District may have become, its employees clearly no longer identify themselves as being part of the "lean, mean, well-oiled timber machine" that characterized the organization in the 1970s and 1980s.

Assessing the trends in socioeconomic benefits flowing from the district as it has gone through this transformation and implemented the Plan is a complex task. The statistics on timber harvest are clear enough: the average annual volume of timber harvested on the district declined from roughly 200 mmbf in the mid-1980s to 15.6 mmbf annually from 1995 to 2002. Even if the ASQ of 32 mmbf (later modified to 27 mmbf) for the Coos Bay District had been met during the late 1990s and early 2000s, the volume of timber harvested would still have been close to tenfold less than the amount harvested in the mid-1980s. However, a point to consider is that these lower ASQs represented more timber volume than what the Coos Bay District would have been able to offer for sale if it had not put into place a management plan that the federal court agreed adequately protected the northern spotted owl under the provisions of the ESA.

The statistics for salvage wood also show a sharp decline during the 1990s. The volume of salvage wood and firewood sold on the district dropped from an average of 164,000 ft^3 between 1987 and 1991 to an average of 42,000 ft^3 between 1996 and 2002. The unavailability of salvage wood, which tended to consist of larger diameter logs, coupled with the shut-down of regular timber sales in old-growth stands, meant that most of the 20 or so remaining mills dependent on larger diameter timber could no longer continue their operations. At the same time, revenues to the BLM for the sale of these products declined from a high of roughly $82,000 in 1996 to less than $2,000 in 2000 and 2002.

The decline in the volume of timber and salvage wood offered by the district unquestionably contributed to a loss of local jobs in the forest products industry, as well as associated service and retail jobs. However, wood products industry history strongly suggests that the contraction in forest-products-related employment was already in full swing in the 1970s and was linked primarily to mechanization, off-shoring of processing operations, and a shift toward the use of smaller diameter wood. Similarly, the beginnings of the small mill closures can be traced back to the 1960s and 1970s, well before the Plan and even before the ESA, when individually and family-run mills relying on older equipment and with limited access to capital for retooling found it increasingly difficult to compete against the larger, better equipped mills. The historical trends thus suggest that forest industry jobs most likely would have declined and that many mills most likely would have shut down in the Coos Bay area during the 1990s even if the ASQ under the Plan had been met or set higher. However, if the district had been able to provide the target ASQ, the transition would most likely have been more gradual and thus less disruptive of people's lives and finances.

The trend data for nontimber forest products other than salvage and firewood show a mixed picture. The number of permits issued for floral greens rose through the late 1990s and then fell off. Wild mushrooms permits fluctuated between 1996 and 2002, with no clear trend. The number of bough permits declined through the late 1990s, but rose sharply again to previous levels in 2002. The district stopped selling permits for moss and burls, two products found primarily in riparian reserves. Latinos purchase the majority of the floral greens and bough permits. It is likely that access to NTFPs is an important element in their ability to piece together year-round livelihoods. Recognizing the important role that NTFPs play in the household economies of lower income residents, the district has opted to continue allowing nontimber forest products harvesting on late-successional reserves, rather than restricting commercial harvesting in such areas.

Access to BLM land for grazing remained stable during the 1990s and early 2000s. Similarly, demand for and access to commercial mining sites also remained unchanged during the past decade. The district continued to make recreational mining opportunities available at the same levels as before the Plan. Although the instream recreational mining season has shortened since the early 1990s, the shorter

season is due to state-level restrictions to protect fisheries rather than to changes brought about by the Plan.

Some community members complained about road closures limiting their access to hunting sites. However, the road closures they refer to appear to be due primarily to private landowners gating off roads that they had previously left open and that provided the general public with de facto open access to public lands. The district itself has shut down or decommissioned only 5 percent of the miles of road open to the public prior to the Plan. According to interview data, the availability of deer and elk, the two major game animals on the district, has not changed during the past decade. The local sport fisheries, however, have improved since the early 1990s. However, many people attribute the increase in the number of previously threatened or endangered species of game fish to changes in ocean conditions rather than to changes in management brought about by the Plan.

In brief, the key changes in terms of forest commodity outputs from the district during the past 10 years include a tenfold drop in the volume of timber harvested, a fourfold drop in the volume of salvage and firewood sales, and the elimination of legally permitted moss and burl harvests. Additionally, permitted sales of floral greens, boughs, and wild mushrooms have either increased or fluctuated with no clear trend, while the off-take of other forest products, such as forage, minerals, and game has not undergone substantial change.

The Coos Bay District's budget remained relatively stable between 1993 and 2003 despite the drop in the volume of timber harvested. The number of jobs in the district declined in the 1990s, but stabilized at roughly 160 full-time permanent positions in the early 2000s. The district compensated for the loss in funding for full-time permanent positions by shifting people with timber sales backgrounds into different positions, such as recreation and watershed restoration. In addition, the 15-percent drop was partially compensated for through an increase in seasonal jobs, particularly in the late 1990s.

The Coos Bay District thus continued to provide relatively high-paying family wage jobs at a time when "the neighboring Forest Service offices experienced drastic reductions in their workforce. Consequently, the communities served by the Coos Bay District continued to benefit from the presence of a relatively highly educated and well-paid cadre of natural resource professionals and administrative support staff within their midst.

The Coos Bay region benefited from three economic mitigation measures associated with the Plan: owl payment guarantees, NEAI grants, and JITW funding. County payments declined through the mid and late 1990s, but the drop occurred gradually rather than all at once owing to the owl adjustment payments. In 2001, the level of county payments nearly doubled as a result of the decoupling of county payments from timber receipts under the Secure Rural Schools Act. The BLM did not have a program for funding economic diversification through the NEAI. However, the district played an important role in helping local organizations acquire NEAI funds from other agencies. In addition, the district helped community groups leverage small amounts of funding through the BLM's Challenge Cost Share program.

From an economic mitigation standpoint, the district also contributed significantly in the form of several million dollars for watershed restoration contracts carried out through the JITW program. The majority of these contracts went to locally based contractors working independently or through local watershed associations. Although the program employed displaced timber and fishery workers, the number of full-time jobs provided was insignificant relative to the demand for woods-based employment.

The district's procurement contracts for activities such as site preparation and replanting dropped in the early 1990s, rose in the mid and late 1990s, and dropped sharply again in the early 2000s. The increase in contracting during the mid and late 1990s is likely linked to the availability of emergency funds for repairing damage caused by winter storms in 1996–97. From 1990 to 2002, the district awarded an increasingly larger percentage of procurement contracts to firms based in the Willamette Valley. The pattern of the district's contracting also changed during this time, from fewer larger contracts issued in the early 1990s to more, but smaller value contracts awarded in the early 2000s.

In the realm of noncommodity forest uses, the district now offers a much more diverse set of opportunities than it did prior to the Plan, particularly in recreation and environmental education. In the 1990s, district recreation employees refurbished the existing 11 managed recreation sites and added 4 new sites. They expanded the miles of maintained trail from 1/2 mile prior to the Plan to 26 miles by 2000. In addition, the district has greatly expanded the number of nationally significant cultural and natural history interpretive sites that it operates, either alone or in partnership with community groups or federal and state agencies. The district's revenues from its recreational and interpretive sites are small (approximately $100,000 per year). However, many district employees and community members stated that the rehabilitation of existing sites and the development of new sites had added an important dimension previously missing from the region's tourism infrastructure.

Many of the district's specialists, including recreation, cultural resources, fisheries, wildlife, botany, geology, invasive species, and others, also contributed during the 1990s and early 2000s to the development of a wide-ranging and regularly offered set of environmental education opportunities for local school children, science teachers, extra-curricular youth programs, and adult learning programs, such as ElderHostel. Although these activities bring in no revenue to the district, and economic benefits to the community of such activities are difficult to quantify, many community members interviewed indicated that they and their families had benefited from such programs and would like to see them continue.

Also difficult to quantify, but nonetheless important, are the socioeconomic benefits associated with the district's investments in the production of a much more extensive body of scientific knowledge about local forest and aquatic ecosystems. As a result of the survey and manage program, for example, district biologists now have a much more detailed understanding of the range of plants, bryophytes, fungi, mammals, birds, reptiles, and amphibians present on the district's holdings. These data provide a foundation from which the district can develop scientifically credible methods for assessing the effects of various vegetation management practices on a broad range of forest organisms. Likewise, stream surveys and fish population monitoring work have provided data necessary for evaluating the effects of various watershed restoration techniques.

In the long run, the capacity to acquire and analyze such data has the potential to improve the district's ability to manage its holdings sustainably. Additionally, the district serves as an important repository of scientific knowledge that is potentially available to community groups, local governments, and state and federal resource management agencies. In the short run, biological and botanical inventory and monitoring programs also have enhanced the quality of the interpretive programs the district provides to the local communities.

A key factor in the district's transformation into a multiple-use resource agency was the effort on the part of upper level administrators to encourage district employees to work with stakeholders outside of the forest products and engineering arenas. Since the early 1990s, district employees have collaborated closely with a variety of groups, ranging from watershed associations, to interagency wildlife management teams, to county tourism planning committees. The socioeconomic benefits of the district's substantially increased investment in these collaborative partnerships from the early 1990s onward are important but difficult to measure. We provide a detailed discussion of the benefits of district participation in several locally significant collaborative efforts in a later section of this report.

Looking at the trend data for a variety of resources and opportunities available through the Coos Bay District over the past decade leaves one with a decidedly ambiguous picture. On the one hand, statistics on timber volume offered, sold, and harvested tell a story of a dramatic decline in availability of wood products from the district's holdings. In a region where the forest products industry has dominated the economy for over a century, such a drastic reduction in the industry's primary raw material inevitably resulted in layoffs, mill closures, and the associated economic and social distress that comes with people losing their jobs, their livelihoods, and their sense of identity. Although they are important mitigating agents of the economic distress,

the owl payments, NEAI grants, and JITW funding that accompanied the Plan could at most help ease communities through the difficult process of transitioning from being primarily wood production and processing places to something else.

On the other hand, the data about the district's recreation, cultural resources, environmental education, wildlife, fisheries, special status plant, and watershed restoration activities during the same period tell a story of the emergence of a much more broadly based resource management infrastructure and a broader range of connections between the district and local community members. This more diverse structure may be necessary if the communities in Coos Bay are to develop the economic resilience needed to prosper in a world where globalization, mechanization, and outsourcing have undermined the ability of the Pacific Northwest to compete in global timber markets.

Continue to Part B

Chapter 4: Community-Level Change, 1990–2003

Introduction

To assess the socioeconomic impacts of the Northwest Forest Plan (the Plan) on communities in the Coos Bay region, it is helpful to understand the local economic context in which the Forest Service and Bureau of Land Management (BLM) developed the Plan. During the 1980s, the counties within the boundaries of the BLM Coos Bay District relied heavily upon timber receipts for their budgets. From 1984 through 1988, Oregon and California Railroad Company (O&C) and Coos Bay Wagon Road (CBWR) revenues from timber harvesting on Coos Bay District holdings averaged $3.6 million in Coos County and $2.3 million in Curry County (USDI 1994: 3-122 and 3-123). Unlike timber harvest receipts from the Forest Service, which are placed into school funds, the O&C and CBWR receipts go into the counties' general fund (USDI 1994: 3-122 and 3-123). During fiscal year 1990-91, for example, O&C payments made up 19 percent of Coos County's total budget and 35 percent of its general fund (USDI 1994: 3-127); in Curry County they constituted 11 percent of the total county budget and 44 percent of its general fund (USDI 1994: 3-127).

Local taxing districts, such as the Ports of Coquille and Coos Bay and school districts, were also affected by the decline in revenues from the CBWR lands. The Port of Coquille and Coquille School District 41, for example, historically received 10 percent of their budgets from CBWR revenues (USDI 1994: 4-132). In addition, the decrease in revenues from timber harvesting on public domain lands reduced the funds available to counties for constructing and maintaining roads and bridges (USDI 1994: 4-132). The owl guarantee safety payments discussed earlier in chapter 3, helped cushion the decline in timber revenues going to the counties. Nonetheless, the drop in timber revenues along with declines in timber-related jobs and personal incomes had a visible impact on Oregon's south coast economies.

The decline in timber receipts took place at a time when many area mills had reached the limits of their competitiveness in the international timber economy. When the Plan took effect, the major private forest landholders in the region included Weyerhaeuser, Menasha, Moore Mill and Lumber, Georgia Pacific Corporation, South Coast Lumber, Westbrook, and the John Hancock Company (USDI 1994: 3-123). Additionally, a variety of medium-size and large mills still operated in south coast communities. These included sawmills owned by Roseburg Lumber (Coquille), Weyerhaeuser (Coos Bay), and Rogge Forest Products (Bandon), as well as paper mills operated by International Paper (Gardiner) and Weyerhaeuser (Coos Bay). By 2003, the only major mills still operating in the Coos Bay region were Roseburg Lumber's operation in Coquille and facilities run by Georgia Pacific (Coos Bay) and South Coast Lumber (Coos Bay).

To offset these changes, in the early 1990s the communities in the Coos Bay area had already embarked on efforts to bring in new industries, such as a nickel ore unloading and drying facility, and to expand existing industries, such as tourism and recreational fishing (USDI 1994: 3-113, 3-120, 3-121). The following section describes some of the key socioeconomic changes that took place between 1990 and 2004 in Greater Coos Bay, Greater Myrtle Point, and Greater Reedsport, and assesses the extent to which the Plan may have contributed to these changes. Each community description is divided into the following subsections: (a) an overview of the community's historical context, (b) a description of socioeconomic changes that took place in the community between 1900 and 2004, (c) community responses to change and the role of district assistance, and (d) changes in the relationships between the communities and the district.

Greater Coos Bay

For more than a century, the twin cities of Coos Bay and North Bend have dominated Oregon's south coast economy and politics. The two cities are located on the shores of the protected bay formed by the Coos River estuary (fig. 25), and their inhabitants benefited from the economic activities made possible by proximity to one of the few deep-water harbors along the Pacific Northwest coast. Formerly physically as well as politically separate entities, over the years the two cities have intermingled to the point where the geographic boundary between them is difficult for an outsider to identify. Politically the two cities remain distinct, but economically and culturally they have become indistinguishable. For all practical purposes, the formerly outlying

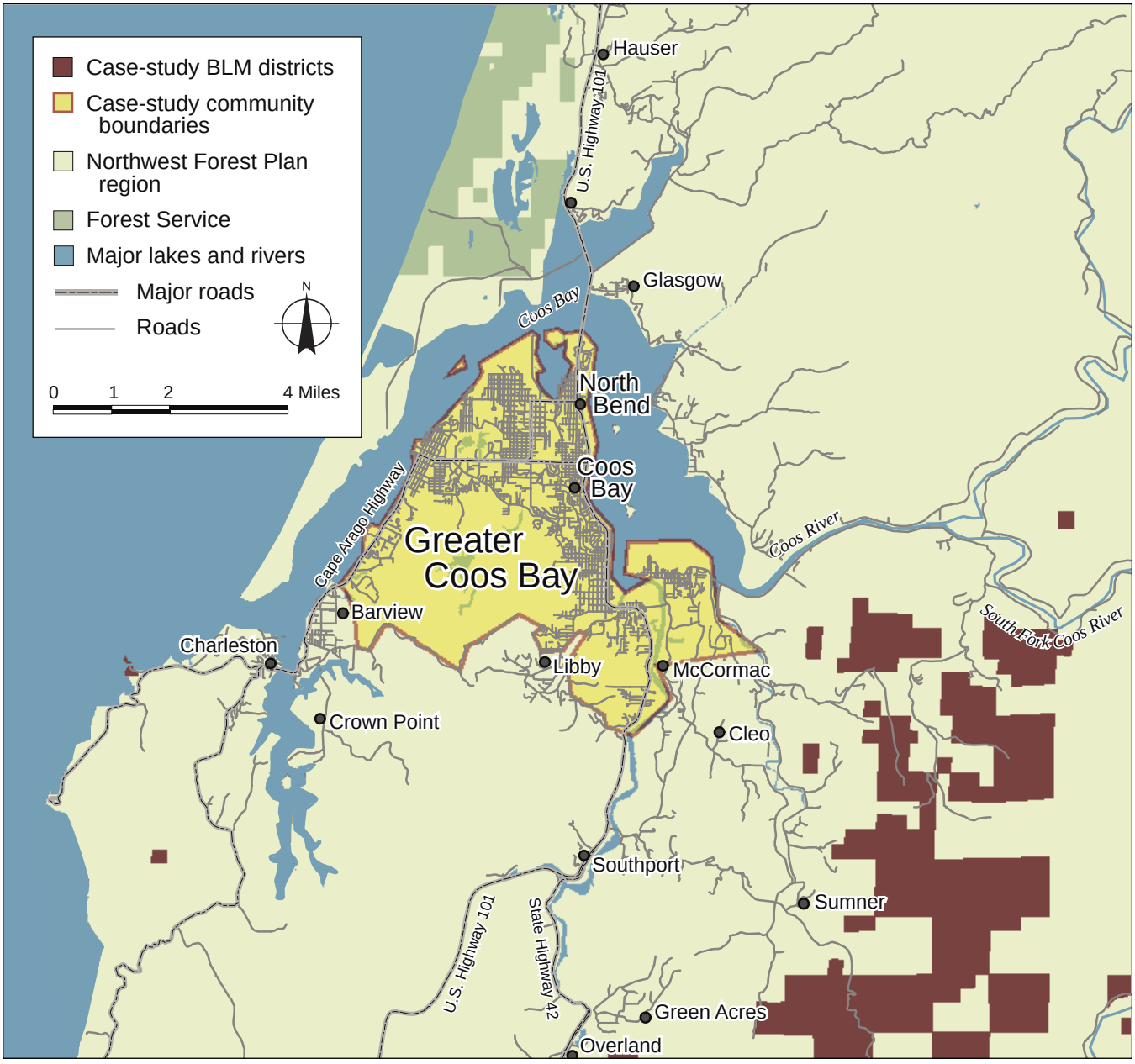

Figure 25—The Greater Coos Bay Area case-study community boundaries.

towns of Empire and Bunker Hill also have become part of North Bend-Coos Bay, forming a socioeconomic unit that we have labeled "Greater Coos Bay."

The nearby fishing village of Charleston also has strong ties to the Greater Coos Bay area, but with its economic origins in tourism and commercial fishing rather than logging and wood processing, its cultural and economic character is sufficiently distinct that we opted to exclude it when bounding the study site. Nonetheless, Charleston's coastal location and position as the stepping-off point for tourists attracted to the scenic headlands of Cape Arago, the internationally recognized Shore Acres Garden, and the South Slough National Estuarine Reserve, make it an important player in Greater Coos Bay's adaptation to the decline of its forest products economy. Indeed, a number of residents of the towns of Coos Bay, North Bend, and Charleston are

increasingly beginning to think of the three towns as components of a cohesive sociopolitical entity known locally as the "Bay Area."

With a combined population of 28,596 in 2000 (U.S. Census 2000), Greater Coos Bay is the largest settlement in Coos County. The towns of North Bend and Coos Bay serve as the trade and services center for Oregon's south coast. They offer residents many of the amenities of much larger towns in the Willamette Valley and Puget Sound without the population numbers, noise, and traffic snarls that come with dense population centers. Residents thus have access to a large variety of retail and wholesale stores, medical facilities, a community college and a marine biology institute affiliated with the University of Oregon, numerous government services, a range of transportation and shipping facilities, a world class export port, and a thriving arts community.

In the 1950s, Weyerhaeuser became the dominant force in Greater Coos Bay's lumber market.[1] However, the Coos Bay timber economy has always retained an open character in that it supported, and continues to support, the presence of a diverse set of logging and milling operations. These range in size and scale from multinational companies, such as Weyerhaeuser, Georgia Pacific, Plum Creek, and Menasha, to regional companies, such as Lone Rock Timber and Roseburg Forest Products, to local companies, such as South Coast Lumber. In addition, Greater Coos Bay wood processing facilities have historically produced a wide variety of products, including raw logs, dimension lumber, plywood, veneer, pulp, and wood chips. Thus, over the years, Greater Coos Bay enjoyed a measure of resilience to downturns in the timber economy that timber-dependent communities with less diversity in terms of numbers, types, and scales of wood processing operations did not.

[1] At the time we conducted the fieldwork for this study, Weyerhaeuser had no softwood lumber processing facilities on the south coast. However, the company does operate a small hardwood mill about 5 miles south of Coos Bay. Weyerhaeuser sells its timber on the open market to mills that compete with Weyerhaeuser mills in the Willamette Valley. Weyerhaeuser no longer plays a part in the local lumber market, but continues to have a fairly significant role in the log market. Menasha and Plum Creek, two other large private landholders in the Coos Bay area, manage their timber holdings in a similar fashion to Weyerhaeuser. They sell their logs on the open market and do not have log-processing facilities in the area.

Community Change and the Effects of Forest Management Policy

Drawing upon census data, interviews of community members, and planning documents, the following section describes the changes that took place in the social and economic fabric of Greater Coos Bay between 1990 and 2004.

Demographic indicators—

The population of Greater Coos Bay and Coos County increased very slightly from 1990 to 2000 (table 7). This contrasts with a sharp increase in population in the buffer block group aggregates (BGAs), which include areas such as Medford, Ashland, Roseburg, Florence, and Eugene. Community interviewees noted, however, that comparing the change, or lack thereof, in total population for Greater Coos Bay and Coos County misses the crucial population dynamic of the 1990s, which was the outmigration of younger, largely blue-collar workers and families and the immigration of older retirees or professional service workers. As one county official summed up the situation, "The population in the area held flat, but the families are moving out—there's been a shift to retired people." Another county official noted that this dynamic is reflected in the rise in the number of deed transactions during the past two decades.

Table 7—Population and median age in Greater Coos Bay, 1990 to 2000

Indicator	1990	2000	Change
			Percent
Total population, CBGA	27,851	28,596	2.67
Total population, county	60,273	62,779	4.16
Total population, buffer	141,084	151,952	7.70
Median age, CBGA	36.2	40.1	10.77
Median age, county	37.6	43.0	14.36
Median age, buffer	38.9	44.9	15.42

CBGA = census block group aggregate.

As evidenced by the following quotes from community members, the exodus of population started a decade before the Plan and at least 5 years before the Dwyer injunction:

> In terms of population trends, Weyerhaeuser closed in the 1990s. People were leaving at that point. We

> just didn't have the jobs here. In the early 1980s we had another downturn when a big mill shut down.
>
> I came to the Coos Bay area in 1983. Things were even worse than they've been since.[2] I've watched it get better. That had to have been the low point.

The difference this time, and a source of bitterness for one county leader as well as many of his fellow citizens, is a belief that the government had the power, if not the political will, to take steps to mitigate the exodus in the 1990s by putting more federal timber on the local market:

> In 1980 we had an exodus—not due to the ESA or the Plan, but to the market—but this one was avoidable. It was beyond our control, but it should have been in someone's control to allow this harvest.

Perhaps the most striking changes in the population figures for Greater Coos Bay between 1990 and 2000 are the shift upward in median age, sharp declines in the lower age categories, and a sharp increase in the percentage of population between the ages of 45 and 64. As indicated in table 8, the median age of the population in Greater Coos Bay rose from 36 to 40 years, an increase of 10.8 percent. Although high, the increase is lower than the increase in Coos County overall and the surrounding census BGAs. The median age for Greater Coos Bay in 2000 was also several years younger than the median age for both the county and the buffer BGAs.

The age distribution pattern for Greater Coos Bay also changed from 1990 to 2000 (table 8), with sharp declines in the 0 to 4 (-20 percent) and 20 to 29 (-22 percent) age groups and substantial growth (+32 percent) in the 45 to 64 age group. The change in age distribution for Greater Coos Bay is nearly identical to changes for the county and the buffer BGAs.

One likely explanation for Coos Bay's slightly lower median age and the lower rate of increase in the median age relative to surrounding communities is the relative abundance of jobs in Coos Bay's more diverse and much larger economy. Another contributing factor is the return of members of the Coquille Tribe and the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw following federal recognition and the passage of tribal self-governance legislation in the late 1980s and early 1990s.

Many community interviewees highlighted the theme of a gradually aging population as a key change in their community. They also observed that the shift in median age reflected Greater Coos Bay's transformation from a working class mill town into a service and retirement center. The transformation involves both a push and a pull factor. Not only are younger people moving out, leaving an older indigenous population, but also older people are moving in, attracted by the medical services the bay area has to offer.

[2] In the late 1970s and early 1980s, many of the larger mills in Coos Bay had downsized and smaller mills had shut down owing to a sharp decline in the demand for construction materials as a result of rising interest rates and a drop in the Nation's housing starts. In 1983, Coos Bay was still in the depths of a severe economic downturn.

Table 8—Age distribution changes in Greater Coos Bay, 1990 to 2000

	Age distribution					
Year and area	**0–4**	**5–19**	**20–29**	**30–44**	**45–64**	**65 and up**
1990 CBGA	1,980	5,792	3,828	6,156	5,469	4,626
2000 CBGA	1,578	5,985	3,007	5,834	7,234	4,958
Change (percent)	-20.30	3.33	-21.45	-5.23	32.27	7.18
1990 county	3,867	12,551	6,867	13,516	13,064	10,408
2000 county	3,047	12,256	5,625	12,362	17,516	11,973
Change (percent)	-21.21	-2.35	-18.09	-8.54	34.08	15.04
1990 buffer	9,056	28,685	14,524	30,787	31,937	26,095
2000 buffer	7,026	29,038	12,086	27,950	43,081	32,771
Change (percent)	-22.42	1.23	-16.79	-9.21	34.89	25.58

CBGA = census block group aggregate.

The Greater Coos Bay's population is 90 percent Caucasian, with only 3 percent Native American and the remaining 7 percent a mix of Asian, African American, and other racial groupings (fig. 26). This pattern of racial distribution is similar to that of the county and the buffer BGAs. The data for Hispanic ethnicity, however, indicate that the percentage of inhabitants reporting Hispanic origins increased at a much higher rate in Greater Coos Bay relative to the county and buffer BGAs (table 9).

Interviewees noted that many Latinos are settling permanently in Coos Bay, as reflected in the opening of a number of new Latino-operated businesses ranging from mini-markets to restaurants to antique stores. Similarly, tribal investment in businesses, such as the Mill Casino, a cranberry bog operation, and infrastructure, such as a housing subdevelopment and tribal administrative service offices, have provided an incentive for tribal members to return to Greater Coos Bay.

Table 9—Percentage of Greater Coos Bay population that was Hispanic, 1990 to 2000

Ethnicity and area	1990	2000	Change
		Percent	
Hispanic, CBGA	2.69	4.17	55.02
Hispanic, county	2.39	3.17	32.64
Hispanic, buffer	2.41	3.17	31.54

CBGA = census block group aggregate.

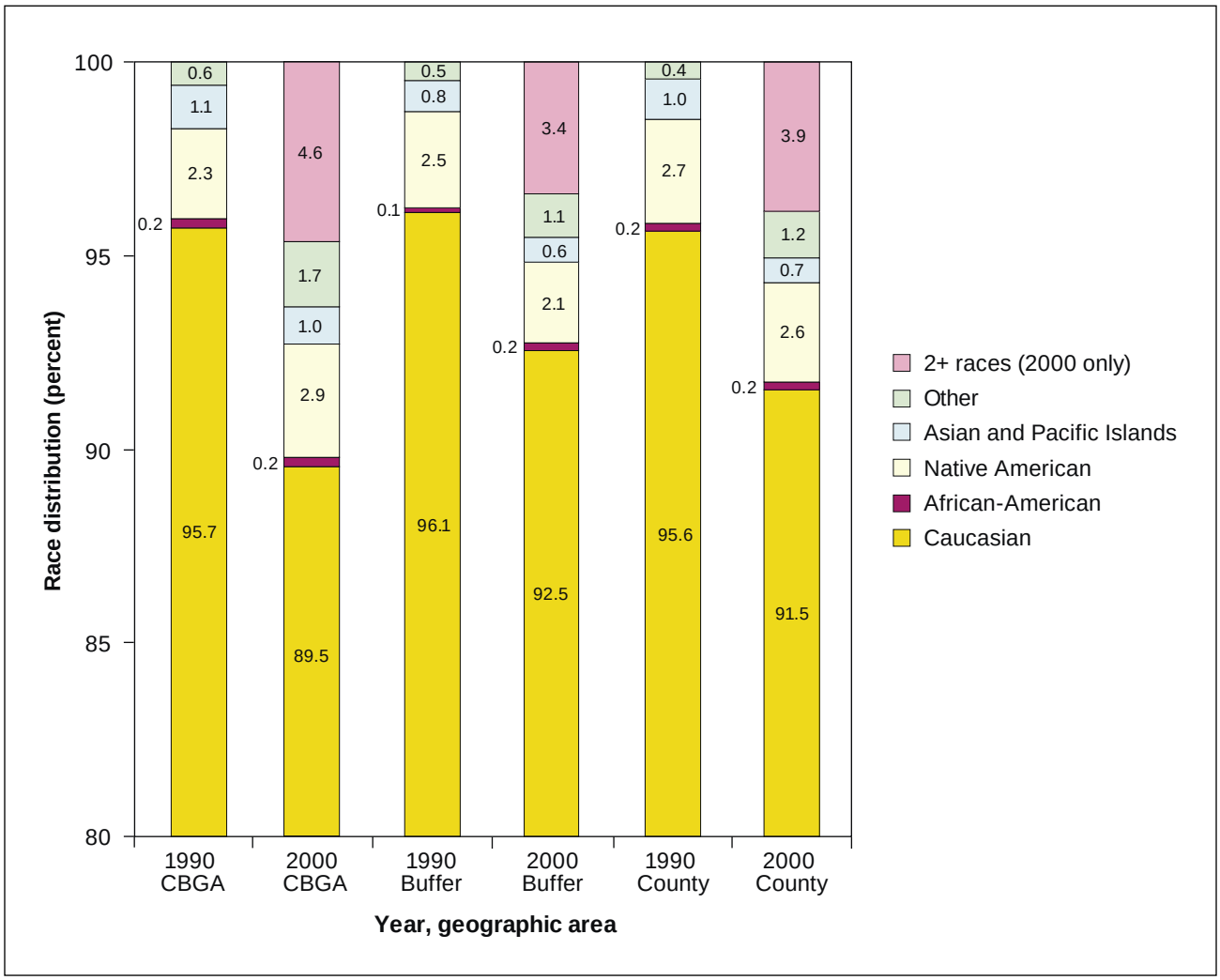

Figure 26—Race distribution North Bend-Coos Bay (Greater Coos Bay), Coos Bay District 10-mile buffer, and Coos County. CBGA = census block group aggregate.

Education indicators—
School enrollment in Greater Coos Bay increased roughly 5 percent from 1990 to 2000, somewhat higher than the overall increase of 2 percent for the county, but smaller than the 8-percent increase experienced in the buffer BGAs (table 10). Educational levels of the population also increased slightly during this period, with 6 percent more residents reporting having completed high school in 2000 and 14 percent more reporting having attained a bachelor's or higher degree. Interviewees attributed this increase to the outmigration of workers with limited education and the inmigration of retirees and service professionals with higher levels of education. The Greater Coos Bay population's level of educational achievement currently is identical to county and buffer BGA levels (i.e., roughly 82 percent completing high school and 15 percent with college-level degrees).

Table 10—Education Data for Greater Coos Bay, 1990 to 2000

Indicator	1990	2000	Change
			Percent
School enrollment, CBGA	5,275	5,554	5.29
School enrollment, county	11,448	11,691	2.12
School enrollment, buffer	25,682	27,755	8.07
		Percent	
Completed high school, CBGA	77.16	81.51	5.64
Completed high school, county	75.50	81.56	8.03
Completed high school, buffer	76.06	81.62	7.31
Bachelor, graduate, professional degrees, CBGA	13.64	15.53	13.86
Bachelor, graduate, professional degrees, county	12.30	15.03	22.20
Bachelor, graduate, professional degrees, buffer	12.48	14.85	18.99

CBGA = census block group aggregate.

A report by the Oregon School Board Association indicates that student enrollment in the Coos Bay School District (which does not include data on the North Bend School District) declined 10 percent between 1995 and 2002 (ECONorthwest 2002: 1-11). In addition, the report indicates that 22 percent of the students were from households living in poverty, a figure much higher than the state level of 14 percent. Prior to Measure 5,[3] the Coos Bay School District's funding depended heavily on voter-approved tax levies (ECONorthwest 2002: 2). Once Measure 5 passed, the district's revenues increased considerably, as state funding was much more consistent than the local voter-approved funding had been. However, state funding is tied to the number of enrolled students. The Coos Bay District's revenues from the state thus dropped off sharply during the mid-1990s as families with school-aged children moved from the area (ECONorthwest 2002: 3). At the same time, local funds became less available in part because of restrictions on property tax rates voted in with Measure 5, and in part because of declines in timber receipts earmarked for schools from federal lands (ECONorthwest 2002: 3). To address the funding declines, the Coos Bay District has closed three elementary schools and increased fees for sport activities (ECONorthwest 2002: 3).

Economic indicators—
The unemployment rate in Greater Coos Bay (9 percent) was roughly the same in 2000 as it had been in 1990 (fig. 27). The county and buffer BGA unemployment rates were also 9 percent in both years. The relative stability in the unemployment rate contrasts sharply with most community members' perceptions that the unemployment rates increased dramatically during this period. When asked about the difference between local perceptions and the unemployment statistics, interviewees noted several possible explanations. One explanation they offered was that eligibility for unemployment benefits has expired for some workers, and thus they no longer show up in the statistics even though they are still looking for work. Another

[3] Before 1990, Oregon's schools relied primarily upon local funding generated through property taxes and levies for funding. In November 1990, Oregon voters passed Measure 5, which established a limit on the amount of property tax that could be levied to support K-14 education. The state legislature provided a safety net to support those school districts that lost funding through the passage of Measure 5. Since then, the state provides funding to schools by using a weighted average daily membership formula to calculate allocations for each school district. Although local communities can pass bond measures to fund school construction and repairs, they have limited ability to raise property taxes as a mechanism for generating school operating funds (George 2003).

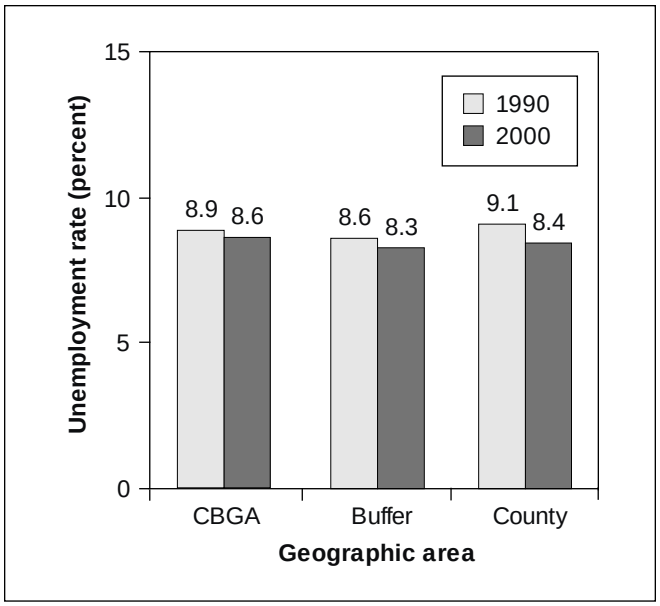

Figure 27—Unemployment rate North Bend-Coos Bay (Greater Coos Bay), Coos Bay BLM District 10-mile buffer, and Coos County. CBGA = census block group aggregate.

explanation articulated by interviewees was that many older workers eligible for retirement opted to retire rather than continue seeking work. Labor force participation data for Coos County (U.S. Census 2000), which show that the labor force participation rate decreased from 56 percent in 1990 to 54 percent in 2000, suggest that local perceptions may have some validity.

The percentage of households living in poverty in Greater Coos Bay during 2000 was quite high at roughly 17 percent, but also had changed little from 1990 (table 11).

Table 11—Median household income and poverty rate, Greater Coos Bay, 1990 to 2000

Indicator	1990[a]	2000	Change
	- - - - *Dollars* - - - -		*Percent*
Median household income, CBGA	28,918	31,143	7.69
Median household income, county	27,484	31,542	14.76
Median household income, buffer	28,381	31,654	11.53
	- - - - - - - - *Percent* - - - - - - - -		
In poverty, CBGA	16.50	16.92	2.55
In poverty, county	16.48	15.04	-8.74
In poverty, buffer	15.86	14.34	-9.58

CBGA = census block group aggregate.

[a] The 1990 median household income has been adjusted for inflation and is reported in 2000 dollars.

Median household income increased slightly, from $28,918 to $31,143, an increase of 7.7 percent. Median household income in the county and buffer BGAs, however, had increased much more rapidly, at rates of 14.8 percent and 11.5 percent, respectively. In 2000, 41 percent of households in Greater Coos Bay had incomes of less than $25,000, while 26 percent had incomes of $50,000 or more, figures comparable with county household income figures. Household income distribution figures for Greater Coos Bay and Coos County were also similar (fig. 28).

To capture the socioeconomic changes occurring in the communities located within the northern spotted owl region (see app. B for species scientific names), Donoghue and Sutton (in press) developed an index of socioeconomic well-being. This index was constructed by using educational level attainment, unemployment, poverty, employment diversity, commuting time, and the household income inequality ratio. In 1990, Greater Coos Bay had a score of 71.78 on the socioeconomic well-being index, which placed it in the "medium" category in terms of well-being among the region's communities. Although the community remained within the medium category in 2000, its socioeconomic well-being index number decreased 7.7 percent to 66.23.

Community members' perceptions of the local poverty rate and household income and distribution figures meshed with the statistical data. One county employee noted that the region was experiencing increasing income disparities internally: "We're seeing more of a disparity. We have some high-paying jobs but a large number of lower paying jobs."

Changes in Greater Coos Bay's economic structure—

Substantial changes took place in Coos Bay's economy from 1990 to 2000. Although the total workforce increased 6 percent, the number of jobs in manufacturing dropped 52 percent. The number of natural resource jobs fell by 8 percent. Wholesale trade jobs, many of which had been associated with

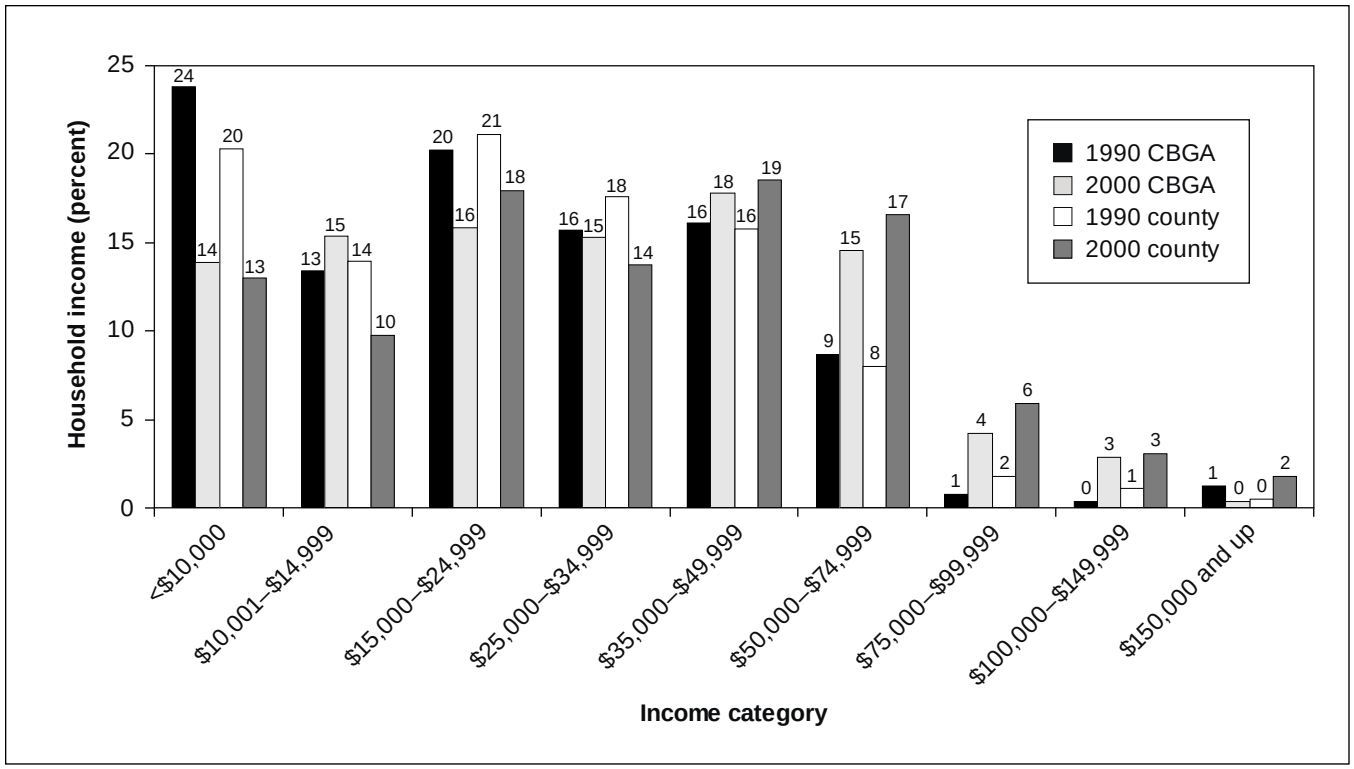

Figure 28—Household income distribution North Bend-Coos Bay (Greater Coos Bay), and Coos County, 1990 and 2000. Adjusted for inflation, 2000 dollars. CBGA = census block group aggregate.

the forest products industry, dropped 29 percent. Financing and real estate jobs also fell 19 percent. The greatest rate of growth took place in the number of construction jobs, which nearly doubled. Education and health services jobs, as well as public administration jobs also increased substantially. Figure 29 illustrates the extent to which the mainstays of the Coos Bay economy are shifting from manufacturing, mostly forest products related, and associated retail and wholesale trade sectors, to social services, recreation and tourism, and arts and recreation.

Greater Coos Bay was once a thriving mill town producing a variety of wood products ranging from chips to dimension lumber to plywood and veneers; its forest products processing facilities have since been reduced to two small sawmills, one operated by Georgia Pacific and the other by Southport in Bunker Hill, and a Northwest Hardwoods alder sorting and processing facility just south of Coos Bay. Menasha also operates a log sorting and shipping center in North Bend. Weyerhaeuser, which used to have a plywood mill, sawmill, and containerboard production facility in the Coos Bay area, as well as two large logging terminals in Allegany and Dellwood, has shut down its mills and focuses exclusively on growing trees and selling logs. Weyerhaeuser currently supplies about 30 percent of the timber milled in the Georgia Pacific sawmill and ships the rest over to mills in Roseburg and Cottage Grove. Weyerhaeuser directly employs 30 employees. It provides an additional 300 contractors or subcontractors with jobs as timber sale and logging contractors. Georgia Pacific, which used to be one of the largest holders of private industrial forest land in the Coos Bay area, recently sold its timber holdings to Plum Creek Timber. Plum Creek has no milling facilities in the area and ships most of its timber out of the area.

According to several foresters interviewed, much of the wood processed in the remaining mills originates in Canada or Washington. The hemlock and spruce harvested in Coos Bay used to be peeled for plywood, but builders have shifted to using oriented strand board as a plywood substitute owing to the expense. Coos Bay

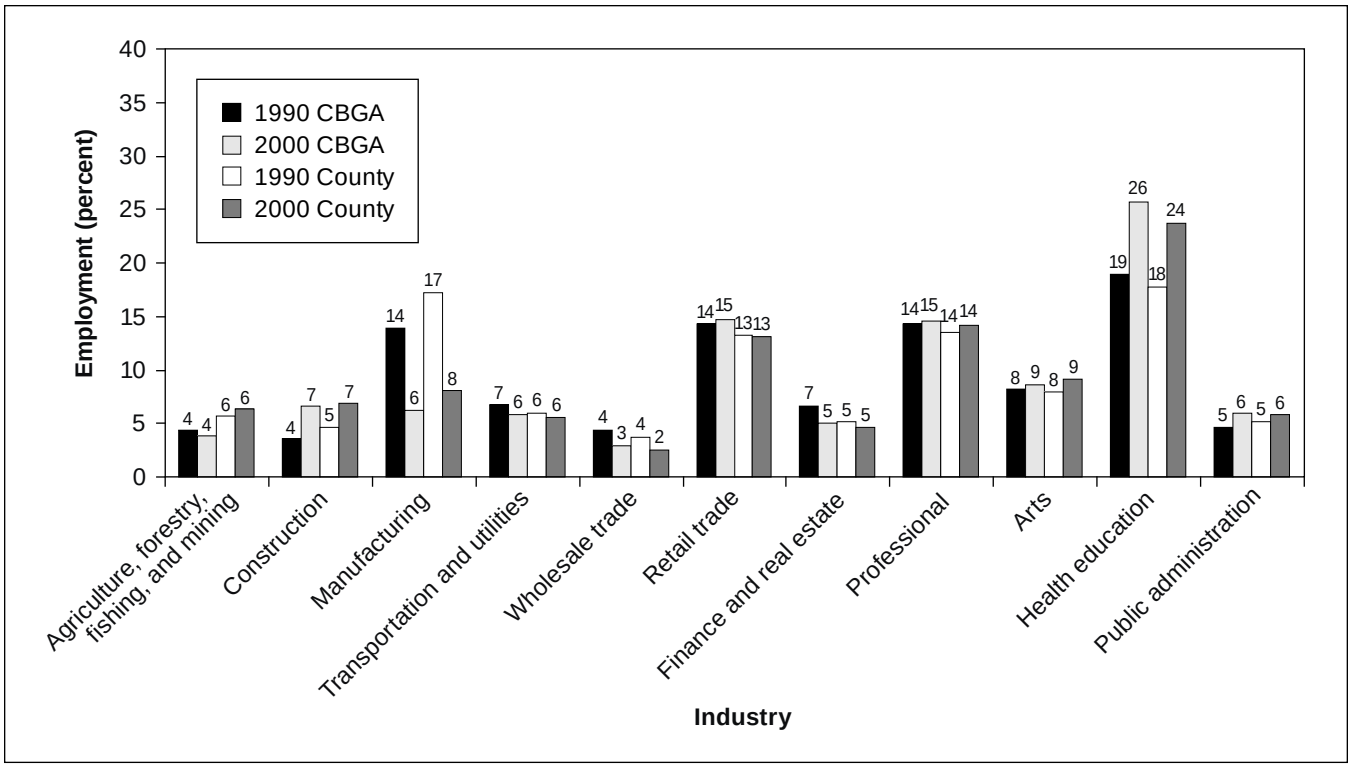

Figure 29—Employment by industry in North Bend-Coos Bay (Greater Coos Bay) and Coos County, 1990 and 2000. CBGA = census block group aggregate.

has also lost its position as a major supplier of wood chips, in part because of international competition and in part because of the difference in quality between chips from old-growth wood and chips from the younger trees that now make up most of the timber harvested and processed in Coos Bay. Only the Roseburg Forest Products facility in Coquille continues to supply old-growth chips for export from the Port of Coos Bay. The change in the number of chip piles at the Port bears testimony to the decline in the importance of the chip mills and chip exports. Many interviewees commented on the reduction in the number of chip piles around Coos Bay, which has gone from roughly 20 down to 2 in the past two decades. The decline in timber harvesting on BLM land also brought with it a marked decrease in the need for reforestation workers to replant timber sale units after harvest. The decline in reforesting work, in turn, contributed to the closure of local nurseries that had previously supplied seedlings for replanting federal forests.

The effects of the restructuring of Greater Coos Bay's wood products economy in the post-Plan years differed considerably by stakeholder category. Wood products harvesters, mill workers, and log transporters were hit hard early on as demand for their services declined. Although much media attention focused on the laid-off mill workers, the people who worked in the woods—the fallers, choker-setters, loggers, and haulers—were equally hard hit by the decline in federal timber available. The smaller mills did poorly as well, in part because many lacked the equipment needed to harvest smaller diameter wood and in part because few of them had their own timber holdings and thus most were forced to pay higher prices for timber on the market. According to interviewees, the mills most affected were those that had older equipment and relied primarily on federal timber. Owing to limited funding for this study, we were unable to gather statistical data to ascertain more precisely how timber-related businesses of various types and sizes fared during the mid to late 1990s. Similarly,

funding for this study was insufficient to permit us to gather quantitative data on the fate of the many people laid off owing to changes in the timber industry and related businesses during the same period.

The large industrial wood products companies, however, prospered throughout the decade as they had already retooled their mills for small-diameter wood in the 1980s and were able to process logs from private, state, and county forests. One manager noted that the impact on his company was minimal because they had their own source of supply. Additionally, because the larger landholders tended to have reciprocal rights-of-way agreements with the BLM, they were less affected by the riparian reserve and survey and manage provisions that restricted hauling activities and road construction on BLM lands.

Other timberland holders fared less well than the large industrial landholders. One landholder for whom the effects were negative, and where those effects are most clearly linked to the Plan, was the Coquille Tribe, which is required to manage its forest holdings in conformance with Plan standard and guidelines. The Coquille Tribal forester noted that the Plan itself is not the major constraint to the tribe's ability to harvest timber; rather the key problem is that all of the timber sales they've prepared have been blocked by appeals by environmentalist organizations. As a result, the tribe has harvested only 3.5 million board feet (mmbf) since 1996 instead of the 21 mmbf estimated under the Plan's provisions. The tribal forester noted that the survey and manage provisions have greatly increased the time needed for the tribe to develop and implement timber sales. The riparian reserve buffers have also significantly reduced the area available for the tribe to harvest timber.

The Plan has also affected Coos County's forest, which the county operates for sustained-yield timber production. The effects on the county are primarily the result of changes in market structure, demand, and the availability of key inputs, such as seedlings. The county forester noted that consolidation in the milling industry has decreased competition and reduced the number of firms bidding on county timber sales. At the same time, the closure of tree nurseries as a result of the decline in federal demand for seedlings to replant harvest units has increased the county forest department's operating costs.

Although some private landowners have been able to shift into harvesting alder as a strategy for maintaining forest product income levels, the county's forested parcels are too close to the coast to produce harvestable quantities of alder or other hardwoods. The county forester observed that the closure of local mills for processing large-diameter timber has reduced the demand for the county's timber, which is grown on a 60- to 80-year rotation. As a result, the county is considering reducing their rotation to 40 to 60 years so that it can produce the 24-inch-and-under logs that most local mills have the capacity to handle. The county forester also noted that demand for nontimber forest products, such as boughs, ferns, and salal, on county lands has increased since the 1990s, but did not know whether that was linked to the Plan.

Small woodland owners initially benefited from the drop in federal timber supply owing to the subsequent increase in log prices. Many of the interviewees with connections to the timber industry stated that harvesting activities on private lands increased dramatically after the Plan went into effect as landholders tried to capture the increase in value of their timber holdings. As more mills shut down during the late 1990s, however, competition for raw logs decreased and prices fell. Smaller woodland owners thus suffered as the value of their timber resources dropped and the cost of processing it increased.

Although timber industry stakeholders we interviewed attributed the downsizing of Coos Bay's timber economy in part to economic changes within the industry itself, they noted that the lack of certainty in the availability of federal timber encouraged divestment of processing infrastructure and thus contributed to the negative effects that many smallholders and mill operators experienced as the industry reconfigured itself to remain competitive in global markets. The following quote from a consulting forester illustrates the dilemma that many small woodland owners and mill owners face in the current timber market:

> Initially, if they increase harvesting on federal lands, it will be direct competition with private small landowners' timber. You have to have a steady supply, not this up and down, to get investment. It's the inability to protect the supply that hasn't been a good thing for southwest Oregon…What we need is long-term stability. We aren't nimble like Microsoft.

In addition to the difficulties resulting from the progressive divestment of processing infrastructure over the 1990s, several timber industry stakeholders expressed their belief that the Plan has contributed to the decline in market demand for large-diameter timber. One interviewee noted, "Nowadays few mills want to invest in bigger diameter mills. So if there's no flow from the feds, no guarantee of supply, the mills won't do it."

The restructuring of Greater Coos Bay's timber economy also negatively affected the region's maritime commerce sector, which was based primarily upon the export of wood chips, raw logs, and dimension lumber. A port administrator noted that the number of shipping vessels using the port had declined from 200 in 1992 to 46 in 2003, just one-fifth as many. However, the port administrator also emphasized that the drop in the federal timber supply was only one factor in the lack of demand for the port's facilities. He identified two other important factors that had contributed to the port's decline, including the inability to compete with the short turnaround times available through the Puget Sound ports and a shift in log buyer preference toward logs that had not been stored in water.

Commercial and sports fisheries, which historically had contributed significantly to Coos Bay's economy but which had started to decline in the 1980s as stocks of salmon and steelhead disappeared from the region's fishing grounds, dwindled to a fraction of their former economic importance during the 1990s when the previously abundant groundfish stocks also started to collapse. During the 1990s, Coos Bay lost its position as a major fishing port as fish landings declined in near-shore waters (OCZMA 2002: II-3). According to a recent study of Oregon's groundfisheries, the annual economic contribution of near-shore and distant water fishing to Coos Bay fluctuated between $18 and $34 million between 1992 and 1999, a substantial drop from the $58 million generated in 1988 (OCZMA 2002: II-12). Groundfish prices declined in the late 1990s, even as harvest levels in the Coos Bay area remained low, creating additional economic hardship for fishing-boat owners and their crews (OCZMA 2002: III-6 to III-7).

In 2000, 240 fishing vessels made trips out of Coos Bay or Charleston, landing 19.2 million pounds of fish valued at $13 million dollars (OCZMA 2002: IV-13). Of this volume, 50 percent were groundfish (OCZMA 2002: IV-13). Between 1995 and 2000, total landing value decreased by 18 percent, and groundfish landing value decreased by 42 percent (OCZMA 2002: IV-13). The fall in fish prices, coupled with the decline in volume landed, has contributed to the downsizing in Coos Bay and Charleston's fish processing industry. In 2001, several fish-processing plants shut down, contributing to the region's economic hardships (OCZMA 2002: IV-13 to IV-14).

While the milling, logging, fisheries, and maritime commerce sectors declined, the Greater Coos Bay area experienced steady growth in the services sector, including the expansion of medical and retail trade facilities. Although many small businesses closed, others have since opened, and several large retail stores, such as Walmart and RiteAid, have established themselves in the area. The Bay Area Hospital expanded its facilities and is currently the largest employer on the Oregon coast. The development of a world-class golf course by a private developer in Bandon during the mid-1990s also complemented efforts by the Bay Area Chamber of Commerce to strengthen the region's tourism economy.

Both the Coquille Tribe and the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw contributed to the service sector expansion. The Coquille Tribe established a highly successful casino in North Bend, and has constructed permanent tribal administrative headquarters in North Bend and a retirement center in Bandon. The Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw also made significant economic investments in tribal housing and administrative offices in Empire during the 1990s.

Unlike the 1980s, when the real estate and construction sectors in Coos Bay crashed, in the 1990s both sectors remained strong. The availability of jobs in the construction industry helped cushion the outflow of local woods workers, whose skills were often transferable to the construction business. A number of interviewees noted that real estate sales had risen slowly through the 1990s, but increased dramatically in the early 2000s. The recent widespread investment in remodeling and new residential construction is clearly visible in many neighborhoods in the Greater Coos Bay area.

Sociocultural impacts associated with economic change—

Respondents observed that the economic changes that took place during the 1990s in the Greater Coos Bay community brought with them profound cultural changes. Some interviewees mentioned cultural changes that they viewed as positive, notably an increase in productive communication between previously polarized stakeholder groups as a result of community members having to work together in venues such as the Coos Watershed Association and the resource advisory council.

Most interviewees, however, also noted changes they considered negative, such as school closures, which had served as social hubs for the outlying rural communities, and a marked increase in substance abuse, depression, and other mental health disorders. A county official who had been active in a community assistance program during the 1990s described some of the negative effects as follows:

> The social effects of the Plan were very far reaching. I was on the Retraining Dollars committee. I can't tell you of how many cases of broken homes, suicides that took place because the breadwinners were frustrated with not being able to find work. Homes were foreclosed, cars or worse yet, pickups [which many rural people rely upon to generate income] were repossessed.

However, according to a county health department employee who grew up in the Coos Bay area during the 1950s, substance abuse and related social problems, such as domestic violence, have long been a part of the social fabric of Greater Coos Bay. In addition, she noted that although the loss of timber-related employment likely contributed to an increase in the use of drugs, such as marijuana and methamphetamine, and the incidence of other mental health problems in the 1990s, widespread drug use in the area began well before the Plan went into effect:

> Drug and alcohol abuse fluctuates. It really started before the Plan. We had a problem with marijuana use in the early 1990s and late 1980s. It had a lot to do with people being out of work, people with no other skills and nothing to do. A lot of it is our economic culture. That has a great deal to do with alcohol and drug abuse. Another issue that is linked is mental health. We've seen a large increase in mental health clients. I remember in the 1980s when they shut down Weyerhaeuser. Alcohol abuse and other drug use was going up. People were growing more marijuana crops. Fewer people were in the woods to keep watch. Nineteen eighty-four to 1990 is when this was happening. When the economy is down, people turn to drugs for money and also for a supply.

Crime statistics are not available at the community scale. However, data for Coos County provide an ambiguous picture of the changes in the incidence of various types of social pathologies before and after the implementation of the Plan. For example, county-level crime statistics for the period 1991 to 2003 indicate that reported arrests for crimes against persons (per 10,000 population) exhibited a downward trend from 1991 to 2003 (Oregon Criminal Justice Commission 2004), with a high of 824 arrests in 1991 and a low of 367 arrests in 2001. The arrest rate for property crimes, however, increased from 1991 to 1995, but then decreased steadily through the late 1990s and early 2000s. The arrest rate for behavior crimes decreased from 1991 to 1993, and then increased in 1994 to 1996. However, it then decreased before increasing slightly again in 2002 and 2003. The number of reported offenses per 10,000 population for crimes against family members increased steadily from 53 in 1991 to 101 in 2001 (it then rose rapidly to 500+ per year, but this difference is likely due to a difference in

how offenses are categorized rather than to a real increase in such crimes). Vandalism, increased from 1,034 reported offenses per 10,000 population in 1991 to 1,554 reported in 1995, but then decreased sharply through the late 1990s. The number of drug offenses reported per 10,000 population increased from a low of 184 in 1991 to a high in 1997 of 302. Overall, drug offenses have exhibited an upward trend, but the pattern is such that it is difficult to link the increase to the Plan's implementation. Likewise it is difficult to link other social pathology trends to the Plan.

A number of interviewees stated that the loss of revenues from timber sales on O&C lands, which had historically provided a significant part of Coos County's budget, decreased the amount of funding available for social services and public safety programs. However, census data on government finances (U.S. Census 1992, 1997, 2002) show an increase in Coos County's revenues from $24.8 million in 1991–92 to $63.0 million in 1996–97. The county's revenues then decreased to $41.9 million in 2001–02. Thus, from 1991–92 to 2001–02, the county's revenues increased by 69 percent, with much larger gains in some of the intervening years. The law enforcement budget for police protection increased from $1.1 million in 1992 to $3.0 million in 2003, a 172 percent increase. Spending on correctional services also increased, from $2.9 million in 1991–92 to $6.4 million in 2001–02, an increase of 120 percent over 10 years. According to U.S. census data, Coos County's expenditures on health services increased from $3.4 million in 1991-92 to $9.5 million in 2003, an increase of 179 percent. Sewage and wastewater treatment spending rose from $0.6 million to $1.8 million, or 200 percent. In short, health and public safety expenditures increased at a higher rate in proportion to the overall rise in the county's revenues. In contrast, highway expenditures increased much less dramatically, rising only 28 percent from $3.6 million in 1991–92 to $4.6 million in 2001–02. Natural-resources-related expenditures also rose less proportionately to the overall budget, increasing from $1.3 million to $1.9 million, or 46 percent.

One county official expressed a commonly held belief among locals that the county's agreement with BLM in the early 1950s to "plow back" 25 percent of the timber revenues from O&C lands into road construction and recreation on those lands, rather than putting those funds into the county's general fund and using it as the county saw fit, amounted to something akin to purchasing greater rights to those lands. In his view, the BLM had a legal obligation to continue harvesting timber on those lands and if it did not do so, the federal government had an obligation to return the plowback funds invested by the counties, with interest. Another county official noted that although the owl guarantees and Secure Rural Schools Act funds had offset the loss of some of those revenues, they did not make up for the loss of business and employment opportunities owing to the near-cessation of timber harvesting on BLM lands.

Interviewees identified the loss of blue-collar jobs in timber and related industries as a key factor in changing the fundamental nature of Coos Bay culture. Prior to the 1990s, Coos Bay residents and outsiders alike identified Coos Bay and North Bend as mill towns dominated by the presence of blue-collar workers and their families. During the past decade, the overall population of the area has remained fairly stable, but the current population is on average older, more educated, and more likely to be retired or to have jobs in the health, education, or retail trade sectors. In the view of most interviewees, these newcomers have brought with them different views about what kind of a place they would like Coos Bay to be, as well as a different level of expectations for services they believe the county ought to provide:

> They love the coast the way it is. They don't want any industry here. Many have moved here from somewhere else. They don't want to pay taxes here for schools. They tend to overlook that they were used to a service level. They want that here, but they aren't willing to pay for the schools to keep those folks who can provide the services here.

Feelings regarding the shift from a blue-collar industrial logging and wood processing community to a much more services-oriented, white- and pink-collar community were mixed: interviewees strongly affiliated with timber and ranching lamented the loss of the area's blue-collar identity, seeing it as negative in both the short and long run, while other community members saw the change as negative in

the short run but positive in the long run. All interviewees, however, shared a common concern about the outmigration rate among young adults owing to the lack of employment opportunities in the area, and the long-term effects this outmigration would have on family and community stability.

Views of the future—
Interviewees expressed a variety of views about what the future holds for Coos Bay. A former local politician commented that Coos Bay's economy will continue shifting toward a services-based economy and the population base will continue to age. However, this politician, as well as other interviewees, emphasized that for Coos Bay to thrive economically, the regional economy will need to provide career opportunities, rather than just jobs, for the young people. Some interviewees viewed the shift toward a services-based economy as a negative, holding the promise of only low-paying seasonal work for their children. In one timber worker's view, continued investment in watershed restoration constitutes a possible avenue for developing a more diverse, and thus healthier local economy:

> It's [watershed restoration] about reviving a whole industry, not just a few family wage jobs. Winchester Bay [a nearby sports fishery area] had a lot of business this year. The money spent on restoration is money that will come back.

Several interviewees with strong ties to the timber industry expressed their belief that opening up more federal timber to harvesting would provide Coos Bay with the shot in the arm needed for the community's economy to thrive. Other interviewees articulated a belief that Coos Bay's shift away from a timber-dominated economy already represents a viable path toward a healthy economy.

The story of the community of Greater Coos Bay from 1990 to 2000 is a story of a boom-and-bust timber community shifting from being almost entirely dependent upon the harvest and processing of wood fiber for its economic opportunities, toward a community geared increasingly toward the provision of medical, educational, retail trade, and tourism and recreational services at a local and regional scale. Compared to the Coos Bay of 1990, Coos Bay of 2000 had a much lower percentage of manufacturing jobs, which had been concentrated in the wood products industry, and a much higher percentage of jobs in the services and retail trade sectors. The construction and real estate sectors remained strong through the 1990s, and are currently expanding rapidly.

The unemployment rate changed little over the decade, but the lack of change is more indicative of the movement of laid-off timber workers elsewhere than of a steady supply of jobs being available. The movement of younger workers with families is reflected in the population and education data, which shows that Coos Bay's population has aged over the past decade and that a number of schools have closed. Interviewees also commented that levels of substance abuse and domestic violence increased during this period.

The wood products industry, including wood products exporting, has changed dramatically since the early 1990s, with key changes including the permanent closure of many small mills, the permanent elimination of many milling and harvesting jobs, and a shift from the use of employees to reliance on contractors. Additionally, the kinds of wood products in demand have changed, from the large-diameter logs previously harvested in the area to much smaller diameter logs, and from almost exclusively softwoods toward an increasingly larger percentage of hardwoods.

The interview data discussed earlier in this section touches on some of the ways in which the Plan may have contributed to some of these changes (or lack of changes). However, all of the interviewees emphasized that the Plan was only one of many contributing factors. Other factors identified by the interviewees included (a) mechanization of milling and harvesting technologies, (b) globalization of the timber industry and the opening of new sources of supply, (c) the political influence of environmentalist organizations, (d) changes in the kinds of products desired by the wood processing and construction industry, (e) the economic recession in Japan during the 1990s, (f) the Endangered Species Act and other environmental regulations, such as the State Forest Practices Act, and (g) the transfer of large acreages of timberland from timber company to real estate investment trust ownership.

Community Adaptation to Change and the Role of District Assistance

The two major responses of the Greater Coos Bay community as a whole to the socioeconomic changes taking place in the 1990s consisted of direct political action aimed at changing the conditions of the Plan and increasing federal funds coming to the counties, and actions to diversify the community's economy. In addition, wood products processors, timber companies, small woodland owners, and the county forestry department responded to the changing economic conditions in a variety of ways.

Direct political action—

A number of Greater Coos Bay community members took direct political action in response to the socioeconomic changes taking part in their community. A detailed examination analysis of these actions lay outside the scope of this study. However, we provide a brief discussion of the political actions that affected the community most directly. These included lobbying the U.S. Congress to obtain funds to replace the timber receipts the counties received in the 1980s, and appealing all or parts of the Plan.

Local politicians and community members successfully lobbied the U.S. Congress to pass legislation that provided the owl payment guarantees in the early and mid-1990s as well as funding under the Secure Rural Schools Act of 2000 to replace revenues formerly obtained through timber receipts. Coos Bay timber industry stakeholders played an active role in the American Forest Resource Council's lawsuit contending that the USDA Forest Service and BLM lacked legal authority to apply the Plan's standards and guidelines to the O&C lands. They also strongly supported efforts to eliminate or limit the Aquatic Conservation Strategy and survey and manage provisions of the Plan.

Environmental organizations also filed several lawsuits appealing activities carried out under the Plan. However, no organized groups headquartered in Greater Coos Bay participated in these appeals. Indeed, other than a local chapter of the Audubon society, we were unable to locate any locally based environmental groups in Greater Coos Bay. Many interviewees, including several stakeholders affiliated with the timber industry, commented that they felt unsafe voicing views that might be labeled "environmentalist" in Coos Bay.

Economic diversification projects—

Greater Coos Bay had the advantage over many neighboring timber-dependent communities of having the basic infrastructure needed to attract retail and service enterprises outside of the wood products industry. When the Dwyer injunction went into effect, Coos Bay already offered existing and potential residents a range of economic and cultural experiences, including medical services, shopping opportunities, community college courses, theater and fine arts, as well as easy access to forests, rivers, and ocean beaches. As noted in the chapter on the Coos Bay District, community members, including Coos Bay District employees, had already embarked on several significant economic diversification efforts by the time the Plan went into effect.

Economic diversification efforts in Greater Coos Bay during the 1990s included a mix of private, public, and tribal actions. Interviewees noted that several large outside retail companies, including Walmart and RiteAid, opened up stores in the North Bend/Coos Bay area in the mid-1990s. The Bay Area Hospital expanded its facilities, and now offers state-of-the-art medical care for south coast residents. Southwestern Oregon Community College, located on the boundary between North Bend and Coos Bay, also expanded its campus and course offerings. A national call center set up shop in North Bend in the mid-1990s, providing a measure of stability and hope for economic improvement for the wider community. Many interviewees listed the Coquille Tribe's Mill Casino, as well as tribal investments in local housing, as positive forces in the area's economy. Most interviewees identified the development of a world class golf course near Bandon, which is located a half-hour's drive south of Coos Bay, as a key stabilizing factor.

Local government agencies, nonprofit organizations, private firms, and tribal governments received substantial amounts of Northwest Economic Adjustment Initiative (NEAI) funding to support the community's economic diversification efforts. Owing to the many agencies involved

in the NEAI, and the lack of a publicly accessible centralized list of all NEAI-funded projects and programs (Kusel et al. 2002), an accurate estimate of the amount of NEAI funding that went into the Greater Coos Bay community between 1994 and 2003 is difficult to make. The following tabulation lists some of the projects we identified as having been funded wholly or in part through the NEAI.

Project category	Specific projects
Physical infrastructure	Natural gas pipeline construction Bay area business incubator Airport business park Waterfront improvements
Tourism and recreation planning	Coos County tourism plan Coos regional trails partnership plan Coos Head eco-tourism plan Visitor center information exhibits
Workforce/business capacity building	Computer technician training center Dislocated worker retraining
Tribal capacity building	Coquille reservation and self-sufficiency plan Bal'diyaka interpretive center planning Tribal business enterprise development

Although BLM did not provide funds for economic diversification except for the Jobs-in-the-Woods (JITW) program, many interviewees indicated that the Coos Bay District contributed significantly to NEAI-funded projects in the form of technical assistance, provision of equipment, construction materials, office space, and training in group facilitation and leadership skills. In addition, the district also funded activities, such as environmental education, recreation site maintenance and development, archeological excavations, and biological inventory and monitoring that directly or indirectly supported many of the community-organized projects.

Many of the NEAI-supported projects were classic economic development projects, such as the North Bend Airport Business Park, waterfront and downtown planning, and preliminary planning for the construction of a natural gas pipeline. These projects focused on refurbishing and expanding the community's infrastructure to make it more attractive to outside investors and existing businesses. The NEAI funds also supported local business and worker capacity building through retraining programs for displaced timber and fisheries workers at Southwest Oregon Community College and a guaranteed loan program for small businesses. The NEAI also helped fund tourism and recreation development projects, such as the Coos County Tourism Strategic Planning project, the Regional Trails Partnership, the Coastal Environmental Learning Network, and the Coos Head Eco-Tourism Planning Project. Chapter 5 of this report provides additional details about these projects, which constitute the building blocks of the nature-based tourism vision discussed in chapter 3 under the Coos Bay District's recreation program.

In an effort to diversify its revenue sources, the Port of Coos Bay took on a leadership role in the Coos County Tourism Strategic Planning process and associated nature-based tourism planning efforts. The Port's tourism development efforts focused on upgrading the marina in Charleston and marketing the area's sports fisheries. The Port formed a partnership with other ports in southwest Oregon so that the entire region could pool its resources and market their fishing sites to a broader audience. This partnership of ports also joined forces with the BLM, which had good tourism sites, but whose employees lacked the knowledge and skills to market their sites. The sportfishing marketing effort involved an extensive network of community organizations, including the ports, chambers of commerce, the counties, and the Forest Service and BLM. The Port's marketing director noted that BLM's involvement stopped several years ago when the staff began to redirect its energies into activities more directly focused on land management.

Views about the effectiveness of economic diversification projects—

Interviewees expressed mixed views about infrastructure development projects, such as the airport business park, and improvements to the North Bend waterfront. Some interviewees stated that it was too early to tell what the projects would yield, but noted that such projects provided a solid foundation for the community to build upon. Others observed that these projects consumed funds for design

and planning that could have been used to support laid-off workers more directly.

In contrast, many interviewees spoke favorably of the business incubator and retraining programs. They noted that the business incubator provided badly needed space on affordable terms for startup businesses. Interviewees also commented favorably on the computer-training programs, which happened to coincide with the establishment of a large national call service in North Bend. Graduates from the computer-training program thus were able to immediately find work locally.

Interviewees also expressed diverse views about the tourism and recreation projects. Some interviewees, including many timber industry stakeholders, stated that these projects were a waste of taxpayer funds. They questioned whether such projects actually increase tourist spending in the area, and also whether an economy based on tourism and recreation can provide sufficient family-wage jobs.

Stakeholders associated with tourism, environmental education, and watershed conservation viewed the tourism and recreation projects much more favorably. In the view of these stakeholders, the projects could be termed successes in part because they provided venues in which previously isolated stakeholders learned how to work together to accomplish shared objectives. They noted that these skills have since been applied to accomplish other community projects. They also expressed the view that the tourism and recreation industry has the potential to support a range of income levels, and does not consist solely of low-income jobs.

Stakeholders who expressed positive views about the tourism and recreation projects also observed that tourism infrastructure takes time to develop and thus it is unrealistic to expect that the full benefits will be visible so soon. A quote from one conservation organization employee illustrates this long-term view.

> With tourism infrastructure you don't "kind of" build a golf course. You build all 18 holes, not two holes. So you need a minimum to kick things off. So we've been building an 18-hole golf course one hole at a time.

This interviewee, as well as others, also observed that Coos Bay has not had an easy time of transforming itself into a tourist destination because of its remoteness, its reputation as an unattractive, noisy mill town, and the lack of any one spectacular attraction. To overcome these disadvantages, the community has focused on creating a network of recreation and tourism sites, events, and programs, coupled with a parallel effort to create a more visually appealing waterfront and downtown section along the highway running through Coos Bay and North Bend.

Finally, the community's efforts to attract new shipping concerns to the area have thus far proved unsuccessful. According to the Port marketing director, a port needs three key ingredients to compete successfully with other west coast ports: ready railroad access, a large consumer market at the terminal, and easy access to an interstate highway. Coos Bay has none of the three ingredients. Prospects for developing a thriving port based on industrial exports and imports at Coos Bay in the near future are thus not good.

Responses within the wood products industry— Local mills and forest landowners in Greater Coos Bay responded in a variety of ways to the socioeconomic changes taking place in the 1990s. Some timber companies, including the once-prominent Georgia Pacific, sold their timber holdings in the area and closed or scaled down their milling operations. Weyerhaeuser, which retained its timber holdings, shifted its processing activities to mills in the Willamette Valley. It also developed a Habitat Conservation Plan to protect it from future changes in policy that might decrease its ability to harvest timber on its holdings. The county forest department and many smallholders, who might otherwise have maintained longer timber rotations, began to develop harvesting plans with a shorter rotation schedule.

Landowners also diversified their inventories, planting radiata pine and alder instead of the traditional Douglas-fir, hemlock, and spruce. A few small wood-processing firms have stayed in business by capturing niche markets for such items as fine-furniture wood or arrow bolts. Although most of the interviewees spoke favorably of Coos Bay area's watershed restoration program, they noted that the demand

for such work was too limited and too seasonal to provide long-term, family-wage employment for more than a few dozen people.

A small number of woods workers were able to obtain contracts from the BLM to carry out watershed restoration work. Until the passage of the Secure Rural Schools Act and the implementation of the Resource Advisory Councils, most watershed restoration contracts offered by the district were funded through the NEAI's JITW program. The district channeled much of the JITW money to the Coos and Coquille Watershed Associations. The Coos Watershed Association contracted out the work in the Coos watershed, but the Coquille Watershed Association developed an inhouse crew employing displaced timber and fisheries workers. We interviewed two contractors—one who works primarily in the Coquille Valley and another who works over a much broader area. Some of the barriers they noted with respect to restoration contracting included:

- Difficulties in getting bank loans for equipment.
- Seasonal nature of the work and a very narrow work window for instream work.
- Difficulties in estimating work costs.
- Time-consuming bid applications and other paperwork requirements.

Although both contractors are able to obtain enough contracts to keep themselves in business, as well as to hire several part-time employees, both stated that there is insufficient restoration work to provide full-time work for more than a few people in the south coast area. A contractor who worked for many years as a faller, observed that he makes much less money doing restoration work than he did as an experienced faller. He added, however, that what keeps him doing the restoration work despite making less money at it is his desire to make a contribution toward getting fish back in the south coast's river systems:

> It's not just about making money. I've seen what happens on my projects—I go back and see fish spawning where none were spawning before. So I'm in a unique position that way. There's a sentimental value I see in having fish again instead of the creeks being so dead.

He also commented that one reason he likes the JITW program is that it is a small-business set-aside program, which means that he doesn't have to compete for JITW contracts against larger businesses with more capital.

Summary of community response data— Without exception, the people interviewed as part of this case study emphasized that the community of Greater Coos Bay had gone through a very difficult time in the 1990s. Interviewees mentioned businesses that had closed, neighbors who had left the area, and schools that had shut down. Many people expressed concern about their community's future, and pointed out the increasing discrepancy between the need for services and the availability of funds to provide them. At the same time, many interviewees also stated that the economy had started to stabilize in the past 2 years, and pointed to the growth in construction, real estate, and medical services as optimistic signs of the beginnings of an economic recovery.

Changing Relationships Between the Community and the Coos Bay District

In changing the ground rules for how the Coos Bay District managed the lands under its jurisdiction, the Plan changed the types of stakeholders that district staff needed to interact with on a regular basis. It also changed the nature of existing relationships between the district and various segments of the wood products industry.

Overview of community-district relationships— Prior to the 1990s, Coos Bay District employees interacted in an official capacity primarily with timber industry stakeholders. According to most of the interviewees unconnected with the timber industry, during its timber heyday the BLM was virtually invisible and at an official level played a limited role in community affairs. As one conservation organization employee noted, prior to the Plan, the BLM was first and foremost about harvesting and selling trees:

> Before the Plan, when I went to the BLM, it was all forestry offices. Everyone. They had an auction board posted with timber sales. To an outsider that was the welcome-mat that greeted you. It was an organization about harvesting forests and selling trees.

Beginning in the early 1990s, the Coos Bay District Manager actively encouraged district employees to diversify their official spheres of interaction. With this administrative approval and support, recreation program and public affairs employees, for example, took active roles in a variety of community planning and educational activities, including the Coos County Tourism Strategic Planning project, the Regional Trails Partnership, and the Coast Environmental Learning Network. The district archeologist worked closely with the Coquille and Confederated Tribes on a variety of collaborative projects, including planning for the Bal'diayaka Interpretive Center and the protection of cultural resources adjacent to one of the mountain bike trails developed as part of the Regional Trails Partnership project. Fishery biologists, ecologists, and engineers provided assistance to the Coos Watershed Association

In addition to reaching out to tourism, recreation, and environmental education stakeholders, during the 1990s the Coos Bay District shifted from an initial antagonistic stance toward the Coquille Tribe to having a close partnership with the tribe centered around management of the Coquille Forest and cultural resources located on BLM lands. According to the Coquille tribal forester, key features of this collaborative relationship include (a) contact initiated by the district manager, the highest local-level manager within the agency; (b) continued involvement of high-level administrators; (c) close and ongoing interaction centered around accomplishing a concrete and shared goal; and (d) well-developed facilitation skills on the part of BLM employees.

Views about changes in community-district relationships—

Reactions to this change differed greatly, as did views about how the district is perceived by community members. Many of the interviewees affiliated with the timber industry or activities tightly linked to timber observed that, in their experience, the relationship between the community and the district had worsened over the past decade. One interviewee identified the agency's shift in emphasis from harvesting timber to environmental protection as the reason for community members' feelings of anger toward the BLM:

> Before [the Plan], BLM was seen as a big part of the economy. People who worked for them made decent money. As that role has evolved into protection rather than harvest, they are no longer looked at as an integral part of the community but as an enemy.

Another timber stakeholder observed that landowners who formerly viewed BLM as an ally and facilitator of access to resources are frustrated with the longer and more complicated process for getting approval for access agreements due to survey and manage provisions. Many interviewees who expressed concern about BLM's shift out of timber harvesting as its main activity took pains to specify that they did not blame the Coos Bay District for its inability to meet the Plan's timber quotas. Instead, they considered the BLM to be caught up in forces beyond its control, with no clear direction to follow. Some timber stakeholders were not opposed to the agency broadening its range of activities beyond timber harvesting, but noted that a more balanced approach would provide funds needed to support the recreation and cultural resources programs.

As a result of these changes, according to one timber industry stakeholder, who also served in an elected position for some years, community members continue to consider the BLM an important local force, but they no longer see it as a timber agency:

> People no longer see the BLM as a timber source. They see it more as a recreation and habitat provider. Also BLM people are active in the community. They are a large landowner and they hold land for a variety of reasons. And so people involved in it are important to the community. But the agency isn't seen as a timber dealer.

In contrast to the timber stakeholders' generally negative perception of BLM-community relationships, the interviewees affiliated with the tourism industry or environmental education organizations viewed the changes during the 1990s as positive. One woman active in the Tourism Strategic Planning project noted that "BLM was always real generous with its resources." Another interviewee commented that the BLM employees who participated in the nature-based tourism, environmental education, and

watershed conservation projects had made a genuine and very successful effort to reach out to conservation-minded stakeholders. He linked the district's shift in management emphasis to the arrival of a new upper level district administrator, who deliberately sought to create links between the district and community members interested in environmental education.

A key theme that emerged among interviewees with positive views of the relationship between the community and the district was a generalized perception and concern that the district is moving away from its commitment to community partnerships. One tourism industry stakeholder, for example, noted that, "BLM has been a wonderful partner, but a couple of years ago they backed away from the recreational aspects." Similarly, a conservation stakeholder commented that "BLM is still a player but the intensity and commitment isn't as intense as it was when it was first kicked off."

Community members noted a number of significant changes that to them indicate the district is not as serious about community partnerships as it had been in the mid-1990s. These changes include perceptions of a progressive distancing of upper level management from participation in groups such as the watershed associations, Oregon Coastal Environmental Awareness Network (OCEAN), the Regional Trails Partnership, and so forth. Although BLM still has a presence at meetings, interviewees noted that the lower level employees don't have the decisionmaking authority the upper level managers did and thus are unable to make the same kinds of commitments as their predecessors. In addition, interviewees observed that in recent years the district has been increasingly less willing to provide equipment and supplies as part of their in-kind contribution.

Interviewees attributed the change in district behavior to directives from the State office to limit work on projects not taking place primarily on BLM land and an excessive workload owing to the survey and manage requirements. Some community members are quite concerned about what they see as the district's disengagement from these partnerships, in large part because the district employees have knowledge and skills that most community organizations cannot replicate.

Greater Myrtle Point

Located at the confluence of the Middle and South Forks of the Coquille River, the city of Myrtle Point serves as a microeconomic center for the far southern end of the Coquille Valley (fig. 30). Residents from the outlying settlements of Bridge, Arago, Dora, Fairview, Sitkum, and Broadbent send their children to school, shop, and do business in Myrtle Point. Myrtle Point, Powers, and Coquille form a socioeconomic unit in the minds of many inhabitants, who refer to that portion of Coos County as "South County." Some people also include Bandon in South County, but its coastal location on the mouth of the Coos River provides it with a very different set of economic options from those available to the inland settlements.

The U.S. census recorded 4,927 inhabitants in Greater Myrtle Point in 2000. Most of these people reside in the lowlands along the Coquille River and its tributaries. Forests are an important feature of the Coquille watershed, covering 70 percent of its area (Oregon Department of Agriculture 2002: 7). Timber companies own 40 percent of the land in the watershed, private nonindustrial landowners own 30 percent, and the remaining 30 percent is in public ownership, primarily BLM and Forest Service. Portions of the Coquille Tribal Forest also fall within the Coquille watershed.

Although people living in and around Myrtle Point have access to many basic businesses, such as retail stores, banks, gas stations, and auto repair facilities, residents do much of their shopping and business in the neighboring communities of Bandon, Coquille, and Greater Coos Bay. Many residents commute to jobs in these three communities as well. Despite its small size, Myrtle Point offers a range of social services including a fire department, a police department, an ambulance service, a medical clinic, kindergarten through high school public schooling, two banks, a public library, and a geriatric care facility. Of the three case-study communities in the Coos Bay area, Myrtle Point is the most remote. It is situated roughly 20 miles inland from Highway 101, the major transportation corridor connecting Oregon's coastal towns. Roughly 60 miles along a winding mountain road separate Myrtle Point from the Interstate-5 corridor.

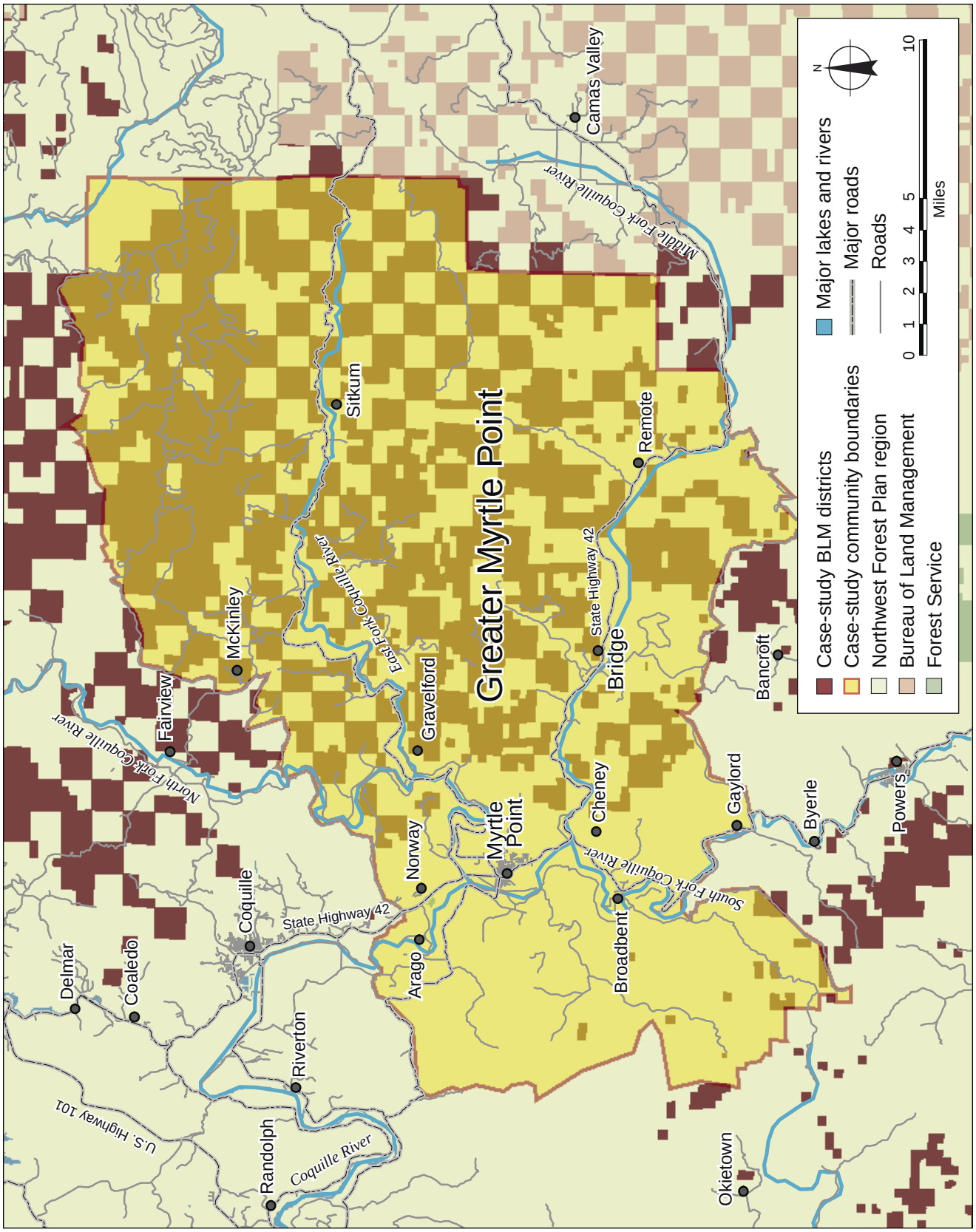

Figure 30—The Greater Myrtle Point Area case-study community boundaries.

In the early 1900s, the introduction of splash dams to the area opened up the Coquille Valley to industrial-scale logging operations, which dominated the local economy until the 1990s. The Coquille Valley also supported an active commercial salmon fishery during the late 1800s and early 1900s. Fish landing data indicate that fishermen caught 120,000 coho in 1908 (Heikkila 1999: 5). By the 1990s, however, several of the Coquille Valley fisheries had become a shadow of what they had been a century earlier. The numbers of coho spawners and spring Chinook in the Coquille River had dropped to very low levels by the early 1990s (Heikkila 1999: 5). Stocks of fall Chinook salmon, coastal cutthroat trout, winter steelhead, and rainbow trout remained relatively strong, albeit lower than historical levels (Heikkila 1999: 5).

Community Change and the Effects of Forest Management Policy

Drawing upon census data, interviews of community members, and planning documents, the following section describes the changes that took place in the social and economic fabric of Greater Myrtle Point between 1990 and 2004.

Demographic indicators—
Greater Myrtle Point's population declined 8.5 percent between 1990 and 2000 (table 4-6). This contrasts with moderate population growth for the county overall and strong population growth for the buffer BGAs. Median age increased from 38 to 43 years, an increase roughly comparable with surrounding areas (table 12).

Greater Myrtle Point experienced a substantial decline in its population under 45 and a sharp increase in its population 45 years old and up (table 13). The demographic pattern in Greater Myrtle Point differed from the county and buffer BGAs, however, in that the increase in older residents occurred almost entirely in the 45 to 64 age bracket, with only a tiny increase in residents over the age of 64. Additionally, the county and the buffer BGAs experienced a much smaller decline in the 30 to 44 age group.

Table 12—Population and median age in Greater Myrtle Point, 1990 to 2000

Indicator	1990	2000	Change
			Percent
Total population, CBGA	5,383	4,927	-8.47
Total population, county	60,273	62,779	4.16
Total population, buffer	141,084	151,952	7.70
	- - - - - - - - *Percent* - - - - - - - -		
Median age, CBGA	38.2	43.3	13.35
Median age, county	37.6	43.0	14.36
Median age, buffer	38.9	44.9	15.42

CBGA = census block group aggregate.

Greater Myrtle Point's population is overwhelmingly of Caucasian origin (see fig. 31). This figure is similar to the racial distributions for the county and the buffer BGAs. Three percent of the population in Greater Myrtle Point reported being of Native American origins, again a figure comparable for the county and buffer BGAs. However, this figure was half that of the Greater Myrtle Point figure in 1990, when 7 percent of the population categorized themselves as Native Americans. In 2000, 4 percent of the population in Myrtle Point categorized themselves as African American, Asian, mixed, or other.

Table 13—Age distribution changes in Greater Myrtle Point, 1990 to 2000

	Age distribution					
Year and area	0–4	5–19	20–29	30–44	45–64	65 and up
1990 CBGA	370	1,284	517	1,171	1,130	911
2000 CBGA	243	1,049	385	933	1,397	920
Change (percent)	-34.32	-18.30	-25.53	-20.32	23.63	.99
1990 county	3,867	12,551	6,867	13,516	13,064	10,408
2000 county	3,047	12,256	5,625	12,362	17,516	11,973
Change (percent)	-21.21	-2.35	-18.09	-8.54	34.08	15.04
1990 buffer	9,056	28,685	14,524	30,787	31,937	26,095
2000 buffer	7,026	29,038	12,086	27,950	43,081	32,771
Change (percent)	-22.42	1.23	-16.79	-9.21	34.89	25.58

CBGA = census block group aggregate.

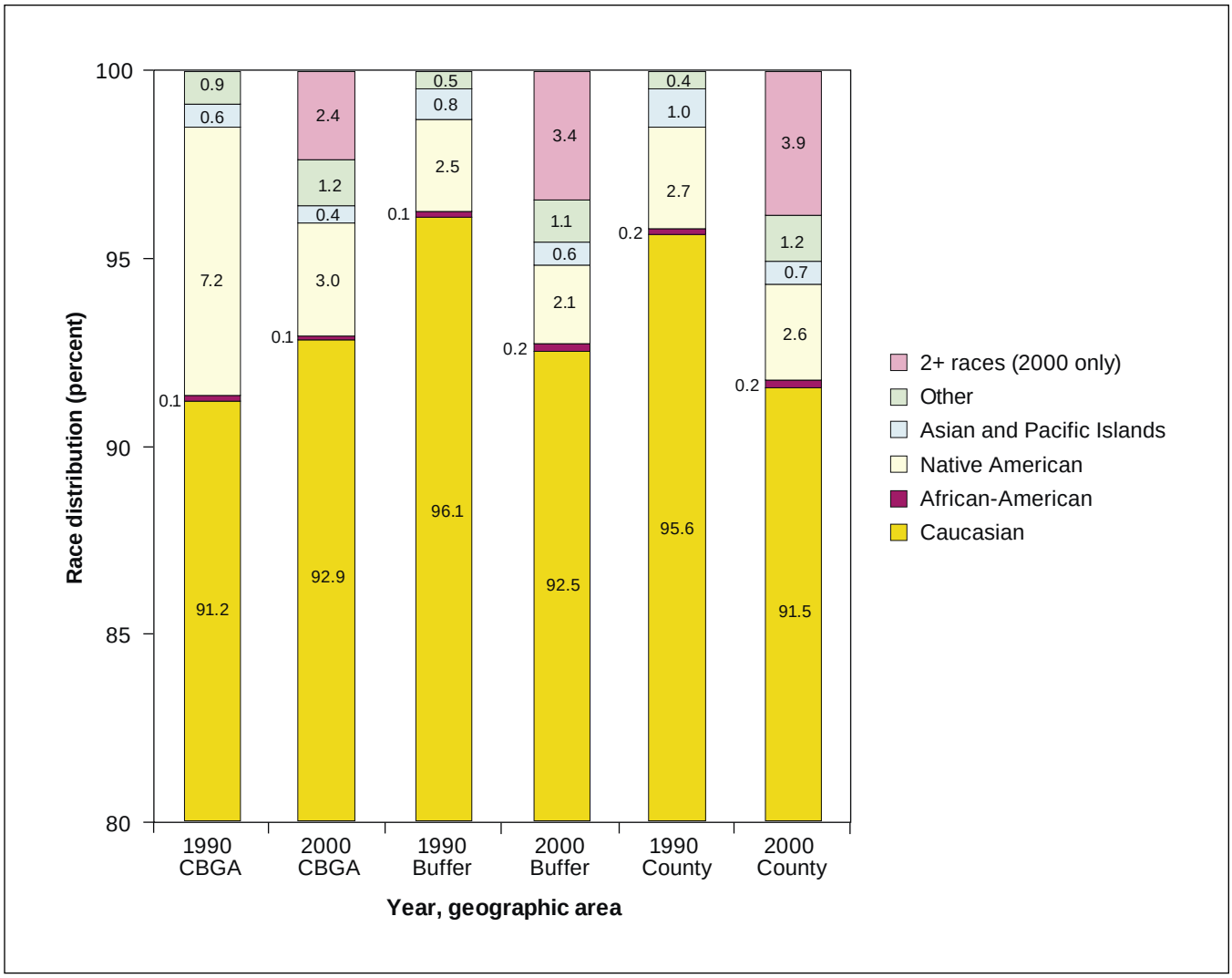

Figure 31—Race distribution in Greater Myrtle Point, Coos Bay District 10-mile buffer, and Coos County, 1990 and 2000. CBGA = census block group aggregate.

The 2000 census data indicate that the percentage of inhabitants in Greater Myrtle Point reporting Hispanic origins decreased by nearly 18 percent from 1990 (table 14). This contrasts markedly with the county and buffer BGAs, which experienced increases of more then 30 percent in the number of inhabitants classifying themselves as Hispanics.

Table 14—Percentage of Greater Myrtle Point population that was Hispanic, 1990 to 2000

Ethnicity and area	1990	2000	Change
		Percent	
Hispanic, CBGA	3.81	3.13	-17.85
Hispanic, county	2.39	3.17	32.64
Hispanic, buffer	2.41	3.17	31.54

CBGA = census block group aggregate.

Education indicators—

School enrollment declined by 6 percent between 1990 and 2000 (table 15). This contrasts with increases in school enrollment for the county as a whole and for the buffer BGAs. The drop in school enrollment has led to school closures in Arago, Dora, and Broadbent, as well as one school closure in the city of Myrtle Point. One former teacher commented that the decline in school enrollment numbers began in the early 1980s when the large mills

Table 15—Education data for Greater Myrtle Point, 1990 to 2000

Indicator	1990	2000	Change
			Percent
School enrollment, CBGA	1,115	1,043	-6.46
School enrollment, county	11,448	11,691	2.12
School enrollment, buffer	25,682	27,755	8.07
		Percent	
Completed high school, CBGA	66.37	76.10	14.66
Completed high school, county	75.50	81.56	8.03
Completed high school, buffer	76.06	81.62	7.31
Bachelor, graduate, professional degrees, CBGA	5.45	11.74	115.41
Bachelor, graduate, professional degrees, county	12.30	15.03	22.20
Bachelor, graduate, professional degrees, buffer	12.48	14.85	18.99

CBGA = census block group aggregate.

began closing facilities and downsizing their payrolls. In his view, the major decline occurred from 1980 to 1990, and although still declining slightly, the numbers began stabilizing in the 1990s.

The percentage of Greater Myrtle Point residents with a high school diploma was 76 percent in 2000, a figure somewhat lower than for the county and the buffer BGAs (table 15). This represented an increase of 15 percent compared to 1990, suggesting that the people leaving the area in the 1990s included a high percentage of people who had not completed high school or that incoming residents are more likely to have completed high school than the existing residents. A similar pattern existed for residents with college degrees. In 1990, only 6 percent of the residents had a college degree compared to 12 percent in 2000 (table 15).

Community members attributed the higher rate of high school completions to downsizing in the timber industry, and the lack of work for teens and young adults with a limited education. Several interviewees noted that many parents used to encourage their teenagers to go out and get a job, whereas most are now encouraging them to finish school. Another interviewee speculated that the people who can afford to stay in the area are those with higher educations, and that perhaps they are more likely to encourage their children to get a high school diploma than workers who did not graduate from high school.

Economic indicators—

In Myrtle Point, the unemployment rate was 9 percent in 2000, considerably lower than the 14 percent unemployment rate in 1990 (fig. 32). The percentage of households living at poverty level or below was 19 percent (table 16), a slight increase over the 1990 rate. Although the unemployment rate dropped by a larger percentage in Greater Myrtle Point than in the county and surrounding buffer zone, the actual rate for all three areas in 2000 was roughly the same (roughly

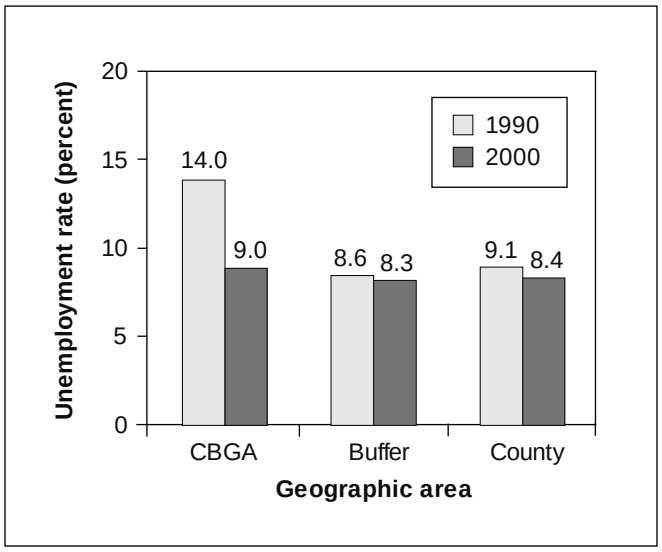

Figure 32—Unemployment in Greater Myrtle Point, Coos Bay District 10-mile buffer, and Coos County, 1990 and 2000. CBGA = census block group aggregate.

Table 16—Median household income and poverty rate, Greater Myrtle Point, 1990 to 2000

Indicator	1990[a]	2000	Change
	- - - - *Dollars* - - - -		*Percent*
Median household income, CBGA	25,868	28,509	10.21
Median household income, county	27,484	31,542	14.76
Median household income, buffer	28,381	31,654	11.53
	- - - - - - - - *Percent* - - - - - - - -		
In poverty, CBGA	18.36	18.67	1.69
In poverty, county	16.48	15.04	-8.74
In poverty, buffer	15.86	14.34	-9.58

CBGA = census block group aggregate.

[a] The 1990 median household income has been adjusted for inflation and is reported in 2000 dollars.

8 percent). However, in contrast with Greater Myrtle Point, the poverty rate in the county and surrounding buffer zone decreased.

Community members expressed surprise at the drop in unemployment rate, commenting that it didn't fit with their perceptions that many community members are underemployed or chronically unemployed. Some interviewees suggested that the unemployment figures might not reflect the presence in the community of people whose unemployment benefits have run out and who thus no longer show up in the statistics even though they are still out of work. Still others noted that the availability of jobs in Coos Bay and Bandon, both of which are in easy commuting distance of Greater Myrtle Point, had helped keep the unemployment rate low. Interviewees' stated that the poverty figures meshed with their perceptions, and suggested that part of the reason it is so high is that many of the community's families have lived in the valley for generations and prefer to remain in the area even if it means living on part-time or sporadic income.

In 2000, the median household income in Greater Myrtle Point was $28,509, considerably less than the median household income for the county and the buffer BGAs. When adjusted for inflation, median household income in Greater Myrtle Point had increased 10.2 percent from 1990 levels. This increase was slightly lower than for the county and buffer BGAs. The percentage of households with incomes less than $25,000 was 45 percent in Greater Myrtle Point, a figure that is roughly comparable with the county and buffer BGAs. However, the income distribution in Greater Myrtle Point is much more skewed toward the lower end (fig. 33).

In 1990, Greater Myrtle Point ranked among communities in the "very low" category of socioeconomic well-being, with a score on the socioeconomic well-being index of 46.74. In 2000, the community had moved into the "low" category of socioeconomic well-being with a score of 54.38. This change suggests that the community experienced some positive changes in social and economic conditions between 1990 and 2000. These changes are most likely linked to the outflow of many younger workers and the inflow of older and wealthier people, and thus occurred at the cost of the community's internal stability.

Changes in Greater Myrtle Point's economic structure— From the end of World War II to the early 1990s, most employment and business opportunities for residents of Greater Myrtle Point were linked to the forest products industry. Although no large mills operated in the Greater Myrtle Point area, many residents found employment with the Georgia Pacific mill in Coquille, and a few commuted to mill jobs in Bandon, Coos Bay, and North Bend. In addition, Westbrook Lumber operated two small mills in Myrtle Point. A number of very small, family-owned mills also provided work or income for local residents. Many residents worked on logging, hauling, and road construction projects, either as employees with the larger forest products companies or as independent contractors on public and private timber holdings. The ready availability of opportunities to work in local mills or as part of gyppo logging operations based in the Coquille Valley allowed most male residents to work locally. Several small brush sheds also provided employment for a small number of mostly part-time floral greens and bough processing employees. The brush sheds also served as points of sale for pickers harvesting nontimber forest products, such as conifer boughs, salal, and swordfern.

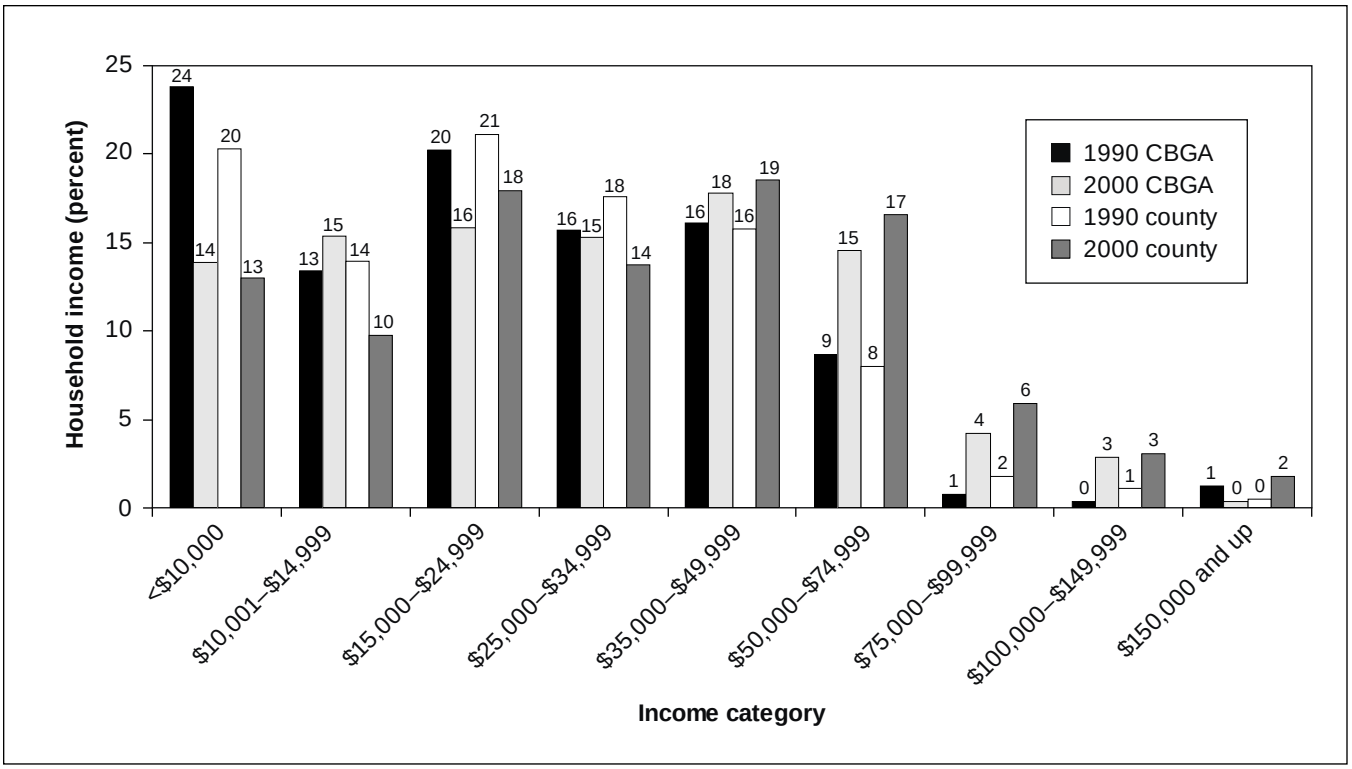

Figure 33—Household income distribution, Greater Myrtle Point and Coos County, 1990 and 2000. Adjusted for inflation, 2000 dollars. CBGA = census block group aggregate.

Agricultural enterprises also were important in the Greater Myrtle Point economy of the early 1990s. For example, many local residents generated income by operating small dairy, beef, and sheep ranches in addition to holding other jobs. A milk-processing plant located within the boundaries of the city of Myrtle Point provided employment and an outlet where dairy farmers could sell their milk. Additionally, by the early 1990s, a small but thriving organic farming sector had emerged in the Coquille Valley.

Lastly, the service sector, including education, public administration, and retail, constituted another important economic sector in the early 1990s. For example, the school district and the city of Myrtle Point together employed several hundred residents. Many residents earned income by operating or working for a variety of small, family-owned shops concentrated in downtown Myrtle Point and along Highway 42. Most of these shops sold equipment and supplies geared toward the timber, farming, and ranching sectors and related support services. Other services-related employment included several retail food stores, service stations, several banks, real estate offices, and engine repair and bodywork shops.

Census data depicted illustrate the transformation that took place in Greater Myrtle Point's economy between 1990 and 2000. The total number of people with jobs fell 8 percent. The kinds of jobs residents held also changed dramatically (fig. 34). In 1990, nearly a third of the community's workforce held positions in manufacturing, primarily in the wood products sector. In 2000, just over 13 percent of the community's employee workforce had jobs in manufacturing. Education, health, recreation and tourism, and professional services all increased their presence in the local economy.

Altogether, services and public administration accounted for 48 percent of the jobs in 2000, compared to only 35 percent in 1990. Interestingly, 15 percent of the community's residents worked in agriculture, fishing, farming, forestry, or mining in 2000, compared with only 8 percent in 1990. However, the loss of jobs in manufacturing (321) far exceeded the number of jobs gained in natural

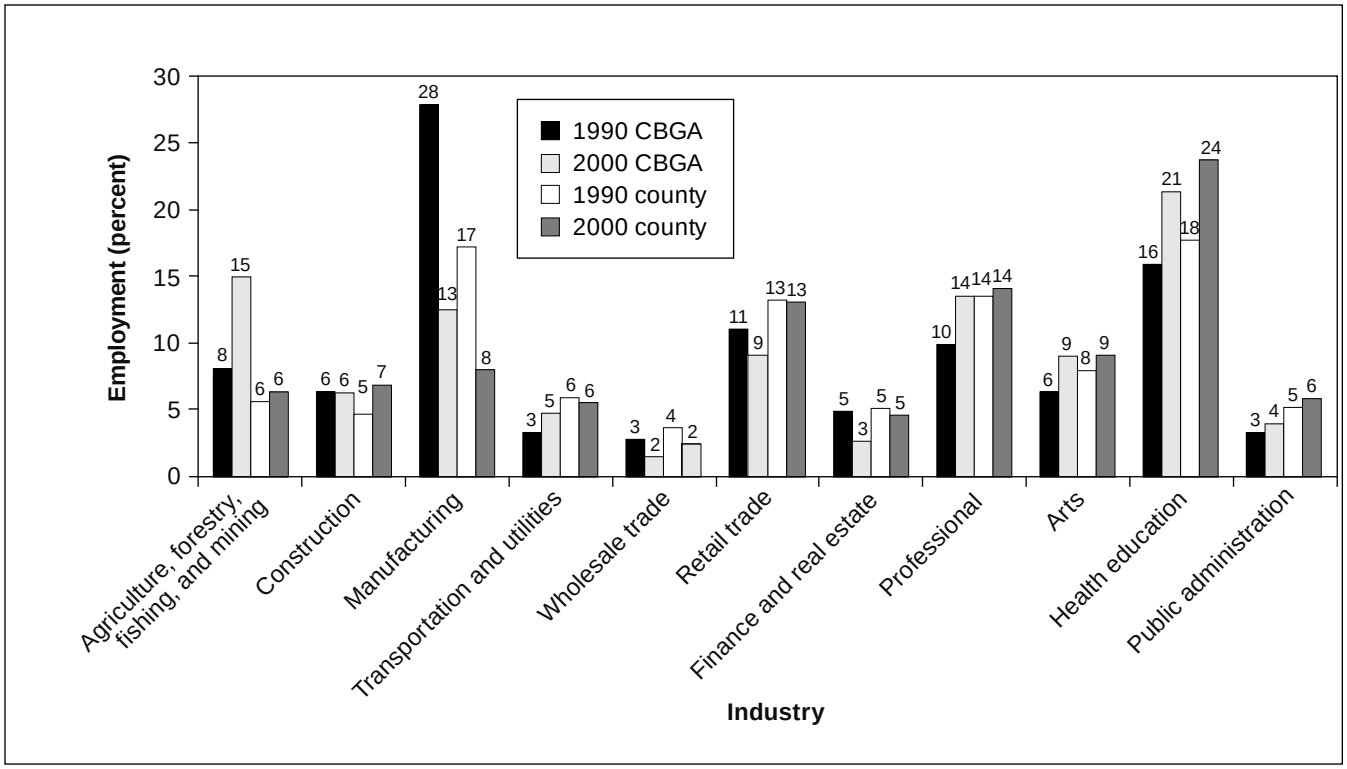

Figure 34—Employment by industry, Greater Myrtle Point and Coos County, 1990 and 2000. CBGA = census block group aggregate.

resources work (110). Even though employment in the services sector increased substantially, the increase represented only 159 jobs, just half of the jobs lost in manufacturing.

By 2003, the image of Myrtle Point as a thriving timber town capable of supporting small, family-owned businesses had disappeared. A city administrator who grew up on a farm in Greater Myrtle Point described the changes that took place in the 1990s as follows:

> There used to be restaurants and bars on every corner….We used to have jobs here. People didn't commute much. In the 1980s we had a real building boom. Houses were going up right and left. We had a lot of contractors here and some mill jobs. In the 1990s, the economy reversed. The buildings quit going in. The houses too. A lot of businesses went out of business. It was dog eat dog. A lot of the construction [in the 1980s] was because of people from out of town moving in. Then things went dead.

Other interviewees thought that the decline in timber-related employment in Greater Myrtle Point began in the 1980s when the big mills in Coos Bay began closing down. A former teacher stated that the closures in Coos Bay had a domino effect on the Coquille Valley: "When Coos Bay went down, so did Coquille and Myrtle Point." Another man, who as a young man had opted to take a job with the city of Myrtle Point instead of working in the forest products industry, observed that timber-harvesting and processing activities constituted core elements in Myrtle Point's prosperity during much of his lifetime: "The entire area was strictly timber based when I was growing up."

By 2003 and 2004, when we conducted interviews for this study, the economic situation in Myrtle Point had changed greatly. The Georgia Pacific mill in Coquille closed in 1990, and was followed by a rash of mill closures throughout the Coquille Valley. By 2004, the Roseburg Lumber mill in Coquille was the only sizeable mill remaining in the valley. The Roseburg mill is equipped to process 50- to 60-year-old trees, leaving many interviewees

wondering how much longer it will remain in operation as rotation ages decline.

A few small family-operated mills survived through the 1990s owing in large part to the availability of private timber and the timber the BLM and Forest Service offered through the 1995 salvager rider. They also obtained small amounts of timber, in the form of roadside hazard trees, from federal lands in the wake of the Biscuit Fire of 2002, a fire that affected hundreds of thousands of acres in the mountains south of Myrtle Point. The brush sheds remain in business, although the brush shed operator interviewed as part of this study reported that she has recently begun to encounter difficulties in getting enough commercial-quality floral greens.

Many of the interviewees associated with the timber industry stated that they thought the industry had stabilized considerably from the turmoil of the 1990s. Indeed, one of the larger local mills that had closed in the 1990s recently reopened as an alder milling operation. However, as the following quote from a restoration contractor who works in the Greater Myrtle Point area indicates, the structure of the timber industry has changed substantially:

> Technology has changed things. There are contractors now instead of company loggers. The competition is cutthroat. Companies used to have their own crews. Now they contract and move around more. You don't need the same labor to log as you did in the past. There aren't any company rigs. They are all contract haulers. There's less need for the big equipment. Mills are computer operated. They need about half as many people for the same amount of board feet. The Willamette Valley is the main area for processing now.

In short, timber companies no longer maintain large permanent or semipermanent work forces with health and retirement benefits as part of their pay packages. The world of timber work in Myrtle Point has been transformed instead to a world in which most work is done by contractors rather than by employees, where fewer workers are needed to deliver the same amount of product, and where most of the processing is done out of the area.

Interviewees affiliated with the timber industry cited a number of specific impacts of the Plan on their businesses and the timber industry in general. Key impacts listed included:

- Having to re-tool mills to work with the smaller diameter logs coming off private lands.
- An increase in costs owing to the higher prices for the limited supply of larger logs.
- An increase in restrictions on log hauling practices and access to some stands of timber to conform to species protection guidelines.
- Higher costs associated with more complicated and lengthier negotiations over road construction on lands adjacent to BLM holdings.
- Higher costs associated with requirements for companies to complete fish and wildlife surveys and stream monitoring to comply with environmental protection guidelines.
- Increased risk of fire on private lands from the presence of heavy fuel loadings on adjacent BLM holdings.
- An increase in recreational demand for access to private lands as BLM reduces road access, enhancing the risk of fire caused by careless forest users.

The mill closures brought with them the closure of related small-scale manufacturing and equipment repair enterprises, as well as retail stores and restaurants. By 2003 and 2004, the economic structure of Greater Myrtle Point had undergone profound changes. As the mills and related services disappeared, education and health care have emerged as the most important sectors of the local economy. Although agriculture remains important to the community's economy, prices in the dairy, wool, and cranberry industries, the three agricultural mainstays of Greater Myrtle Point, have declined, bringing the profitability of farming and ranching down with them. The retail sector has yet to recover, and many storefronts in the newly refurbished downtown section of Myrtle Point remain boarded up. Several interviewees noted that real estate sales, which had declined during the 1990s, have picked up in the last

2 years, raising residents' hopes that the area economy is on the way to recovery.

Although all of the interviewees agreed that substantial changes had taken place in Myrtle Point during the 1990s, no one attributed the changes solely to the Plan, or even the Endangered Species Act. Key additional factors mentioned as contributing to the community's structural changes included a decline in the Japanese forest products market, a shift to the use of the metric system in global marketing and the subsequent inability of U.S. companies to compete as effectively, and the downsizing in the timber industry owing to changes in processing and transportation technologies.

Sociocultural impacts associated with economic change—

Everyone interviewed expressed the belief that the economic restructuring that took place in Greater Myrtle Point's timber economy during the 1990s had significantly changed the community's social structure. Interviewees noted that the changes had brought with them considerable economic and social distress to individuals, families, and the larger community. Key changes mentioned with respect to changes in social structure included:

- An increase among residents commuting to work, and the concomitant loss in time spent in the community.
- The outflow of the community's working-class core, and the loss of younger couples seeking to establish or maintain their families.
- A decrease in the incentives for newly graduating high school seniors to remain in the community.
- An increase in the percentage of retirees, both long-time residents and newcomers.
- The loss of community gathering places owing to school closures in the outlying portions of Greater Myrtle Point.

A city employee noted that the loss of timber-related jobs had impacts on the city of Myrtle Point's ability to bring in tax revenues, owing to a decline in demand for water and sewage treatment as families with children left the area, and a drop in business taxes owing to business closures. He observed that as a consequence, the city is having difficulties maintaining, much less improving, its aging infrastructure. A sawmill owner noted a similar phenomenon at the county level, with the decline in timber harvesting leading to a decline in county revenues and thus a decrease in the county's ability to perform basic services, such as road maintenance. However, U.S. census data on government finances show an overall increase in Coos County's revenues from 1991–92 to 2001–02, as well as increases in the amounts spent by the county on highway construction and maintenance and on health and public safety (U.S. Census 1992, 1997, 2002). Additionally as noted in the section on Greater Coos Bay, county-level statistics indicate that rates of reported offenses for crimes against persons and property decreased from 1991 to 2003 while the rate of reported offenses for behavioral crimes, including drug use, increased slightly (Oregon Criminal Justice Commission 2004). The data, however, do not allow us to link crime trend patterns to changes brought about by the Plan.

Views of the future—

The interviewees in Greater Myrtle Point expressed a variety of views about the prospects for the community's future. Most expressed a conviction that timber harvest levels were unlikely to ever approach the levels of the late 1980s in the near future. In addition, the interviewees with long-term experience in the timber industry all noted that even if such levels could be attained, technology changes in processing and transportation have made such work far less labor intensive. In their view, it is thus unlikely that the timber industry will ever provide the same number of jobs that it did in the not-so-distant past. At the same time, many of the interviewees working in the timber industry noted that they believed that timber should remain a part of the local economy as it can potentially provide good-paying jobs for those community members who are not interested in getting advanced education.

Most interviewees stated that the services sector, particularly services geared to provide assistance to elderly people, was likely to remain the strongest component in the local economy in the near future. However, some interviewees expressed concerns about the long-term viability

of such jobs, which one interviewee characterized as "minimum wage jobs." In contrast, one small landowner who has been active in water-quality planning commented that the community was unlikely to progress unless community members begin to see the natural environment around them as Myrtle Point's biggest asset rather than seeking to bring in industries that would undermine that asset.

A city employee echoed the notion that community members needed to shift from thinking of economic development as being tied to industry: "In Myrtle Point, people say we need big industry, but we have no place for it, plus we don't have an employee base here." In his view, newcomers coming into the area constituted the most likely source of economic diversification for the area. Another interviewee active in the construction industry observed that Myrtle Point's quality of life would likely attract newcomers, but he noted that just having newcomers isn't enough. In his view, the presence of entrepreneurs, of "people who can see what we have and create something out of it" is needed for jobs to increase.

Community Adaptation to Change and the Role of District Assistance

Interviewees listed a variety of ways in which they felt the community as a whole had responded to the changes that took place in the 1990s. As in Greater Coos Bay, the two major responses of the community as a whole consisted of direct political action and economic diversification. Community members participated actively in the same direct political actions described in the Greater Coos Bay case study. Further investigation and analysis of these efforts lay outside the scope of this study.

Economic diversification projects—
During the 1990s and early 2000s, community members sought to strengthen Greater Myrtle Point's economy by encouraging the development of its agriculture, tourism, and health care sectors. Toward this end, they developed a strategic action plan in 1994 and a community action plan in 2001, both funded in part through the Forest Service's Rural Community Assistance Program. Subsequent projects emerging from these planning efforts included improvements in Myrtle Point's downtown core, upgrading of the nearby County fairground facilities, and a regional trails partnership.

In 1999, local organizations, including the Myrtle Point Chamber of Commerce, the Port of Coquille, the Coos County Logging museum, the city of Myrtle Point, and the Myrtle Point School District formed the Myrtle Point Development Corporation (MPCP 2000). The development corporation identified three priority community development projects: bringing the Oregon State University (OSU) extension office to Myrtle Point, building a swimming pool and recreational facility, and developing a community action plan (MPCP 2000). At the end of 1999, the county commissioners agreed to relocate the extension office to Myrtle Point (MPCP 2000). The extension office opened its new building for business in fall 2003.

Beginning in fall 1999, community members began working on a community plan. A volunteer from the University of Oregon's Resource Assistance for Rural Environments, a regional program funded in part through the NEAI, facilitated the planning process. Other groups active in the planning process included the city of Myrtle Point, Myrtle Point Ministerial Association, the Coos County Fair, and the Oregon State Extension office based at the time in the nearby town of Coquille (MPCP 2000).

Community plan participants concluded that investing in the region's agricultural sector represented the most viable alternative to filling the economic gap left by the downsizing of the forest products sector. The plan thus centered around enhancing the connections between local farmers and the state agricultural extension program, expanding and improving the county fairgrounds, exploring the feasibility of a biogas facility that would operate using manure from local dairy cattle, and marketing the community's agricultural heritage as a means to attract tourists. In addition, the plan called for constructing additional community facilities, such as public meeting space and recreation facilities, and expanding services, such as support services for low-income families and public transportation. Even before the plan was completed, community members had raised the funds needed to

construct a building to house the Coos County OSU extension office and refurbish the county fairgrounds. The community completed both projects in 2003.

Views about NEAI-funded projects—
Community members expressed a range of views about the desirability and success of community-level responses to the socioeconomic changes that took place in the 1990s. Views about the fairground improvements were mixed. Some interviewees noted that the expansions would allow for year-round use of the facilities and thus could serve as a means to attract more visitors to Myrtle Point. Other interviewees stated that the county fair, which is the main event at the fairgrounds, only lasts for 1 week every year and that, in their view, it and other events aren't going to create a significant number of new jobs. In contrast, many interviewees viewed the extension office construction project favorably, noting that having the office in Myrtle Point would bring good-paying jobs into the community and increase the assistance available to local farmers. Most interviewees were skeptical about the biogas project, given the low prices for dairy products and the limited size of most local herds.

Interviewees held widely divergent views about the community's investments in nature-based tourism projects. Responses were most favorable to the Regional Trails Partnership's work, which centered much of its energy on developing a system of mountain bike trails. Many interviewees stated that although tourism and recreation projects in other parts of the county, such as the Coos Head Eco-Tourism facility, might create jobs regionally, they believed that Myrtle Point was too far off the main tourism routes and lacks the spectacular scenery of the coast needed to attract large numbers of visitors. Interviewees active in the wood products industry also perceived tourism as a source of low-income jobs and thus unsuitable as an alternative to industrial development. One interviewee who is active in local business development efforts, however, disagreed with this view, noting that some tourism and recreation entrepreneurs make as much or more than many wood products contractors or employees.

Responses within the wood products industry—
Within the wood products industry, companies responded in a variety of ways to the changes of the 1990s. Georgia Pacific, which had owned large timber holdings in the area since the early 1950s, sold its lands to Plum Creek. Plum Creek then began harvesting trees at a much faster rate, aiming for a much shorter rotation on its timber. Many forest-land owners, big and small, shifted to shorter rotations owing to the lack of mill capacity to process large-diameter wood. Companies, such as Menasha, which had obtained a large percentage of their Douglas-fir and cedar from federal lands before 1989, currently rely on private sources for most of their timber.

A small number of local contractors acquired work in watershed restoration. However, a timber company employee who works for a company with land in Myrtle Point stated that the watershed restoration contracting opportunities created were not a key component of local contractors' income. He noted that few local contractors bid on the watershed restoration contracts because they were afraid to get involved with federal contracting. In contrast, a contractor based in Myrtle Point who has worked on several watershed restoration projects expressed a much more positive view of the opportunities available in watershed restoration work. He stated that when the watershed restoration funds became available, he was able to expand the work that he did and his income as well. He also noted that the program had provided employment for a small number of displaced workers. However, he observed that state restrictions limiting instream work to July through September have created a very busy 4-month working season, with relatively little work in restoration available in the winter. The seasonality of the work makes it difficult for him to keep employees on year-round. He also noted that competition has increased as more contractors have become aware of the watershed restoration contracts.

Summary—
Greater Myrtle Point's remoteness, a limited transportation network, and the lack of higher education institutions to encourage the development and acceptance of new ideas, constitute barriers to prosperity in the minds of many of

the people interviewed during this study. At the same time, a few interviewees voiced optimism about the possibility that the fisheries were improving. Several people also noted that the expansion of the Bandon Dunes golf course could potentially attract more retirees and tourists to the Coquille Valley and Myrtle Point in particular. Some interviewees expressed great unhappiness about Myrtle Point's transformation from a mill town into a retirement center. In their view, the place that Myrtle Point is becoming will not be able to offer family wage jobs. Others, however, stated that they are reserving judgment about the desirability of Myrtle Point's economic transformation until more time has passed.

Changing Relationships Between the Community and the Coos Bay District

In changing the ground rules for how the Coos Bay District managed the land under its jurisdiction, the Plan changed the types of stakeholders that district stakeholders needed to interact with on a regular basis. It also changed the nature of existing relationships between the district and various segments of the wood products industry.

Overview of community-district relationships—
For many years, BLM land provided large quantities of timber for smaller mills and timber harvesting companies in and around Greater Myrtle Point. Locals have long harvested other forest products, such as cedar, brush and ferns, from BLM land. Many residents hike, fish, hunt, pan for gold, pick mushrooms, collect rocks, ride horses, and carry out a large variety of recreational activities on lands managed by BLM. Additionally, BLM offers professional permanent full-time and seasonal job opportunities for local residents. Historically, receipts from BLM timber sales have constituted a substantial portion of the funding for local schools, and have subsidized the construction and maintenance of hundreds of miles of roads in the mountains surrounding Greater Myrtle Point. The intermingling of BLM with privately held lands also created a situation in which a number of timber companies, particularly those with larger land holdings, have entered into reciprocal road access agreements with the Coos Bay District.

Interviewees stated that BLM had shifted from being concerned almost exclusively with timber sales in the late 1980s and early 1990s to dealing with a much broader spectrum of forest management activities in the late 1990s. One interviewee who does small-scale contracting described the pre-1990s BLM as a "logging outfit," whose employees focused on, "road building and engineering and everything oriented towards that."

Views about changes in community-district relationships—
Some interviewees viewed BLM's shift into forest management activities other than timber production as positive or neutral, but others considered it negative. Most of the interviewees directly affiliated with the timber industry expressed negative views about BLM scaling down its timber sale operations and associated road construction and maintenance activities. For example, one small mill owner stated that the BLM had abandoned the community, noting that, "They have the ability to create the economy and protect natural resource and they haven't done that."

A manager for a large timber company with holdings in the Greater Myrtle Point area observed that the district has lost many of its people knowledgeable about timber harvesting and reforestation. He considers this change negative because "…[t]hey aren't out doing things—keeping roads open—managing young stands to keep them going." Another timber company manager noted that the loss of institutional memory within the Coos Bay District had increased tensions over the company's negotiations with BLM regarding existing reciprocal rights agreements. He attributed these tensions to the new district employees' unfamiliarity with the original documents. A restoration contractor echoed the sentiment that the district is "overstaffed and under-managed."

However, timber industry stakeholders were not unilaterally negative in their views of the BLM. For example, a large timber company manager noted that the BLM had contributed a lot toward local communities:

> I think they have been active putting in boat ramps with recreational opportunities around the bay there. They have secured federal funding for other projects around. I think a majority of the population is pretty ignorant to what they contribute other than the actual things they use and the products they get from it.

Moreover, he observed that part of the inability of BLM to work with the timber industry as they did in the past is linked to the changes that have taken place over which the district has no control, such as legal challenges to timber sales. Another timber company manager who has worked closely with BLM on some of their new kinds of projects stressed that upper level district managers are committed to helping the communities they work in: "They are trying very hard. Their management is committed to that."

The environmentalist group members interviewed expressed ambivalent views about their interactions with BLM. On the one hand, the environmental group members stated that BLM has made an effort to reach out to them. One member of an environmental group noted, "In a sense we're working more with BLM now. I have been asked to come out with [a district employee] to look at some of the projects." A member of another environmental group, which has actively protested several Coos Bay District timber management decisions, stated that, "It's become easier to work with BLM." She noted that over time the district has come to accept that environmentalists are going to take part in management discussions.

> At first they couldn't believe that someone was commenting on their timber sale—it was like, "How dare you!" Now they have come to accept me. Now they realize it is a fact of life that we are watching them.

Nonetheless, she also expressed a strong mistrust of the agency, which she views as still much more closely allied with the timber industry than with other constituencies. In her view, "little has changed except now they are just trying to convert old growth by focusing on the matrix instead of everywhere."

The interviewees who have collaborated with BLM on trails, environmental education, and watershed restoration projects expressed generally positive views of the BLM. A construction contractor who took on a leadership role in collaborating with BLM to develop mountain bike trails near Bridge described the change he experienced in the district's willingness to collaborate on trails development:

> During the Plan period, the BLM's attitude toward mountain biking changed. Before, BLM would just laugh about biking. I didn't have a lot to do with BLM before the trail projects. I would go in and get firewood permits, and did some trail checking when I first came here. But when they quit selling timber, they didn't have as much to do. I appreciated them being open, they'd let us look at their maps. They were real helpful.

A former teacher commented that BLM was very supportive of environmental education in the local schools and noted that he'd worked closely with BLM employees for years while teaching environmental studies in local high schools. Several members of the watershed association also emphasized that they had "felt a lot of cooperation from BLM," when they implemented a watershed curriculum for the local schools. Other watershed association members praised the BLM for providing good leadership in watershed restoration without forcing their own agenda on the community. One watershed association member attributed the good working relationship between BLM and the association to both groups' willingness to share resources to help each other get projects accomplished.

Coquille watershed association members listed a variety of ways in which the Coos Bay District had contributed positively to their organization, including doing engineering and design work, offering advice in hydrology, fish biology, and botany, and providing office space and access to field supplies and equipment. However, one association member expressed dismay at what she sees as a growing trend for the district to withdraw from its involvement in the watershed association and broader community involvement:

> I see a new trend [in terms of how BLM interacts with community]. When I was first working on the council, it was getting to a point where they were doing a lot of assistance. Now I'm seeing them back down. Mostly it's little things. They used to participate in our fair booth, and now we're not getting as much assistance with staffing.

She expressed some concern about this trend, not merely because it makes the association's job more difficult, but also because it removes the BLM from the community and reinforces negative stereotypes of the agency among community residents.

Greater Reedsport

Reedsport sits on the central Oregon coast on the western edge of Douglas County along Highway 101, approximately 75 miles from Roseburg, the county seat. Located at the mouth of the Umpqua and Smith Rivers, this community is bounded by a hodgepodge of county, state, and federal forest lands, including the Siuslaw National Forest and the Coos Bay District of the BLM (fig. 35).

Two small, unincorporated towns border Reedsport to the north (Gardiner) and the south (Winchester Bay). As of 2000, these three communities, which constitute the greater Reedsport Area, had a population of 5,545 (U.S. Census Bureau 2000). Distinctly different communities, these three towns have a historical interdependence, which previously helped sustain a certain level of economic viability. Historically, both Reedsport and Gardiner have been timber towns whose economic prosperity has fluctuated with the whims of the lumber market. Serving as an entrance to the Oregon Dunes National Recreation Area, Winchester Bay has shifted from a commercial fishing area to a tourist destination site. One community member expressed the links between the three towns as follows: "We all depend on each other. There's no way that we could be autonomous." This interdependence is reflected in the local Chamber of Commerce, which serves both Reedsport and Winchester Bay.

Spurred by the completion of the railroad in 1916, Warren P. Reed founded Reedsport in 1919 and served as its first mayor. During the 1920s, several canneries, two sawmills and a creamery anchored the town's economy (Beckham 1986). Finished in 1936, the Umpqua River Bridge linked Gardiner and Reedsport, and completed a series of bridges across coastal estuaries increasing access to the area. The increase in demand for timber after World War II facilitated a logging boom and in turn local economic growth.

Two International Paper Company (IP) businesses, a paper mill and sawmill, served as the economic underpinnings for the Reedsport area for almost four decades. Established in 1964 in Gardiner, the sawmill held the shorter tenure of the two mills. Employing up to 400 people at its height of operation, this mill completed an expensive modernization process in the early 1980s. Failure to reconfigure its equipment for smaller diameter wood forced IP to cease operations in the late 1980s. Leasing the property from IP, Bohemia ran the mill with a substantially reduced workforce until 1991. During this period, IP sold the sawmill to Willamette Industries and their 350,000 acres of timber holdings to Roseburg Resources. Unsure of its economic viability, Willamette never ran the mill.

With ready access to Douglas-fir trees, a long-fiber wood, Gardiner's location helped make the paper mill a low-cost producer. From its inception in 1956, the paper mill operated steadily until the early 1990s when market difficulties caused IP to experience periodic closures and intermittently lay off employees. After a brief resurgence in 1994–95, the mill again began intermittent operations, closing for extended periods. Market forces (i.e., low demand and increased competition) and decreased accessibility to raw materials finally caused IP to cease production in January 1999. This closure displaced approximately 350 workers. "We are a town that hit rock bottom and are coming out of it," a resident said. In 2004, IP tore down the mill. In the past two decades, several small mills have also closed. Westwood, the only remaining local lumber mill, sits four miles up the Smith River and proceses alder trees, which some interviewees call "weeds."

The paper mill closure in 1999 had economic and demographic reverberations. With few local opportunities to find employment at comparable wages, many IP employees relocated. The real estate market became flooded,

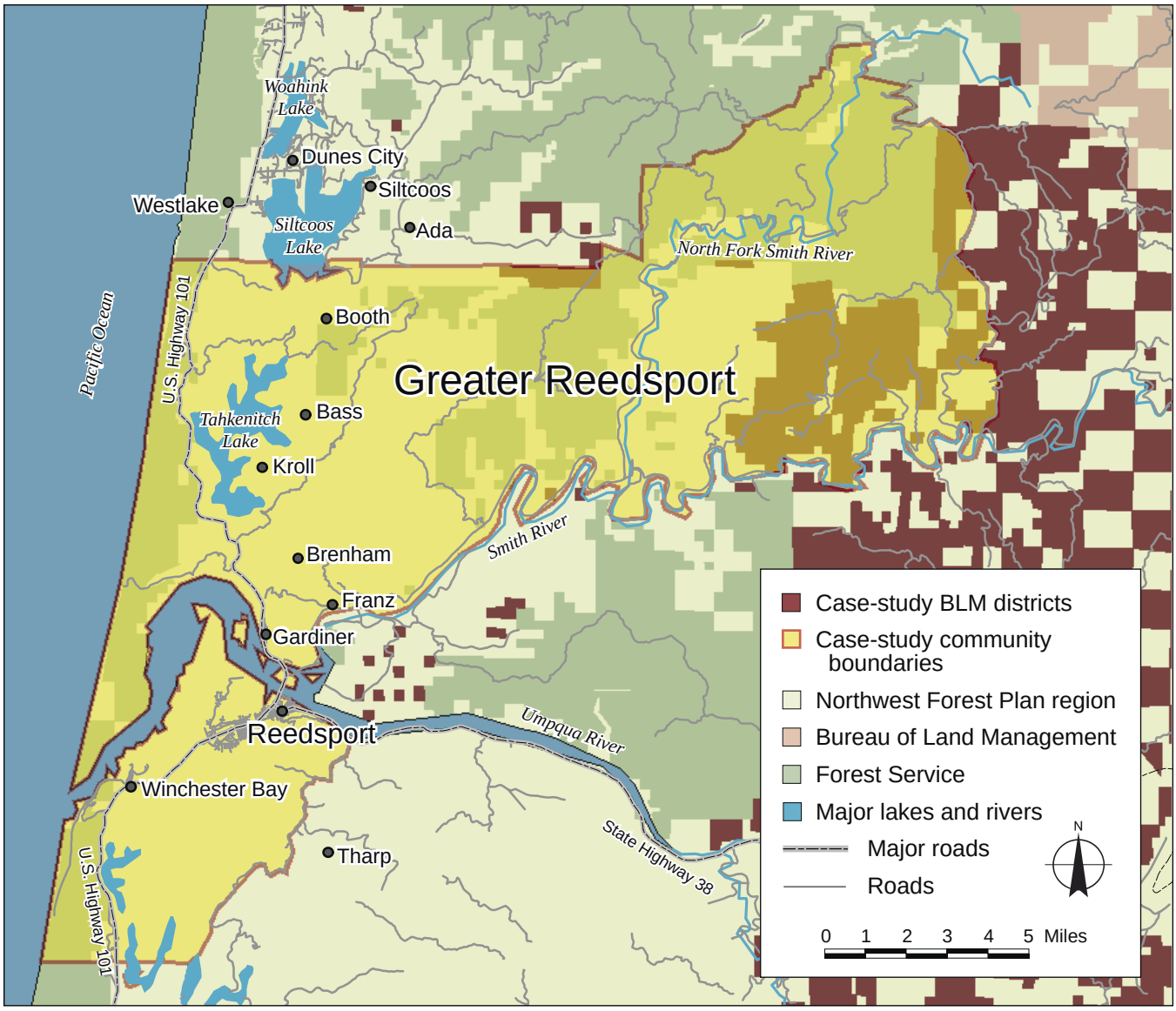

Figure 35—The Greater Reedsport Area case-study community boundaries.

school population declined, and support services such as clothing stores, grocery stores, and gas stations began to close. When reflecting on community changes, the mill's closing often serves as a deeply engrained historical marker for most community members, who discuss timeframes as before and after the mill closure.

Community Change and the Effects of Forest Management Policy

Drawing upon census data, interviews of community members, and planning documents, the following section describes the changes that took place in the social and economic fabric of Greater Reedsport between 1990 and 2004.

Demographic indicators—

The Greater Reedsport area's population decreased 11 percent from 6,246 to 5,545 between 1990 and 2000, while the median age increased 26 percent from 38 to 48 (table 17). In contrast, during this same period, the Douglas County population increased by 6 percent, and their median age increased by 15 percent from 36 to 41.

Table 17—Population and median age in Greater Reedsport, 1990 to 2000

Indicator	1990	2000	Change
			Percent
Total population, CBGA	6,246	5,545	-11.22
Total population, county	94,649	100,399	6.08
Total population, buffer	141,084	151,952	7.70
Median age, CBGA	38.2	48.2	26.18
Median age, county	36.0	41.3	14.72
Median age, buffer	38.9	44.9	15.42

CBGA = census block group aggregate.

Roughly 26 percent of the people living in the Greater Reedsport area are 65 or older, up from 18 percent in 1990 (table 18). Comparatively Douglas County has 18 percent of its population in the same age group, up from 15 percent in 1990. Twenty percent of the Reedsport residents are 0 to 19 years old, down from 28 percent in 1990 or over twice the decrease of the county where the 0 to 19 age cohort represents 26 percent of the population, down from 29 percent in 1990.

Reedsport's population is overwhelmingly Caucasian (fig. 36), and the percentage of Caucasian inhabitants decreased by less than 2 percent from 1990 to 2000. The pattern of racial distribution in Reedsport differs little from racial distribution patterns for the county and the buffer BGAs (see table 19). In 2000, Hispanics constituted 3 percent of Reedsport's population compared to 1 percent in 1990 (fig. 36).

Table 18—Age distribution changes in Reedsport, 1990 to 2000

	Age distribution					
Year and area	0–4	5–19	20–29	30–44	45–64	65 and up
1990 CBGA	459	1,312	607	1,260	1,459	1,149
2000 CBGA	214	942	443	891	1,613	1,442
Change (percent)	-53.38	-28.20	-27.02	-29.29	10.56	25.50
1990 county	6,732	21,116	10,691	21,560	20,017	14,533
2000 county	5,651	20,773	9,929	19,556	26,622	17,868
Change (percent)	-16.06	-1.62	-7.13	-9.29	33.00	22.95
1990 buffer	9,056	28,685	14,524	30,787	31,937	26,095
2000 buffer	7,026	29,038	12,086	27,950	43,081	32,771
Change (percent)	-22.42	1.23	-16.79	-9.21	34.89	25.58

CBGA = census block group aggregate.

Table 19—Percentage of Greater Reedsport population that was Hispanic, 1990 to 2000

Ethnicity and area	1990	2000	Change
		Percent	
Hispanic, CBGA	1.06	3.03	185.85
Hispanic, county	2.21	2.83	28.05
Hispanic, buffer	2.41	3.17	31.54

CBGA = census block group aggregate.

Education indicators—

In 2000, almost 81 percent of the residents 25 and older had a high school diploma with 14 percent obtaining a college degree or higher, a figure similar to Douglas County (table 20). Although the county school enrollment has increased by almost 7 percent, Reedsport's school enrollment has dropped by 14 percent from 1,131 to 972 since 1990. In 2003, this decreased enrollment forced the community to shut the area's middle school, which was based in Gardiner. The high school once accommodated 600 students, but only had 260 before absorbing the seventh and eighth grades. The school district added the sixth grade to their elementary school.

These demographic shifts parallel the interviewees' perceptions of population changes in their community. Most residents mentioned an influx of retirees and a significant decrease in school-age children, noting that Reedsport has become a retirement community. "We as a viable, self-sustaining population are just dwindling away," a resident said. Although the exodus of middle-income working class families had decreased the communities' leadership base, retirees have provided new expertise and broadened volunteerism.

Economic indicators—

Despite a drop in unemployment in the Reedsport area between 1990 and 2000, poverty increased and median household income decreased. Although unemployment has decreased almost 17 percent from 14 to 12 percent between

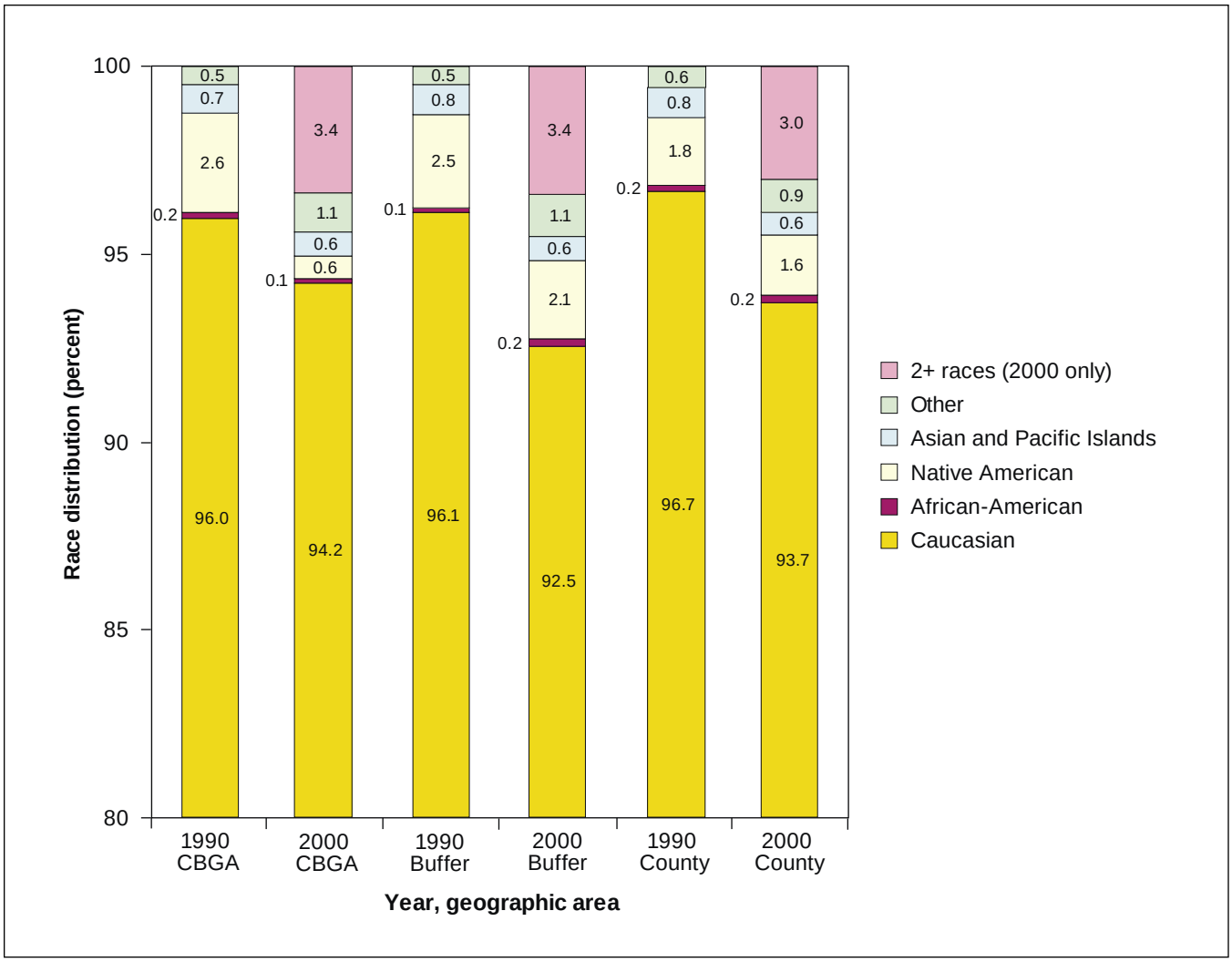

Figure 36—Race distribution in Greater Reedsport, Coos Bay District 10-mile buffer, and Douglas County, 1990 and 2000. CBGA = census block group aggregate.

Table 20—Education data for Greater Reedsport, 1990 to 2000

Indicator	1990	2000	Change
			Percent
School enrollment, CBGA	1,131	972	-14.06
School enrollment, county	18,475	19,694	6.60
School enrollment, buffer	25,682	27,755	8.07
	- - - - - - - - *Percent* - - - - - - - -		
Completed high school, CBGA	73.78	80.86	9.60
Completed high school, county	74.51	80.98	8.68
Completed high school, buffer	76.06	81.62	7.31
Bachelor, graduate, professional degrees, CBGA	11.80	14.05	19.07
Bachelor, graduate, professional degrees, county	11.71	13.30	13.58
Bachelor, graduate, professional degrees, buffer	12.48	14.85	18.99

CBGA = census block group aggregate.

1990 and 2000 in the area, it remains one-third higher than the county's rate of 8 percent in 2000 (fig. 37). More startlingly, median household income decreased almost 7 percent from $30,022 to $27,727 as contrasted with countywide median household income, which increased by 13 percent to $33,223 (table 21). Similarly, poverty rates demonstrate a disparity between this community and the county (table 21). Poverty rates in the census block group aggregation (CBGA) increased by almost 10 percent from 15.2 to 16.6, while the county decreased by almost 12 percent from 14.9 to 13.1.

As of 2000, 48 percent of the households in the Greater Reedsport area had incomes under $25,000 as compared to 37 percent of the households in Douglas County. Twenty-two percent of Greater Reedsport households had incomes of $50,000 or more, compared to 28 percent of Douglas County households (fig. 38).

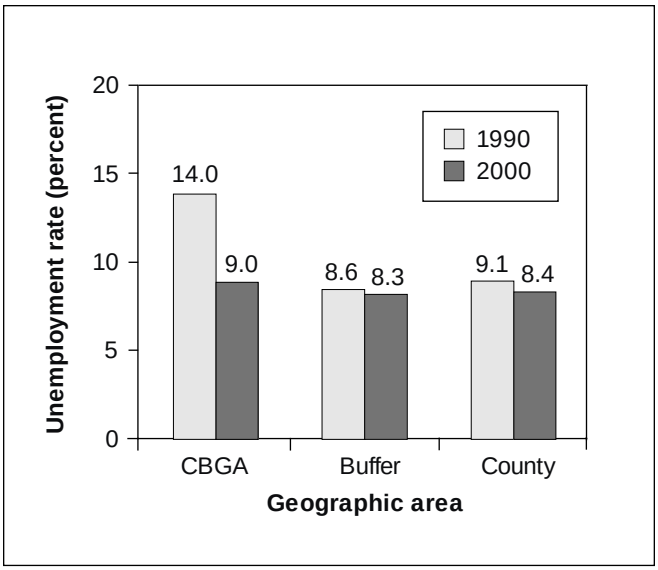

Figure 37—Unemployment in Greater Reedsport, Coos Bay District 10-mile buffer, and Douglas County, 1990 and 2000. CBGA = census block group aggregate.

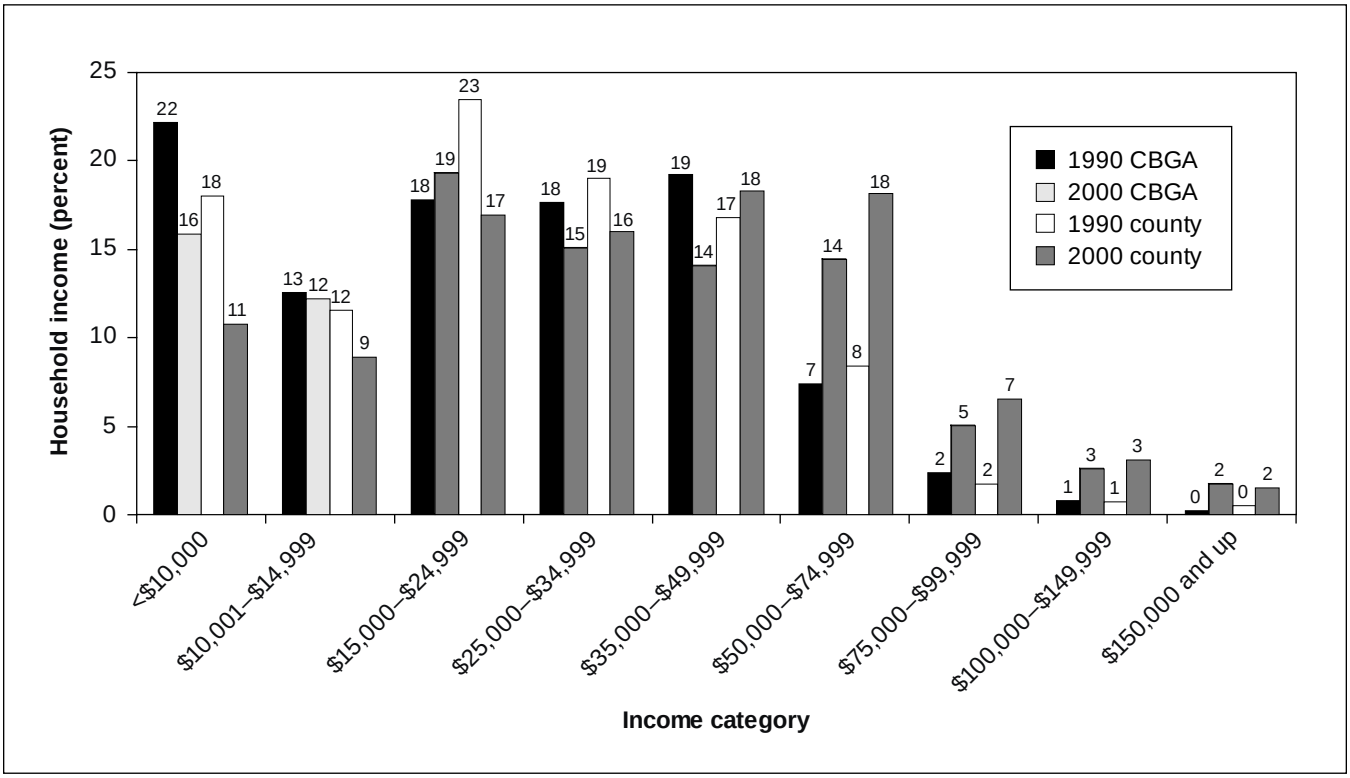

Figure 38—Household income distribution, Greater Reedsport, and Douglas County, 1990 and 2000. Adjusted for inflation, 2000 dollars. CBGA = census block group aggregate.

Table 21—Median household income and poverty rate, Greater Reedsport, 1990 to 2000

Indicator	1990[a]	2000	Change
			Percent
Median household income, CBGA	30,022	27,727	-7.64
Median household income, county	29,404	33,223	12.99
Median household income, buffer	28,381	31,654	11.53
	- - - - - - - -	*Percent*	- - - - - - - -
In poverty, CBGA	15.16	16.61	9.56
In poverty, county	14.86	13.13	-11.64
In poverty, buffer	15.86	14.34	-9.58

CBGA = census block group aggregate.

[a] The 1990 median household income has been adjusted for inflation and is reported in 2000 dollars.

In 1990, Greater Reedsport had a socioeconomic well-being index of 53.94 and figured among the communities ranked "low" in socioeconomic well-being. The community's socioeconomic well-being index rating was 54.40 in 2000, virtually unchanged from 10 years earlier.

Changes in Greater Reedsport's economic structure—

In 1990, manufacturing provided one-quarter of the employment in this community (fig. 39). By 2000 this had fallen to 6 percent. The areas of decline included professional services. As resource-dependent industries (fisheries and timber) have decreased, the primary employment sectors in the Greater Reedsport area have become education and social services, as well as services related to recreation, tourism, and dining out. Construction increased at almost twice the rate of the county. Despite the loss of the two mills, jobs in agriculture, forestry, fishing, hunting, and mining increased from 4 to 7 percent of the area's employment.

Owing to the limited resources available for the study, we did not interview commercial fishermen in the Greater Reedsport community. However, a recent study of Oregon's

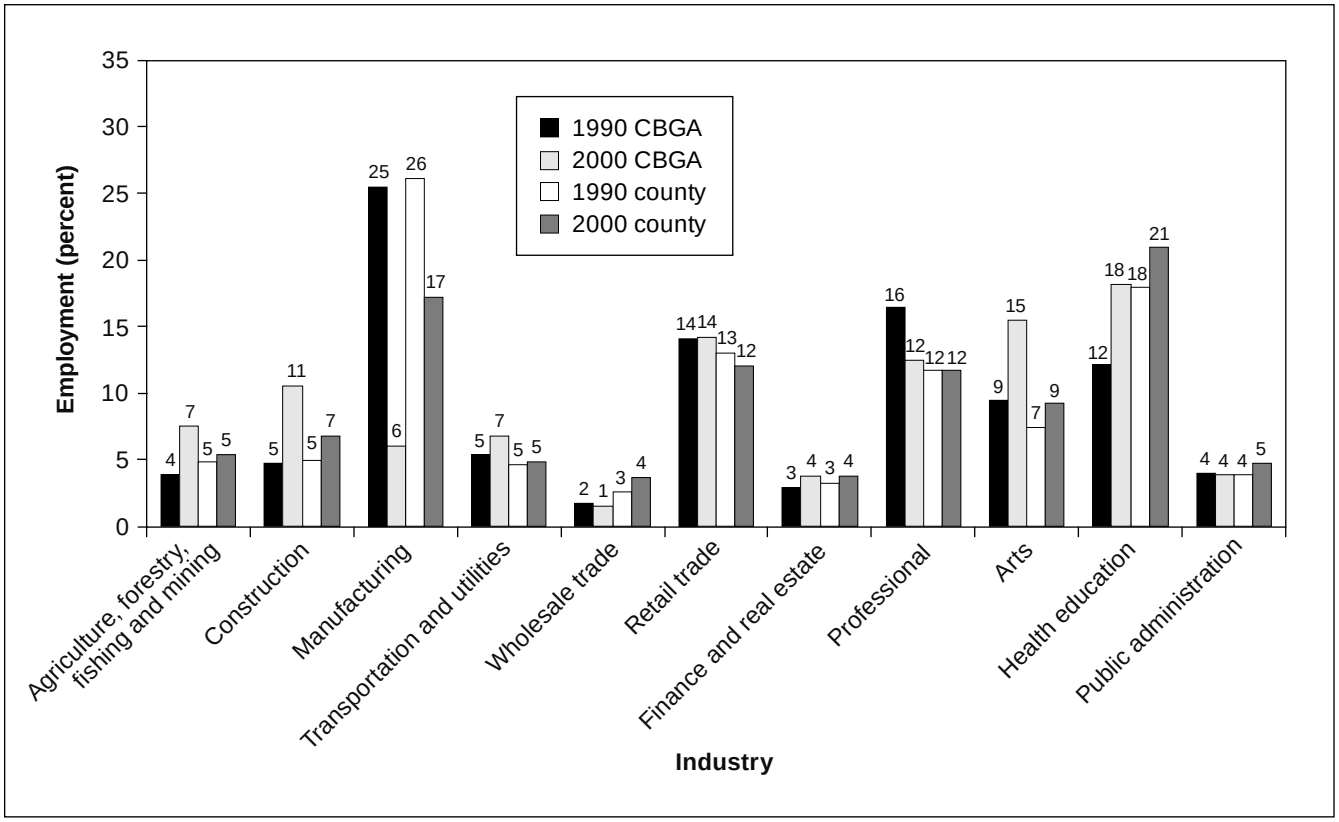

Figure 39—Employment by industry, Greater Reedsport and Douglas County, 1990 and 2000. CBGA = census block group aggregate.

fishery for groundfish suggests that the fishing industry out of Reedsport and Winchester Bay has improved dramatically since 1995. In 2000, fishing vessels in Reedsport and Winchester Bay landed 1.0 million pounds of fish valued at $1.9 million (OCZMA 2002: IV-11). Of this volume, 10 percent consisted of groundfish (OCZMA 2002: IV-11). Between 1995 and 2000, total fish landing value increased by 48 percent, with groundfish landings increasing by 108 percent (OCZMA 2002: IV-12). Roughly 13 commercial fishing vessels operated out of Winchester Bay in 2000, with most engaged in salmon and albacore fishing (OCZMA 2002: IV-12). A local shipyard hires from 58 to 70 workers to maintain the fishing fleet (OCZMA 2002: IV-12).

Interviewees described a town distinctly different now than in 1990. A downturn in the fishing industry in the 1980s coupled with the closure of a large timber mill later in the decade and the closure of a paper mill in the late 1990s created a local employment vacuum. As discussed above, working-age families left the area, and several secondary businesses closed. Many interviewees talked about their communities' inability to sustain small businesses and the limited supply of family-wage jobs. "There is no industry," a resident said. Another interviewee detailed how this affected their population. "For a student who doesn't go onto secondary education, there is a very limited future unless they can afford to go to college and most of them can't. There are very few opportunities for them to get a job that will allow them to sustain a family unit. They will get a college degree and leave."

Despite some of their economic trials over the past decade, residents discussed aesthetic improvements in their community including efforts to revitalize downtown with new sidewalks, lighting, and plants. Several interviewees optimistically mentioned the possibilities of a new local facility operated by American Bridge, as well as improved economic potentials in the tourism trade.

Sociocultural impacts of economic change— Interviewees consistently drew a picture of a community dramatically affected by the closures of two large mills and the loss of 600 family-wage jobs in the past two decades. Limited access to federal timber supplies makes it unlikely that timber will return as a major employer in the area in the near future. "There's an acceptance that that sort of thing [timber] will not come back and we're not hanging our hat on tall trees that grow up around here anymore," a resident said. Interviewees indicated that limited employment opportunities prompted many working-age families to leave the area depleting the community of several leaders, as well as school-age children. The family exodus created a housing glut, decreasing property values, which in turn made the community more attractive to retirees who began moving in and filling the gap left by the younger families.

The community members interviewed expressed diverse opinions about the cause of the mill closures. Several interviewees involved in the timber industry stated that the limited supply of federal timber forced large and small mill closures throughout the area affecting primary and secondary workers. One timber industry employee explained that most private timberlands were on a 50- to 60-year rotation when the Dwyer decision and subsequent lawsuits dramatically decreased their access to old-growth timber on federal lands. Mills tooled for large-diameter wood, including the IP mill, suddenly had an inadequate supply of timber. They stated that competition from mills in the Southern United States, mechanization, and overharvesting on private lands had also played a role in local mill closures. One long-time resident noted that logging practices had contributed to the community's present economic difficulties.

> We logged ourselves to death. I come from a long line of loggers. We harvest like there was no tomorrow. I'm not a Sierra Club type person. I think there is a happy medium. We fish like that ocean or river would go dry. We never found that happy medium in time. We have logged ourselves [to death] and now we have to wait until things get back. Hopefully we learned. Without the logging then you lose loggers, and then you lose the product to take to the paper mill.

Decreased employment and timber revenues dramatically reduced financial support to the schools, which depended heavily on state funds based on a per-student

spending formula and the payments in lieu of taxes drawn from timber income. "The school district is very dependent on wood costs—more so than they know," a resident said. According to a school district employee, Greater Reedsport's school funding predicament constitutes a nationwide phenomenon.

Few of the interviewees specifically mentioned the Plan as a factor in the socioeconomic changes that had taken place in their community between 1990 and 2000. During the interview process, it became clear that many interviewees did not differentiate between different types of federal, state, and large private landholdings when discussing their connection to the forest and the impact of forest management policy. Checkerboard boundaries and a lack of familiarity with BLM land often made it difficult for interviewees to directly relate comments about federal forest land management to the BLM. When asked about their connection to federal forest land, residents often interchanged the Siuslaw National Forest with the BLM within their discussions.

Although some community members spoke clearly about their community's continued connection to the forest, few were familiar with federal forest policy and its implications for the past decade. Interviewees sometimes appeared to confuse policies (i.e., many interviewees incorrectly attributed road closures due to RARE II to the Plan) or had an inaccurate perception of the Plan's specific aspects. Interviewees not associated with the timber industry had limited knowledge of timber harvest levels stipulated by the Plan. In addition, many incorrectly attributed the previous decade's sawmill closure to the drop in timber harvesting associated with the Plan. As the mill closure preceded the Plan by 6 years, there is clearly no direct correlation between that policy and the mill's failure. Decreased access to old-growth timber owing to the Dwyer injunction, however, may have directly affected the sustainability of the IP lumber mill. However, the mill also faced pressures from market globalization and a substantial debt from a factory renovation in the early 1980s. The paper mill, which closed in the late 1990s, also was vulnerable to increased competition and a limited supply of timber residuals.

Interviewees often spoke of the broad impacts of the Plan on the community. Aside from the loss of timber-related jobs, Greater Reedsport lost manufacturing capacity owing to both loss of infrastructure (mills torn down) and the depletion of human capital, such as timber-related skills among the residents. One resident made a projection of the long-term effects of the loss in human capital. "What's going to happen with this mess here is one of these days we're going to need forest resources," he said. "This Nation is going to request that we create wood products and then the skills are lost. We won't have the people 30 years old that can swing out and saw off a tree or do a job that has to be learned."

Residents' perception of loss related not only to economics. "Once the sawmills are down, it doesn't matter that you have wood, even private wood. There is no one to cut it. So you kind of lose it all." With only two small mills operating in the area, few residents remain employed in the timber industry. For a community that identified itself as a timber town and trained its youth for work in the words through high school forestry classes, this has had a large cultural impact. Until the early 1990s, many students expected to go directly from school into timber-related employment. This multigenerational phenomenon has recently ceased.

One long-term resident and property owner argues that their culture has been erased to save endangered species. He questioned this logic. "We have destroyed entire ways of life," he said. "I was born and raised here in the forest. I used to come home at night and take care of my cattle and my family. A large portion of society has gone and nothing has been mentioned of that. Passing down the tradition of the family that has been here for the past 100 years is gone. I think that [culture] is as important as an endangered species, but that has been lost in the shuffle."

Interviewees mentioned hunting, fishing, hiking and all-terrain vehicle (ATV) use as some of the activities for which they used federal forest lands. Although most residents agreed that the forest provided important recreational opportunities for themselves and tourists, they had diverse opinions about forest access. Some folks believed land managers promoted the area in an effort to protect it, which

increased access. According to one resident, the emphasis has changed from land management to provide a sustainable timber yield to one that emphasizes recreational opportunities. They stated that federal agencies were undergoing this shift as a means to generate some revenue they have lost to decreased timber sales.

Some interviewees stated that their access to forest lands had decreased, either because of road closures or increased regulations. The institution of the Northwest Forest Pass and increased fees for permits and land usages created frustration among residents who had always perceived forest lands as their own. "They see it as their backyard and believe they have the right to use those properties as they see fit," a resident said. Others see the closures as a useless waste of resources. "There are a lot of hard feelings over the road closings," an interviewee stated. "We paid a lot of money for those roads, but now they're digging them up to save the salmon."

Increased outreach for tourism combined with these new fees created tension among residents who believe that visitors suspecting policy violations may turn residents in for normal practices such as wood burning. "We need to be careful what we're doing that might be perceived as doing something wrong from someone hiking or driving by, someone from the city."

Mostly interviewees indicated that road closures created less access to the forest. They noted increased protection for endangered species and decreased timber revenue means less money for maintaining the roads. "I don't think people realized that when timber sales went away that those other things [trail, road, and recreation site development and maintenance] would go away," a resident said.

Community Adaptation to Change and the Role of District Assistance

Greater Reedsport interviewees listed a variety of ways in which they felt the community as a whole had responded to the changes that took place in the 1990s. As indicated in the discussion of these responses below, all of them centered around economic diversification. Strategies included developing community strategic planning, improvement of existing infrastructure, and developing infrastructure to support efforts to attract new industrial manufacturers and tourism businesses.

Lower Umpqua Economic Development Forum— Since the downturn in the timber industry, the Greater Reedsport area has worked to diversify its economy by increasing tourism and recruiting nontimber industries. In response to the sawmill closure, Rural Development Initiatives (RDI) began working with Reedsport area residents in 1992 to create a Community Response Team. This group, which later became the Lower Umpqua Economic Development Forum, developed an economic development strategic plan in 1993 (RDI 2003) that called for:

- Job creation and downtown revitalization.
- Worker training in emerging technologies.
- Infrastructure development and maintenance.
- Quality of life improvement by developing housing, recreational, and cultural opportunities, and an active living environment.

Over the past decade, the forum, which has become a nonprofit corporation, has continued to work toward economic diversification and viability.

In 1998, the city of Reedsport commissioned Elesco Consulting of Sun River, Oregon, to develop a West Douglas County Economic Diversification Strategy. The plan recommended an increase in ready-to-build sites and ready-to-lease industrial buildings for smaller manufacturers. In addition, the plan recommended targeting Bolon Island as a site for a larger company (RDI 2003). The discussion below about American Bridge has more detail.

In 1999, the forum spearheaded the Reedsport Renaissance Campaign, a five-point economic development program, which includes marketing and revitalization. As part of these efforts, groups provided seminars, developed and disseminated brochures, recruited outside businesses, and encouraged residents and businesses to improve local appearances. With assistance from RDI, the forum completed an updated strategic plan in 2003. In their continued capacity-building effort, RDI has partnered with the Ford Foundation to bring leadership training to Reedsport area residents starting in early 2004.

Infrastructure development—
Owing to the many agencies involved in the NEAI and the lack of a reliable publicly accessible centralized list of all NEAI-funded projects and programs (Kusel et al. 2002), it is difficult to accurately estimate the amount of NEAI funding that went into the Greater Reedsport community. However, coastal Douglas County secured NEAI funds for several economic diversification projects aimed at developing its physical infrastructure so as to enhance its ability to attract new industries. Key projects included Salmon Harbor Marina improvements, planning and site preparation to attract the American Bridge Company to Bolon Island, and economic assistance for the Lower Umpqua Discovery Center.

American Bridge—
In 2000, Douglas County purchased Bolon Island, a 156-acre land parcel located in Gardiner, from Willamette Industries as a means to attract industry (Grill 2003). Subsequently, an engineering firm developed a master plan, facilities located on the premises were demolished, and the county began marketing the area (Hammond 2002). In February 2002, American Bridge, a 100-year-old Fortune 500 company selected the Bolon Island site for their west coast headquarters. American Bridge broke ground on their steel fabrication plant in July 2002 with the intention of investing $10 million in the manufacturing facility and corporate headquarters. Several agencies provided resources to ensure this project's success. "It was awesome because granting agencies came out of the woodwork to help us," a city employee said. American Bridge's determination to locate in the Reedsport area created optimism in a community struggling to diversify its economy. "We were on a downward spiral and that gave us hope," a resident said. However, the economic downturn of the early 2000s hindered the company's ability to achieve its goal of creating 80 to 100 jobs by the end of 2003.

Port of Umpqua—
Fred Wahl Marine Construction has operated a ship repair facility on the Port of Umpqua's industrial site since 1991. However, decaying infrastructure made it increasingly difficult for this business to operate. To ensure the port's ability to serve this client and expand services to potential clients, the port secured funding from the Economic Development Administration (EDA) and Oregon Special Public Works Fund to repair pilings and the center section of the main dock. According to a former port employee, these repairs completed in 1996 helped coastal Douglas County maintain 32 positions and expand jobs in a field not dependent on timber or fisheries.

In 1996 the port obtained funds from the Forest Service's Rural Community Assistance Program to develop a pilot project to assist small ship repair and fabrication facilities within Oregon's coastal areas to observe the Best Management Practices related to compliance with state and federal environmental regulations. The money provided technical assistance and physical improvements to assist Fred Wahl Marine Construction to comply with the regulations. The grant application cited retention of 36 full-time jobs as rationale for the project. The company currently employs 50.

Salmon Harbor Marina—
Traditionally a fishing community, Winchester Bay has struggled to diversify its economy after decreased catches and fishing quotas forced the closure of the existing 10 charter boat businesses in the 1980s and 1990s. Watching their Marina decrease from 900 to 500 slips, officials of the Salmon Harbor Marina, which is administered through a cooperative agreement with Douglas County and the Port of Umpqua, decided that they needed to find another industry to support them through the downturn in the fishing industry. They embarked on the construction of a 142-site recreational vehicle (RV) campground, including a community recreation pavilion and playfields.

Some local RV campground owners expressed concerns about the possible loss of business owing to additional competition but later endorsed the project after Salmon Harbor Marina unveiled its plan to charge premium rates for camping. The Marina RV resort serves more than 15,000 people annually, and brings in more than $570,000 in additional revenue to Salmon Harbor Marina. The expansion of their services and location of four new businesses in the harbor has extended their tourist season, created three permanent and five temporary county positions, and brought in more revenue to the local economy. "The Winchester Bay economy is a bright spot on the Oregon coast because of that [the expansion of Salmon Harbor Marina]," a forum member said.

Umpqua Discovery Center—
In the early 1990s, the City of Reedsport, the Lower Umpqua Chamber of Commerce, the Port of Umpqua, the International Hero Foundation, and local businesses began working on riverfront revitalization efforts. The group planned to develop a tourism-oriented commercial center for the riverfront area, which included the Umpqua Discovery Center as the cornerstone followed by commercial shops and possibly a business incubation center. Collaborators hoped that this development would assist with local economic diversification and create new jobs by promoting visitor attractions and commercial development.

The Umpqua Discovery Center secured funds, including some NEAI monies, for the development and construction of the museum and its initial exhibits. Run by the city, this facility has 1.5 full-time staff members, 25,000 visitors annually, and generates $90,000 in annual revenue. Several entities including the BLM and Forest Service have provided ongoing support for the Discovery Center both in cash and in-kind services. The Forest Service provided grants for several of the center's exhibits, as well as money for printing brochures. The BLM supplied the museum with an exhibit about the elk viewing area (discussed in chapter 5) and sponsored an intern at the center for several years.

A city employee attributes the tripling of Discovery Center's membership growth in the past year to the community's connection to the new exhibits. "It reflects our community and they embrace it," she said. A fundraiser attended by about 300 people in October 2003 supports this statement. The center has been active in community happenings, provides a meeting place and plays a central role in the Tsalila Festival, which is discussed in more detail in chapter 5.

BLM's role in community adaptation—
Both the BLM and the Forest Service assisted the Greater Reedsport Area in their bid to adapt to their community's new economic reality. In addition to NEAI grants that provided infrastructure and financing to recruit outside industries, these federal agencies often collaborated with local entities in their efforts to enhance tourism (see chapter 5, "Collaboration and Joint Stewardship"). Recreational options on federal forest lands, nature viewing opportunities at the Dean Creek Elk Viewing Area, and assistance with local festivals such as Tsalila (see chapter 5) are a few of the assets used by Reedsport to enhance their tourism draw.

Despite acknowledging key roles the BLM has had in the Tsalila Festival and the Dean Creek Elk Viewing Area, interviewees felt that the BLM only actively engaged in community issues or economic development that related directly to federal lands. "They are good partners in Tsalila, but they have an interest in it," a resident active in economic development said. "But with other activities such as community economic development, master planning, tourism, developing resources, there's a big reluctance to get involved." Several interviewees agreed that the BLM lacked presence at community meetings related to these issues. One person noted limited staffing and resources make it difficult to be actively engaged. With their district offices in Coos Bay, 25 miles from the Greater Reedsport area, the BLM remains somewhat distant from the community.

Contracting opportunities on federal forest lands also diminished after implementation of the Plan. With fewer

timber sales, the need for road construction, thinning, and other procurement contracts declined. One local company experienced a 75-percent decrease in such contracts. Another local company that focused on salvage harvesting and road maintenance decreased its staffing from 35 to 15 in the past decade. The owner attributed this downsizing to less federal contract work. "Contracting with the BLM over the past 10 years has been virtually nil," he said.

Contracting no longer provides an important source of jobs locally, said an interviewee who argued that the work that does exist is often unsustainable. For example, the watershed restoration work funded with RAC and JITW funds in coastal Douglas County consists primarily of short-term contracts. Larger contracts for timber harvesting no longer exist, a logger said. Instead, contracts that used to provide long-term employment are now broken into smaller segments that may need to be completed months apart. These short-term jobs create complications for small logging businesses that need to accurately project revenue to determine equipment and personnel needs.

Three interviewees noted that outside companies were securing most of the local contracts especially in watershed restoration. "A lot of people in the last few years started their own companies and it seems like they come in and pick up the work instead of our companies," a retired business owner said. He added that bonding, often a 3-year process, capital outlay, and liability policies presented barriers to former mill workers who wanted to switch to contract work. Another resident stated, "A start-up business can't access adequate funding."

Community assets in coping with socioeconomic change—

Maintaining access to recreational family-based activities, catering to retirees with disposable income who spend months traveling in their RVs, and enhanced and collaborative marketing have all contributed toward the Greater Reedsport Area's ability to increase their tourism base. In addition, an influx of resources from diverse governmental entities has allowed Reedsport to develop physical infrastructure, which enhanced its attractiveness to tourists and facilitated securing a Fortune 500 company. The county worked with local agencies to develop a vision that helped focus their development activities, allowing for collaborative actions among diverse organizations. Finally, a close connection with a federal representative helped the community secure financing for development in Salmon Harbor through federal appropriations.

County support	State support	Federal support
• Purchased Bolon Island • Shared loan with the city of Reedsport for infrastructure development. • Provided a vision for Salmon Harbor and helped secure money to implement the vision. • Negotiated with the BLM for a land transfer into their name, which allows for increased tourism options. • Provided economic incentives for American Bridge.	• Provided tax incentives for American Bridge. • Developed a team that worked with the community to enhance their economic development capacities. • Recruited businesses to their state and market Reedsport as a potential manufacturing location.	• NEAI funding • Federal appropriations bill

High levels of social capital also facilitated community adaptation. Although competitive tensions still exist between Winchester Bay and Reedsport, which are both seeking tourism dollars, the communities have a combined Chamber of Commerce and share advertising and marketing costs. They work together to develop a calendar of festivals and community happenings that do not compete with each other and often find themselves contributing resources to mutually beneficial projects.

Barriers to coping with socioeconomic change— Factors hindering Greater Reedsport's adaptation to changing socioeconomic conditions included competition with other timber communities for new businesses and economic development funding, community members' reluctance to let go of their community's timber and fishing town identity, and lack of investment in building leadership capacity.

As one of literally hundreds of communities impacted by the downturn in the timber industry, Reedsport found itself facing heavy competition to attract businesses that could provide family wage jobs. Their location, 60 miles off the Interstate-5 corridor, and limited lands available for industrial use created challenges for their business recruitment strategy.

With a deep, rich connection to the natural resources surrounding their area, many of the community members interviewed voiced a reluctance to change their community's identity and abandon their hope of resurgence in timber and fisheries industries. Even when asked to categorize their towns today, many interviewees labeled Greater Reedsport a timber or fishing town. A few interviewees considered coastal Douglas County a tourist destination, but others had trouble naming a community identity.

Focusing investments in infrastructure often results in communities overlooking other capacity needs. In Greater Reedsport, a dwindling timber economy and mill closures prompted an exodus of younger families and with these families some current and future community leaders. Despite the need for enhancing its human capital, Greater Reedsport invested few NEAI monies in cultivating and expanding its leadership base.

Changing Relationships Between the Community and the Coos Bay District

During the past decade, the BLM has served as a partner in several programs or projects that affect the Reedsport area including watershed restoration work, the Dean Creek Elk Viewing Area, Tsalila Festival, and the Umpqua Discovery Center. Interviewees expressed diverse opinions about the level and quality of collaboration the BLM has had within the community and whether that has changed over the years. For example, several interviewees stated that the BLM has been conspicuously absent from regular economic development activities within the community. However, a resident active in watershed restoration activities noted that the BLM seemed more engaged in their community within the past couple of years.

> Someone has motivated the BLM to interact more with the councils and the local communities. They are showing up at some meetings and listening to the concerns and then sticking around to work through them instead of leaving. They have found a few individuals who are willing to look past the initial concerns and actually let things work out.

A landowner who shares diverse boundaries with the BLM stated that his company has an excellent working relationship with the district. Additional insights about BLM collaboration are provided within the context of projects discussed in chapter 5.

Chapter 5: Communities and Forest Management

Collaboration and Joint Stewardship

The Northwest Forest Plan's (the Plan) primary objective was to enable the USDA Forest Service and the Bureau of Land Management (BLM) to fulfill their statutory obligation to provide adequate protection for the northern spotted owl (see app. B for scientific names of species), marbled murrelet, and other threatened or endangered species. The framers of the Plan believed that the ability of the federal agencies to fulfill this mandate hinged upon the development of better and more diverse communication networks between the federal land management agencies and local communities. The following section thus examines the changes that took place with respect to the district's collaboration with various layers of local government, as well as nonprofit organizations and private firms involved in ecosystem management activities in the Coos Bay region.

Federally Mandated Collaborative Efforts

The Plan mandated the establishment of provincial advisory committees (PACs) and adaptive management areas as mechanisms for promoting collaborative relationships between local communities and the Forest Service or BLM. No adaptive management areas fell within the jurisdiction of the BLM Coos Bay District. The Coos Bay District falls within the geographic area covered by the Southwest Oregon Provincial Advisory Committee.

Provincial advisory committees—
An indepth assessment of the PACs lies outside the scope of this study. However, several interviewees commented on the PACs in the process of describing ways the relationship between the BLM and their communities have changed during the past decade. The following themes emerged from these comments.

- The PAC facilitated communication among stakeholders. The PACs initially served as a forum for bringing together diverse stakeholders with a history of poor communication with each other. Specifically, the PACs created avenues of communication between the BLM and environmental or conservation organizations, as well as between environmental or conservation organizations and timber industry stakeholders. One interviewee associated with the Coos watershed association, for example, noted that BLM was "key in getting us onto the PAC." She added, "That's important because that gave us a voice at a table where all the various players were."
- The PAC was unable to address the key issue of concern to the timber industry, a key stakeholder group. The PAC representatives interested in seeing the district attain the maximum allowable sales quantity (ASQ) for timber harvesting under the Plan withdrew or diminished their level of participation when it became clear that the PAC did not have the ability to influence timber harvest levels.
- The Coos Bay ecoregion did not fit well within the PAC. In developing the PAC boundaries for southwest Oregon, the planners lumped Coos Bay in with communities from the east side of the Coast Range and Siskiyous. The long distances, rugged mountain terrain, and limited all-weather road systems connecting the east and west portions of the southwestern Oregon ecological province make it difficult for many participants to take part regularly in meetings.
- The Forest Service and BLM played a heavy-handed role in the PAC. Interviewees who commented on the PAC observed that it was very clearly a top-down process, designed and dominated by the Forest Service and BLM.

Resource advisory committees—
The resource advisory committees (RACs) are not an element of the Plan, and thus the Coos Bay BLM RAC did not constitute a major focus of this study. However, we gathered some data on the local RAC because the Secure Rural Schools Act that authorized the creation of RACs resulted from direct political action on the part of communities seeking to mitigate the social and economic distresses linked to the implementation of the Plan. In addition, since 2001, the RAC has served as an important mechanism for channeling funds to the watershed associations.

Members on the RAC represent a balance between the environmental community, timber industry, commodity, and recreation interest groups; and government officials, educators, and general members of the public. The RAC members review and recommend projects proposed by the public, as well as local, state, and federal agencies. Legally, RAC projects funded with Title II funds must enhance or restore forest ecosystem health, promote land stewardship, or maintain or improve existing infrastructure, such as roads. A RAC can approve Title II-funded projects on private or state lands as long as the projects also benefit federal lands.

In Coos County, the allocation of RAC Title II funds has become controversial. A number of interviewees stated that the RAC's chairperson, who is also a Coos County commissioner, has pressured other RAC members to veto all projects that serve solely an ecosystem restoration function. When interviewed, the RAC chairperson observed that the county is in a funding crisis. He thus considers it irresponsible of the RAC to allocate funding to watershed restoration projects that do not address infrastructure maintenance needs. The power dynamics on the RAC have meant that during the past 2 years, the RAC has chosen not to fund any projects aimed at improving fish passage, instream fish habitat, and tidal spawning grounds unless such projects also address road maintenance priorities. Projects that coincide clearly with the county's designated resource management priorities, including road stabilization projects and noxious weed control, currently receive the bulk of Coos County's Title II funds. It is too early to assess how effective the Coos Bay RAC has been in meeting its ecosystem restoration mandate.

Community-Based Stewardship Efforts

The communities of Greater Coos Bay, Greater Myrtle Point, and Greater Reedsport, as well as the Coquille Tribe and the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw, worked jointly with the Coos Bay District on several large-scale, ongoing joint forest management projects. The district had the ability to participate intensively in these partnerships during the mid-1990s because its funding and staffing levels remained relatively constant while the demand for timber sale design and implementation dropped precipitously. The Coos Bay District Manager's decision to take a proactive approach to the economic changes taking place during the late 1980s and early 1990s meant that the district was prepared to capitalize on the resources available for ecosystem restoration and management partnerships as soon as the Plan went into effect. The following section provides an overview of the three major types of joint natural resource management partnerships in which the Coos Bay District played a major role during the 1990s and early 2000s: (a) watershed restoration, (b) nature-based tourism and environmental education, and (c) resource management assistance to the Coquille Tribe and the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw.

Watershed restoration—
The Coos Bay region has a history of broad-based and extensive community involvement in fisheries conservation and enhancement. As early as the 1970s, Coos Bay District employees started working to improve instream fish habitat in southern coastal river systems by placing large wood debris into streams and building gabions to facilitate gravel deposition. One interviewee described the work they were doing as "trying to set the bones back in the stream." Oregon Fish and Wildlife Department also has a long history in fish habitat improvement efforts in the Coos Bay area. In 1983, the Oregon legislature created the Oregon Salmon Trout Enhancement Program (STEP) to encourage community involvement in fish rearing programs, as well as a few scattered habitat improvement projects (Heikkila 1999: 11). During the 1980s, several environmental conservation partnerships emerged in coastal Oregon to address some of the factors contributing to declining fish stocks (Heikkila 1999: 11). Some of these programs, most notably the Bring Back the Natives program, involved federal agencies working with industrial forest landowners, agricultural landowners, and state agencies to accomplish restoration projects at a watershed scale (Heikkila 1999: 11).

Interest in participating in watershed restoration work on the part of south coast community members expanded greatly in the early 1990s owing to a combination of three events: (a) the National Marine Fisheries Service threatened to file to list the coastal coho salmon on the federally endangered species list, (b) the Oregon Department of Environmental Quality designated the lower Coquille River as having limited water quality, and (c) in 1993, the Oregon legislature established the Watershed Health Program and included $10 million in funding for demonstration projects in northeastern and southwestern Oregon (Heikkila 1999: 11). As part of the Watershed Health Program legislation, the legislature requested that the counties encourage the formation of local watershed councils to develop and implement watershed restoration.

In 1993, the Coos County Board of Commissioners created the Coos County Watershed Coordinating Authority to administer the $3.5 million in funds coming to the region from the Watershed Health Program (Heikkila 1999: 11). The commissioners appointed the members of the organization, who numbered more than 80 (Heikkila 1999: 11). Meanwhile, a coalition of large industrial landholders, the Coos Bay District, and the South Slough reserve had already developed a strategy and a list of pilot projects for improving fish passage in the Coos River watershed. They approached the coordinating authority for funding but were told that the county would only fund projects in the Coquille watershed that the county had identified as a priority for restoration efforts. The Coos River watershed stakeholders established their own watershed association, the Coos Watershed Association; they incorporated as a 501(c)3 nonprofit organization in 1994 and applied directly to the Watershed Health Program for funding to carry out their vision. Shortly thereafter, stakeholders in the Coquille watershed followed suit, but opted to let the Coos County Soil and Water Conservation District administer its project funds.

Under the original legislation governing the Watershed Health Program, watershed associations only needed county endorsement, rather than county approval, to qualify as recipients for program funds. Although representatives from the county sit on the boards of the original watershed associations, owing to their nonprofit status, the county does not exercise member selection, financial management, or decisionmaking authority over the associations. Funding for the program now comes from lottery dollars. The Oregon Watershed Enhancement Board administers the funds.

Watershed groups operating in the Coos Bay cluster case-study communities include the Coos Watershed Association in Greater Coos Bay, the Coquille Watershed Association in Myrtle Point (based in Coquille), and the Smith River Watershed Council in Greater Reedsport. The following section provides an overview of the organizations' activities, the Coos Bay District's contribution to each association, characteristics that have helped them function effectively (if they have), and the challenges the associations currently face.

Coos Watershed Association—
The Coos Watershed Association is headquartered in Charleston and operates throughout the Coos River watershed. It has a 19-member board, including representatives from all the major landowners in the watershed, as well as stakeholders from ranching and agriculture, fisheries and aquaculture, nonindustrial woodlands, maritime commerce, the confederated tribes, and several at-large members. In 2003, the association operated on a budget of just less than $1 million (Coos Watershed Association, n.d.). Approximately 30 percent of the association's budget came from funds provided through the Northwest Economic Adjustment Initiative (NEAI) (via U.S. Fish and Wildlife Service [USFWS]) or Jobs-in-the-Woods (JITW) (via the BLM) (Coos Watershed Association, n.d.). As of July 2004, it had a staff of five employees (Coos Watershed Association, n.d.). The Coos Watershed Association's mission is, "To provide a framework to coordinate and implement proven management practices, and test promising new management practices, designed to support environmental integrity and economic stability for communities for the Coos Watershed" (Coos Watershed Association, n.d.). The Coos Watershed Association emerged in large part from the desires of the South Slough reserve managers in the early 1990s to restore the South Slough to conditions more

closely approximating those present at the time of European contact. Of the reserve's 4,700 acres, 4,000 consisted of forest. Consequently, the South Slough managers became interested in how the county, which had forest lands adjacent to the reserve, managed its forests. From the South Slough reserve's perspective, which looks up the watershed from the mouth of the Coos River, the ideal restoration program would encompass the entire watershed.

As the South Slough manager and county forester pored over maps of the watershed, they realized, in the words of the South Slough manager, "If you had the right eight people in the room, you had 80 percent of the land in the watershed covered." Three of the larger landholders in the area were public agencies: the BLM, Elliott State Forest, and Coos County. Two private timber companies, Weyerhaeuser and Menasha, owned most of the rest of the watershed. The county forester, who had a working relationship with Weyerhaeuser and Menasha, approached company managers about the possibility of combining forces to develop a watershed-wide restoration program.

As one founding member of the association described, the process of putting together a cooperative alliance of key stakeholders in the polarized atmosphere of a mill town on Oregon's south coast in the early 1990s was a laborious one.

> They called in significant individuals, people working with Weyerhaeuser and Menasha. They talked with BLM because they had 10 percent of the land. They brought in Elliott State Forest, the port, and the influential ranchers. The discussions went on for months. At first it had to be done one on one. There were a lot of fears about power. People were afraid of the political ramifications. So they talked about structure and working in a way to avoid controversial issues.

Meanwhile, the National Marine Fisheries Service was threatening to file a listing for the coastal coho salmon as a federally endangered species. According to the South Slough's manager, the threat that the USFWS might list the coastal coho served to bring the private timber landholders definitively to the table:

> That was the real catalyst here for change, the threat of listing. It wasn't spotted owls and marble murrelets, but "What is the salmon listing going to do?" With the riparian setbacks people were thinking, "Good gracious!" The timber industry was used to owl circles. But down here there are streams everywhere. So the salmon listing was the thing that got people very nervous.

In 1994, a South Slough biologist wrote the association's first proposal for funds from the Governor's Watershed Enhancement Board, which administered the Watershed Health Program at the time. The board approved the funds, and restoration activities in the Coos River watershed began. To minimize conflicts among stakeholders unused to working together and with different environmental value systems, the Coos Watershed Association opted to tackle the obvious problems, such as culverts in the uplands that impeded fish passage and also contributed to soil erosion and road destabilization. Over the years, the Coos Watershed Association accomplished a variety of projects, including fish passage improvements, instream habitat restoration, and road stabilization. Recently the association initiated a comprehensive monitoring program to measure the effectiveness of the work that it does on the ground. It has also started an assessment of watershed conditions in the lowlands.

Many interviewees expressed positive views about the watershed association and its restoration activities. One timber company employee, for example, noted that the success of the culvert program had prompted his company to construct additional cross drains to minimize road erosion. He added that by investing in watershed restoration, his company both improves the region's water quality and increases the likelihood that they can stay in business:

> It's been very successful. We've minimized sedimentation. But the greater value to us is that we continue to be in business. Our 200,000 acres is going to be subject to regulation. We need to make money and have clean water, habitat, and so on. It's a question of overall stewardship.

He observed that the group's focus in the uplands, where the number of landowners was limited and where they could easily come to agreement over the need to decrease soil erosion and improve fish passage, helped the association develop a reputation for doing useful work early on. In his view, "The association is a good model of being responsive to landowner concerns, plus enhancing the value of fish and habitat." A former South Slough employee reiterated the importance of broad-based support in the organization's success. The employee noted that unlike some of the newer watershed councils, the Coos Watershed Association "was formed by a whole group, not just 2 or 3 people with the others there for window dressing." Additionally, the first president of the board, a well-respected BLM employee, was widely viewed as neutral in the political debates about forest management.

Interviewees commented that the 1998 Wyden Amendment, which allowed the Coos Watershed Association to use JITW funds to work on private lands, played a pivotal role in expanding its ability to appeal to a broader group of landowners, particularly smallholders in the Coos River lowlands. The Coos Watershed Association also participated in the Hire the Fisher program to provide displaced fishermen with watershed restoration jobs. Over the years, the Coos Watershed Association has developed a reputation for its businesslike approach, an approach that fits well with the corporate culture of many of the board members. Projects are put out for bid to protect the association from accusations of unfairness in the way it selects contractors. Nearly all of the contracts go to local firms, a practice that also gives the association a favorable image locally.

As with most organizations, the Coos Watershed Association has encountered many challenges to its efforts to accomplish its mission. In talking with people active in or familiar with the association, we identified two major challenges that the association is currently facing: maintaining a common goal and tense relations with the county.

Maintaining a common goal—Having completed the "easy" work in the uplands, the association has turned its focus to restoration activities in the lowlands. Working in the lowlands has proved much more complicated, partially owing to the much larger number of landholders. Also participants disagree as to whether restoration activities commonly carried out in lowland area, such as tidegate removals and riparian fencings and plantings, should be encouraged. Although such activities may help restore the tidelands and improve water quality, not all landholders are anxious to have their lands converted from pasture into wetlands or their livestock fenced off from their accustomed access to water. Additionally not all stakeholders are convinced that the kinds of projects being proposed will increase fish populations or improve water quality parameters. To address this issue, the association has recently established a watershed-wide monitoring program to gather data that will ascertain progress toward project objectives.

Tense relations with the county—Despite stepping off on its own in the mid-1990s, the Coos Watershed Association maintained good relations with Coos County officials through the 1990s. As described in the following quote by an interviewee active in getting the association up and running, the county played a key role in the process.

> Coos County was one of our biggest supporters. Coos County gave us money as a gift to help us with bridge problems early on. [The county forester] volunteered to let us use their land. We gained the trust of the larger corporations with the county's help.

Over the past few years, however, relations between the association and the county have become increasingly strained. Because of the unwillingness of interviewees to discuss this aspect of the association, it is difficult to state with certainty the sources of tension. However, it appears that the tension has to do with large amounts of funding going to an organization that is independent of the county, thus making it difficult for the county to insist that the funds be used to address the county's priorities rather than the association's.

Role of the BLM in the Coos Watershed Association—A broad spectrum of interviewees stated that the Coos Bay District played a pivotal role in the development and

evolution of the Coos Watershed Association. The district's contributions included technical assistance from its engineers, hydrologists, and biologists; millions of dollars in JITW funds; provision of meeting and office work spaces; access to the district's geographic information systems (GIS) database; access to the district's watershed assessment data; in-kind support in the form of buses and drivers for field trips; and the political weight of having upper level managers participate in the association. One interviewee described the Coos Bay District as "one of the players," and emphasized that "their door was open" to the association.

Coquille Watershed Association—
As in the Coos Watershed Association, in 1994 the founders of the Coquille Watershed Association chose not to remain under the Coos County Watershed Coordinating Authority and instead incorporated as a 501(c)3 nonprofit. However, unlike the Coos Watershed Association, the Coquille Watershed Association initially opted to let the Coos County Soil and Water Conservation District administer its project funds. The partnership between the association and the conservation district eventually proved unworkable because of differences in project priorities and disagreements over the allocation of overhead funds. In 1998, the Coquille Watershed Association took over the task of administering its own funds and has since operated independently of the Soil and Water Conservation District. Its mission is similar to that of the Coos Watershed Association, "[To] provide an organizational framework to coordinate the assessment of the watershed's conditions; implement and monitor proven management practices; and test new management practices that are designed to support the environmental integrity and economic stability for the communities of the Coquille Watershed and adjacent areas (Coquille Watershed Association 2005).

The Coquille Watershed Association has a very different structure from the Coos Watershed Association because land ownership in the Coquille Valley is much less concentrated. In 1991, private nonindustrial landowners owned 30 percent of the land in the Coquille Watershed, 17 industrial timber companies owned 26 percent, the BLM managed 23 percent, the Forest Service 10 percent, and state and local governments 1 percent (Interrain Pacific 1997). The Coquille Watershed Association has 250 members, many of whom are actively involved in projects and meetings. A 27-member executive council, composed of a broad range of stakeholders, oversees the association and makes decisions by consensus. The association operates on an annual budget of roughly $1 million.

At one time, the association had two work crews, one funded through the JITW program and the other funded through the Hire the Fisher program. The Hire the Fisher crew worked on fencing and planting projects, whereas the JITW funds provided displaced timber workers training in how to use heavy equipment and how to apply for federal contracts. When the funding for those programs declined in the late 1990s, the association reorganized the two crews into one crew that focuses on restoration activities. The association initially viewed the JITW worker program as a training program that would provide displaced workers with the skills needed for them to apply for their own restoration work contracts. Limited local demand for restoration services, however, meant that few workers secured their own contracts. The association now views the formerly displaced workers as part of its regular workforce, and uses its crew to work on projects in the watershed, as well as in neighboring watersheds. The Coos Watershed Association no longer has its own crew, and contracts out some of its work to the Coquille Watershed Association's crew.

The Coquille Watershed Association carries out a wider variety of projects than the Coos Watershed Association, which focused on fish passage improvement and road stabilization in its beginning years. Although the Coquille also focused on fish habitat enhancement in its early years, it shifted more rapidly to doing other work. Key activities carried out by the Coquille Watershed Association include instream habitat restoration, culvert replacement surveys, noxious weed control, snowy plover and wildlife habitat restoration, snag inventories, tree planting, and riparian fencing. Between 1994 and 2002, the association carried out projects with more than 210 landowners and has a waiting list of landowners interested in future work on their holdings (Coquille Watershed Association 2005). The association has received national, state, and local awards

for the contributions its members have made to watershed restoration and rural workforce development.

The Coquille Watershed Association has also maintained a very active connection with local communities through the educational system. For example, association members worked from 1995 to 2001 with a local high school teacher who had developed a watershed analysis curriculum for his school. He obtained a grant through the Watershed Health Program to train students how to do instream monitoring. The class worked in both the Coos and Coquille Watersheds. He later helped set up a riparian monitoring database for the association. Two watershed association members also worked with local teachers to train them in the use of a watershed curriculum developed with a Watershed Health Program grant.

Importance of JITW and the Plan—The association initially faced strong opposition from local landowners, many of whom distrusted activities supported by the state and federal land management agencies. To overcome this distrust, the association decided to tackle a few small projects in several parts of the watershed. This approach enabled the association to build up broad-based support for its activities over time. One community member observed that the JITW program may have contributed to the association's initial successes, as it was difficult for landowners to say no to the JITW crews who they knew had no other work options. Another association member stated that a "lot of people came around to it, because they got work on their property for free."

Several interviewees commented that the timing of the Plan helped the association tremendously, as it funneled more money into the area than would otherwise have been available. The fact that the Coquille and Coos Watershed Associations existed prior to the Plan also meant that they had the organizational structure and accountability measures in place to persuade the BLM, Forest Service, and USFWS to allocate large amounts of funding for early projects.

Role of BLM in the Coquille Watershed Association—Interviewees stated that BLM played a key role in initiating the Coquille Watershed Association and has continued to serve as an important source of projects over the past decade. Key contributions from BLM include technical assistance in writing proposals and developing contracts; millions of dollars in funding through the JITW program; smaller amounts of funding through Challenge Cost Share agreements; and assistance with engineering design, GIS, and database construction.

Most of the interviewees viewed the Coquille Watershed Association as a positive addition to their community. They linked the success of the association to the following characteristics: (a) use of a neighbor-to-neighbor approach initially to build trust, (b) working only in areas where the landowners wanted the association's help, (c) the ready availability of a large funding stream early in the association's life cycle, (d) the association's adoption of a politically neutral position, (e) a high level of commitment from many watershed residents, and (f) the early adoption of transparent bidding practices for contracts.

Although a decade old now, the Coquille Watershed Association still faces many challenges. According to interviewees, these include (a) greatly increased competition for funds with the rapid expansion in the number of watershed councils in Oregon, (b) increased administrative costs as funders have become more stringent about oversight, (c) ongoing tension between the association and the soil and water conservation district, along with an increasingly tense relationship between the association and one of the county commissioners, and (d) uncertainty about the demand for restoration work over the long term, and thus uncertainty as to whether the association is providing its crew members with marketable career skills.

Umpqua Basin Watershed Council—
From 1997 until May 2001, the Umpqua Basin Watershed Council implemented restoration projects in the watershed that impacted the Reedsport area. Based on community feedback, in 2001 the Douglas County Board of Commissioners established the Smith River Watershed Council to improve local opportunities to address the natural resource management goals and be more effective by including a balance of local interested and affected persons. This new council gained authority to coordinate watershed restoration

activities in some of the land area previously served by the Umpqua Basin Watershed Council.

Technical assistance from the BLM and allocations from the Secure Rural Schools and Community Self Determination Act, Title II monies administered by the Coos Bay District Resource Advisory Committee has helped the relatively new watershed council begin work on local projects. This connection has improved a historically contentious relationship between the Coos Bay District and local landowners. "The BLM has gotten … more acclimated to the people and situation and have actually been a big help," a local landowner said. "They are more aware of our concerns and not an active threat to them."

Local property owners, unhappy with federal dictates related to their private land management, have historically regarded BLM employees skeptically. "They [BLM employees] come to the local farmers and tell them certain things that they can and cannot do without explaining the long-term reasons, without showing them the long-term benefits and without showing them long-term alternatives."[1] This communication gap often has an impact on property owners' perceptions and willingness to cooperate with federal agencies, including the BLM. "It's really tough to keep a group together so that they will communicate and listen to land managers and administrators and try to work out differences," said a resident active in watershed restoration. He added that a BLM presence at meetings and a community member willing to serve as an intermediary who can translate between the two groups helps break down barriers.

Nature-Based Tourism and Environmental Education

Historical context—

By the mid-1980s, many communities in the Coos Bay area recognized that they could no longer rely on the wood products industry to supply predictable, long-term employment or income-generating opportunities for the majority of the region's inhabitants. Early economic diversification efforts focused on recruiting new businesses and industrial facilities to the area. Economic developers paid relatively little attention to developing the region's tourism infrastructure for several reasons. First, Coos Bay is relatively remote from large population centers and thus does not attract large numbers of weekend visitors to the area. Second, Coos Bay lacks centralized, spectacular attractions that would make it an obvious viable candidate as a destination tourist spot. Third, the tourism infrastructure in south coast communities was limited, and relatively few of the tourists who passed through the region were tempted to stay and explore a region in which mill sites, log booms, and chip piles dominated the bays and river systems. Fourth, the tourism industry has the reputation of offering primarily seasonal and low-paying jobs.

In the early 1990s, blue-collar workers continued to leave the area, but the number of inmigrants gradually began to exceed the number of outmigrants. Many of the newcomers came to the area because they had been attracted by the area's scenic beauty and recreational opportunities. Yet the central recreation and tourism dilemma of the 1980s remained: How do you build a sustainable tourism economy in an area characterized by the presence of many small dispersed recreation and natural history sites? Additionally, how do you construct a tourism economy that minimizes the seasonality and low-wage kinds of positions often associated with areas highly dependent on tourism?

Developing a vision—

As described in Chapter 3, by the late 1980s, recreation planners at the Coos Bay District had recognized the need to improve its existing recreation infrastructure and acquire new kinds of sites, such as the Dean Creek Elk Viewing Area, Floras Lake, Cape Blanco, the North Spit, and the New River Area of Critical Environmental Concern. Meanwhile, managers at the South Slough National Estuarine Reserve wrestled with how to develop an environmental education program focused on teaching a broad spectrum of people, locals and visitors alike, about the importance of estuarine ecosystems. Simultaneously, local chambers of commerce struggled with how to support local businesses providing services to short- and long-term visitors. At the

[1] It is likely that interviewees in Reedsport had confused BLM regulations with Forest Practices Act regulations. The former do not apply to private land, whereas the latter do.

same time, employees and board members of the local economic development corporations—the Ports of Coos Bay and Bandon, and the Coos County Department of Economic Development—continued to explore viable economic alternatives to the rapidly declining timber, shipping, and fishing industries.

In the early 1990s, a critical mass of interest in developing a sustainable tourism sector emerged in the Coos Bay region. By the mid-1990s, a variety of local organizations, state agencies, and federal agencies had embarked on a concerted regionwide effort to support the development of the infrastructure needed for what participants in the effort refer to as "nature-based tourism." The vision consists of constructing a tourism industry that revolves around environmental education and the interest that many people, locals and visitors alike, share in learning about the environments in which they live, work, and play. In brief, the vision consists of three components:

- A broad-based communications and information-sharing network, embodied in a group called Oregon Coastal Environments Awareness Network (OCEAN).
- The physical manifestation of that network, known as Coastal Environments Learning Network (CELN).
- A range of educational programs and events to link people more closely to the cultural and natural environments surrounding them.

Constructing a communications network and laying out the vision—

Prior to the mid-1990s, a variety of local, state, and federal organizations in the Coos Bay area had missions that included environmental education. However, each group or agency had developed its programs independently of the others. Then OCEAN emerged in 1993 out of a growing awareness among these disparate organizations that sharing information and resources could create a much stronger set of environmental education programs with less likelihood of duplication. The mission of OCEAN is to "provide a forum to plan, facilitate and promote information and programs related to natural and cultural resources for residents and visitors to the [Coos Bay] region" (OCEAN 2005). The network encompasses the area from Florence to Brookings and from the top of the Coast Range to the Pacific coast. Twenty-one organizations, including local governments, private firms, state and federal agencies, schools, business associations, interpretive and historical societies, and two tribes compose the network.

The Coos Bay District was a key player in the network's creation, as well as instrumental in nurturing it through its early years. According to one of the leaders of the network, the following factors enabled BLM to participate effectively as a member of OCEAN:

- A strong commitment from upper level management to the partnership.
- Close involvement of high-level administrators in the planning process.
- Provision of in-kind and small, but critical monetary contributions to OCEAN projects.
- Recognition on the part of BLM participants of the importance of letting ideas come from the community rather than trying to impose the agency's agenda on the group.
- The ability of BLM participants to let others take the lead.

Over the past decade, OCEAN has acquired a reputation of developing well-researched yet age-appropriate environmental education exhibits, curricula, and interpretive sites. Members work closely with the local school districts, and encourage the development of interactive learning opportunities. Members of OCEAN have constructed interpretive exhibits for the North Bend Visitor Information Center, which serves as one of the gateways, or information hubs, where locals and visitors can find out where to go to learn about Coos Bay's natural and cultural history. More recently, OCEAN developed a Marine Activities, Resources, and Education curriculum that the Coos Bay School District and other local school districts have tested and adopted.

In addition to on-the-ground educational projects, OCEAN also spearheaded efforts such as CELN to create a clearly defined network of environmental learning sites and opportunities. One of OCEAN's founders explains the concept of the CELN as an effort to move the concept of a

museum diorama one step further by providing visitors an opportunity to briefly embed themselves in the south coast's cultural and natural landscapes, rather than merely viewing them from the outside. In late 1994, a consulting firm assisted OCEAN in putting together a feasibility study for creating a hub facility for the network, as well as identifying potential key nodes, in the form of existing sites, to integrate into the network (Portico Group 1995: 185).

The participants sought to develop a plan that would eventually lead to the establishment of a centrally located learning facility, which they "envisioned as the focal point of a dynamic network of sites linked by educational, interpretive and research programs aimed at bringing to life the richness and complexity of the Oregon coast for adults and children…[and] an understanding of how the coastal environment influences and shapes the plant, animal and human communities of the region" (Portico Group 1995: 5).

Through the planning process emerged a framework consisting of a learning and resource center hub facility, several satellite nodes, and an undetermined number of dispersed sites. The network sites represented the five major coastal environments: ocean, shoreline, rivers, estuaries, and uplands. Because the participants proposed including sites managed by a variety of public and private organizations, they also needed to create mechanisms to link the sites and coordinate activities. They envisioned two sorts of linking mechanisms: key nodes that would serve as learning sites, but which would also introduce visitors to outlying sites; and a central hub facility, which would provide visitors an introduction to the entire network (Portico Group 1995: 5).

The design had the advantage of not requiring a huge investment in any one site immediately to get the concept going on the ground. Some of the partners developed interpretive materials for the dispersed sites and key nodes, and others created brochures to inform visitors of the array of sites available. For the CELN concept to work, however, group leaders realized that they needed to insert it into broader community and economic development conversations. They thus worked to incorporate their vision into a county-wide NEAI-funded strategic tourism plan (INTRA 1996: vii). Three plans emerged from the county-sponsored planning process: (1) a Tourism Facilities and Infrastructure Development Plan, (2) a Marketing Plan, and (3) a Program for Action (INTRA 1996: 5).

The Tourism Facilities and Infrastructure Development Plan called for Coos County to "establish its identity and marketing image based on its rich natural environment and the complementary wealth of opportunities for learning (INTRA 1996: 17). The plan recommended that Coos County develop the infrastructure suitable for a vacation destination spot. The plan laid out a variety of private, public, and tribal projects that were either already in progress (e.g., Bandon Dunes resort, The Mill Casino and Hotel, Euphoria Ridge Mountain Bike Trail, New River Area of Critical Environmental Concern), or warranted attention (i.e., a new visitor center in North Bend, a Coastal Environments Learning Center, the Bal'diyaka Interpretive Center, and a North Spit recreation area).

Community members interviewed during this study expressed mixed views of the tourism planning process and the projects that emerged out of it. Interviewees involved in economic development organizations tended to view it favorably. For example, a Port of Coos Bay employee commented that the tourism plan was important because it addressed the "need for partnerships given the lack of resources in each organization." He noted the plan continues to guide activities in the Coos Bay area, "The plan is still there. We all refer to it. It hasn't just sat on the shelf." Another interviewee observed that the tourism strategic planning process brought together a group of organizations that previously had not worked with each other. During the planning process, they "learned a lot about each other." A Coquille Valley resident stated that the tourism strategic planning process was important because it enabled the community to gain the attention of the state when it organized a governor's conference on tourism in 1998. In her view, the community's ability to put on a conference of that magnitude marked the point at which "the state started to realize that we were serious about tourism." However, she also pointed out that without businesses like the Bandon Dunes golf course "coming on line," the area's tourism industry would not have experienced the prosperity it has in recent years.

Interviewees associated with the timber industry, as well as several local government officials and employees, had a much less positive view of the tourism strategic planning effort. In their perspective, the Coos Bay area would be better off if BLM focused on providing timber sales instead of spending resources on developing tourism, which many viewed as a sector dominated by low-paid seasonal work opportunities.

Through the tourism strategic planning process, community members selected the North Bend visitor information center to serve as the initial central point for distributing information about the CELN to visitors arriving on the south coast until a central hub learning facility could be established. The CELN feasibility study participants identified Coos Head as the most suitable site for the network's central hub educational facility. Linear sites, such as hiking trails, bicycle trails, and water trails, would also form part of the network. Additionally, participants in both the CELN feasibility study and the tourism strategic plan process identified existing or potential community-wide events that could help attract visitors to the area.

Implementing the vision—
With the visions and strategies laid out, the next step consisted of transforming the vision of a coordinated network of dispersed sites into physical reality. Struggles over who would acquire ownership of a key parcel being disposed of by the U.S. Navy, have precluded the creation of a hub site on Coos Head. However, over the past decade, the CELN has developed a number of the key node sites and now hosts several community-wide events annually. Three projects in which the BLM took an active role, either as a lead partner or an important player, are described below. The New River Area of Critical Environmental Concern and the Cape Blanco Lighthouse would also have made equally informative case examples, but lie outside the central study area (i.e., Greater Reedsport, Greater Coos Bay, and Greater Myrtle Point).

The Dean Creek Elk Viewing Area—The Dean Creek Elk Viewing Area highlights successes and challenges faced by the BLM as it sought to expand its collaborative ecosystem management efforts. In the mid-1980s, residents in the Dean Creek area formed a steering committee, which later became Dean Creek Wildlife Incorporated, to prevent the Port of Umpqua from acquiring the site for development as an airport (USDI and ODFW 1993). In March 1987, the newly established organization joined forces with BLM and the newly formed Oregon Department of Fish and Wildlife (ODFW), to raise funds to create an elk preserve in this meadow located along a major state highway 3 miles from Reedsport. The district and its community partners established an interpretative center, restrooms, and a wetland viewing area on the site. Several interviewees attributed the Dean Creek Elk Viewing Area's successful development to BLM's collaborative efforts and broad community participation. One interviewee summed up this view, "They really embraced that project and raised funds to make that a reality."

Broad participation in the facility's establishment and maintenance has created a sense of ownership among Reedsport area residents. "Everyone in this community regards the elk viewing area as their own," a nonprofit administrator said. With an increased reliance on tourism, interviewees see Dean Creek as a part of its changing identity. They also consider it an increasingly important part of their economic development strategy, which one resident described as "a nonintrusive source of tourism." Another interviewee added, "It's how people know where Oregon, the Central Oregon Coast, and specifically where Reedsport is." Residents provide much of the interpretive support for the facility, volunteering as docents on weekends.

Despite favorable impressions of the BLM's involvement at Dean Creek, some residents stated that at times the BLM was not a good steward of its own land. One interviewee pointed to the agency's initial reluctance to fix tide gates, noting that these gates keep out tidal influences, and thereby turn into pasture areas that would otherwise be wetlands. The BLM biologists preferred to manage the land in ways that would permit the land to return to its natural state. However, in the face of widespread opposition, the BLM recreation planners decided to preserve the pastureland and worked with other agencies to repair the gates.

Tsalila Festival—
The Tsalila Festival, a salmon festival and series of educational programs developed to promote shared resource stewardship throughout the Umpqua Basin, is named after the Coos Indian village of Tsalila, which no longer exists. Since 1998, the first year of the festival, government agencies, nonprofit organizations community interests, local tribes, and schools have collaborated to accomplish Tsalila's common goals of watershed restoration, education, and economic development.

The Tsalila Festival has two main components: (a) working with students on watershed restoration projects and environmental education and (b) hosting an interactive festival, which serves as a forum to promote natural resource awareness. During the festival, more than 2,000 sixth- and eighth-grade students from Douglas County gain first-hand experience about the watershed. Nearly 8,000 participants take part in the festival activities. Festival planners said that participation had increased by 10 percent annually since its inception.

The BLM and Forest Service combined provide approximately $15,000 to $20,000 in funding for Tsalila annually. The BLM relies on its Challenge Cost Share program, which is set aside to pay for projects that benefit wildlife or culture, to support the festival. Interviewees stated that this program increased links within the community particularly between the Winchester Bay and Reedsport Chambers of Commerce and the school district, as well as expanded and strengthened community interactions with the BLM and other federal and state agencies.

Many interviewees knew about the Tsalila Festival and BLM's ongoing support, stating that BLM was an important contributor to the event's success. According to BLM staff, this project fits their mission to assist with community economic development. "The idea was that, because it was a fishing and timber town falling on economic hard time this would extend their tourist season beyond their typical Labor Day shoulder so they [tourists] would be spending more dollars in the community," a BLM employee stated. A survey completed last year indicated that approximately 65 percent of the attendees came from outside the local area, suggesting that the event does, indeed, increase the amount of money flowing into the community.

***Coos Regional Trails System*—**The Coos Regional Trails Partnership emerged in 1999 as a formal mechanism linking efforts of several community groups, the Forest Service, and the Coos Bay District to expand the area's limited trails system (CRTP 2000: 4). The idea of linking these disparate efforts into one partnership took root in the mid-1990s when trails development proponents worked together on the Coos County tourism strategic and implementation plan (CRTP 2000: 4). A feasibility study conducted by University of Oregon researchers concluded that the region had the potential to attract more visitors if local organizations and agencies could develop and market an expanded trail system for diverse users (CRTP 2000: 4).

To implement the researchers' recommendations, interested parties put together a formal memorandum of understanding establishing the Coos Regional Trails Partnership (CRTP 2000: 5). More than 30 organizations, ranging from ad hoc grassroots associations to state and federal agencies, joined the partnership. These groups represented a diverse set of trail users, including mountain bikers, hikers, horse-riders, off-highway vehicle riders, and kayakers (CRTP 2000: 5). Between 1998 and 2002, the partnership obtained grants to construct more than 20 miles of bicycle trails. To encourage local and outside use of the region's trails, the partnership developed a series of trail guides and descriptions, and created a display for outdoor trade shows in the Willamette Valley cities. Funds from the NEAI were used to conduct trail inventories and develop a Web site and trail guides to attract users from outside the region.

According to interviewees, Coos Bay District recreation staff played a pivotal role in getting the Regional Trails Partnership started. One local bike club member described BLM's input as follows:

> BLM gave us legitimacy. They facilitated the EIS for the trails. We couldn't have done that. They put the trail on the maps. They organized the meetings…They held economic development meetings at Bridge and Myrtle Point. They did a presentation on the bike trails.

The district also provided office space, supplies, and equipment, as well as sponsorship for the volunteers who conducted the trail inventories and developed trail guides.

In 2002, the partnership began losing steam, which interviewees attribute to several factors. Some members became involved initially because it was a project that would benefit their children. Once their children had graduated from high school and left the area, their interest waned. Others became frustrated with local opposition to some of the more promising trails projects, such as a Rails-to-Trails route between Coquille and Powers and a water trails system on the Coquille River

To revive the organization, in 2004 the partnership established stronger links to OCEAN, which serves as an umbrella group for local organizations to obtain funding. District employees played a key role in reviving the partnership. The group is once again seeking funding to construct and maintain trails, with the goal of eventually creating a multipurpose all-terrain vehicle trail that makes a loop from Reedsport to Winchester Creek through the Coast Range and along the coastline.

District-Tribal Collaborations

Coquille Tribe—

In the course of carrying out their management responsibilities, Coos Bay District employees have occasion to collaborate in projects, meetings, and other activities with both the Coquille Tribe and the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw. As noted in chapter 3 of this report, the district archeologist works closely with both tribes on a variety of projects, including archeological excavations, documentaries, and ethnobotanical restoration projects. The dispersed distribution of the Coquille Tribe's newly acquired forested parcels provided them and their neighbors, including the BLM, an incentive to work together in managing their lands from 1998 onward. Over the past few years, BLM employees have collaborated with the Coquille Tribe on timber sales and cultural resources management projects on the Coquille Forest. The district archeologist observed that the requirement that the Coquille follow Plan standards and guidelines when managing their forest played an enormous role in improving BLM-Coquille Tribe relations, "They had to follow the rules that BLM is subject to for land management. It helped us cement the relationship because we're all in the same boat."

The BLM and the Coquille Tribe also worked together to protect one of the tribe's sacred sites and camas grounds near Euphoria Ridge when the Regional Trails Partnership began constructing a mountain bike trail system near Bridge. The district archeologist describes the relationship as mutually beneficial, "We chip in money and they chip in money—it's a win-win situation." The Coquille tribal forester spoke favorably of BLM's efforts to work with the tribe to restore and protect the Euphoria Ridge meadows, noting that they had provided some of the funds to make the project possible. He stated that he believed that the BLM was a "good asset for the tribe," noting that "money to do these things would be difficult for us to come up with."

Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw—

During the early 1990s, the district worked with the confederated tribes to develop a plan for establishing an interpretive center, known as Bal'diyaka at a site near Charleston called Gregory Point. However, when the initial plan was finished, community members pointed out that the BLM had failed to do an environmental impact statement (EIS) on the project. The district acknowledged its error and in 1996, published a final EIS for the project. After reexamining the situation in response to public comments, in 2000 the district manager issued a decision memo to take no action, effectively eliminating the possibility of the confederated tribes constructing an interpretive center on Gregory Point for the foreseeable future. Despite this setback, a tribal member interviewed during the study viewed the collaboration with BLM as generally positive, "It's been helpful to work with them [BLM] on these sites and they have been understanding of and trying to meet the tribes' needs."

Incentives for and Challenges to Community Collaboration

Incentives—
Key incentives BLM employees mentioned for engaging in community collaborations included opportunities for (a) improving the district's relationship with stakeholders, thereby reducing management conflicts or reducing management costs; (b) expanding funding available to the district (i.e., JITW and Challenge Cost Share funds, for example, require BLM to develop partnerships as part of the funding package); (c) leveraging or pooling resources with other stakeholders to accomplish management objectives; (d) obtaining statewide recognition for participation in successful partnerships; and (e) earning cash awards and district recognition for involvement in collaborative efforts.

Community members listed a variety of incentives to participate in collaborative efforts with the Coos Bay District, including access to (a) substantial amounts of funding; (b) BLM's technical expertise in engineering, watershed restoration, fish biology, recreation planning, information technology; (c) office space; and (d) supplies and equipment.

Challenges—
Key challenges BLM employees mentioned to engaging in broad-based collaboration between the district and communities included (a) increasing workloads associated with other district activities; (b) concerns about spreading the district's resources too thinly, and thus the need for focusing on a narrower range of collaborative activities; (c) the emergence of new land management priorities (i.e., the district's current priorities are watershed restoration, noxious weed control, and stewardship contracting); and (d) a tendency of community groups at times to not recognize the legal limitations under which agency employees must operate.

At the community level, interviewees identified a range of perceived barriers to community collaboration with the BLM. These included (a) decreased levels of funding BLM is able to commit to projects; (b) turnover of key personnel involved in some collaborative projects, creating frustrations about the time needed to bring replacement personnel up to speed; (c) distrust as to the district's long-term commitment to some projects (i.e., tourism planning and trails system development) as management priorities shift; and (d) difficulties in understanding the rules that govern the decisions the district can make.

Protecting Noncommodity Forest Values

The primary objective of the Plan was to ensure that the Forest Service and BLM managed the lands under their jurisdiction in a manner that would allow the continued survival of northern spotted owls and marbled murrelets. Many of the Plan's standards and guidelines thus sought to encourage the protection or creation of late-successional forest stand structures and processes. The Plan also went a step further by adopting a "do-no harm" guiding management philosophy, and by setting into place a series of provisions, such as survey and manage and Aquatic Conservation Strategy requirements, to forestall harm to other potentially threatened or endangered species. As part of this study, we thus asked respondents to comment on the extent to which the Plan protected environmental values, as well as other noncommodity values, that they considered important.

Environmental Values

Interviewees fell into the following three categories with respect to their views on how well the Plan protects environmental values:

- The Plan is a good start, but doesn't go far enough to protect environmental values.
- The Plan harms, rather than protects environmental values.
- The Plan provides too much protection for environmental values.

The Plan is a start toward ecological protection—
Most of the interviewees not associated with the timber industry stated that despite its flaws, the Plan was an important first step toward protecting environmental values on district land. Several interviewees who frequently fly across the Coast Range noted that the large clearcuts they used to see on federal lands are no longer visible from the plane. In their view, this indicates that the agencies are managing the forest in ways that are more likely to protect ecological values, which they consider a good thing. A few foresters also stated that prior to the Plan, the BLM had

been selling more timber than was sustainable, as evidenced by the number of landslides and the high erosion rate. In their opinion, the decrease in harvest volume was warranted from an environmental protection standpoint.

Interviewees who worked in watershed restoration tended to speak favorably of the Plan's environmental protection impacts. For example, they identified the watershed restoration aspect of the Plan as key elements in contributing to the large runs of salmon in 2003. The interviewees who categorized themselves as environmentalists expressed the most dissatisfaction with the Plan from the standpoint of how well it addressed environmental protection goals. One of these interviewees was disappointed that some of the forest in the matrix allocation consisted of old-growth stands that could be harvested. In her view, no old-growth stands should have been included in the matrix allocation owing to the limited amount left in the Coos Bay District. Instead, she wishes that the Plan had restricted harvesting strictly to thinning the reforested areas in the late-successional reserve allocations. She added, "There's more being done now than 10 years ago, but it's not enough." However, another interviewee, who also considers herself an environmentalist, observed that, while well-intentioned, the Plan had created so much anger because of unworkable requirements under the survey and manage and the Aquatic Conservation Strategy that its ability to provide any real protection is currently in jeopardy from timber industry efforts to loosen up the restrictions to pre-Plan levels.

The Plan harms environmental values—

Most of the interviewees associated with the timber industry, as well as many local government officials, held the view that the Plan harms rather than protects environmental values. They noted that much of the harm is the result of unintended, but very real, on-the-ground consequences of the agencies' implementing the standards and guidelines laid out in the Plan. Many interviewees, for example, observed that in shifting federal lands to a longer rotation, the Plan has created pressure for private, county, and state forest land managers to shorten their rotations. The loss of a steady supply of large-diameter timber has encouraged mills to retool for smaller diameter logs. With fewer mills able to process larger logs (over 32 inches in diameter), landowners selling timber are unable to get as high a price for large-diameter logs and thus prefer to harvest in the 24- to 32-inch range. Additionally, the uncertainty as to whether 10 or 20 years from now they will be allowed to harvest larger diameter trees at all has also led some landowners to shift to a shorter rotation cycle.

Several interviewees in Greater Coos Bay and Greater Myrtle Point described situations in which the process under the Plan's standards and guidelines to get approval to haul timber over existing roads on BLM property or to construct short sections of new roads over BLM property had become so cumbersome that they preferred to build much longer roads on private land, thus increasing the overall potential in the watershed for erosion and fish passage alterations. Three interviewees commented that the Plan negatively affects the forest ecosystem because it does not adequately take into account the role of floods, landslides, and low-frequency, very-high-intensity fire in shaping forest structure and composition in the Coast Range. They noted that the Plan is structured at such a broad scale that it inappropriately applies management guidelines crafted to address conditions on one ecosystem to other systems with different conditions. Additionally, one interviewee observed that a flaw in the Plan is that, "It doesn't take into account the fringes of any species." In his view, the BLM and Forest Service "need a different set of rules for the heart versus the fringe," when establishing guidelines for species protection.

Many interviewees observed that since implementing the Plan, the Coos Bay District has increased the risk of catastrophic fire in the region. They identified Plan guidelines to leave dead and dying wood on the ground in cutting units as one potential source of fire danger. However, in their view, the areas presenting the greatest fire danger are unmanaged old-growth stands, which they noted have high fuel loadings as a result of a century of active fire suppression, and late-successional reserves composed of stands that had been clearcut and which are now regenerating. This view contrasts with Umpqua National Forest Wildfire Effects Evaluation Project (USDA 2003) findings, which evaluated fire risk in forested areas adjacent to the Coos

Bay District. The evaluators concluded that areas managed as tree plantations present the highest risk of fire. Old-growth stands hold more moisture and are thus less susceptible to ignition. The old-growth stands are relatively few in number and limited in size and thus do not pose as significant a danger as the previously harvested late-successional reserve areas.

Many of the interviewees who believed that the Plan had increased the risk of fire also stated that the Plan had negatively affected the region's fire-response capacity by decreasing the need for woods workers, who historically were the first people to respond to reports of fires; inhibiting fire suppression access through road closures and decommissionings; and inhibiting firefighters' access to water owing to riparian reserve restrictions. One community interviewee stated that the Plan has encouraged the spread of noxious weeds. In his view, because of herbicide use restrictions, particularly in riparian areas, the Plan has increased the amount of work needed to remove existing patches of noxious weeds.

The Plan is overprotective of environmental values—Some interviewees affiliated with the timber industry commented that the Plan's standards and guidelines were overly strict. In their view, for example, the Plan target level is too small relative to the rate of growth in the Oregon and California Railroad Company (O&C) forests. One interviewee noted that the survey and manage guidelines did not reflect the actual abundance of some species categorized as in need of extra protection, and thus accorded protection that their abundance did not warrant. Another observed that the Plan's thinning regime for late-successional reserves did not make sense for the Coos Bay area, where a large percentage of the late-successional reserves contain 50- to 70-year-old stands in need of thinning. An interviewee who does restoration work said that the Plan's inventorying and monitoring requirements had done little to protect the environment. In his view, the BLM would have accomplished more if it had invested the survey and manage funding into restoration work.

Recreational/Subsistence/Spiritual/ Quality-of-Life Values

Views on how the Plan had affected recreational, subsistence, and spiritual values that community members place on the forest also differed. A small number of interviewees stated that the Plan had negatively affected noncommodity kinds of values, primarily by decreasing browse for deer and elk, and limiting road and off-road vehicle access for hunting and pleasure riding. The majority of interviewees, however, expressed favorable views, noting that they strongly approved of the improvements the BLM has made in campgrounds, trails, and interpretive facilities. Several of the interviewees who hunt regularly stated that the road closures had actually improved hunting opportunities as the game in areas with closed roads was less likely to be scared off by vehicle traffic.

Issues and Concerns Relating to Forest Management

Coos Bay District employees and community members identified the following issues and concerns about forest management on the Coos Bay District:

- Importance of providing certainty in the federal timber supply and meeting Plan timber harvesting goals.
- Need for BLM to structure timber sales and other contracts so that small-scale contractors can bid on them.
- Need for BLM to maintain its road system for the general public good and to provide public access for recreational users.
- Need for BLM to maintain, and in some cases, expand its environmental protection efforts.
- Need for the Coos Bay District to resolve its ongoing identity crisis.

Timber Harvesting Concerns

All of the professional foresters and timber industry stakeholders stated that the biggest issue for the local timber industry was the uncertainty about how much and what kind of timber the federal agencies will offer each year.

They also noted that the region now lacks the infrastructure to process large quantities of logs measuring more than 32 inches in diameter. This situation is likely to continue as long as potential investors are uncertain whether the federal agencies will supply local markets with a continuous and reliable quantity of larger diameter logs.

Structure of Contracts

The two contractors and small mill owner interviewed articulated concern about the structuring of timber sales, which they felt typically are so large that a small contractor cannot afford to pay the bid deposit of $50,000. They expressed concern that the BLM would favor large-scale contractors, many of whom are based outside of Coos Bay, as it expands its density management sales operation.

Road and Off-Road Access

Many community members articulated concerns about continued access to district lands. In the past decade, most of the tensions over access to BLM lands in the Coos Bay District have centered on the district's gradual closing down of beach and shoreline areas to off-road vehicles and hikers as a means to protect snowy plover nesting sites. Similar tensions exist over whether the district should invest in building trails and interpretive sites in some of the remaining old-growth stands.

Environmental Protection Concerns

As noted in the previous section, community members articulated concerns about whether BLM's current management approach adequately protects environmental values. One group of interviewees, consisting mostly of people affiliated with the timber industry, stated that the Plan is counter-productive from an ecological protection standpoint in that it has created incentives for adjoining private landowners to adopt shorter timber rotations and build longer roads in more sensitive areas on private lands. A second set of interviewees, primarily composed of people who categorized themselves as environmentalists, commented that the Plan provides insufficient protection for old growth.

BLM's Ongoing Identity Crisis

Many district employees and community members stated that the district's shift away from timber production as its primary objective has created an identity crisis among its employees. This in turn has heightened feelings of tension and distrust internally and externally. One employee summed up the situation as a lack of overlap between the area's demographic trends, in which retirees will constitute a much larger percentage of the population, and the district's primary assets, which are timber and habitat production. The lack of overlap between these two factors strongly suggests that BLM, like the timber industry, will gradually transition into playing a less prominent role in the community over the next decade. Recognizing that trend, and managing (or accepting) that transition, constitute the key tasks facing both the Coos Bay District staff and community residents on Oregon's southwest coast.

Local Views of the Plan

We asked interviewees to comment specifically on the impacts of the following Plan subelements: retraining (including JITW training programs), watershed restoration, NEAI funding, and ecosystem management provisions (i.e., timber ASQ levels, survey and manage, Aquatic Conservation Strategy, riparian reserves, etc.).

Ecosystem Management Provisions

Only a narrow segment of the community interviewees were familiar with the ecosystem management provisions of the Plan. Interviewees familiar with some or all of these provisions, included most of the interviewees who categorized themselves as environmentalists, most of the timber industry stakeholders, and about half of the watershed restoration stakeholders. Few of the interviewees in the tourism industry, economic development organizations, or municipal and county government were familiar with the Plan's forest management standards and guidelines.

The majority of the interviewees, including some in the timber industry, stated that the Plan's estimated ASQ was reasonable. A few of the timber industry stakeholders and county officials interviewed commented that they thought

the ASQ estimates should have been set higher. Several of the environmentalists interviewed stated that, in their view, the Plan was insufficiently protective because it allowed old-growth harvesting to continue in the matrix allocations.

Only a few of the community interviewees felt they knew enough to comment on the specifics of the Plan, such as survey and manage, riparian reserves, and so forth. Among those who commented on these provisions, the overwhelming view was that the provisions were too cumbersome and had resulted in the BLM's near paralysis with respect to preparing and implementing timber sales and according road rights-of-way. The watershed conservation interviewees, however, spoke favorably of the riparian reserve requirements. One community member also pointed out that the survey and manage provision was useful in that it had greatly increased knowledge within the district about the forest ecosystems they manage.

Retraining and Employment

Views among the community interviewees about the Plan's retraining and employment provisions also differed considerably. Most interviewees stated that the JITW program had been very helpful in providing some displaced woods workers and fishermen with jobs during a difficult transition time. A number of interviewees commented that an additional benefit of the JITW program was that it created a bridge between the timber harvesting community and the watershed restoration community. The contractors who had obtained JITW contracts indicated that the BLM had done a good job of outreach and letting people within the community know that the funds were available, as well as providing pointers on how to fill out bid-related paperwork.

Most of the interviewees in Greater Coos Bay and Greater Myrtle Point also commented favorably on the retraining programs sponsored with NEAI funds through Southwestern Oregon Community College. They noted that part of the success of that program was due to the fortuitous arrival of a call center to the area, a business that not only supported the program by providing working space, but which also hired many of the trainees.

Although most interviewees viewed the retraining and displaced worker programs in a positive light, many, including the contractor quoted below, stated that the programs were grossly inadequate to address the scale of layoffs that took place in their communities in the early and mid-1990s. One restoration contractor also criticized the JITW program because it channeled so much money to unskilled watershed association crews, rather than relying on professional independent contractors and their already-trained crews to provide employment.

All of the interviewees involved with the watershed restoration efforts had negative views about the government's insistence on packaging the JITW work with ecosystem restoration training programs. Two views emerged on this aspect of JITW: one view was that displaced loggers and fishers already had the skills needed to do restoration work, and thus it was a waste of money to require the training programs. The other view was that the Hire-the-Fisher program in particular was "taking people with no background in timber and training them up for jobs for which there is no demand." Interviewees with both views, however, agreed that insufficient demand exists for full-time year-round employment in watershed restoration work. As one watershed restoration employee noted, "Restoration isn't an industry. No one is in the business of restoration."

Watershed Restoration

Watershed restoration is not yet an industry, but it is nonetheless a highly visible activity in the Coos and Coquille watersheds. Many of the interviewees from Greater Myrtle Point and Greater Coos Bay commented favorably on the watershed restoration aspects of the Plan. Positive aspects included that it brought money to the communities, funds were spent to employ local workers or contractors, the projects were cost-effective for landowners, and the funds were easily accessible. In addition, several interviewees noted that many of the watershed projects also addressed the county's road maintenance needs. Community members observed that the Wyden amendment, which allowed the use of federal watershed restoration funds on private lands, had greatly increased the relevance of the program to smallholders and thus had allowed the associations to accomplish work in the lowlands that they might otherwise have been unable to do.

A few community interviewees expressed unfavorable views of the watershed restoration program. One county commissioner, for example, called it, "a little better than a poke in the eye." He added, "We've been doing restoration since the 1970s," and noted that the "money we put into the plow-back fund was greater and not paid for with tax dollars either." Another county commissioner called watershed restoration "just a waste," observing that there's "no way to account for it, you don't know if it's successful or not."

Some interviewees who expressed overall favorable views of watershed restoration identified a number of flaws that hindered the program's effectiveness. The restoration contractors, for example, stated that restoration work is unlikely to replace the employment opportunities that timber harvesting used to provide workers in the Coos Bay region. Indeed, one contractor called restoration a "flash in the pan." The contractors also pointed out that the current system in which the Coquille Watershed Association is running a crew much of the year limits the opportunities for independent contractors to hire on larger crews or work more throughout the year. One contractor noted that the restoration business has become more competitive, making it increasingly difficult for him to piece together sufficient jobs to keep him and his crew working year-round.

Several interviewees raised concerns about the future of the watershed restoration work as the bulk of the work moves from the uplands, which are mostly in forest cover, to the lowlands, which are primarily in pasture. One county employee pointed out that the projects that require turning pastures into wetlands are the most controversial because of the domino effect it has on the overall farm economy and the ability of neighboring farms to survive: "If a, b, c, and d turn land into wetland, then e, f, g, and h don't have a critical mass to produce enough milk to supply the local dairy, so that would have an effect on those farmers if the dairy shuts down." Another interviewee who had worked for many years with the Oregon Department of Fish and Wildlife criticized the BLM-sponsored watershed restoration projects for relying too much on an engineered approach rather than working more with natural systems.

In Reedsport, the recent creation of the Smith River Watershed Council has improved the relationship between landowners and federal forest managers. Their local chair often serves as a mediator between the two entities, which increases understanding and facilitates trust. Residents along the Smith River believe that this has given them a voice in watershed decisions making them more likely to be amenable to requests that impact their land. "This has cleared the way for agencies to do a better job and reevaluate what they did in the past," a Smith River resident said. "They are getting real information and finding out the real issues."

NEAI Projects

As with other aspects of the Plan, community interviewees expressed a broad range of views about the NEAI-funded projects. Projects that many community members in Greater Coos Bay viewed as successful included the business incubator, the trails system, and tourism projects, such as the Tourism Strategic Plan, the Coos Bay waterfront improvements, and the interpretive exhibits at various sites in the region. Residents in Greater Myrtle Point identified the fairgrounds improvement, the trails system, the Spruce Street downtown improvement project, and the interpretive programs as successful. In Greater Reedsport, interviewees viewed the Salmon Harbor Marina RV Park improvements, Umpqua Discovery Center, and the Port dock renovations as successful projects. Site development investments to attract American Bridge to the area, on the other hand, have yet to yield the large number of jobs that community members had hoped would materialize from that project.

A number of interviewees in all three communities questioned the merits of the NEAI program's focus, noting that most of the projects focused on infrastructure development instead of benefiting displaced workers directly. Although many of the interviewees spoke favorably of the tourism investments, most of the interviewees affiliated with the timber industry questioned the utility of such projects. In their view, tourism will never be able to provide the high-paying jobs that used to be available in the timber industry.

Some of the problems that interviewees listed with NEAI projects included the hidden costs associated with grants in the form of extra administrative workloads, a lack of followup in action plans to ensure that the proposed projects actually get done, insufficient followup in the training programs, reliance on outsiders to do feasibility studies and subsequent inappropriateness of business plans for local conditions and lack of ownership in the plans at the local level. Despite this long list of drawbacks to the NEAI projects, most community members commented that the projects have helped their communities begin diversifying their economies.

Chapter 6: Meeting the Plan Goals and Expectations

The Northwest Forest Plan (the Plan) had five primary socioeconomic objectives: to provide a predictable supply of products and opportunities, to contribute to community stability and well-being, to promote economic development and diversification, to protect environmental qualities and values, and to improve collaborative relationships between agencies and communities. The following section summarizes community and district employee perceptions about the extent to which the Plan achieved, or did not achieve, each of the five goals. Owing to the extreme variability in how different stakeholders view the Plan and its outcomes, and the difficulty of coming up with an objective rating system that most stakeholders would agree upon, the assessment team opted to describe the range of variation rather than assign numerical scores to each goal.

Goal 1—Predictable Supply of Products and Opportunities

The Coos Bay District has a mixed record in meeting the Plan's goal of providing predictable supplies of products and opportunities. It fell significantly short of making available the estimated timber allowable sales quantity (ASQ) each year, and the amount of salvage wood and firewood available has declined substantially from pre-Plan years. The no-surface-occupancy restrictions placed on an oil and gas lease that the district issued after the passage of the Plan may have resulted in the lack of bids for exploration and development of potential oil and gas resources.

On the other hand, the Plan's standards and guidelines do not appear to have significantly affected access to commercial and recreational mining, grazing, hunting, fishing, wild mushrooms, transplants, Christmas trees, boughs, or floral greens. Moreover, the implementation of the Plan allowed the district to greatly expand the recreational and environmental education opportunities available to the public. For example, the slow-down in timber sales freed up the funds and personnel the district needed to refurbish its existing 11 campgrounds and to develop 4 new campgrounds. The increase in funds and personnel available to the recreation program also enabled the district to expand its trail system from less than a mile of maintained trail in 1994 to roughly 30 miles of trails in 2001.

Bureau of Land Management (BLM) employees and community members stated that the district had not met the goal of providing a stable or predictable supply of timber. Most interviewees considered this unfortunate, even if they believed that pre-Plan harvest levels had been excessively high, both because it increased the economic hardship within local communities and because it made it difficult to ascertain whether the timber harvesting levels set in the Plan constituted reasonable levels. All of the BLM employees and most community members observed that the district's inability to provide a volume of timber approaching the Plan's estimated ASQ was due to legal challenges from outside groups, rather than to the lack of political will within the agency itself to make available the volume of timber specified in the Plan. Because of this, timber sales have not been predictable.

The community members included in the study expressed diverse opinions about the impact of the Plan on access to recreational activities on federal forest lands. Road closures combined with increased permitting requirements and fees have somewhat diminished access for local residents, who have traditionally used these lands as if they were their own. However, most of the road closures predated the Plan, and the recreation fees would have been imposed even without the Plan. Focused attention on tourism as an economic development tool, however, has encouraged the BLM and Forest Service to invest in recreation infrastructure. As a result, the district now provides substantially more recreational opportunities (i.e., trails, interpretive sites, improved campgrounds) than it did prior to the Plan.

Goal 2—Contribution to Community Stability and Well-Being

Most BLM employees and members of the three case-study communities stated that the Plan's second goal of contributing to community stability and well-being had not been met. Of the three communities, Greater Coos Bay was less heavily affected than either Greater Reedsport or Greater Myrtle Point. Interviewees attribute this difference to Coos Bay's more diverse economy and its position as the south coast's shopping and services center.

Community members voiced strong concerns about the departure of many younger families with children, and the resulting school closures. They noted that the school closures caused the loss of important social spaces where the bonds of community are formed and nurtured. Additionally, they are concerned about the loss of job opportunities for high school graduates, many of whom now leave the area to look for work elsewhere or attend school instead of remaining to work in the woods or mills.

Numerous interviewees noted that their communities would still have been badly affected even if the estimated ASQ had been supplied because the timber industry would have undergone a considerable amount of downsizing independent of the federal timber available. Additionally, the fishing sector collapsed at the same time, increasing the stress on local economies. However, many interviewees indicated that the availability of some larger diameter timber on local markets would have helped cushion the negative impacts by allowing more of the smaller mills to remain in business.

Several interviewees noted that the Jobs-in-the Woods (JITW) and retraining programs helped provide some jobs for displaced workers, but added that the number of jobs provided was insufficient relative to the need. Many community members commented that Northwest Economic Adjustment Initiative (NEAI) grants have enhanced cultural opportunities and spurred community revitalization and beautification.

Some community interviewees expressed the view that in the long run the Plan may have placed their communities in a better economic position, although at the cost of short-term economic hardship. This was particularly the case in Coos Bay, where a substantial amount of NEAI funding has been invested in a variety of economic diversification and infrastructure development projects. Some of these investments, such as a business incubation center and retraining programs, have already shown a positive outcome in providing alternative job opportunities. Others, such as the Coastal Environments Learning Network feasibility study and the Tourism Strategic Plan, have played an important role in the gradual development of the infrastructure needed to support a regionwide nature-based tourism industry.

Goal 3—Promotion of Economic Development and Diversification

Interviewees expressed a broader range of views when asked whether the Plan's third economic goal had been achieved. Among the BLM employees, many commented that the JITW program had poured a substantial amount of money into watershed restoration work. However, they noted that the hoped-for establishment of a restoration industry had not materialized and was unlikely to appear in the foreseeable future owing to the lack of private demand. Many BLM employees stated that the inability to achieve goal 3 had more to do with factors outside of BLM's control, including internal restructuring of the timber and fisheries industries, than with the Plan.

At the community level, interviewees expressed mixed views about whether progress has been made toward achieving the Plan's goal of promoting economic development and diversification. Some community members observed that although diversification has not yet happened, over time, the investments their communities have made in infrastructure will bring in new businesses. Other interviewees, however, are less optimistic, noting the region's limited transportation network as a key barrier to attracting industries that offer high-paying job opportunities. To some extent, the economies of Greater Coos Bay and Greater Myrtle Point already have diversified, in the sense that the services sector has expanded greatly in both communities over the past decade, while the wood products manufacturing sector has shrunk.

The NEAI provided Greater Reedsport with several million dollars in economic development funding, mostly for infrastructure development. These efforts have helped the community retain local companies, recruit new businesses, and expand employment in service and tourism. Although the Greater Reedsport area has shifted its economic base to tourism, many community members voiced doubts about the economic viability of their new economic base. One resident pondered if the Reedsport Area is simply trading one dependency (natural resources) for another (tourism). Community members involved in economic development are keenly aware of the need to recruit light

industrial businesses and have been working toward this goal since the early 1990s.

Goal 4—Protection of Environmental Qualities and Values

Bureau of Land Management employees had mixed views as to whether the Plan had met its fourth socioeconomic goal, the protection of environmental qualities and values. The employees knowledgeable about the watershed restoration work stated that it was too early yet to know whether those projects had made a difference. One employee, however, noted that the "logic is that if we provide habitat they will come back to spawn. Likewise with wildlife habitat." Several employees noted that the BLM now knows much more about what it has than they did before, and thus is better positioned to make better ecosystem management decisions than it was when it was a timber management organization. Other employees, however, stated that, in their view, the environmental benefits of the Plan are outweighed by the inability of the district to maintain the transportation system. This in turn has created increased sedimentation, accelerated the spread of noxious weeds, and increased the risk of catastrophic fire.

Community interviewees mirrored the divisions that exist within the BLM regarding progress toward protecting environmental qualities and values. Interviewees from the timber industry stated that the Plan had created strong incentives for private and other public landholders to shift to shorter rotations. They also noted that the Plan encouraged the construction of longer roads through more sensitive environments on private lands so that contractors or timber companies can avoid the lengthy delays needed to negotiate a hauling or road construction right-of-way over BLM land. Views within the timber industry were mixed concerning the watershed restoration projects, with some stating that they had no discernible effect on increasing the numbers of fish in the streams, and others claiming that they have enabled salmon to return to streams where they had been absent for many decades.

Other community members were uncertain whether the Plan had had a positive effect on environmental qualities and values. As one city employee put it, "The Plan didn't hurt the environment, but I don't know if it helped it. Community members active in watershed restoration activities, however, stated that the work being done to improve in-stream fish habitat and fish passage had had a clear positive effect on the numbers of salmon able to make their way into the upland streams.

Goal 5—Collaboration Between Agencies and Communities

Views about whether the Plan had met its fifth socioeconomic goal, to improve collaboration between agencies and communities, differed considerably both among BLM employees and among community members. The BLM employees involved with nature-based tourism and watershed conservation activities stated that it had met this goal. However, they were concerned about whether this could continue as BLM establishes new priorities. Community members in Greater Coos Bay and Greater Myrtle Point who were involved in the watershed conservation and nature-based tourism projects held similar views, and expressed concern about what they perceived to be decreased commitment to community involvement on BLM's part during the past 3 years.

Some BLM employees said that they continue to collaborate with timber industry folks to maintain a working road system, control noxious weeds, and provide fire protection. However, the employees who work closely with the timber industry stated that industry people no longer view BLM as a key "player" in timber management. Timber industry interviewees indicated that much of the tension between them and the BLM is due to BLM's inability to provide a reliable supply of timber over the past decade, as well as to the delays in processing road rights-of-way. They also believe that BLM is no longer adequately carrying out its road maintenance, weed control, and fire prevention responsibilities.

Bureau of Land Management employees said that they now collaborate much more with environmental stakeholders than they did in the past. The community interviewees who categorized themselves as environmentalists stated that they also have seen a marked improvement in how BLM interacts with them, but they expressed concern that BLM is going to close its doors to them again.

Bureau of Land Management employees noted that they collaborate closely with the Coquille Tribe and the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw. Relations with the Coquille have turned around completely, from overt hostility on the part of the district manager in the early 1990s, to a very close working relationship in assisting the Coquille Tribe manage its tribal forest beginning in 1998. Additionally, employees in BLM's cultural resource and interpretive programs work closely with the tribes on cultural resource management issues. The two tribal interviewees indicated that they collaborate with BLM in many activities, and that for the most part this collaboration is positive.

Chapter 7: Lessons Learned

By the time the record of decision for the Northwest Forest Plan (the Plan) was signed, the Coos Bay region's timber sector had already lost a substantial portion of the wood products processing capacity and employment opportunities available during the three decades immediately following World War II. Additionally, the changes in socioeconomic conditions that took place in the mid and late 1990s—an outflow of younger workers, inmigration of older workers and retirees, school closures, increased levels of educational attainment, declines in manufacturing sectors, and expansion of the services sector—are changes that took place during the same period in rural communities across much of the Western United States. It is thus likely that the types of changes observed in the Coos Bay region's socioeconomic conditions between 1990 and 2004, likely would have happened with or without the Plan.

Many interviewees expressed the view that their communities, and particularly those portions of the communities dependent on the harvesting and processing of large-diameter timber for their livelihoods, would have weathered the restructuring of the wood products industry better if they had had access to a steady, albeit much smaller than in previous decade, supply of federal timber. However well-grounded these views may be in knowledge of local conditions, there is simply no way to determine what would have happened if all of the mitigation measures provided for in the Plan had actually been implemented as envisioned by its developers.

The following section outlines lessons learned and management implications emerging from the data presented in this report. This discussion summarizes the ideas expressed by the interviewees, as well as the views of the authors based on their analysis of the interview and archival data, regarding how the district can continue to support community efforts to construct viable economies.

Timber Resources

A thread common among most of the interviewees was that achieving a greater degree of certainty in the annual timber supply would be beneficial for woodland owners and the remaining mills. However, ensuring a predictable supply of timber from the Coos Bay District, particularly larger diameter logs, is likely to prove difficult given the litigation that has surrounded much of the district's management activities during the past decade.

Recognizing this, the district's foresters have focused on developing density thinning management techniques for managing stands less than 80 years old in both matrix and reserve land allocations. The district has designed its density management sales in ways that it hopes will minimize legal challenges. Barring legal action, these sales will enable the district to provide a predictable supply of smaller diameter timber. Recent modifications of the Plan's Aquatic Conservation Strategy provisions will also likely enable the district to offer a larger volume of timber from matrix land allocations than they have during the past 10 years.[1]

How such sales will affect local economies, however, is uncertain given that most of the timber harvested in the Coos Bay region is processed in Willamette Valley mills. The hope of many of the community members we interviewed was that a few new mills might open in the area if they could be assured of a steady supply of federal timber. They did not believe that expanded harvesting levels would return the wood products industry to its former position as the dominant driver of the region's economy. Rather, they viewed the prospects of a small, but steady supply of timber from district holdings as a means to retain economic diversity within the region and foster competition within the local wood processing economy.

Nontimber Forest Products

As long as forest management practices on the district remain in flux, it is unclear what volume of salvage timber constitutes a reasonable minimum amount for the district to make available. It is also unrealistic to expect the district to provide a predictable supply of salvage timber, as the amount that is available in any given year depends upon factors, such as windstorms and floods, outside the district's

[1] In 2004, the USDA Forest Service and USDI Bureau of Land Management issued a record of decision for a supplemental environmental impact statement releasing the agencies from the survey and manage standards and guidelines for species not listed as threatened or endangered under the Endangered Species Act (USDA and USDI 2004). However, the U.S. District Court struck down the decision in August 2005, leaving the survey and manage guidelines in place for the foreseeable future (Johnson 2005).

control. The district continues to make a broad array of nontimber forest products available. Our interviews with community members and district employees indicated that current nontimber forest products permitting levels have not generated any controversy, and thus the district is likely to continue implementing them as they are presently structured for the foreseeable future.

Noncommodity Forest Values

A key lesson of the Coos Bay District's experience with implementing the Plan is that, given internal political will, adequate funding, in-house expertise, and adequate staffing levels, it was possible for the district to transform itself from a timber management organization into a truly multiple-use land management organization with a much greater capacity to address the public's demands for a broad array of values and opportunities on the district's holdings. As noted earlier in this report, the district staff's knowledge of its biological resources is much greater than it was prior to the Plan. This knowledge enhances the district's capacity to develop and implement forest management practices that can assist the district in meeting its threefold legislative mandate for Oregon and California Railroad Company lands of protecting watersheds, producing a sustained yield of timber, and providing recreational opportunities. The use of volunteer labor and collaborative agreements with outside entities were critical elements in enabling the district to develop its recreational program and expand its watershed, habitat, and species restoration efforts.

Community Economic Assistance

The Bureau of Land Management (BLM) does not have a source of community assistance funds analogous to the Forest Service's Rural Community Assistance Program. However, the Coos Bay District infused a substantial amount of funding into local communities for watershed restoration, environmental education, and habitat and species protection through the Jobs-in-the-Woods program and, to a much lesser degree, Challenge Cost Share grants. Additionally, the district provided substantial assistance to community development efforts in the form of donated office space, technical assistance from its staff, and access to supplies and equipment. The case study illustrates the importance that such in-kind contributions on the part of a public land management agency can play in helping rural communities leverage economic development funding.

Collaboration

During the past 10 years the district has greatly expanded its collaborative partnerships with recreation, fish and wildlife, and watershed conservation interests as well as local tribes. Although the district no longer works as closely as it did in the past with timber interests, it continues to collaborate with timber stakeholders in areas such as road maintenance and construction, fire protection, noxious weed control, and watershed conservation. The district has been most effective in community collaboration efforts that are closely linked to its management mandates, and hence its areas of primary expertise. These include watershed restoration efforts, particularly in the Coos and Coquille river valleys; nature-based tourism development efforts, particularly activities involving interpretive sites and trails development; and collaborations with the Coquille and Coos, Lower Umpqua, and Siuslaw Tribes. Key factors in the success of these collaborative partnerships include ongoing and substantial support from upper level leadership, a stable district budget (in marked contrast to the budget declines in neighboring national forests), and a relatively stable staffing level (in contrast to the downsizing that occurred in neighboring national forests).

Looking Ahead

Many community members and district employees interviewed as part of this study noted that the Plan's failure to allocate adequate funding toward a socioeconomic impact monitoring effort constituted a major impediment to its successful implementation. Numerous interviewees stated that a socioeconomic monitoring effort put into place early on in the Plan's implementation would have identified shortcomings much sooner, and might have encouraged the development of viable compromises on controversial aspects, such as the survey and manage provisions and the aquatic conservation strategy, much sooner. Similarly, an adequately funded and adaptive socioeconomic monitoring

program likely could have identified and addressed problems with the Jobs-in-the-Woods employment and training programs much earlier. These observations illustrate the need for the Forest Service and BLM to develop a comprehensive and fully integrated socioeconomic monitoring program funded at levels comparable to the biological and hydrological components of the Plan's monitoring effort.

As noted in previous sections of this report, we lacked the funds and time to gather key socioeconomic information, including quantitative data on the differential impacts of the Plan on small, medium, and large wood products firms, and on different types of workers, particularly self-employed woods workers rather than mill workers. Much of the ongoing controversy over the Plan, as well as subsequent forest management initiatives, centers on social and economic impacts. It is highly unlikely that those controversies will be resolved without better understandings on the part of the agencies of the nature and extent of those impacts.

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English Equivalents

When you know:	Multiply by:	To find:
Pounds	0.454	Kilograms
Inches	2.54	Centimeters
Feet	.305	Meters
Miles (mi)	1.609	Kilometers
Square miles (mi^2)	2.59	Square kilometers
Cubic feet (ft^3)	.0283	Cubic meters
Cubic yards (yd^3)	.765	Cubic meters
Acres	.405	Hectares
Board feet (bf) (log scale)	.0045	Cubic meters
Board feet (bf) (lumber scale)	.0024	Cubic meters

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Acronyms

ACEC	Area of Critical Environmental Concern
ACS	Aquatic Conservation Strategy
ASQ	Allowable sales quantity
BGA	Block group aggregation
BLM	Bureau of Land Management
CBGA	Census block group aggregation
CBWR	Coos Bay Wagon Road
CELN	Coastal Environments Learning Network
EA	Environmental assessment
EDA	Economic Development Administration
EIS	Environmental impact statement
ESA	Endangered Species Act
FEIS	Final environmental impact statement
FONSI	Finding of No Significant Impact
FPA	Forest Practices Act
FS	Forest Service
FWS	Fish and Wildlife Service
GIS	Geographic Information Systems
HFR	Hazardous fuels reduction
ILWU	International Longshoremen and Warehousemen's Union
IWA	International Woodworkers of America
JITW	Jobs in the Woods
LSR	Late-successional reserve
LSRA	Late-successional reserve assessment
LSW	Lumber and Sawmill Workers
MARE	Marine Activities, Resources, and Education
Mmbf	Million board feet
NEAI	Northwest Economic Adjustment Initiative
NTFP	Nontimber forest product
NWFP	Northwest Forest Plan
O&C	Oregon and California Railroad Company
OCEAN	Oregon Coastal Environmental Awareness Network
ODF	Oregon Department of Forestry
ODFW	Oregon Department of Fish and Wildlife
ODNRA	Oregon Dunes National Recreation Area
OSU	Oregon State University
PAC	Provincial advisory committee
PD	Public domain
PILT	Payment in lieu of taxes
PSQ	Probable sales quantity
RAC	Resource advisory committee
RCAP	Rural Community Assistance Program
RDI	Rural Development Initiatives
RMP	Resource management plan
ROD	Record of decision
STEP	Salmon and Trout Enhancement Program
T&E	Threatened and endangered species
TMP	Transportation management plan
USDA	U.S. Department of Agriculture
USDA-FS	U.S. Department of Agriculture-Forest Service
USDI	U.S. Department of the Interior
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service

Appendix A—Interviewees

BLM Coos Bay District interviewees

District manager
Resource area manager–Umpqua Resource Area
Resource area manager–Myrtlewood Resource Area
Noxious weeds program coordinator
Timber sales administrator
Silviculturalist
Watershed analysis coordinator
Small sales administrator–Myrtlewood Resource Area
Small sales administrator–Umpqua Resource Area
Volunteer coordinator
Cultural resources program manager
Recreation specialist (2)
Fish biologist
Wildlife biologist
Fire program manager
District geologist
Watershed restoration coordinator
Public affairs officer
Road engineer–Umpqua Resource Area
Road engineer–Myrtlewood Resource Area
Interpretive specialist

Greater Coos Bay interviewees	**Residence**
Chamber of commerce employee (tourism focus)	Greater Coos Bay
Consulting forester/small woodland owners association member	Greater Coos Bay
County commissioner	Greater Coos Bay
County commissioner/rancher	Greater Coos Bay
County forester	Greater Coos Bay
Health services agency employee	Greater Coos Bay
Large timber company manager	Greater Coos Bay
Large timber company manager	Works in Greater Coos Bay, lives in neighboring town
Large timber company manager, former local politician	Greater Coos Bay
Local economic development agency employee (tourism and industrial development focus)	Greater Coos Bay
Nature reserve employee	Greater Coos Bay
Tribal forester	Greater Coos Bay
Tribal member/fish biologist	Greater Coos Bay
Watershed association employee	Works in Greater Coos Bay, lives in neighboring town
Watershed restoration contractor /forest worker	Greater Coos Bay

Greater Myrtle Point interviewees	Residence
Brush shed operator	Greater Myrtle Point
Business development specialist	Active in economic development efforts affecting Greater Myrtle Point, lives in neighboring town
Environmental educator	Greater Myrtle Point
Environmental group leader	Active in Greater Myrtle Point environmental issues, lives in neighboring watershed
Farmer/environmental educator	Greater Myrtle Point
Fisheries specialist with state educational agency	Works in Greater Myrtle Point, lives in neighboring town
Large timber company manager	Company has land in Greater Myrtle Point, lives in neighboring town
Mountain bike club member/carpenter	Greater Myrtle Point
Municipal leader	Greater Myrtle Point
Public works employee	Greater Myrtle Point
Restoration contractor/forest worker	Greater Myrtle Point
Retiree, fisheries volunteer, long-term resident	Active in projects in Greater Myrtle Point, lives in neighboring town
Retiree, rockhound club member; newcomer	Greater Myrtle Point
Small mill operator	Greater Myrtle Point
Watershed association employee	Active in projects in Greater Myrtle Point, lives in neighboring town

GreaterReedsport interviewees	Residence
Cultural heritage organization leader/environmental education focus	Greater Reedsport
Economic development leader/sportsfishing and tourism focus	Greater Reedsport
Economic development leader/sportsfishing and tourism focus	Greater Reedsport
Economic development/elk viewing area involvement	Greater Reedsport
Forest products company employee	Greater Reedsport
Former school district leader	Greater Reedsport
Former wood products industry employee/small mill operator	Greater Reedsport
Industrial manufacturing company employee	Greater Reedsport
Local politician	Greater Reedsport
Manager of municipality	Greater Reedsport
Member volunteer fire department	Greater Reedsport
Municipal planner	Greater Reedsport
Owner of local media	Greater Reedsport
Rancher/mill owner/watershed organization member	Greater Reedsport
Small business owner (timber related)	Greater Reedsport
Small business owner, elk viewing area involvement	Greater Reedsport
Social services organization manager	Greater Reedsport
Timber company manager	Company has lands in Roseburg area, lives in neighboring watershed
Wood products industry worker	Greater Reedsport

Appendix B—Scientific and Common Names

Common name	Scientific name
Plants:	
Grand fir	*Abies grandis* (Dougl. ex D. Don) Lindl.
Pink sand verbena	*Abronia umbellata* Lam. ssp. *Breviflora* (standl.) Munz
Vine maple	*Acer circinatum* Pursh
Bigleaf maple	*Acer macrophyllum* Pursh
Red alder	*Alnus rubra* Bong.
European beachgrass	*Ammophila arenaria* (L.) Link
Pacific Madrone	*Arbutus menziesii* Pursh
Bensonia	*Bensoniella oregana* (Abrams & Bacig.) Morton
Oregon grape	*Berberis* spp. L.
Incense-cedar	*Calocedrus decurrens* (Torr.) Florin
Golden chinkapin	*Castanopsis chrysophylla* (Dougl. ex Hook) A. DC.
Canada thistle	*Cirsium arvense* (L.) Scop.
Salt marsh bird's beak or Point Reyes bird's beak	*Cordylanthus maritimus* (Nutt. ex Benth.) ssp. *palustris* (Behr) Chuang & Heckard
Port Orford cedar	*Chamaecyparis lawsoniana* (A. Murr.) Parl.
Scotch broom	*Cytisus scoparius* (L.) Link
Pursh's buckthorn [Cascara]	*Frangula purshiana* (DC.) Cooper
Salal	*Gaultheria shallon* Pursh
Waldo gentian	*Gentiana setigera* Gray
Iris family	Iridaceae L.
Lily family	Liliaceae L.
Western bog lily	*Lilium occidentale* Purdy
Tanoak	*Lithocarpus densiflorus* (Hook. & Arn.) Rehd.
Purple loosestrife	*Lythrum salicaria* L.
Wolf's evening primrose	*Oenothera wolfii* (Munz) Raven, W. Dietr. & Stubbe
Silvery phacelia	*Phacelia argentea* A. Nels. & J.F. Macbr.
Sitka spruce	*Picea sitchensis* (Bong.) Carr.
Radiata pine	*Pinus radiata* D. Don
Western swordfern	*Polystichum munitum* (Kaulfuss) K. Presl
Douglas-fir	*Pseudotsuga menziesii* (Mirbel) Franco
Pacific rhododendron	*Rhododendron macrophyllum* D. Don ex G. Don
Blackberry	*Rubus* spp. L.
Red elderberry	*Sambucus racemosa* L.
Tansy ragwort	*Senecio jacobaea* L.
Pacific yew	*Taxus brevifolia* Nutt.
Western redcedar	*Thuja plicata* Donn ex D. Don
Western hemlock	*Tsuga heterophylla* (Raf.) Sarg.
Gorse	*Ulex europaeus* L.
Myrtle	*Umbellularia californica* (Hook. & Arn.) Nutt.
Evergreen huckleberry	*Vaccinium ovatum* Pursh
Beargrass	*Xerophyllum tenax* (Pursh) Nutt.
Fungi:	
King bolete	*Boletus edulis*
Chanterelle	*Cantharellus* spp.
Hedgehog	*Dentinum repandum*
Lobster	*Hypomyces lactiflorum*
Cauliflower	*Sparassis crispa*
Matsutake	*Tricholoma magnivelare*
Oregon white truffle	*Tuber gibbossum*

Common name	Scientific name
Fish:	
Cutthroat trout	*Oncorhynchus clarki*
Chum salmon	*Oncorhynchus keta*
Coho salmon	*Oncorhynchus kisutch*
Rainbow trout or steelhead	*Oncorhynchus mykiss*
Chinook salmon	*Oncorhynchus tshawytscha*
Mammals and birds:	
Red tree vole	*Arborimus longicaudus*
Marbled murrelet	*Brachyramphus marmoratus*
Roosevelt elk	*Cervus canadensis roosevelti*
Western snowy plover	*Charadrius alexandrinus nivosus*
Northern spotted owl	*Strix occidentalis caurina*

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