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

Socioeconomic Monitoring of the Okanogan-Wenatchee National Forest and Five Local Communities

Candace Dillingham, Melissa R. Poe, Elisabeth Grinspoon, Claudia Stuart, Cassandra Moseley, Rhonda Mazza, Susan Charnley, Lisa Meierotto, Ellen Donoghue, and Nancy Toth

General Technical Report
PNW-GTR-761
June 2008

USDA United States Department of Agriculture

Forest Service

PNW Pacific Northwest Research Station

Authors

Candace Dillingham is a forester and social scientist (retired), U.S. Department of Agriculture, Forest Service, Klamath National Forest, 1312 Fairlane Road, Yreka, CA 96097. **Melissa R. Poe** is a social scientist, U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, 400 N 34th St., Seattle, WA 98103. **Elisabeth Grinspoon** is a social scientist, U.S. Department of Agriculture, Forest Service, Pacific Northwest Regional Office, P.O. Box 3890, Portland, OR 97212. **Claudia Stuart** is a former community planner, U.S. Department of Agriculture, Forest Service, Mendocino National Forest, Genetic Resource Center, 2741 Cramer Lane, Chico, CA 95928. **Cassandra Moseley** is a political scientist and director of the Ecosystem Workforce Program, Institute for a Sustainable Environment, 5247 University of Oregon, Eugene, OR 97403-5247. **Rhonda Mazza** is a science writer and **Susan Charnley** and **Ellen Donoghue** are research social scientists, U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, P.O. Box 3890, Portland, OR 97208. **Lisa Meierotto** is a doctoral candidate in environmental anthropology, University of Washington, Department of Anthropology, Seattle, WA 98195. **Nancy Toth** is a drinking water source protection analyst at the Eugene Water and Electric Board, P.O. Box 10148, Eugene, OR 97440.

Cover: Fruit orchard in Nahahum Canyon, Cashmere, Washington, and surrounding public land. Photo by Melissa Poe.

Northwest Forest Plan—The First 10 Years (1994–2003): Socioeconomic Monitoring of the Okanogan-Wenatchee National Forest and Five Local Communities

Candace Dillingham, Melissa R. Poe, Elisabeth Grinspoon, Claudia Stuart, Cassandra Moseley, Rhonda Mazza, Susan Charnley, Lisa Meierotto, Ellen Donoghue, and Nancy Toth

U.S. Department of Agriculture, Forest Service
Pacific Northwest Research Station
Portland, Oregon
General Technical Report PNW-GTR-761
June 2008

Abstract

Dillingham, Candace; Poe, Melissa R.; Grinspoon, Elisabeth; Stuart, Claudia; Moseley, Cassandra; Mazza, Rhonda; Charnley, Susan; Meierotto, Lisa; Donoghue, Ellen; Toth, Nancy. 2008. Northwest Forest Plan—the first 10 years (1994–2003): Socioeconomic monitoring of the Okanogan-Wenatchee National Forest and five local communities. Gen. Tech. Rep. PNW-GTR-761. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 109 p.

This report examines socioeconomic changes that occurred between 1990 and 2003 associated with implementation of the Northwest Forest Plan (the Plan) in and around lands managed by the Okanogan-Wenatchee National Forest in Washington state. Our findings are based on quantitative data from the U.S. census, the USDA Forest Service and other federal databases, historical documents, and interviews with Forest Service employees and members of five case study communities: Naches Valley, Cashmere, Entiat, Twisp, and the Upper Okanogan Valley. We explore how the Plan affected the flow of socioeconomic benefits associated with the Okanogan-Wenatchee National Forest, such as the production of forest commodities and forest-based recreation, agency jobs, procurement contract work for ecosystem management activities, grants for community economic assistance, payments to county governments, and opportunities for collaborative forest management. The greatest socioeconomic change stemming from the national forest during the study period was the sharp decline in timber harvest activities, a change that had been underway prior to the Plan. This decline not only affected timber industry jobs in local communities, but also resulted in declining agency budgets and staff reductions. Communities' responses differed. Communities with greater economic diversity were able to absorb the changes in forest management, whereas communities more heavily dependent on timber experienced an additional destabilizing effect.

Keywords: Socioeconomic monitoring, Northwest Forest Plan, Okanogan-Wenatchee National Forest, Naches Valley, Cashmere, Entiat, Twisp, Upper Okanogan Valley.

Summary

This case study was developed to respond to two socioeconomic effectiveness monitoring questions posed in the Northwest Forest Plan Record of Decision (ROD). The first focuses on use levels of natural resources: Are predictable levels of timber and nontimber resources available and being produced? 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?

The evaluation questions posed in the ROD are based on a set of goals and expectations that were associated with the Northwest Forest Plan (the Plan) when it was designed. One goal was to produce a predictable and sustainable supply of timber sales, nontimber forest resources, and recreation opportunities that would help meet a second goal: to maintain the stability of local and regional economies on a predictable, long-term basis. Where timber sales could not proceed, a third goal was to minimize adverse impacts on jobs by assisting with long-term economic development and diversification in rural communities most affected by the cutbacks in harvesting. 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. 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 and old-growth forest ecosystems. Fifth, the Plan aimed to usher in a new approach to federal forest management. In particular, federal agencies were called on to collaborate with one another in managing federal forests in the Pacific Northwest. Greater collaboration in forest management was also expected between agencies and citizens.

This report addresses the ROD socioeconomic monitoring questions and examines whether Plan goals and expectations were met at the local scale on the Okanogan-Wenatchee National Forest (OWNF) in northeastern Washington and in five communities adjacent to the OWNF: Naches Valley, Cashmere, Entiat, Twisp, and the Upper Okanogan Valley. It draws on quantitative and qualitative monitoring data gathered from existing secondary sources and interviews with OWNF employees and community members. We summarize the monitoring results here.

Question 1—Are predictable levels of timber and nontimber resources available and being produced?

Goal 1—Produce a predictable and sustainable level of timber sales and nontimber resources that will not degrade or destroy the environment.

Average timber volumes offered over the past decade, 59.5 million board feet (mmbf), have met the expectations of the Plan. Volumes were anticipated to fluctuate throughout the decade with periodic fires and other environmental and budgetary variations. However, the average harvested volume (31 mmbf) fell short of expectations of the public whose livelihoods were connected with this industry. The large drop in volumes offered and harvested

associated with the change in forest policy further destabilized an industry that was already experiencing pressure from rapidly changing technologies and global markets. Most importantly, the transition in products from large logs to smaller ones and new vegetation management needs for ecosystem management required a shift in businesses and infrastructure. Established markets lost some of their supply, and new markets have been slow to develop. Many of the restrictions on forest management are driven by federal laws, including the Endangered Species, Clean Water, and Clean Air Acts; these apply to forest lands managed by federal and state agencies as well as private industry, thus affecting log supplies coming from land other than the OWNF.

Changes in other resources were more moderate or driven by the decline in the timber program. For example, change in harvest practices decreased the available transitory range used by cattle and elk. Declines in new road construction resulted in less need for gravel (a salable mineral extracted from the OWNF).

The recreation program has increased; the issue on the OWNF is meeting the increasing demand from rapidly growing populations near the national forest while managing within the limits of acceptable environmental impacts.

Question 2—Are local communities and economies experiencing positive or negative changes that may be associated with federal forest management?

Of the 65 communities within 5 miles of the OWNF, 3 (5 percent) increased in well-being, 13 (20 percent) decreased in well-being, and 49 (75 percent) stayed the same between 1990 and 2000, according to the index developed for this monitoring program.

In the early 1970s, the wood products industry accounted for 6 percent of total employment in Washington within the range of the spotted owl (Strix occidentalis caurina). By 1985-89, the industry accounted for 3 percent of total employment in the region, half of what it had been a decade earlier. Thus, the timber industry had been undergoing change for more than a decade prior to the Plan, with negative effects on timber workers. The Plan contributed to these effects.

The social and economic profiles of communities within and around the OWNF differ tremendously. Communities with more economic diversity were able to absorb the changes in forest management, whereas communities more heavily dependent on the timber industry experienced an additional destabilizing effect, compounded by changes that were occurring nationally and internationally. Some communities surrounded by the OWNF are critically dependent on forest management decisions that can make or break their existence.

Increased risk from catastrophic fire is perceived as a potentially large destabilizing factor to social, economic, and natural resource aspects of the communities located close to the OWNF. This was expressed not only in terms of personal safety and property loss, but also as loss of natural resource values that attract residents and provide the economic base for recreation and tourism as well as wood products businesses.

Goal 2—Maintain the stability of local and regional economies and contribute to socioeconomic well-being.

Goal 3—Assist with long-term economic development and diversification.

We assessed several socioeconomic benefits the OWNF provides that potentially contribute to community well-being and long-term economic development and diversification in local communities. In addition to timber and nontimber forest products and recreation opportunities, we examined trends in agency jobs, procurement contracts for land management, community economic assistance, and payments to county governments.

Between 1991 and 2002, the OWNF spent a total of $73.5 million procuring land management services. Although there were some spikes in spending related to fire activities during this period, most notably in 1994, annual spending declined by about 49 percent. This decline is largely a reflection of a shift in emphasis from traditional marketable forest products to ecosystem management activities.

The NEAI brought nearly $79 million in grant money to the OWNF between 1994 and 2000. The bulk of the NEAI money became available during the first 4 years of the Plan. This money was intended to provide a transition period to assist with development of new markets and jobs in the economy and to soften the impacts from the sudden change in log supply. Rural community assistance grants were a major Forest Service component of this funding. Funding for NEAI projects often came through various federal agencies; this type of partner funding was one way that collaboration occurred. Long-term economic development projects, as noted by members of the public involved in this work, take a long time to reap benefits. Many of these projects are just now starting to have effects. Small-diameter and value-added products have been slow to materialize. The more recent grants through Secure Rural Schools resource advisory committees for Chelan, Kittitas, and Okanogan Counties made $1.7 million available for resource-related projects on both private and national forest lands in the counties between 2001 and 2003.

Timber coming off the OWNF is no longer contributing to the local economy as it did in earlier decades, and grant programs have declined, but recreational use of the national forest continues to grow, as do the number of newcomers to the area attracted by the region's natural amenities.

Goal 4—Protect nontimber values and environmental qualities associated with the national forest.

There were mixed feelings among interviewees about whether the goal of protecting nontimber values and environmental qualities had been met. Some felt that the Plan provided a more balanced ecosystem management policy and protected old-growth forest habitat. For most, fire threat—resulting from bark beetle and budworm infestations, heavy fuel loads, and drought—was foremost in their minds when discussing the environmental quality of the OWNF. Among many community interviewees, high threat of fire was seen as forest mismanagement. Many interviewees viewed the minimal amount of active forest management that occurred under the Plan as detrimental to the forest, and as undermining many

of the forest values and environmental qualities that the Plan was designed to enhance. They commonly cited the increased fire risk to spotted owl habitat as an example of this problem. Some interviewees thought aquatic ecosystems had benefited from the Plan, but others were concerned that water quality would suffer from fires. The survey and manage requirements initially associated with the Plan were seen by many interviewees as overly protective and a management hindrance; these measures were removed from the Plan in 2004.

Goal 5—Promote agency-citizen collaboration in forest management.

Most interviewees felt progress had been made toward improving agency-citizen collaboration in forest management, and some noted that the Plan had ushered in new forums for collaboration including the provincial advisory committee (PAC). Many community interviewees were frustrated with the PAC because they did not feel that they were fully utilized in their advisory role. Resource advisory committees (RACs), established under the Secure Rural Schools and Community Self-Determination Act, were viewed as more effective and pragmatic in their design and more satisfying to those involved.

These new forums set up with the Plan were viewed by some as models for interagency collaboration with the public across jurisdictions. The public does not differentiate between state and federal land, for the most part, and is frustrated by differing regulations across checkerboard ownership patterns. Public participation in defining and accomplishing resource objectives and work projects was viewed as vitally important to the public. Many interviewees noted the critical role of the district ranger, and most reported positive and improving communication. The most positive interactions between the OWNF and the public, as described by community interviewees, involved Forest Service staff initiative to interact with the community. They also identified a need to streamline the collaborative process, with more transparent rules and a system for maintaining institutional memory from which to build.

This report concludes with lessons learned from the socioeconomic monitoring work that can be applied for adaptive forest management.

Chapter 1: Introduction

This study was undertaken as part of the Northwest Forest Plan Socioeconomic Monitoring Program, which is part of the Pacific Northwest Interagency Regional Monitoring Program. It is one of five case studies conducted during 2003 and 2004 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 (*Strix occidentalis caurina*).[1] The owl range defines the Plan area (fig. 1). This document is a supplement to Charnley (2006), which contains regional-scale socioeconomic monitoring results for the Plan area from 1990 through 2003. It contains a level of detail not found in that report, and is intended to be useful to the Okanogan-Wenatchee National Forest (OWNF) and surrounding communities. Five case "communities" associated with the OWNF are the focus here: Naches Valley, Cashmere, Entiat, Twisp, and the Upper Okanogan Valley (fig. 2).

This case study was developed to respond to two socioeconomic effectiveness monitoring questions posed in the Northwest Forest Plan Record of Decision (ROD) (USDA and USDI 1994: E-9). The first focuses on use levels of natural resources: Are predictable levels of timber and nontimber resources available and being produced? The second 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?

The evaluation questions posed in the ROD 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 sales, nontimber forest resources, and recreation opportunities that would help meet a second goal: to maintain the stability of local and regional economies on a predictable, long-term basis (USDA and USDI 1994: 26). Where timber sales could not proceed, a third goal was to minimize adverse impacts on jobs by assisting with long-term economic development and diversification in rural communities most affected by the cutbacks in harvesting (USDA and USDI 1994: 3). The Northwest Economic Adjustment Initiative 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 and old-growth forest ecosystems (Clark et al. 1999: 15, Clinton and Gore 1993, USDA and USDI 1994: 8-10). Fifth, the Plan aimed to usher in a new approach to federal forest management. In particular, federal agencies were called on to collaborate with one another in managing federal forests in the Pacific Northwest. Greater collaboration in forest management was also expected between agencies and citizens (Clinton and Gore 1993, Danks and Haynes 2001: 54, Tuchmann et al. 1996: 6, 44-48).

The remainder of chapter 1 provides a description of the monitoring methods, followed by a brief background description of the OWNF and surrounding area. Chapter 2 focuses on trends in socioeconomic benefits from the OWNF between 1990 and 2003, and how the Plan influenced those trends. Chapters 3 through 7 turn to the five case-study communities and examine changes that took place in the communities between 1990 and 2003, and the role of the Plan in influencing those changes; community adaptation to change and the role of the OWNF in mitigating Plan effects; and changing relations between the OWNF and the communities over time. Chapter 8 looks at communities and issues from the perspective of management of the OWNF. It discusses collaboration and joint forest stewardship and how well the Plan has protected forest values and environmental qualities on the forest. Chapter 9 concludes by returning to the two monitoring questions and the five socioeconomic goals of the Plan. It assesses how well those goals were met during the first 10 years on the OWNF and responds to the monitoring questions in the context of the Okanogan-Wenatchee case study communities. It also contains a summary of the most commonly expressed issues of the communities as a whole and highlights the lessons

[1] The other case studies are from the Olympic National Forest in Washington (Buttolph et al. 2006), the Mount Hood National Forest in Oregon (Kay et al. 2007), the Coos Bay Bureau of Land Management District in Oregon (McLain et al. 2006), and the Klamath National Forest in California (Charnley et al. in press).

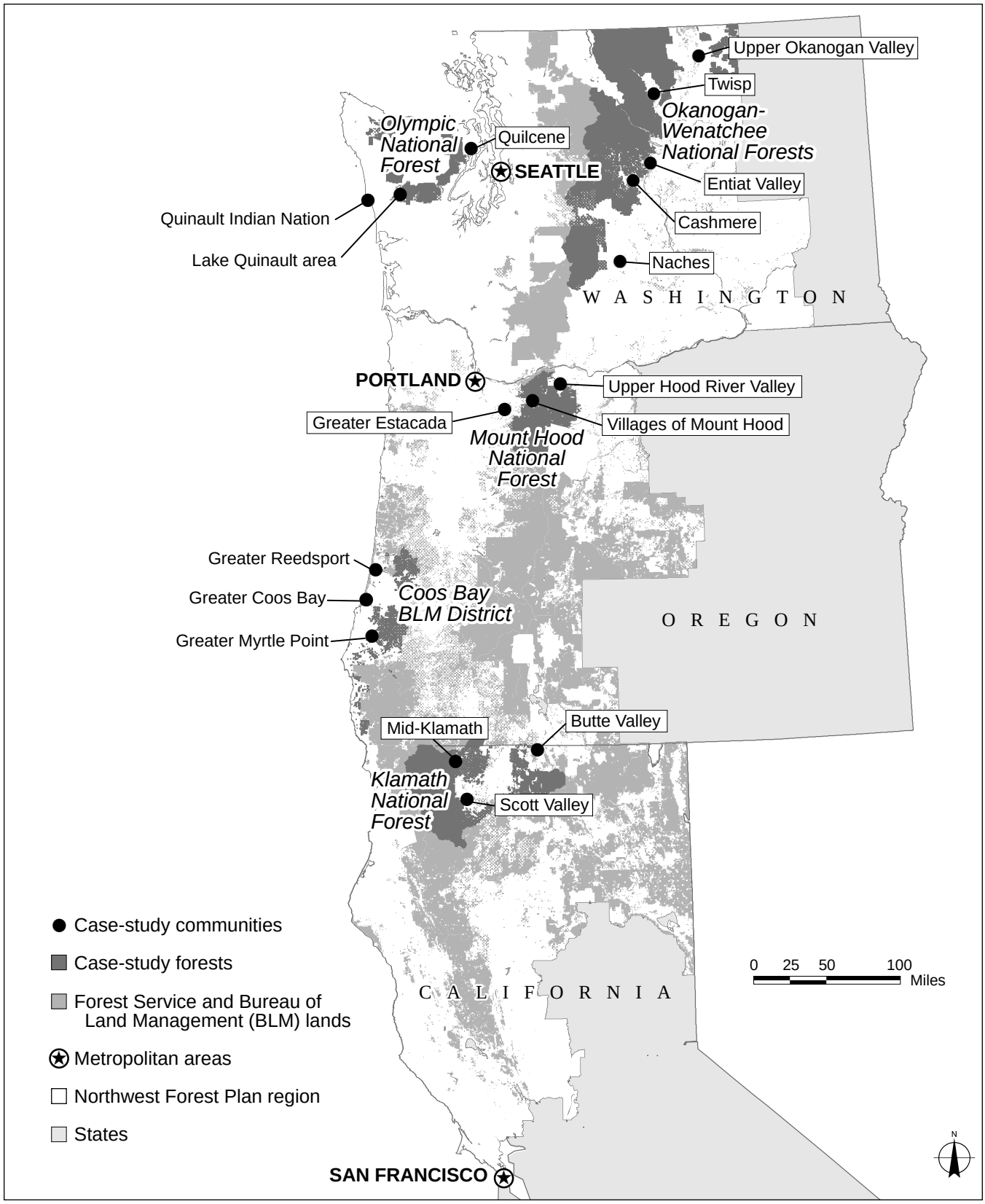

Figure 1—The Northwest Forest Plan area.

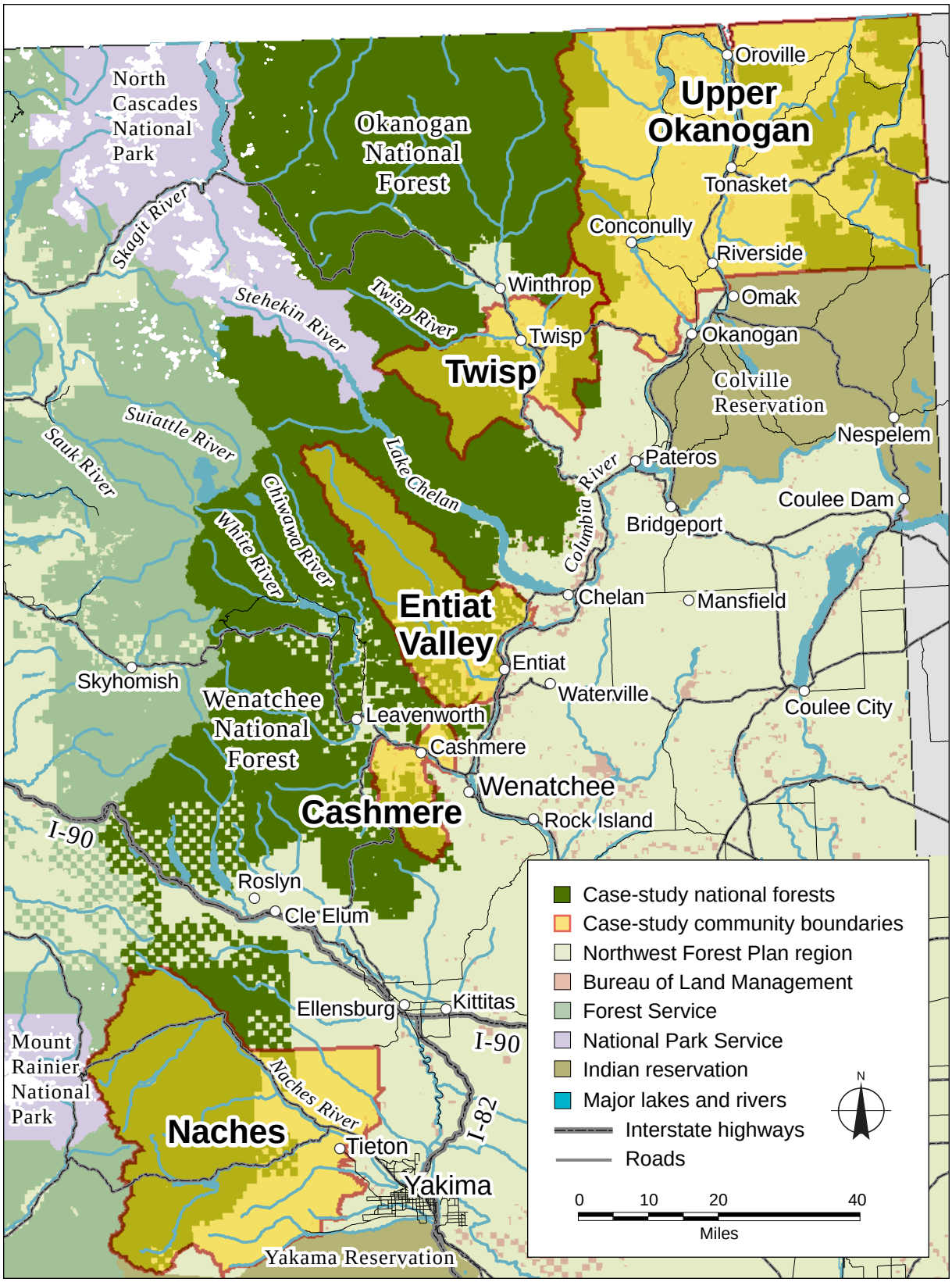

Figure 2— The Okanogan-Wenatchee study area.

learned from the socioeconomic monitoring work that can be applied for adaptive forest management.

Methods

The four case-study forests and one Bureau of Land Management district chosen for socioeconomic monitoring were spread across the three states that lie within the Plan area (two in Washington, two in Oregon, and one in California) and within different planning provinces of the Plan area. We used a purposive selection process. We choose the OWNF because of its location and because it was undergoing a revision of its forest plan. The monitoring report should be useful in the forest plan revision process.

The socioeconomic monitoring team used a mixed-methods approach to conduct regional and local-scale monitoring. We chose 1990 as the baseline for monitoring for several reasons. First, we use social and economic indicators from the U.S. census to assess community-scale socioeconomic change over time. The census happens once every 10 years (1990 and 2000). Second, although the Plan was implemented in 1994, the spotted owl listing occurred in 1990 and was quickly followed by court injunctions against harvesting federal timber. Thus, the impacts of reduced federal timber harvesting began around 1991; the Plan was an attempt to restore the flow of federal timber. Finally, to evaluate the effects of the Plan on Pacific Northwest communities, it is helpful to compare what conditions were like before and after the Plan was implemented. It was not possible to obtain data as far back as 1990 for some indicators, thus, some analyses are adjusted accordingly.

To answer the first evaluation question (Are predictable levels of timber and nontimber resources available and being produced?), we obtained data on timber sales, special forest products, grazing, mining, and recreation from Forest Service databases 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 or regional offices, rather than requesting data from individual field units (unless warranted by special circumstances). 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.

The analytical framework adopted by this module called 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 from the OWNF, management actions under the Plan, and other explanatory variables by interviewing 17 Forest Service employees from the OWNF in summer 2004 (app. A). 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 study. However, the interview results provide a starting point for developing and testing hypotheses about how the Plan has affected the ability of the OWNF to produce predictable quantities of timber sales and nontimber resources.

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, we used social and economic indicators from the U.S. census to analyze change in the communities between 1990 and 2000. The monitoring team also developed a community socioeconomic well-being index and analyzed differences in well-being between 1990 and 2000; the index is a composite measure based on six census indicators that serves as a proxy for socioeconomic well-being (Charnley 2006).[2]

[2] The socioeconomic well-being index consists of six measures: diversity of employment by industry, 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 Charnley 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, we examined trends in socioeconomic benefits from federal forests that potentially affect the well-being of forest communities. In addition to forest resources and recreation, these benefits included agency jobs and procurement contracting opportunities. We examined local trends in agency jobs and procurement contracting on the OWNF 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 the Northwest Economic Adjustment Initiative, which provided economic assistance to workers and their families, businesses, and communities, and safety-net payments to counties to help compensate for the loss of revenue sharing based on timber receipts.

To supplement the quantitative monitoring data, we used a community case-study approach to gather and analyze qualitative data that provide a more detailed understanding of (1) the social and economic conditions and trends described by the quantitative data, (2) how changes in the flow of socioeconomic benefits from the OWNF contributed to change in local communities, and, (3) how the Plan affected the flow of socioeconomic benefits from the OWNF. Interviews with 86 community members of the five case-study communities (app. A) and agency employees were the source of these qualitative data. These interviews were 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. Interviews with community members were conducted in 2004.

Case-study communities associated with the OWNF were chosen on the basis of a number of criteria. The monitoring team delineated 1,314 nonmetropolitan communities in the Plan area by aggregating census block groups (BGAs) according to several characteristics, such as school district boundaries, county lines, and transportation corridors (Donoghue 2003). The team identified a sampling frame of communities that included all of the BGAs whose polygons lay, at least partially, within a 5-mile radius of OWNF boundaries east of the Cascade Range crest. 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. It limited the sample to east-side communities because it assumed west-side communities would have stronger ties to the Mount Baker-Snoqualmie National Forest. We then met with agency employees from the OWNF and showed them our sample frame. We discussed which of the communities within our sample frame currently or historically maintained some kind of relations with the forest and the Forest Service, and which did not. This process narrowed our sample frame.

We selected five communities associated with the OWNF from the sample frame for monitoring because time and budget constraints did not allow for a larger community sample. We recognized, however, that by choosing only five communities, we may not have captured all of the variation in community "types" or in community-forest relations in the area. Case-study communities were chosen randomly from a stratified sample. We stratified communities within the sample frame into groups on the basis of their geographic locations: (1) northern forest corridor communities (including the Methow Valley, Lake Chelan area, and Entiat Valley); (2) southern forest corridor communities (including the Cashmere/Leavenworth/Lake Wenatchee corridor, the Ellensburg/Cle Elum/Roslyn corridor, and Naches River/Rim Rock Lake corridor); (3) northern east-side communities; (4) southern east-side communities; (5) Colville Reservation communities; and (6) Yakama Reservation communities. Because of resource limitations, we decided to focus on communities located closest to the OWNF, and so omitted the Colville and Yakama Reservation communities and the southern east-side communities. Next we randomly selected two communities from the northern

forest corridor, two communities from the southern forest corridor, and one community from the northern east-side community group for study.

Once we selected the case-study communities, we visited them and talked with community members to determine whether the community did indeed have historical and present ties to the OWNF. We also determined how the communities should be defined for case-study purposes. Census-based community block-group aggregate (BGA) delineations were used for initially selecting case communities on a random basis; however, the model we developed did not necessarily correspond geographically to the place that community members considered "their community." The BGA community delineations were starting points for defining study communities, but we adjusted those definitions according to how local residents conceptualized their community. In many cases, this meant further aggregating the original, randomly-chosen BGA with surrounding BGAs in response to feedback from local residents to ultimately define the case-study community boundaries.

In the process of defining "communities" for this study, we found that different factors influence the way in which community members identify their community. One community with a low population density (Upper Okanogan) defined its geographic sense of community over a large area, whereas another (Entiat) was defined as being very small geographically owing to the steep terrain around it and limited access. Naches Valley defined itself as quite large geographically because of the large amount of public land in and around scattered populations; the area approximated their school district.

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 the Record of Decision. We chose interviewees 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 19 community members in Naches Valley, 16 in Cashmere, 21 in Entiat, 14 in Twisp, and 16 in the Upper Okanogan Valley (app. A). Not all interviewees were residents of the communities. Some interviewees were individuals who worked in the community or had a strong connection to either the community or the national forest nearby.

After identifying categories of informants to be interviewed in each community and on the OWNF, we used a snowball sampling approach to locate interviewees. Snowball sampling is an effective method of building a sampling frame when there is a relatively small population of people who know of and come into contact with one another (Bernard 2006), as was the case in this study. Snowball sampling entailed locating key individuals in each community, and asking them to identify people who would be appropriate to interview about the topics under study. The criteria we used to develop our sample frame included people who represented one of the informant categories we were interested in (app. B); had lived in the community or worked on the OWNF at least since 1994 when the Plan was adopted; were knowledgeable about the topics under study and the community or the OWNF; and were willing to talk with us. The team gathered names of potential interviewees and contacted those people whose names were repeatedly mentioned to set up an interview time and location. We conducted semistructured interviews using an interview guide that contained a list of questions and topics to be covered during the interview.

There are three key limitations to this study: (1) We did not design this study with the objective of testing specific causal hypotheses relating to the monitoring trends, or to the effects of forest management policy on local communities. Rather, 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, applying the case-study findings to the entire universe of communities located around the OWNF may not be appropriate. (2) Because most of the people we interviewed have lived in and around the case-study communities at least since the early 1990s, our findings tend to privilege the perceptions of long-term members of these particular communities of place over the perceptions of other citizens (e.g., people who recently moved to the communities). (3) With limited time to conduct the study, we had to substantially narrow the range of 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 and economic development employees could reasonably be expected to be familiar with how a range of business and services sectors in the community were affected by the Plan. Similarly, county and municipal politicians, tribal representatives, and social service providers would likely have knowledge about diverse population subgroups, and the impacts that the Plan had on these groups.

A more detailed description of the methods used for the analyses undertaken in this report—both quantitative and qualitative—can be found in Charnley 2006.

The Okanogan-Wenatchee National Forest

The OWNF lies to the east of the Cascade Range in central Washington. The crest of the mountain range serves as its western boundary, and the United States-Canada border forms the northern boundary. The Yakama Indian Reservation marks the southern boundary of the OWNF (a portion of this public land is the Mount Baker-Snoqualmie National Forest, but administered by the OWNF). The OWNF spans four counties from north to south: Okanogan, Chelan, Kittitas, and Yakima. The forest is biologically diverse with a range of elevation (from 800 to 9,500 ft) and annual precipitation (from less than 10 inches to 140). The wetter, western part of the OWNF has mountain and western hemlock (*Tsuga mertensiana* (Bong.) Carr and *T. heterophylla* (Raf.) Sarg.), Pacific silver fir (*Abies amabilis* Dougl. ex Forbes), larch (*Larix* spp.), and whitebark pine (*Pinus albicaulis* Engelm.). To the east the forest becomes drier, featuring Douglas-fir (*Pseudotsuga menziesii* (Mirb.) Franco) and ponderosa pine (*Pinus ponderosa* Dougl. ex Laws.) and eventually transitioning to sagebrush desert. There is also biological variation from north to south within the OWNF.

Insect outbreaks over the past two decades have left their mark on the OWNF. In the north, pine and spruce beetles (*Dendroctonus* spp.) have left 187,000 acres of dead lodgepole pine (*Pinus contorta* Dougl. ex Loud.) and Englemann spruce (*Picea englemannii* Parry ex Engelm.) on the Okanogan portion (USDA FS 2003). The pine beetles, Douglas-fir beetles (*Dendroctonus pseudotsugae*), and spruce budworm (*Choristoneura occidentalis*) have damaged or led to the mortality of 10,000 to 15,000 acres on the Wenatchee portion of the national forest. Fire is a part of this ecosystem, and the number of dead trees has increased the threat of severe fires. Insect outbreaks are also a dynamic influenced by management in fire-adapted ecosystems.

In 2000, the Okanogan and Wenatchee National Forests were merged. There are two ranger districts on the Okanogan portion of the national forest: the Methow Ranger District, which is within the Plan area boundaries, and the Tonasket Ranger District, which is outside. The five ranger districts on the Wenatchee portion of the national forest—the Chelan, Cle Elum, Entiat, Naches, and Wenatchee Ranger Districts—are all within the Plan boundaries. In some places, particularly around human development, a checkerboard pattern of ownership exists, composed of mixed public and private land.

Much of the OWNF is characterized as dry, receiving less than 30 inches of annual precipitation (USDA FS 2000). Dry forest makes up about one-third of the Wenatchee and one-fifth of the Okanogan portion; this forest type generally is found at elevations lower than 4,500 feet. Historically, fires were frequent but of low severity. A century of fire suppression has altered the natural fire regime, leaving many stands at risk of high-intensity fires. In 1994, 186,000 acres burned in Chelan and Okanogan Counties. Four of the ten northern spotted owl habitat conservation areas (HCAs) burned on the Wenatchee portion of the forest. In response to the fires, the Wenatchee National Forest developed a dry forest strategy, and this management strategy was adopted by the Okanogan National Forest in 1999. Its goal is to manage the forest in a way that enables it to return to a more sustainable disturbance regime. Forest managers began fuel reduction work before the Plan was implemented, and under the Plan, were able to adopt the goal of a functional ecosystem compatible with the dry forest strategy.

The Plan caused national forests in the Plan area to incorporate seven land allocation categories (which could overlap) into their forest plans, each with its own set of

management standards and guidelines (USDA and USDI 1994). Congressionally reserved areas (such as wilderness areas and wild and scenic rivers) are reserved by acts of Congress for specific purposes, and the Plan did not alter any of these allocations. The OWNF has nearly 1.5 million acres of designated wilderness. Late-successional reserves were established by the Plan to maintain late-successional and old-growth forest ecosystems and to provide habitat for older-forest-dependent species. The OWNF contains 943,734 acres allocated to late-successional reserves. Riparian reserves are areas along streams, wetlands, ponds, lakes, and other areas where the conservation of aquatic and riparian-dependent terrestrial resources receives the primary emphasis; they are designed to protect the health of aquatic ecosystems and riparian habitat. Adaptive management areas (AMA) were designed to develop and test new approaches to forest management, and to integrate ecological, economic, and social management objectives. The Snoqualmie Pass AMA encompasses both Wenatchee and Mount Baker-Snoqualmie National Forest land; 125,900 acres lies within the Wenatchee portion of the OWNF.

Managed late-successional areas are areas delineated for known northern spotted owl activity centers or to provide protection buffers for certain rare and locally endemic species. Administratively withdrawn areas are areas not scheduled for timber harvest because they have been withdrawn in forest plans for purposes such as recreational, visual, or backcountry areas. Matrix lands, also referred to as general forest, lie outside of forest areas having one of the six aforementioned allocations or other special management designation by the Okanogan and Wenatchee Land and Resource Management Plans (USDA FS 1989, 1990). Most timber harvest and other silvicultural activities were to be conducted in matrix lands under the Plan, although not all of the matrix lands are technically suitable for timber production (USDA and USDI 1994). In 2002, 618,584 acres of the OWNF were allocated to matrix lands and riparian reserves. Plan standards and guidelines associated with the land-use allocations have the potential to affect resource and recreation activities there.

Timber has historically been an important regional industry along with agriculture and ranching: 6 percent of all employment in the Plan area counties in Washington in the early 1970s was in timber. By 1985-89, 3 percent of jobs were in the wood products industry (FEMAT 1993: VII-53). Detailed descriptions of the OWNF case-study communities appear in chapters 3 through 7 of this report.

Chapter 2: Trends in Socioeconomic Benefits From the Okanogan-Wenatchee National Forest, 1990–2003

Chapter 2 focuses on trends in socioeconomic benefits from the Okanogan-Wenatchee National Forest (OWNF) during the first decade of the Northwest Forest Plan (the Plan). We define these benefits broadly to include timber, nontimber, and recreation resources produced on the OWNF, Forest Service jobs, procurement contracts for ecosystem management work, community economic assistance funds, and payments to county governments. Not only do we document trends in the benefits produced, we discuss the underlying causes of the trends, including the role of the Plan in influencing them, by providing data from interviews with OWNF employees. The information in chapter 2 addresses the Plan goal to produce a predictable and sustainable supply of timber sales, nontimber resources, and recreation opportunities. It also provides the data needed to evaluate how the Plan contributed to maintaining the stability of local and regional economies and assisted with long-term economic development and diversification in communities affected by cutbacks in timber harvesting.

In this report, we have combined historical data for Okanogan and Wenatchee forests (merged in 2000) to present them as the single OWNF, except in cases where it seemed aggregation would obscure relevant trends. About half of the Okanogan portion of the forest is within the Plan boundaries (the Methow Valley Ranger District, but not the Tonasket Ranger District) and the entire Wenatchee portion lies within the Plan boundaries.

Timber, Nontimber Forest Products, and Recreation

One of the socioeconomic goals of the Plan was to produce a predictable and sustainable level of timber sales and nontimber resources from federal forest lands that will not degrade or destroy the environment (USDA and USDI 1994). Consistent with this goal, one of the evaluation questions posed in the Northwest Forest Plan Record of Decision (ROD) was, Are predictable levels of timber and nontimber resources available and being produced? (USDA and USDI 1994: E-9). To answer this question, the ROD specifies that timber harvest levels, special forest products, livestock grazing, mineral extraction, recreation, scenic quality, and commercial fishing be monitored. We did not monitor scenic quality because data were lacking. Scenery inventories were conducted when the Land and Resource Management Plans were developed for the Okanogan and Wenatchee National Forests in 1989 and 1990, respectively, but these have not been updated, so it is not possible to assess change over time. We did not monitor commercial fishing because commercial fishing is not permitted on the OWNF except by tribes, and it is affected by a broad range of factors, making it impossible to meaningfully evaluate how the Plan affected it. The Northwest Forest Plan Aquatic and Riparian Effectiveness Monitoring Program monitors watershed condition, an indicator of fish habitat.

This chapter presents monitoring data for the five other resource areas. The following sections examine whether predictable levels of timber and nontimber resources and recreation opportunities have been produced on the OWNF since 1990, the baseline year for the monitoring program. We use interview data from OWNF employees to assess whether the monitoring trends can be attributed to Plan implementation.

Timber

The Forest Service creates corporate timber-volume reports in three ways: volume of timber offered for sale, volume of timber sold, and volume of timber harvested. Volume offered is the amount of timber that the federal agencies make available for sale in a given fiscal year. Not all timber sales that agencies offer are purchased; volume of timber sold represents the timber that actually receives a bid from a qualified purchaser. Once sales are awarded, they generally take 2 to 3 years to harvest. As a result, the volumes sold and harvested in a given year are rarely the same. We used volume of timber offered for sale as an indicator of production. Volume offered measures all volume made available for sale by the OWNF, including volume offered from late-successional and riparian reserves, and volume not meeting forest utilization standards.

Much of the discussion about whether the Plan met its socioeconomic goals during the first decade focused on the issue of timber production. The Plan identified matrix lands and adaptive management areas as containing lands suitable for producing a predictable and sustainable supply of timber. Predictability in supply would be achieved by offering timber sales at the estimated probable sale quantities (PSQ). The allowable sale quantity (ASQ) is the maximum amount of timber that may be programmed for harvest from land capable, available, and suitable for timber management during a decade, expressed as an estimated annual average. A second objective for timber harvest under the Plan was to use it as a tool for managing vegetation to achieve ecosystem management objectives, such as promoting development of late-successional and old-growth (older forest) habitat in late-successional and riparian reserves.

During the 1980s, a combined yearly average of 256.9 million board feet (mmbf) of timber was harvested from the Okanogan and Wenatchee National Forests. Harvest peaked in 1987 at 332.6 mmbf and began declining a year later; since 2000, annual harvests have averaged about 31 mmbf (fig. 3). According to Forest Service interviewees, the spike in harvest in 1996 reflects salvage logging that occurred after the fires in 1994.

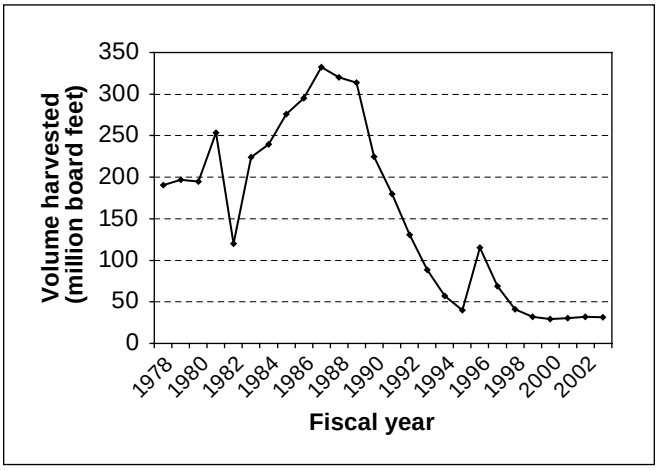

Figure 3—Timber harvests on the Okanogan-Wenatchee National Forest, 1979–2003.

The allowable volume of timber for sale was initially lowered by the 1989 and 1990 forest plans for the Okanogan and Wenatchee National Forests, and then lowered further by the Plan. For the portion of the forest within the Plan boundaries, the ASQ of timber is 23 mmbf, and for the portion of the forest that is outside the Plan boundary, the ASQ is 32 mmbf. In 4 of the past 10 years, the volume of timber offered for sale exceeded the allowable volume (fig. 4), and 3 other years, it was nearly met. The average annual volume offered for sale by the forest was 59.5 mmbf for the 10-year period 1994–2003.

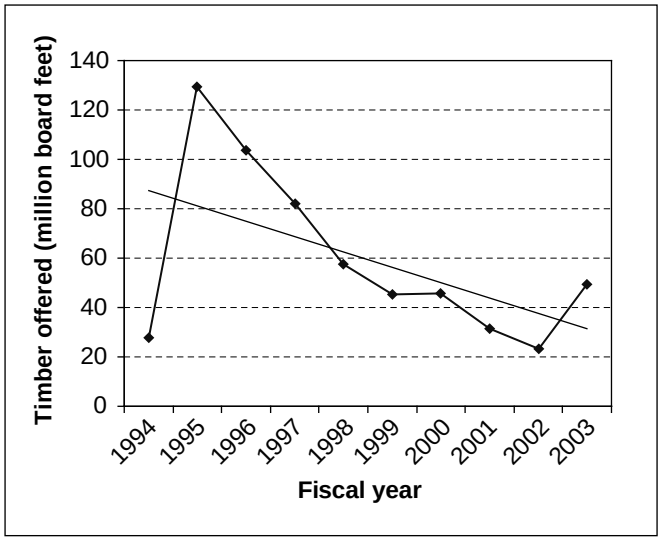

Figure 4—Volume of timber offered for sale on the Okanogan and Wenatchee National Forests, 1994–2003. Straight line is the linear regression.

Harvest practices on the OWNF follow the dry forest strategy. This strategy was developed by the Wenatchee National Forest following the 1994 fire season, during which 186,000 acres burned; it was adopted by the Okanogan National Forest in 1999. The strategy aims to restore the 407,000 acres of dry forest to conditions that are resilient to fire. Management focuses on reducing hazardous fuels (USDA FS 2000). Most harvests in upcoming years are expected to come from dry forest strategy sales. One Forest Service interviewee commented that although the PSQ volumes established in the Plan are being met, the size of the trees being harvested is smaller than anticipated because most harvest is coming from fuel reduction activities.

Nearly all Forest Service staff interviewed referred to the dry forest strategy as an important factor in the management of the OWNF.

As the timber activities on the OWNF have changed, so have the people who do this work. Figure 5 compares the locations of purchasers who were awarded timber sales on the forests in the early part of the study period (1990–92) and the later part of the study period (2001–03). The most striking difference is the marked decrease in total timber sales by the 2001–03 period. All but two purchasers from the Puget Sound area disappeared and only a couple of purchasers remained in central and northeastern Washington.

With the decline in timber operations on the OWNF, fewer contractors are needed for reforestation and other timber-related activities. As a result, contracting opportunities have declined on the OWNF. The contracting work that is available is often related to fuel reduction and fire restoration activities. Forest Service staff reported that many contracts are set aside for small business and minority- or women-owned businesses. Location of the contractor is also considered when awarding contracts. For example, seedling production contracts often to go to contractors living in Okanogan, Yakima, or Chelan Counties to enable inspection and because the seedlings are perishable.

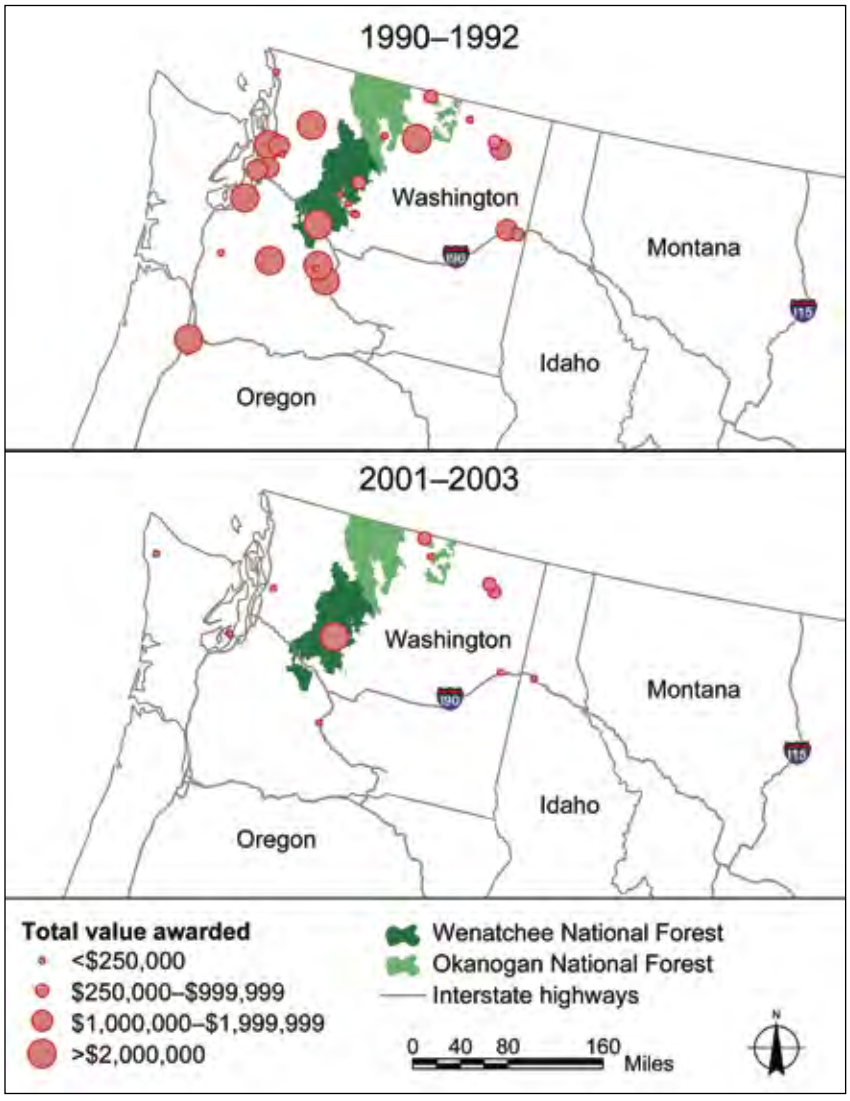

Figure 5—Comparison of contractor locations by zip code for timber sales, Okanogan-Wenatchee National Forest (NF), fiscal years 1990–1992 and 2001–2003.

Still, because there is less need for contractors than in the past, and the type of work available now reportedly pays less than contract work related to timber operations, community interviewees said local contractors are frustrated and many have gone into other lines of work. Although timber-related contracting opportunities are not likely to change in the near future, other contracting opportunities could develop associated with recreation and ecosystem restoration, but these may appeal to a different labor force than in the past.

Special Forest Products

Special forest products harvesting became more restrictive under the Plan because it limited areas of the forest where some products could be collected. For example, harvesting in late-successional reserves and riparian reserves must be consistent with the management objectives of the reserves, and may be restricted.

The number of permits sold to the public to gather special forest products has fluctuated since 1996, but with a declining trend (fig. 6). One Forest Service employee attributed the spike

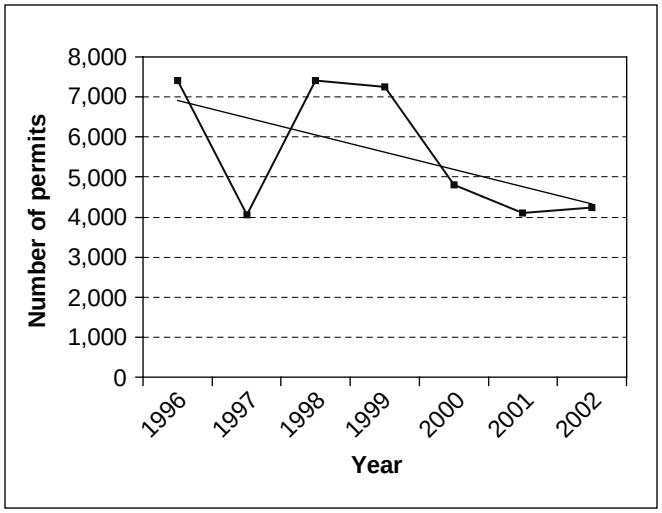

Figure 6—Permits sold for nontimber forest products, 1996–2002. Straight line is the linear regression.

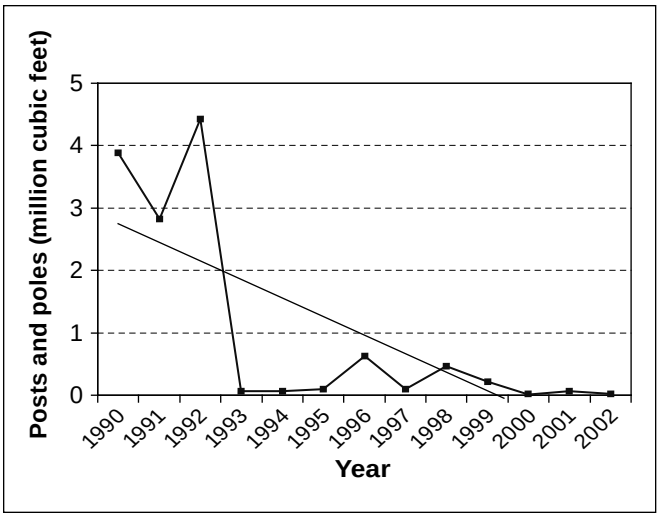

Figure 7—Poles and posts sold on the Okanogan-Wenatchee National Forest, 1990–2002. Straight line is the linear regression. Thousand board feet × 200 = cubic feet, linear feet × 0.3 = cubic feet, pieces × 1.1 = cubic feet.

in 1998 and 1999 to a large number of surplus seedlings that were sold. The seedlings were originally purchased for restoration work on the Wenatchee portion of the OWNF.

Poles and posts, firewood, and Christmas trees are the most widely harvested special forest products on the OWNF. Harvests of all three have declined over the past decade, but the trend has stabilized or reversed in recent years. Poles and posts were at a high in 1992 with more than 4 million cubic feet sold (fig. 7) and then dropped to 68,000 cubic feet in 1993. This drop may be attributable to change in reporting units from linear feet to cubic feet. Poles and posts are used in fruit orchards and by ranchers for fencing.

Firewood harvests have fluctuated and declined overall, but have increased since 2000 (fig. 8). Prior to the Plan, the OWNF had been open to woodcutting except in wilderness areas. Now, in addition to wilderness areas, firewood cutting is prohibited in late-successional reserves (LSRs) and adaptive management areas (AMAs). On the Cle Elum Ranger District, for example, there is no firewood cutting program because half the district is an LSR and the other is designated an AMA.

Other factors outside the influence of the Plan have affected the timing of firewood harvests. Although the Okanogan woodcutting program is year-round, fire precautions can restrict access in late summer, so people tend to cut earlier in the season. The Wenatchee woodcutting program is seasonal, which is the result of a lawsuit brought against the Forest Service for failing to assess indirect effects of firewood sales on air quality.[1]

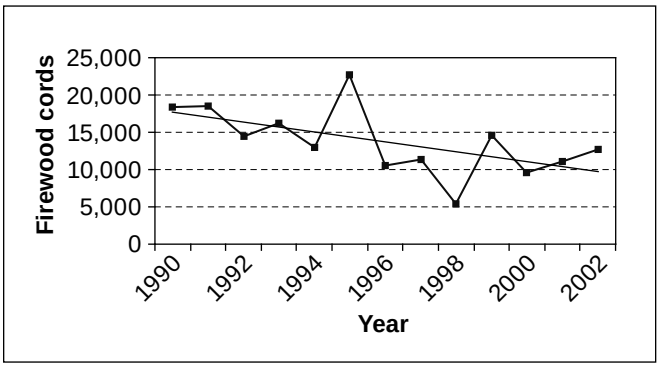

Figure 8—Firewood sold on the Okanogan-Wenatchee National Forest, 1990–2002. Straight line is the linear regression. Thousand board feet × 2.5 = cords, cords × 80 = cubic feet.

The number of Christmas trees cut on the OWNF has also declined (fig. 9). One Forest Service interviewee attributed the dip in 1998 to an early, heavy snowfall that season. Other special forest products include mushrooms, transplants, foliage, cones, limbs and boughs, and grass.

[1] Clean Air Yakima v. O'Neal, Civ. No. CY-90-3048-AAM (E.D.Wash.) (Forest Service violated National Environmental Policy Act by failing to assess indirect air quality impacts from firewood sales).

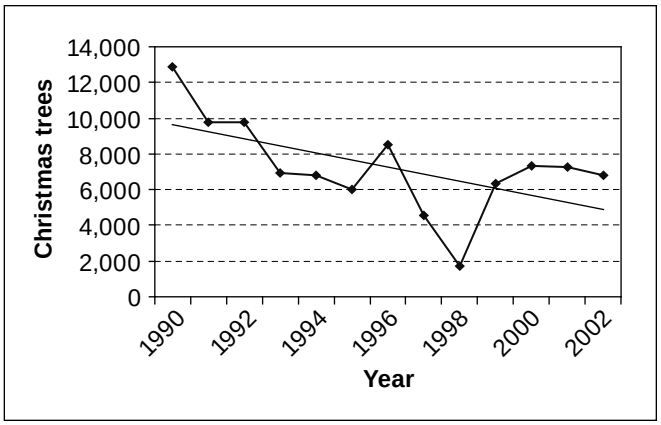

Figure 9—Christmas trees sold on the Okanogan-Wenatchee National Forest, 1990–2000. Straight line is the linear regression. Pieces × 7 = linear feet.

These programs are fairly small, and the data have some unexplained volatility (figs. 10 to 14). Possible explanations include weather patterns, recent fires, or market demand for special forest products. One Forest Service interviewee noted a lag time in issuing special use permits, and attributed this to the National Environmental Policy Act and the former survey and manage requirements that kept resource specialists busy.

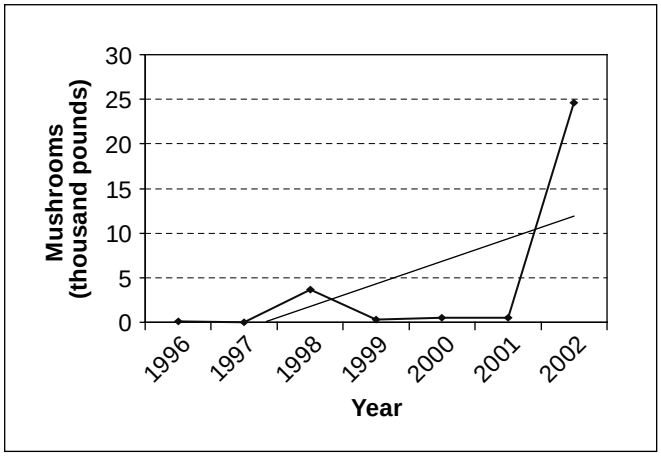

Figure 10—Mushrooms sold on the Okanogan-Wenatchee National Forest, 1996–2002. Straight line is the linear regression.

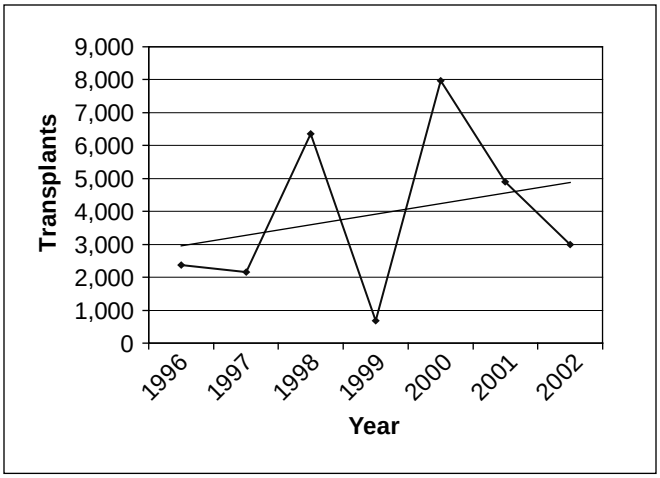

Figure 11—Transplants sold on the Okanogan-Wenatchee National Forest, 1996–2002. Straight line is the linear regression.

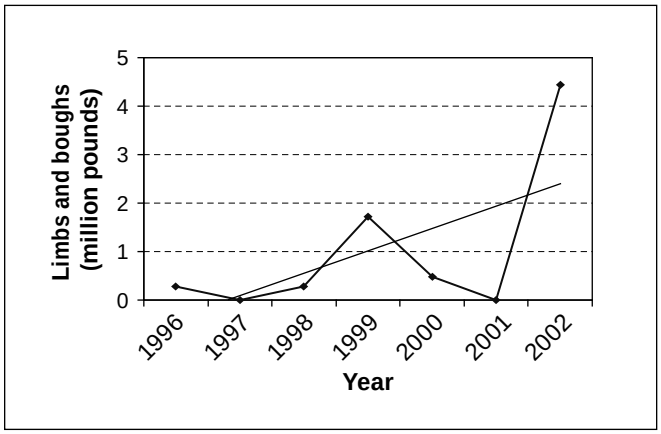

Figure 12—Limbs and boughs sold on the Okanogan-Wenatchee National Forest, 1996–2002. Straight line is the linear regression.

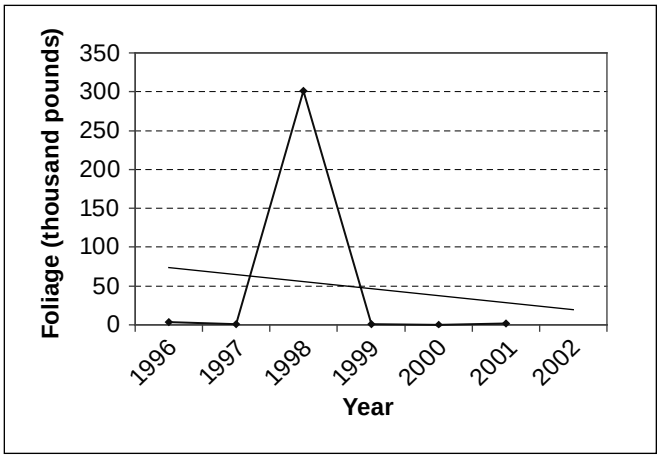

Figure 13—Foliage sold on the Okanogan-Wenatchee National Forest, 1996–2002. Straight line is the linear regression.

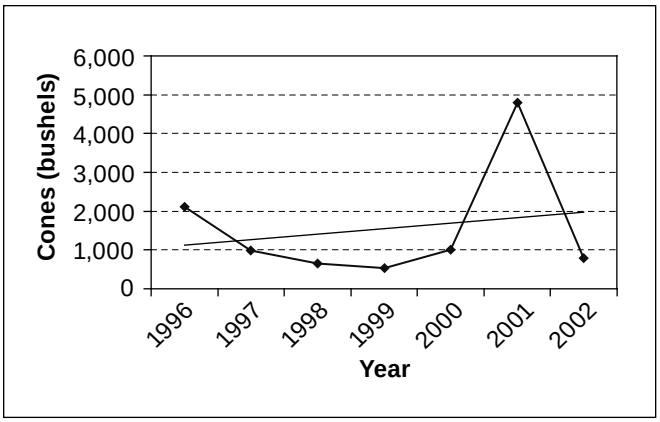

Figure 14—Cones sold on the Okanogan-Wenatchee National Forest, 1996–2002. Straight line is the linear regression. 1 U.S. bushel = 2,150.4 cubic inches.

Grazing

There are three grazing districts on the OWNF. The largest grazing program is the Tonasket grazing district, which is outside the Plan boundaries. The data presented here are for the Methow and Naches Districts, which are inside the Plan boundaries.

Table 1 displays grazing data from 1993 and 2002 to compare the grazing program in the Methow and Naches Districts at the time the Plan was released and more recently. The data indicate that the grazing program has declined. Several factors likely contribute to this decline. Under the Plan, grazing practices must be consistent with the aquatic conservation strategy. This has meant imposing restrictions on grazing in riparian areas. For example, cattle may not be allowed to enter the riparian areas until the ground has fully dried in late spring, and they must be removed before they overgraze, which shortens the use period. Ranchers reportedly have had to invest in more structures, such as fencing and water troughs outside the riparian areas, to comply with these new restrictions.

The decline in the timber program also is reportedly limiting the available forage. The growth of new vegetation after a recent clearcut creates productive grazing areas for cattle. This transitory range takes about 10 years to fill in after a clearcut if the young forest is not thinned. This means the grazing areas created by the timber program in the early 1990s are closing up and few new areas are being created. Dense stands also are hard to ride through to move cattle from pasture to pasture, which, with the emphasis on preventing overgrazing, can be an issue.

As forest conditions change, "suitable land" for grazing allotments could be reduced. According to Forest Service interviewees, most of the ranchers need to use the national forest to operate, but permittees are aging and few younger people are becoming ranchers, so demand may lessen as supply lessens. Also wildfire, prescribed burns, and fuel reduction work may create new suitable range land.

Table 1—Grazing on the Okanogan-Wenatchee National Forest[a]

Year	Active allotments	Active allotment acres	Permittees	Authorized AUMs[b]
1993	51	1,008,248	38	39,988
2002	41	875,900	26	20,129

[a] Wenatchee and Methow Districts.

[b] AUM = animal unit month.

Minerals

The OWNF contains locatable, leasable, and salable minerals. Locatable minerals include copper, gold, molybdenum, silver, lead, tungsten, iron, chromium, nickel, mercury, and manganese (USDA FS 1989, 1990). Gold is currently of most interest and the OWNF is writing an environmental impact statement relating to Buckhorn Mine, a proposed gold mine that would be the largest in Okanogan County. The proposal calls for 10 to 12 years of operation as an underground mine. As shown in table 2, the number of new claims made per year declined between 1990 and 2000. A $100 dollar filing fee for new claims introduced in 1993 may be deterring less serious applicants.

Leasable minerals on the OWNF include coal, uranium, oil, gas, and geothermal resources, although currently none are being developed (USDA FS 1989, 1990). Salable minerals such as sand, stone, and gravel are also present on the OWNF (table 3). Much of this is used by the Forest Service to maintain roads on the OWNF and other public works projects. Consequently, as the timber program has declined, so have road construction activities and the demand for these materials.

Table 2—Locatable mineral activity on the Okanogan-Wenatchee National Forest

	Locatable minerals	
Year	New claims of record[a]	Number of plans of operation[b]
1990	602	N.d.
1995	125	88
2000	72	23

N.d. = no data.

[a] Source: USDI BLM 2000.

[b] USDA FS 1990, 1995, 2000b.

Table 3—Salable mineral activity on the Okanogan-Wenatchee National Forest

	Salable minerals[a]			
Year	Contracts	Free use	Forest Service use	Totals
			Tons	
1994			54,720	54,720
1995			32,880	32,880
1996				
1997			626,880	626,880
1998			40,080	40,080
1999				
2000	48	20	8,582	8,650
2001	191	7	51,590	51,788
2002	325	4,515	36,939	41,779
2003	159	2,600	14,149	16,908

[a] Source: USDA FS MMP 1990, 1995, 2000.

Recreation

Recreation on the OWNF was strong before the Plan, and has continued to grow. The recreation special use program is one of the largest in the country. The drier climate on the east side of the Cascade Range attracts many visitors from the Seattle metro area on the wetter west side. The OWNF offers a variety of recreation opportunities, from hiking, mountain biking, off-road vehicle riding, camping, and boating in the summer to snowmobiling, cross-country skiing and downhill skiing in the winter (table 4). About 40 percent of the OWNF is designated wilderness, offering opportunities for dispersed recreation. The OWNF is also known for its mule deer (*Odocoileus hemionus*) hunting opportunities. Fishing opportunities have declined with the listing of multiple species as threatened or endangered.

Table 4—Recreation indicators on the Okanogan-Wenatchee National Forest, 1989–2006

Recreation indicator	Okanogan National Forest 1989	Wenatchee-National Forest 1990	Okanogan Wenatchee 2006
Boating launches	8	7	9
Campgrounds	32	118	159
Picnic sites	2	8	4
Trailheads	16	12	140
Recreation residences	7	54	681
Observation site	4	3	
Number of outfitter/ guides			57
Miles of trails	615	2,463	6,571

Forest Service staff described conflicts between dispersed camping and fisheries needs. In response, the OWNF started the "Respect the River" program. Dispersed sites have also been "hardened" to mitigate impacts to fisheries. Trail usage is relatively high on the OWNF, with backpacking and cross-country skiing being the largest uses on both forests.

The budget for the OWNF recreation program declined from $10 million in 2001 to $7.6 million in 2005, and is expected to drop further in 2006 owing to changes in distributional criteria at the regional level (USDA FS 2006). The state contributed 54 percent of the OWNF recreation budget in 2005 through the Interagency Committee for Outdoor Recreation (USDA FS 2006). According to Forest Service interviewees, a declining budget for managing use and maintaining facilities limits the provision of recreational opportunities: staffing levels are insufficient to handle the number of visitors, and limited capital improvement funds hinder development of new campgrounds or upgrades to existing ones.

Forest Service interviewees reported that the Plan had little direct effect on recreation. Recreation demand was described as a function of population, and because the OWNF lies within a 1- to 2-hour drive of the Seattle and Olympia metro areas, demand continues to increase. Data from the National Visitor Use Survey completed in 2000 and 2001 for the Okanogan and Wenatchee portions, respectively, correspond to 5.2 million recreation visitor

days (RVDs) per year on the combined forest (USDA FS 2006). Of these, 4.9 million RVDs were not wilderness visits, a significant increase in use from the 1980s when the average annual recreation use outside wilderness on the Okanogan National Forest was 878,000 RVDs, and on the Wenatchee in 1986 it was 2.7 million RVDs (USDA FS 1989, 1990).

A major concern regarding the OWNF high level of recreational use is establishing parameters for carrying capacity. The OWNF continues to emphasize data development and has completed a study, "Assessing the Cumulative Effects of Linear Recreation Routes on Wildlife Habitats on the Okanogan and Wenatchee National Forests." At the request of the U.S. Fish and Wildlife Service, the OWNF also is modeling recreation carrying capacity.

Fire restrictions can deter recreation use; for example in 2001, campfires were banned for most of the season. Water shutoffs owing to drought, such as in 2002 and 2003 in the Tieton-Naches area, and drawdowns in reservoirs used for boating may also deter recreationists. Active wildfires can close areas for recreation and tourism activities. When large areas burn, forested landscapes can also lose their recreation values for scenery, wildlife viewing, and hunting for extended periods.

The Plan was seen by Forest Service interviewees as affecting recreation management in riparian areas. Some campgrounds were modified or closed as a result of the riparian reserve standards and guides, but these changes were also related to the Endangered Species Act (ESA). Another issue was removing hazard trees near recreation residences in riparian areas. Forest interviewees reported that a backlog of requests to remove hazard trees initially developed because of the hoops that one had to go through to remove them owing to ESA and Plan requirements for down wood, large woody debris, and instream debris. Some requests for tree removal were reportedly more than a year old.

An indirect effect of the Plan on recreation is the limited funding to maintain roads for use by recreationists. Funding lost for roads formerly supplied by the timber program has not been replaced for recreation use of the roads. This situation along with the growing off-highway vehicle use and road impacts on watershed values have caused a nationally driven review, the roads analysis process, that determines appropriate use of each road and has resulted in some new seasonal and permanent closures as well as decommissioning of some roads. One Forest Service interviewee mentioned that keeping vegetation trimmed back to maintain visibility was becoming a safety issue.

Forest Jobs and Budget

National forests are an important source of quality jobs for people in forest-based communities. Forest Service employees earn good wages, receive benefits, enjoy relatively safe working conditions, have training opportunities to develop new skills, and have opportunities for advancement within the organization. Figure 15 shows the number of full-time employee equivalent positions (FTEs) on the OWNF between 1993 and 2003. One FTE can represent one full-time job or a combination of part-time positions counted in aggregate. They include permanent, temporary, and term tenures. Data were collected by different categories in different years. A permanent full-time position (PFT) is one category included in a FTE. The number of FTEs went from a high of 833 positions in 1993, a year before the Northwest Forest Plan (the Plan) was signed, to a low of 642 in 2000, when the Okanogan and Wenatchee National Forests were administratively combined. Staffing losses were fewer than average among Plan forests. The number of FTE positions stood at 655 in 2003.

Forest Service employment is directly tied to the budget. Figure 16 shows the total budget allocation to the Okanogan-Wenatchee National Forest (OWNF) from 1993 to 2003.

Forest Service staff noted that the staffing data masked what was a very pronounced shift toward fire and fuels management staffing, with losses among most other resource staffs. Smaller timber harvests mean fewer timber staff are needed, but fire-related activities have driven hiring in that area. These shifts reflected changing budgetary allocations. Staff also noted a more subtle, but important, shift toward more research-level biologist and fisheries staff over the period of the Plan, which allowed the OWNF to manage the increasingly complex consultation requirements

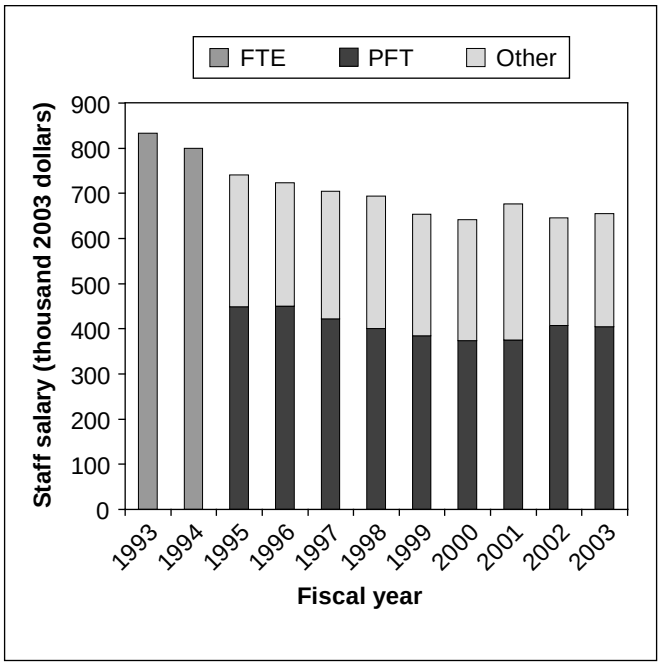

Figure 15—Staffing levels on the Okanogan-Wenatchee National Forest, 1993–2003. FTE = full-time equivalent; PFT = permanent full-time position.

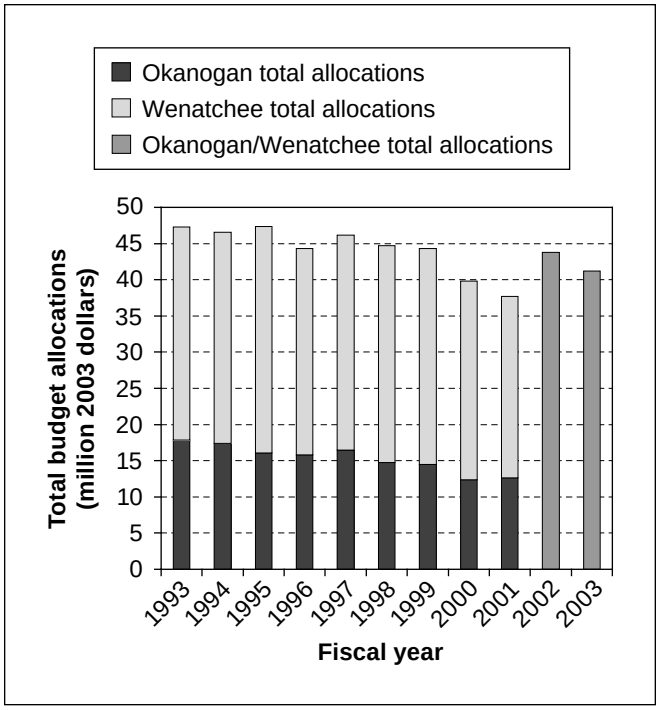

Figure 16—Total budget allocations to the Okanogan-Wenatchee National Forest, 1993–2003.

over the period. Recreation staffing also increased over the period. A number of staff described the OWNF as moving toward a "fire suppression and recreation" organization (fig. 17). However, fire staff also described funding procedures that provide adequate funding for fire suppression but very little funding for repairing and replacing infrastructure and facilities after fires. Without such funding, and given the extensive public use of the national forest, staff thought that fire programs and funding could lose public support.

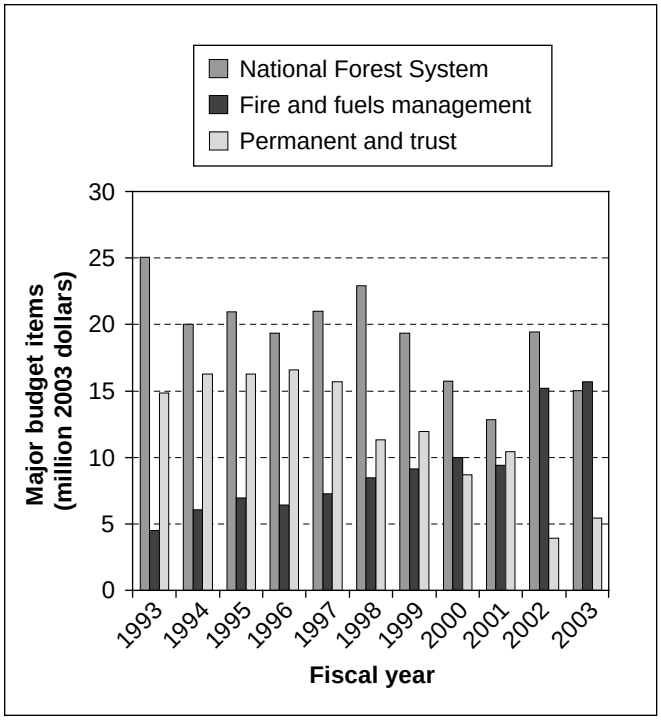

Figure 17—Major budget allocations on the Okanogan-Wenatchee National Forest, 1993–2003.

Procurement and Contracting for Land Management

Procurement Spending

Between 1991 and 2002, the Wenatchee and Okanogan National Forests together spent a total of $73.5 million on procurement of land management services ($49.4 million for the Wenatchee and $24.1 million for the Okanogan). Spending declined from $8.6 million in 1991 to $4.4 million in 2002, a decrease of about 49 percent (fig. 18). Although total spending declined for both forests, the pattern of

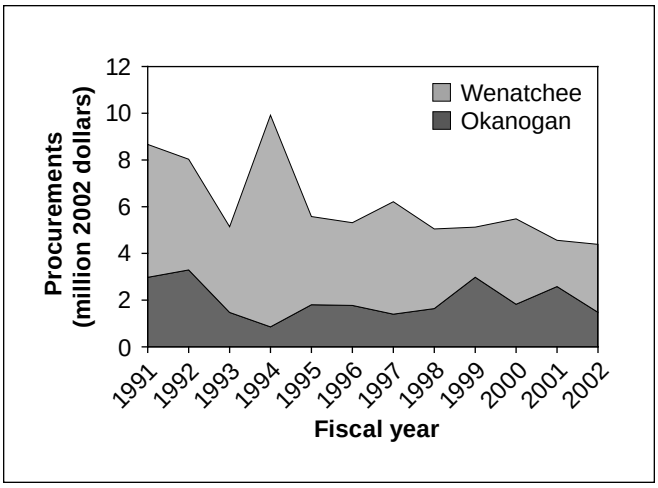

Figure 18—Annual land management procurement spending, Wenatchee and Okanogan National Forests fiscal years 1991–2002.

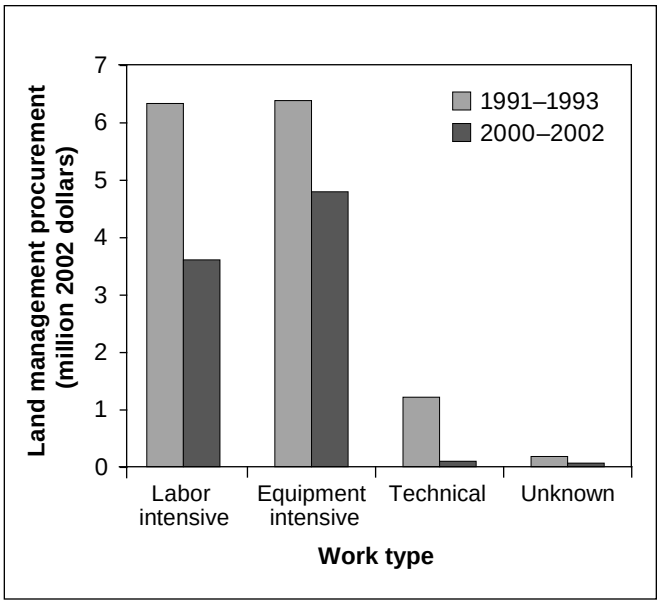

Figure 19—Land management procurement spending by work type, Wenatchee National Forest, fiscal years 1991–1993 and 2000–2002.

decline differed. On the Wenatchee, spending declined fairly steadily over the whole period, with the exception of a noticeable spike during 1994 because of fire spending. Spending on the Okanogan declined initially, but had a couple of spikes in 1999 and 2001 before declining again in 2002. These spending spikes were probably related to fire spending.

Of the $49.4 million spent on Wenatchee land management procurement during the study period, the Wenatchee National Forest spent $20.4 million on labor-intensive activities (e.g., tree planting, thinning), $26 million on equipment-intensive activities (e.g., road work), and $2.4 million on technical work (e.g., surveys and analysis). There was about $0.6 million of procurement spending that was not detailed enough to be classified into the labor, equipment, or technical categories. As in other national forests in the Plan area, the Wenatchee reduced spending on labor-intensive, equipment-intensive, and technical contracting over the course of the study period (fig. 19).

Of the $24.1 million spent on land management procurement on the Okanogan National Forest, $14.5 million was for labor-intensive activities, $5.2 million for equipment-intensive activities, and $3.7 million for technical work. As on the Wenatchee, an additional $0.7 million of procurement spending could not be classified as labor, equipment, or technical work. The Okanogan National Forest reduced its spending on both labor-intensive and technical contracting over the course of the study period. In contrast to the Plan area as a whole, however, it increased its equipment-intensive spending (fig. 20).

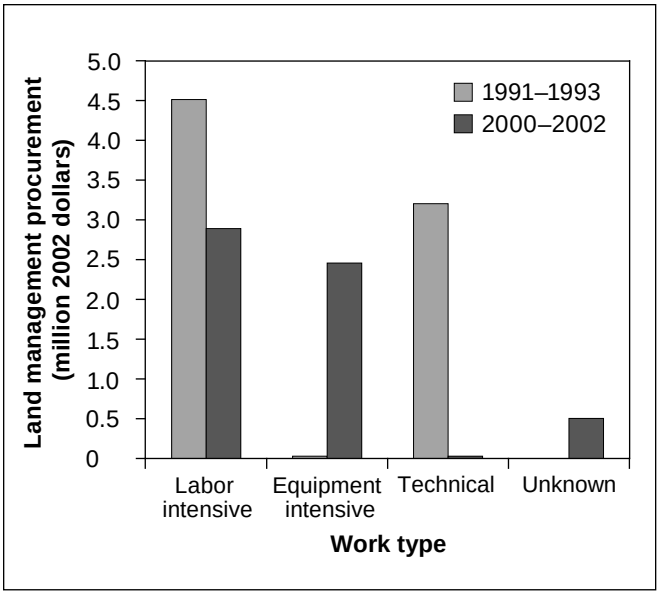

Figure 20—Land management procurement spending by work type, Okanogan National Forest, fiscal years 1991–1993 and 2000–2002.

On the Wenatchee National Forest, labor-intensive spending declined from $6.3 million in 1991–93 to $3.6 million in 2000–2002. Tree planting, thinning, and seedling production were the major labor-intensive activities during 1991–93, but they decreased considerably in the later part of the study period (2000–2002) (fig. 21). However, tree planting and thinning represented the majority of the labor-intensive procurement spending throughout this period (seedling production was negligible in comparison). Note that range and forest improvement and fire rehabilitation were the next highest category of expenditures during 2000–2002, illustrating a shift in emphasis from timber harvesting to fire management.

Site preparation, tree planting, and range and forest improvement in the 1991–93 period dominated labor-intensive spending on the Okanogan National Forest. By the end of the study period, site preparation spending remained at over $2 million, while many of the other labor-intensive categories declined substantially (fig. 22). In fact, no money was spent on tree planting by the end of the period.

The Wenatchee National Forest spent by far the most on road work among equipment-intensive activities during 1991–93, followed by aerial fertilization/spraying/seeding, recreation construction, and trail work (fig. 23). By the end of the study period, spending on road work had decreased by over 50 percent. Road work still remained the highest spending category, followed by recreation construction, aerial fertilization/spraying/seeding, and road construction. Overall, equipment-intensive spending on the Wenatchee decreased by about 25 percent between the two periods. In contrast, equipment-intensive work on the Okanogan increased over the study period, from under $30,000 in 1991–93 to about $2.5 million in 2000–2002. The majority of the work procured was related to road construction and aerial fertilization or spraying (fig. 24).

Technical work on the Wenatchee declined dramatically over the study period, from a high of $1.2 million in 1991–93 to a low of $95,986 in 2000–2002, a decline of approximately 92 percent. Almost all of the work in the "survey" category was discontinued by the end of the study period and limited analysis work remained (fig. 25). The decrease in technical work was even more pronounced on the Okanogan. Spending fell 99 percent from over $3 million in the beginning of the period to less than $30,000 by end of the study period. The only technical work remaining in the later part of the study period was surveying (fig. 26).

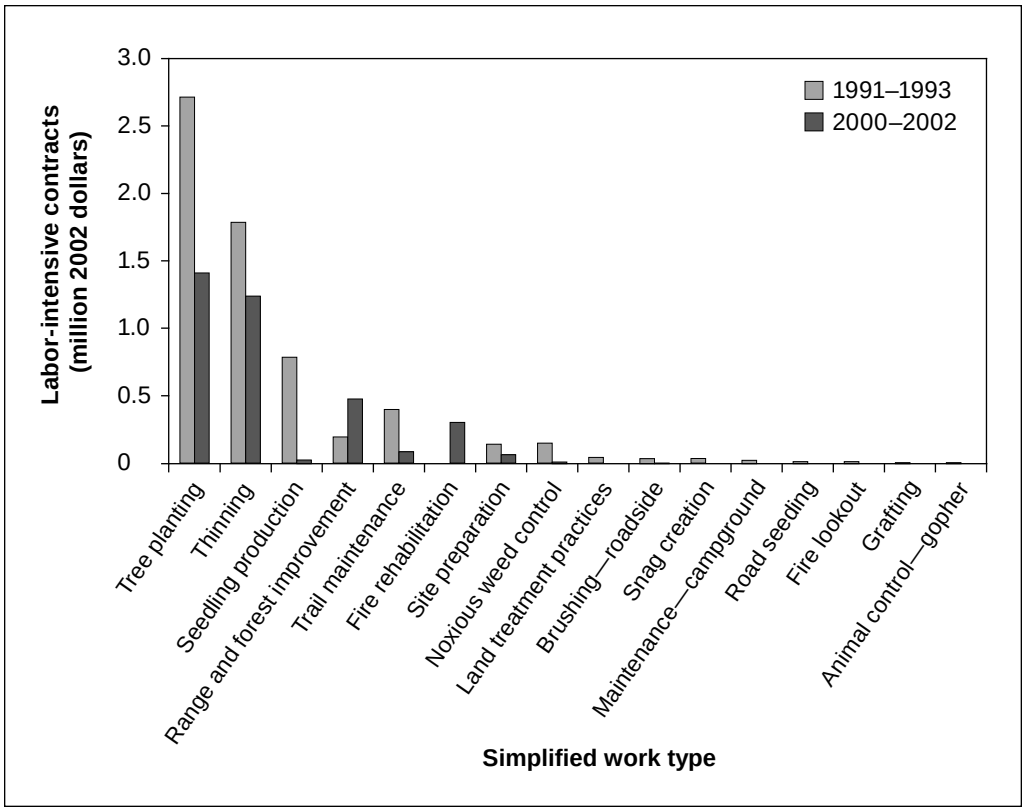

Figure 21—Labor-intensive contracting by detailed work type, Wenatchee National Forest, fiscal years 1991–1993 and 2000–2002.

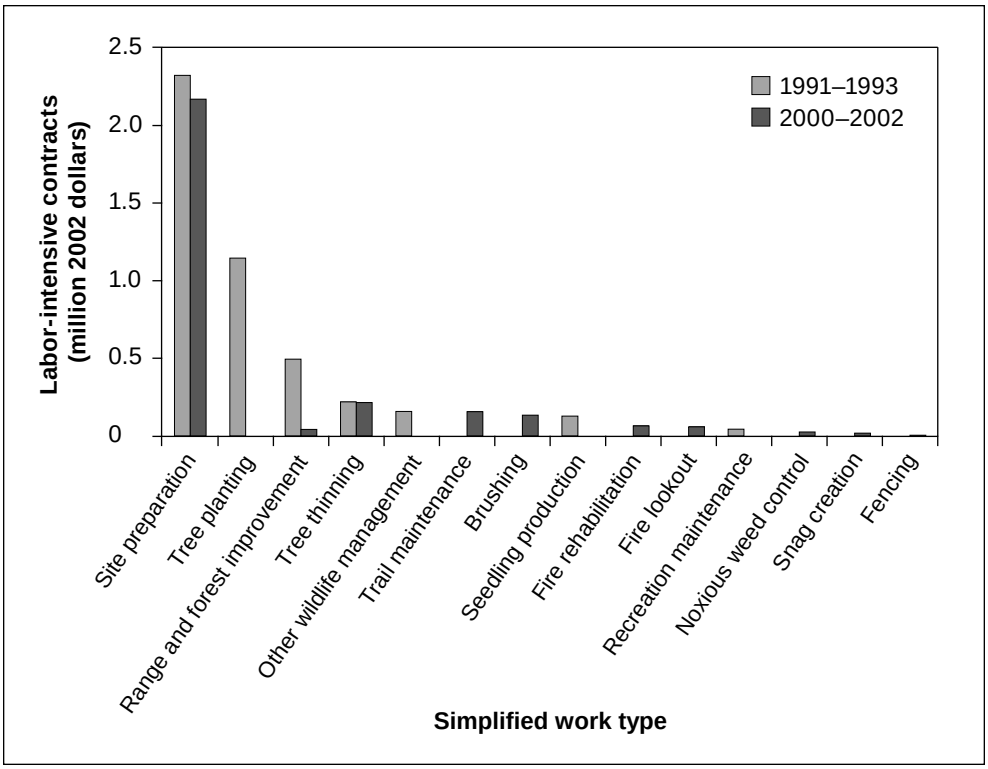

Figure 22—Labor-intensive contracting by detailed work type, Okanogan National Forest, fiscal years 1991–1993 and 2000–2002.

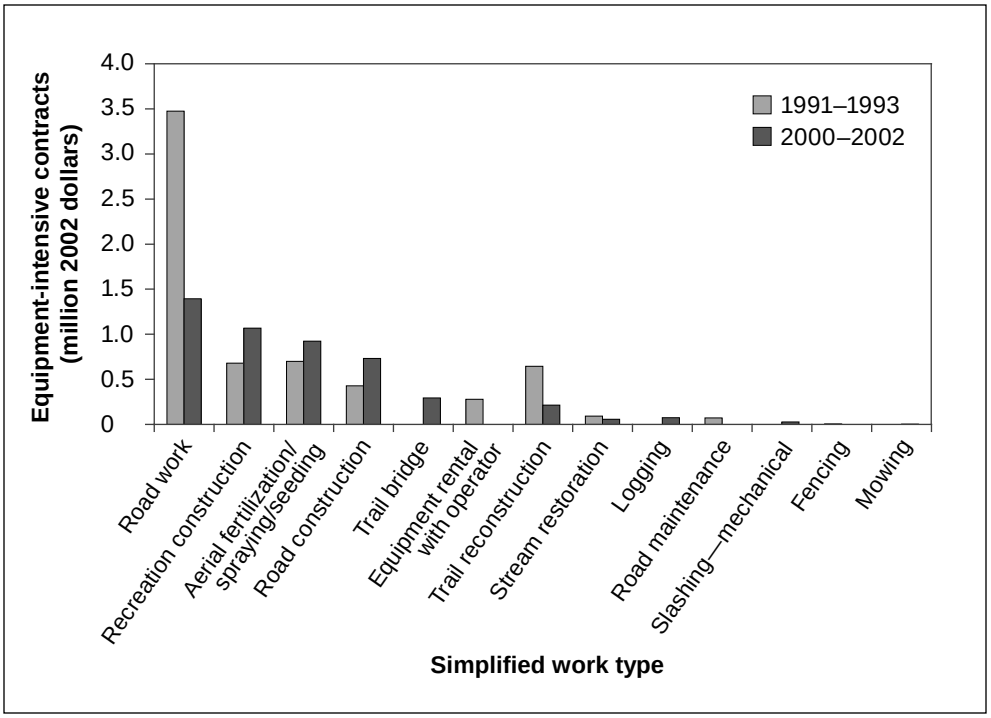

Figure 23—Equipment-intensive contracting by detailed work type, Wenatchee National Forest, fiscal years 1991–1993 and 2000–2002.

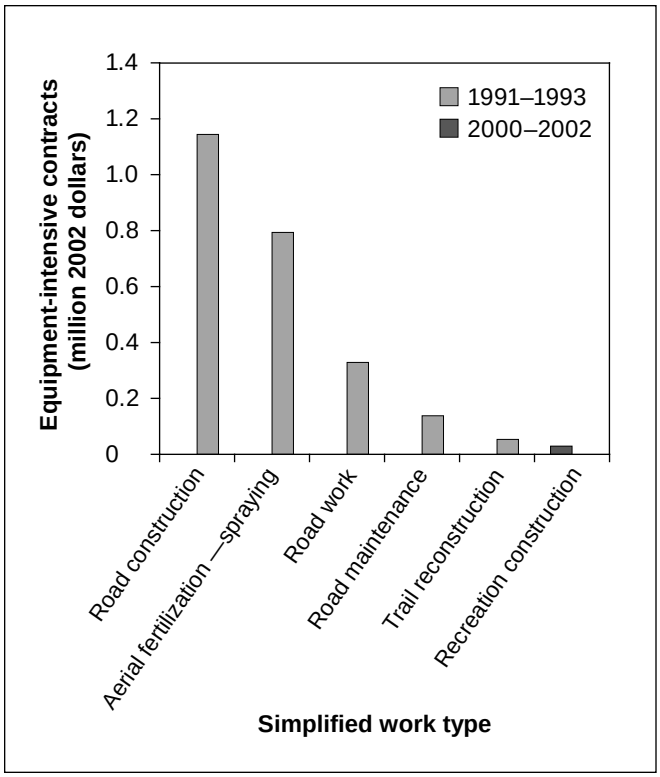

Figure 24—Equipment-intensive contracting by detailed work type, Okanogan National Forest, fiscal years 1991–1993 and 2000–2002.

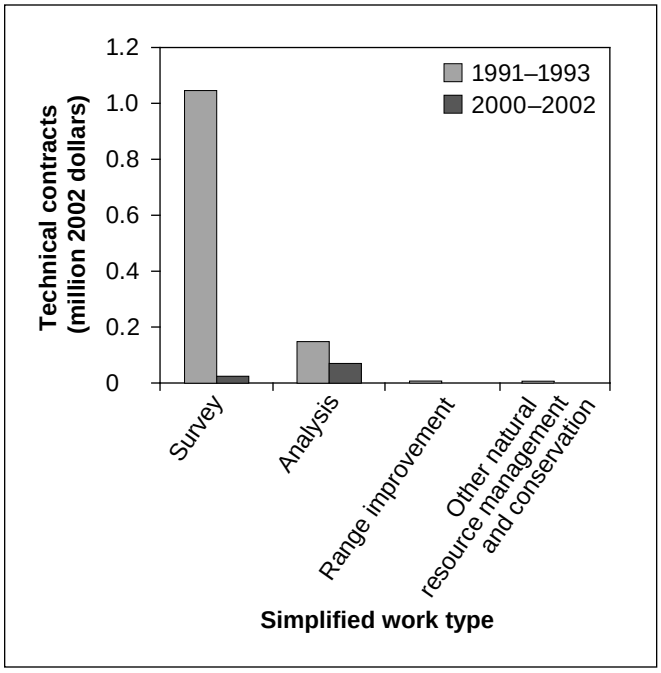

Figure 25—Technical contracting by detailed work type, Wenatchee National Forest, fiscal years 1991–1993 and 2000–2002.

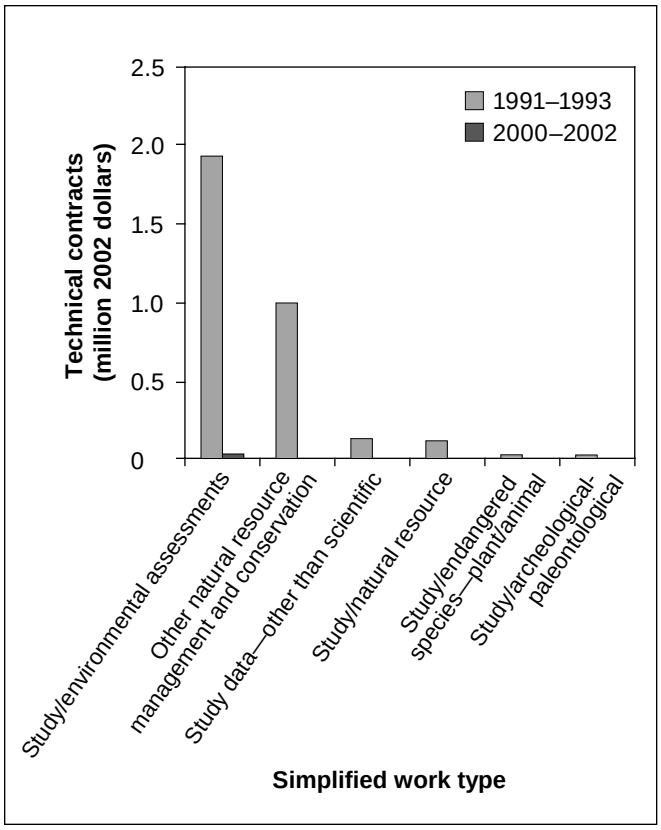

Figure 26—Technical contracting by simplified work type, Okanogan National Forest, fiscal years 1991–1993 and 2000–2002.

Changes in the Contractor Pool

We identified 118 contractors who worked for the Wenatchee National Forest during 1991–93. That number fell to 41 by 2000–2002, a 65-percent decline.[2] Over the same period, procurement spending declined by 39 percent. On average then, the remaining contractors captured more contract value in the early 2000s than they did a decade earlier. In the case of the Okanogan National Forest, we identified 52 contractors who worked during the 1991–93 period. That number fell to 33 by 2000–2002, a 37-percent decline.[3] Over the same period, total procurement spending by the Okanogan declined 24 percent.

[2] In addition, on the Wenatchee National Forest, there were 2 contracts in 1991–93 and 10 contracts in 2000–2002 for which we could not identify contractors.

[3] In addition, on the Okanogan National Forest, there were 36 contracts in 1991–93 and 21 contracts in 2000–2002 for which we could not identify contractors.

Both the Wenatchee and Okanogan National Forests had a relatively high rate of turnover among their contractors. Of the 118 contractors we identified working for the Wenatchee in 1991–93, only 13 worked for the forest a decade later; the remaining 28 were new contractors. The 13 returning contractors captured more contract dollars on average than the new contractors. Of the 52 contractors working for the Okanogan National Forest in 1991–93, only 3 worked for the Okanogan a decade later; the remaining 30 were new contractors. The three returning contractors captured more contract dollars on average than the new contractors. This high rate of turnover suggests instability in the contracting market and that contracting work on both national forests may not be steady enough for a consistent pool of contractors.

It is difficult to draw definitive conclusions about changes in market concentration on the Wenatchee. In 1991–93, four contractors (3.4 percent of the total number) captured 25 percent of the OWNF's procurement value and 13 contractors (11 percent of the total number) captured 50 percent of the OWNF's contract value. In 2000–2002, a single contractor captured 25 percent of the procurement value, and four contractors (9.7 percent of total number) captured 50 percent of the procurement value that the Wenatchee National Forest offered (table 5). Although this shift from four to one contractor capturing 25 percent of the contract value seems considerable, the shift is likely the result of fewer total contractors. A chi square test did not find a statistically significant change in market concentration over time.

In the case of the Okanogan, two contractors (3.8 percent of the total number) captured 25 percent of the OWNF's procurement contracts, and six contractors (7.7 percent of the total number) captured 50 percent of the OWNF's contract value in 1991–93. In 2000–2002, a single contractor (9.1 percent of total number) captured 25 percent of the procurement value, and four contractors (9.1 percent of total number) captured 50 percent of the procurement value that the OWNF offered (table 6). These numbers do not indicate a clear change in market concentration over the study period, and a chi-square test did not find a significant correlation.

Although no significant change in market concentration occurred, it is important to note that three-quarters of the contract award amounts are still captured by a relatively small percentage of contractors (less than 30 percent). In both periods, the majority of the contractors (over 72

Table 5—Concentration of contracting awards by size of contractor, Wenatchee National Forest, fiscal years 1991–1993 and 2000–2002

	1991–1993		2000–2002	
	Number of contractors	Percentage of contractors	Number of contractors	Percentage of contractors
1st quartile	4	3.4	1	2.4
2nd quartile	9	7.6	3	7.3
3rd quartile	20	16.9	5	12.2
4th quartile	85	72.0	32	78.0
Total	118	100.0	41	100.0

Note: This table groups contractors by size of contractor's awards. The largest contractors that together capture one-fourth of the contract value are in the 1st quartile. The smallest contractors that together capture one-fourth of the contract value are in the 4th quartile. Thus, for example, the largest contractor in 2000–2002 captured the same total value as the smallest 32 contactors.
Chi square: $p < 0.549$

Table 6—Concentration of contracting awards by size of contractor, Okanogan National Forest, fiscal years 1991–1993 and 2000–2002

	1991–1993		2000–2002	
	Number of contractors	Percentage of contractors	Number of contractors	Percentage of contractors
1st quartile	2	3.8	1	3.0
2nd quartile	4	7.7	3	9.1
3rd quartile	7	13.5	5	15.2
4th quartile	39	75.0	24	72.7
Total	52	100.0	33	100.0

Note: This table groups contractors by size of contractor's awards. The largest contractors that together capture one-fourth of the contract value are in the 1st quartile. The smallest contractors that together capture one-fourth of the contract value are in the 4th quartile. Thus, for example, the largest contractor in 2000–2002 captured the same total value as the smallest 32 contactors.
Chi square: $p < 0.549$

percent) captured only one-quarter of the procurement dollars spent by the Wenatchee and Okanogan National Forests.

Community Benefit[4]

The Wenatchee and Okanogan National Forests awarded contracts to contractors located primarily along the Interstate-5 corridor in Oregon and Washington, Interstates 82 and 90 in Washington, in communities in or near the forests, and in northwest Idaho. There were a couple of small differences between contract awards to labor-intensive and equipment-intensive work. Equipment-intensive contractors closer to the two national forests and on the Washington/Idaho border were awarded slightly more contract value (fig. 27). There were also a couple of equipment-intensive contractors located in northern California. Labor-intensive contractors were slightly more dispersed along the Interstate-5 corridor and were more concentrated in the Willamette Valley, southern Oregon, and northeastern Oregon. With the exception of the equipment-intensive contractors from California, this award pattern on these forests follows general trends where labor-intensive workers will travel farther than equipment-intensive contractors to perform work (Moseley and Shankle 2001, Moseley et al. 2003). The cost of transporting heavy equipment tends to keep contractors closer to home.

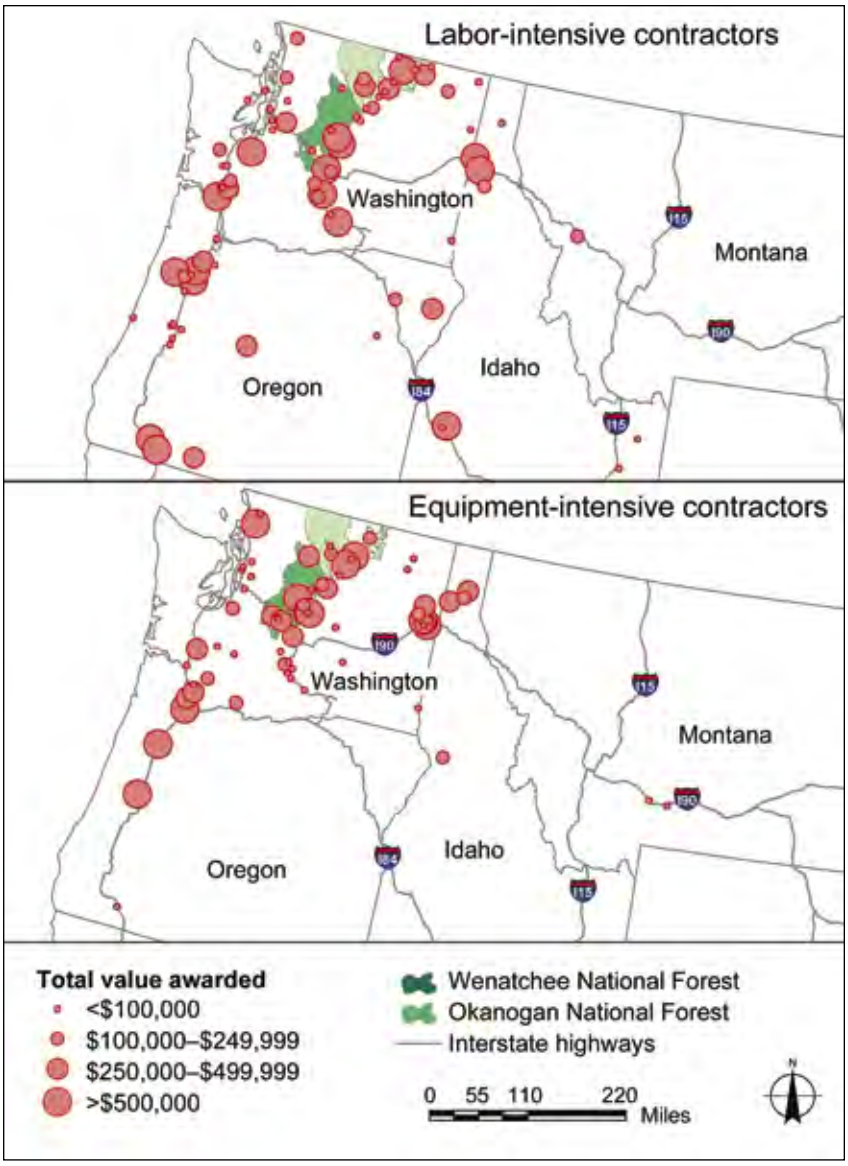

Figure 27—Comparison of labor-intensive and equipment-intensive contractor locations by ZIP code, Okanogan-Wenatchee National Forest, fiscal years 1991–2002.

Over the course of the study period, proportionately fewer contracts were awarded to contractors located close to the forests. In 1991–93, many contractors came from northwestern Washington (including the Seattle-Tacoma metropolitan area) and the portion of Interstate 5 that spans Washington and stretches down into Portland, Oregon (fig. 28). Over the next decade, contractors became almost nonexistent in northwestern Washington and were consolidated along a few locations on Interstate 5 in Oregon, as well in the north-central part of Washington. In addition, there seemed to be more activity along the eastern Washington/northwestern Idaho border. Although a number of awards continued to go to contractors located near both national forests, awards to nearby contractors declined

[4] In the following section, the Wenatchee and Okanogan National Forests are combined to examine the locations of contractors who were awarded land management contracts.

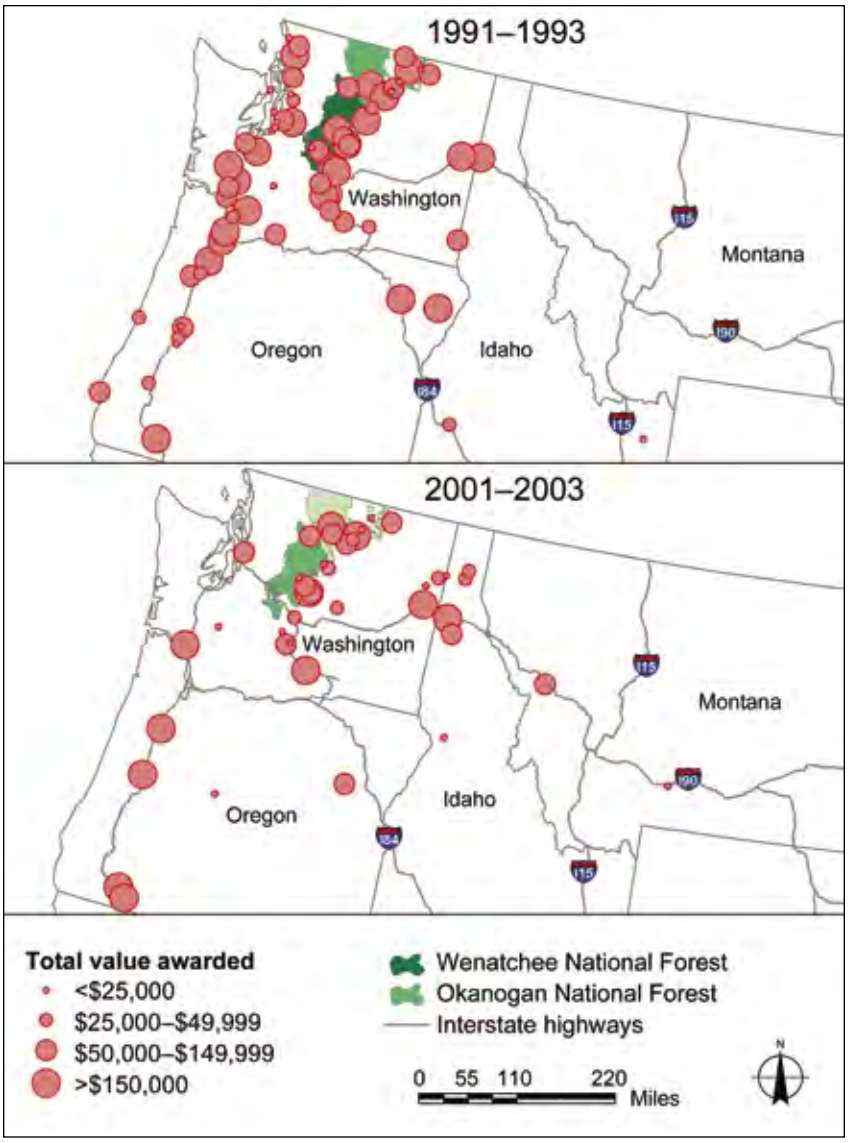

Figure 28—Comparison of contractor location by ZIP code and total contract award, Okanogan-Wenatchee National Forest, fiscal years 1991–1993 and 2000–2002.

overall by the end of the study period. The small number of contracts in the Wenatchee and Okanogan National Forests does not allow reliable statistical tests to be performed, so it is difficult to discern if these changes are statistically significant even if they are apparent from the maps.

The Wenatchee National Forest awarded 36 percent of its contract value to contractors located in rural communities in 1991–93 (communities having fewer than 5,000 people) (table 7). By 2000–2002, the percentage had decreased to 24 percent. In real dollars, awards to rural contractors declined from roughly $5.7 million in 1991–93, to just over $2 million in 2000–2002. This proportional shift may be partially explained by the large increase in the number of contracts awarded to urban contractors (those living in communities of over 50,000 people) and the smaller increase in awards to contractors located in small towns (having populations of 5,000 to 9,999 people). Also, the percentage of total contract value awarded to towns with populations of 10,000 to 50,000 people declined from 24 to 15 percent. Chi-square tests on the distribution of contract value awarded to communities were statistically significant ($p < 0.01$), both including and excluding the amount of contract dollars awarded to communities of unknown size, suggesting that awards to rural communities declined significantly.

The Okanogan National Forest awarded 45 percent of its contract value to contractors located in rural communities in 1991–93 (table 8). This percentage declined slightly to 41 percent in 2000–2002. The more noticeable shifts, however, were a decrease from 36 to 16 percent of the contract value awarded to towns with populations of 10,000 to 50,000 people and an increase from 15 to 27 percent in contract value awarded to urban populations. Chi-square tests comparing the distribution of contract value were significant ($p < 0.01$), both including and excluding the amount of contract dollars awarded to communities of unknown size, this time suggesting that small towns lost a significant proportion of contract value over time.

Throughout the study period, the Wenatchee and Okanogan National Forests awarded the majority of contract value to contractors located in counties with the Plan's Jobs-in-the-Woods program (fig. 29). The purpose of the program was to provide more jobs to workers in counties affected by the Plan. The proportion of contract value awarded to

Table 7—Percentage of contract value by contractors' community size, Wenatchee National Forest, fiscal years 1991–1993 and 2000–2002

Community population	1991–1993		2000–2002	
	Real dollars	*Percent*	*Real dollars*	*Percent*
<5,000	5,709,341	36.26	2,069,571	23.88
5000–10,000	1,235,825	7.85	1,111,532	12.82
10,000–50,000	3,744,856	23.79	1,129,502	14.92
>50,000	1,752,138	11.13	3,281,027	37.86
Unknown	3,301,920	20.97	911,406	10.52
Total	15,744,080	100.00	8,667,038	100.00

Chi square: $p < 0.001$.
Chi square: $p < 0.001$ (excluding unknown category).

Table 8—Percentage of contract value by contractors' community size, Okanogan National Forest, fiscal years 1991–1993 and 2000–2002

Community population	1991–1993		2000–2002	
	Real dollars	*Percent*	*Real dollars*	*Percent*
<5,000	3,479,551	45.16	2,439,342	41.47
5,000-10,000	51,536	0.67	119,469	2.03
10,000-50,000	2,753,703	35.56	944,074	16.05
>50,000	1,187,071	15.33	1,605,034	27.29
Unknown	254,534	3.29	774,123	13.16
Total	7,744,395	100.00	5,882,043	100.00

Chi square: $p < 0.001$.
Chi square: $p < 0.001$ (excluding unknown category).

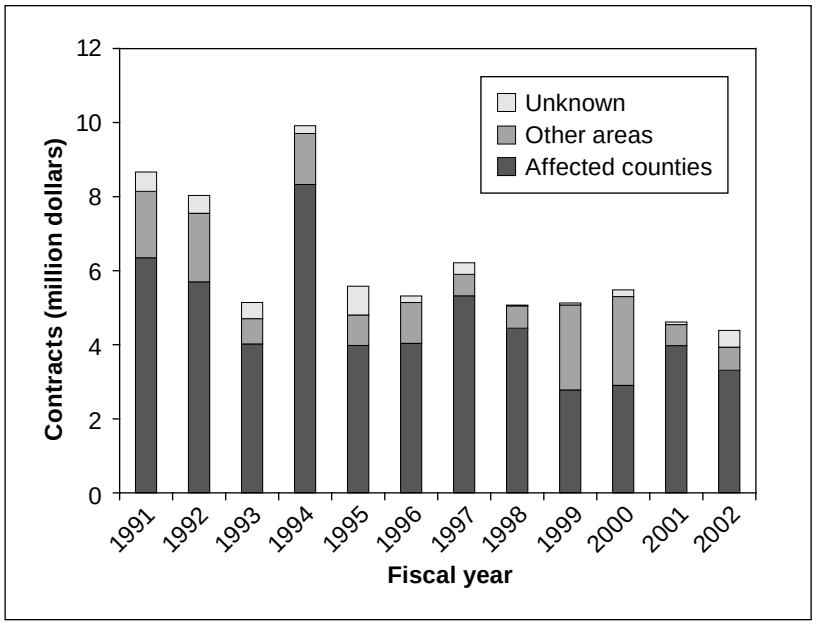

Figure 29—Contract awards to Northwest Forest Plan-affected counties, Okanogan-Wenatchee National Forest, fiscal years 1991–2002.

contractors from affected counties increased from 79 percent in 1991–93, to 84 percent in 1995–97, but then dropped to 74 percent in 2000–2002. (These percentages exclude contracts for which contractor locations were unknown.) Therefore the Jobs-in-the-Woods program may have had some effect in the mid-1990s, but this effect was short-lived.

The most striking feature pertaining to both the Wenatchee and Okanogan National Forests was the overall decline in procurement contracting practices between 1991 and 2001, with a decrease of 50 percent between 1991 and 2002. The other notable phenomenon was the large increase in equipment-intensive contracting that occurred on the Okanogan National Forest between the early and later part of the study period. The decreasing procurement spending that occurred over the period undoubtedly had a great impact on both rural and local contractors, who captured a lower percentage of contract value by the end of the study period.

Community Economic Assistance

One goal of the Plan was to minimize adverse effects on jobs and to assist with long-term economic development and diversification in rural communities affected by cutbacks in timber harvest on federal forest lands. Four major economic assistance strategies were developed to achieve this goal:

- The Northwest Economic Adjustment Initiative (the NEAI), which provided economic assistance to workers and their families, businesses, and communities.
- Payments-to-states legislation, designed to stabilize payments to

counties and to compensate for reductions in payments traditionally tied to federal timber receipts.
- Removal of tax incentives for the export of raw logs.
- Assistance to encourage growth of, and investment in, small businesses and secondary manufacturers in the wood-products industry (Tuchmann et al. 1996: 141).

This section focuses on the NEAI and treats the last of the assistance strategies as one of its components. Payments to states and counties are addressed in the next section. This monitoring report does not examine the effects of the export tax incentive change put in place in 1993.

The Forest Service is not an economic development agency and cannot be expected to function as such. Nevertheless, it has long been committed to providing people in communities that surround federal forest lands with socioeconomic benefits from the national forests, thereby contributing to socioeconomic well-being. Community economic assistance programs are one way of doing this. The economic assistance package, designed to mitigate the effects of the Plan on people, communities, and businesses that were economically dependent on the wood products industry, was a central component of the Plan.

The NEAI brought more than $79 million in grant money to the OWNF between 1994 and 2000. The amount of money distributed to Chelan, Kittitas, and Okanogan Counties each year ranged widely, with a high of $34 million in 1995 and a low of $1.9 million in 1999 (fig. 30). The amount of money available each year depended on budget allocations from Congress. The bulk of the NEAI money became available during the first 4 years of the Plan. Rural community assistance (RCA) grants (an NEAI program) were often used in communities to leverage money from other sources through matching grants and other means so that the total benefit they provided was greater than their face value. Many of these early grants were used in community planning efforts. Not only did the NEAI provide economic assistance to communities, the way in which it was administered formed new collaborative relationships between the agency and communities. Another characteristic of the NEAI was the partnering of funding among

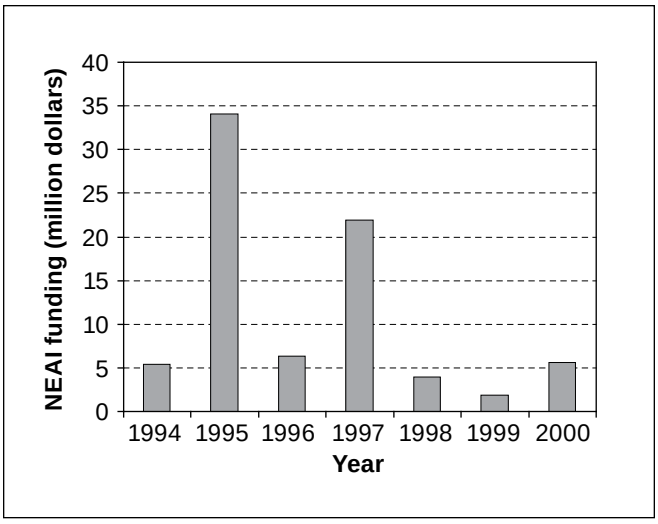

Figure 30—Northwest Economic Adjustment Initiative funding to Chelan, Kittitas, and Okanogan Counties.

federal agencies for NEAI-related projects. The economic assistance part of the Plan was not intended to last forever, but it did last longer than expected.

More recently, as RCA funds have dwindled, new grant programs became available through the National Fire Plan. One program is aimed at removing hazardous fuels from private land and another focuses on finding long-term solutions to fuels problems, including community fire plans and developing alternative economic uses for forest fuels.

Declines in Forest Service staff who administer grants have reportedly made it difficult to run these programs effectively at the local level. Grants are now administered regionally with less involvement at the local level.

Payments to County Governments

Under the Payments to States Act of 1908, county governments received 25 percent of national forest revenues generated through collection receipts. Timber receipts (including purchaser road credits, Knutsen-Vandenburg Act (KV) collections, and salvage sale fund payments) were the largest source of revenue to the Okanogan and Wenatchee National Forests during the 1970s and 1980s. The 25-percent payments to counties were used to fund public schools and roads. 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 (*Strix occidentalis caurina*). These payments were known as "spotted owl safety nets" or "owl guarantee payments." Under this act, counties were to receive a declining percentage of the average annual payment they received between 1986 and 1990. This percentage would decline until year 2003, when it would have reached 58 percent of the 1986–1990 average. The owl guarantee payments were set to expire in 2004.

In 2000, Congress replaced the spotted owl safety net measures with the Secure Rural Schools and Community Self-Determination Act (P.L. 106-393), which was to expire in 2006. Under this act, counties receive an annual payment equal to the average of the payments received during the 3 highest years between 1986 and 1999. This act provides alternative payments to counties nationwide that historically shared revenues from goods and services sold from Forest Service lands. The national forest component stipulates that at least 85 percent of this money (Title I) must be used to fund education and transportation projects. The remaining 15 percent can be used to fund resource advisory committees (RACs) and their activities (Title II) and other specific county budget needs (Title III), if local officials choose to do so.

Resource advisory committees were established by the Secure Rural Schools Act to promote collaborative relationships and to advise the Secretary of Agriculture on the use of Title 2 money. They are composed of 15 members that represent a balance between the environmental community; industry, commodity, and recreation interest groups; and 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 where they benefit federal land. Not only do RACs promote collaborative relationships between members of the public and federal agencies, the projects they fund provide employment opportunities for local residents. The RACs for Chelan, Kittitas, and Okanogan Counties have approved $1.7 million for joint forest stewardship projects between the OWNF and the public (table 9). County officials determine whether or not the county allocates money to Title II or Title III, and Yakima County chose not to participate until 2005.

Table 9—Chelan, Kittitas, and Okanogan County Resource Advisory Committee Funds, 2001–2003

	Title II money		
Year	Chelan County	Kittitas County	Okanogan County
		Dollars	
2001	188,812	102,232	107,505
2002	242,758	204,464	322,514
2003	165,091	208,573	175,464
Total	596,661	515,269	605,483

Thus, in addition to being an important source of revenue to support roads and schools county wide, payments to counties under the Secure Rural Schools Act have contributed a significant amount of money to support local resource-related projects on and around the OWNF.

Continue to Part B

Chapter 3: Naches Valley and the Northwest Forest Plan

This and the following chapters focus on five case-study communities associated with the Okanogan-Wenatchee National Forest (OWNF) to examine three topics: (1) how communities around the OWNF have changed since the 1980s, and how changes in forest management and the flow of socioeconomic benefits from the national forest under the Northwest Forest Plan (the Plan) have contributed to that change; (2) how communities have adapted to change, and the role the national forest has played in helping them do so; and (3) changing relations between the OWNF and the case-study communities since 1990. The information comes mainly from the U.S. census and interviews with community residents.

The Naches Valley study area (referred to as the Naches Valley in this chapter) lies east of the Cascade Range in south-central Washington in Yakima County (fig. 31). The valley has a northwest to southeast orientation. The national forest portion is in the Mount Baker-Snoqualmie National Forest (administered by the Wenatchee National Forest) and makes up most of the Naches Ranger District. A large part of the national forest here is in three wilderness areas. About 61 percent of the Naches Valley study area is under federal management, and about 18 percent is managed by the state. The western boundary of the study area follows the crest of the Cascade Range from Naches Pass, the headwaters of the Naches River in the north, through Chinook Pass at the headwaters of the Tieton River. The Yakama Indian Reservation forms the southern boundary. Much of the Ahtanum Creek drainage is included in the southeast portion of the study area, and much of the Wenas Creek drainage falls within the northeast portion of the study area. Most of the discussion here focuses on the portion of Naches Valley within the Naches and Tieton River drainages.

There are two incorporated cities in the study area. Tieton (population 1,154 in 2000) is located on a high plateau near the junction of the Naches and Tieton Rivers. It consists of large fruit warehouses and surrounding residences. It is geographically and economically distinct from the river corridors and public-land-associated communities. The other incorporated city is Naches (population 643 in 2000). Year-round access to the valley is available via U.S. Highways 12 and 97. State Highway 410, the most direct route from the Seattle-Tacoma area is closed during the winter. In the summer, highways 12 and 410 are two legs of a scenic highway loop within the Naches Valley that runs through Mount Rainer National Park. The town of Naches is a gateway into the public lands from the Yakima Valley.

The Naches Valley is located in Yakima County in south-central Washington, the second largest of 39 counties in the state. Yakima County is the seventh most populated of those counties and with 49 persons per square mile ranks 15th in population density (Washington State Employment Security 2002). The Yakima River, a 215-mile tributary of the Columbia River, originates in the Cascade Mountains to the west and joins the Columbia River in the Tri-Cities (Kennewick, Richland, and Pasco, Washington) area along with the Snake River. The Tieton and Naches Rivers join just above the town of Naches and flow another 15 miles to join the Yakima River at the north end of the city of Yakima. Of the 2.75 million acres in the county, the Yakama Nation owns 39 percent, and 18 percent is national forest (Greater Yakima Chamber of Commerce). The Naches Valley accounts for approximately 27.5 percent of Yakima County acres and 2.8 percent of its population.

Early settlers were associated with ranching, mining, farming, and logging. When settlers arrived in the mid 1800s, the area was occupied by a number of tribes. The 1.3-million-acre Yakama Indian Reservation was established in 1855 for 14 tribes. Prosperity and populations fluctuated with the resource markets. The railroad arrived around 1884, greatly expanding the transportation of resource products.

By 1904, it became apparent that the water supply in the Yakima River was over-appropriated, and shortage threatened. The Yakima River Project brought about the development of irrigation and hydroelectric power with construction of irrigation reservoirs from 1910 to 1933 inside the national forest on the Tieton (Rimrock Lake), Naches (Bumping Lake), and other upper tributaries of the Yakima River (Keechelus, Kachess, Cle Elum) (U.S. Bureau of Reclamation 1993). These five reservoirs and the Yakima River now supply over 2,100 miles of irrigation canals and laterals (Washington State Employment Security 2002).

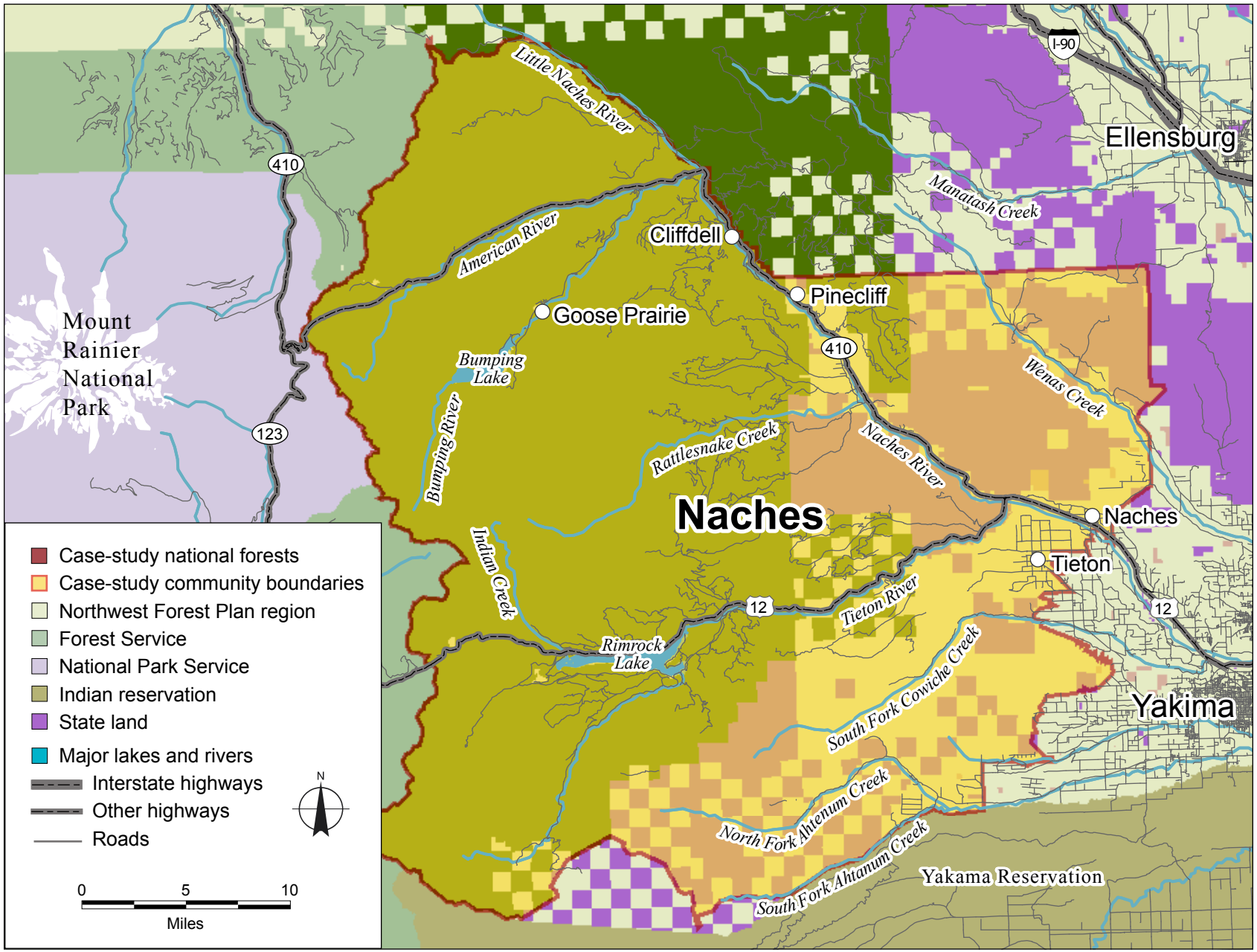

Figure 31—Naches Valley study area.

Hydroelectric dams along the Columbia and Snake Rivers provide Washington with the lowest cost electricity in the United States (Yakima County Development Association 2005). This has provided a more stable economy and the basis for long-term growth in the region. Water continues to be key to growth and settlement in the valley.

With completion of the Yakima Project, the U.S. Bureau of Reclamation had converted nearly one-half million acres of sage-covered land with less than 8 inches of annual precipitation into one of the richest agricultural areas in the Untied States (U.S. Bureau of Reclamation 1993). Yakima County boasts a strongly diversified agricultural base. In 2000, the county accounted for 22 percent of all agriculture, forestry, and fishing employment in the state of Washington. Ninety-nine percent of the associated payroll came from agricultural employers (Washington State Employment Security 2002). The county has the largest inventory of cattle and sheep and is the largest dairy-producing region in the state. Yakima County also ranks at or near the top nationally in the production of a variety of crops including sweet cherries, apples, and hops. The area is becoming known for its growing wine industry (Yakima County Development Association 2005). In 2000, the county farm income was the highest in the state with the second county less than half that of Yakima (Washington State Employment Security 2002). By all reports, the county economy, including the Naches Valley study area, continues to be dominated by the strong agricultural base in the Yakima Valley.

Terrain ranges from the rugged Cascade Mountain peaks down to the valley floor at 1,000 feet. Past harvest activities in the area and the absence of fire have resulted in major changes in the species composition from pine (*Pinus* spp.) to grand fir (*Abies grandis* (Dougl. ex D. Don) Lindl.) and Douglas-fir (*Pseudotsuga menziesii* (Mirb.) Franco) on the mesic or drier sites. Since 2003, there has been a significant increase in fir engraver bark beetle (*Dendroctonus pseudotsugae*) activity from the combined effect of 4 years of drought and 5 years of moderate to severe defoliation by western spruce budworm (*Choristoneura occidentalis*). This pattern of defoliation and tree mortality is expected to continue for several more years (USDA FS 2004).

The Forest Plan analysis for the Wenatchee National Forest (USDA FS 1990) characterized the social system surrounding the national forest as complex and changing owing to its size, proximity to the Puget Sound metropolitan area, and rapid population growth both in the metropolitan areas and in towns in the central Washington region. Checkerboard ownership patterns were expected to present an increasing source of conflict owing to contrasting intensive forest management practices on private lands and increased demands for a wide range of public goods on national forest lands. Not only was there an active land exchange program at the time of the Forest Plan analysis, but increasing shifts in ownership by large landholders in the Naches Valley, including Boise Cascade, Plum Creek, and Washington state, continue to occur with important implications to management of the OWNF for fuels, recreation, wildlife, and grazing.

Nineteen residents were interviewed for this study (app. A).

Community Change, 1980s to Present

Ten to fifteen years ago, many of the community residents had economic ties to the OWNF. Now very little timber is coming from the national forest, the state is considering harvest reductions, and large industrial timber companies are selling their local holdings. Ten years ago, Boise Cascade in Yakima had a three-mill facility with the plywood plant running four shifts. This operation, which dated from the origin of Boise Cascade in 1902, was sold to McDougals of Eugene, Oregon, and leased to Yakima Resources, LLC in 2004. The large-log mill was closed at that time, and the small-log sawmill was closed in 2005. At the time of this study, the plywood mill remained open, and another sawmill in Naches owned by a local family continued to be an important source of employment. Industrial timberland in the area has declined. Boise Cascade sold its mills and land holdings in this area of Washington, reportedly to timber and land development companies. Plum Creek Timber has also sold much of its land and has been involved in land exchanges with the Washington Department of Natural Resources (DNR) in the southern end of the Naches Valley.

Some interviewees interpreted the sell-off of timber industry land east of the Cascade Range as a flight from regulation. The Endangered Species Act (ESA) and Washington state forest practices regulations have reportedly made it increasingly expensive to operate, relative to other states. The sale of timber land may also indicate that the land is worth more as real estate for development than for growing trees. Global competition and related market changes, new technology, and shifts to smaller diameter logs presented additional business challenges through the mid-1990s.

The Yakama Reservation is the largest producer of wood products in the area. It retooled a small-log mill in 1998 and a large-log mill in 2003. However, in accordance with federal policy (the Forest Resources Conservation and Shortage Relief Act of 1990) in the Western States that prohibits the export of unprocessed timber, the reservation is unable to purchase sales from national forest or state lands because of its history of exporting logs.

The future viability of timber industry infrastructure in the area is uncertain. The Yakama Reservation, which formerly supplied logs to Yakima-area mills, now has its own mills to supply. In addition, much of the area, including the reservation, has an ongoing, large-scale insect epidemic that could affect future harvest levels. Those connected with the timber industry described changes that have occurred over the past decade and continuing adaptations in the industry. Logging-related businesses are reportedly based in the more populated centers, and employees travel over a larger area for work than they did in the past. Others have left or gone into other work. Land managers report fewer bids on timber sales.

Because water has long been a limiting resource in this area, regulations by various agencies have been a fact of life for over 100 years. For this reason water constraints were not new with the arrival of the Plan. Water demands driven by population growth, treaty rights, the ESA, and irrigation needs have been compounded by droughts. Lack of snow resulted in the closure of White Pass Ski Area for most of the 2004–05 season. As the hierarchy of water rights becomes contested, resolution of this issue is moving to the judicial arena owing to the complexity of water rights issues and the number of agencies involved. Although the Forest Service has issued permits for surface water in the past, the state has reportedly assumed jurisdiction over surface water use, resulting in denial of some previous uses.

Recreation residences and camps have a long history on the OWNF. This area has one of the largest numbers of recreation residences in the National Forest System. The oldest cabins were built around 1917 to house workers constructing the dam at Rimrock; others were built after World War II. There are several recreation camps within the Naches Valley community, most of which are on the White Pass/Tieton River side. Some date back to the 1930s, although most permit holders for these camps have changed over time. They are geared toward nonprofit and community organizations and mostly serve Yakima Valley residents. Some cabins and camps are used in winter as well as summer.

Many recreational opportunities exist in the Naches Valley and attract users of different skill levels, from the novice to the expert of any age. For this reason, the area has broad appeal for families. Lakes created as irrigation reservoirs present many recreational opportunities for boating, camping, fishing, and swimming in the summer. Snowmobiling and skiing are popular winter family activities in the area.

There is a rising level of concern surrounding rapidly escalating use of motorized vehicles on public land in the Naches Valley. Proponents of motorized vehicle sports described the extensive road and trail systems as underutilized. Other interviewees mentioned the lack of facilities to accommodate larger numbers of people. There is some disagreement about whether the increased demand should be accommodated or not, owing to resource concerns; however, most of those interviewed concurred that there is a limit to how much use public lands can absorb because of increased impacts on resources.

Snowmobiling, in contrast to use of summer motorized vehicles, appears to have a well-defined and regulated trail system that has been developing since the late 1970s. There are established state funds through licensing and permit fees to operate and maintain an extensive groomed trail network. There are three local snowmobile clubs, one in the Chinook Pass area and two from the city of Yakima.

The clubs do volunteer work, including brush piling and cleanup of trails and construction and maintenance of warming shelters in coordination with the ranger district. One member estimated 300 miles of groomed trails maintained by three state-owned groomers for the Ahtanum, Naches, and Tieton areas. There are 12 snowparks that are reported to be very crowded. Users report opportunity for greater use on groomed trails and little contact with others off the trails. However, getting into snowparks on the weekends is reported to be a bottleneck with increasing demand for use. In general, users appear to be happy and able to work out any issues as they arise.

A number of unique features of snowmobiling in the area were mentioned by interviewees. The moderate terrain allows extensive play areas. Snowmobilers can ride trails all day or get off the trails and not see anybody else. The area normally gets early and late snow compared to others. Because Chinook Pass is closed in the winter, those who live in the Seattle-Tacoma area cannot access the Naches River area without a long drive. However they can take a short drive to snowparks just off the I-90 corridor, ride groomed snowmobile trails over the Naches Pass, and arrive 2 hours later for a gourmet meal at a lodge on the Naches River. Gas and lodging are also available, services supplied in few other snowmobile destinations. This route has become very popular.

In the early 1980s, the Yakama Nation sued the Bureau of Reclamation regarding salmon in the Yakima River. A result of this lawsuit is the annual "flip-flop" that begins around Labor Day. The flow of water out of the Cle-Elum Dam is decreased, and the flow out of the Tieton (Rimrock) Dam is increased, creating more favorable spawning conditions for spring Chinook salmon (*Oncorhynchus tshawytscha*). The increased flow on the Tieton River has created a unique late summer/early autumn recreational and commercial whitewater rafting season. Recent concerns for bull trout (*Salvelinus confluentus*) may affect this solution.

Community interviewees noted that timber management no longer generates the controversy that it once did. Recreation has taken its place. The controversy is now over appropriate types of recreation and limits on the amount of recreation and development. Escalating recreation use, primarily associated with users from outside Yakima County, was a very important topic to almost everyone interviewed. The Ahtanum area reportedly attracts many from the Tri-Cities area both summer and winter. Chinook Pass, Highway 410, brings in the Seattle-Tacoma recreationists in the summer. Increased traffic and resource damage associated with summer use of off-road vehicles of all kinds were frequently mentioned.

Past forest harvest on federal, state, and industrial timberlands resulted in a relatively high road density in the area. Some roads on the national forests or state lands have been closed or have restricted access. State and federal lands have different policies for motorized vehicles: the Forest Service does not allow vehicles that are not street-legal to use established roads, and the state restricts motorized vehicle use to established roads in designated areas. This situation has confused the public and added to an increasing law enforcement problem exacerbated by limited budgets. The rapidity of the increase in use has prompted studies by both government entities on the extent and kinds of use, but interviewees representing different perspectives describe an unwillingness and/or inability of the Forest Service to address the increasing use. Most people painted a recreation picture plagued by increasing regulations, closures, deteriorating quality, law enforcement, and fees.

The state of Washington has substantial land within the study area. Most of that land under the jurisdiction of the Department of Natural Resources, allocated to the state upon statehood, is Common School K-12 trust, whose priority is to generate revenue for education. Twenty-five percent of the revenue goes to the DNR for operating costs. Unlike the case of federal lands, there are no tax dollars for support, so these are not public lands in the same sense. Other activities on these lands are secondary to this primary mission of educational funding. Because of the way land was allocated by designated sections, a checkerboard ownership pattern was set up on the landscape.

Washington Department of Fish and Wildlife (WDFW) has a single mission for the benefit of fish and wildlife. The WDFW has purchased land over the last 50 years. Over time, DNR and WDFW purchases have resulted in some areas of alternate sections owned by the two

different departments. This is especially notable in the Oak Creek State Wildlife Area within the study area. Although intermixed with private ownership, these state lands tend to form a fringe or border along the national forests in this area and, in effect, somewhat of a buffer from more intensive development in the valley areas. Because state land, like Forest Service and Bureau of Land Management land, is a stable base of public land, it is considered an important part of the socioeconomic resource picture for purposes of this community study.

Given the different missions of the WDFW and DNR, management is more difficult and costly. Checkerboard allocations have created confusion within these state agencies and with the public; for example, the rules for grazing and recreation are different. As a result, the two agencies are currently undertaking an exchange process that could result in roughly 90,000 to 100,000 acres of DNR shrub-steppe going to WDFW and 40,000 to 50,000 acres of WDFW forest lands going to DNR. This exchange is complicated by some private ownership of perpetual timber rights on WDFW lands. The overall effect will be to block up lands dedicated to the different priorities and to help the agencies achieve their individual missions.

The elk (*Cervus canadensis*) population under WDFW management has rapidly increased in this area of state lands, resulting in conflicts related to feed availability for cattle in the summer and farm crop damage in the winter. Urban and rural development in former elk winter range were thought to constrain elk populations, so the state constructed elk feeding stations and fencing and initiated land exchange. An ongoing study to determine capacity issues indicates that, instead, summer range may be the constraint. Based on this new knowledge gained from the elk study, the WDFW hopes to restore natural ponderosa pine communities in winter range areas by removing opportunistic tree species that grew in after logging and through the use of prescribed fire in areas where wildfires have been excluded. Revenues generated by removal of merchantable trees and biomass return to the WDFW for wildlife management. Because the elk's summer and winter ranges cross land ownership boundaries, this is another example, in addition to recreation, of the importance of collaboration across agencies.

Changes in transitory range on the OWNF, dry-forest management on both federal and state land, and shifts in management from DNR to WDFW and Plum Creek to DNR in the Ahtanum area may also have implications for range management. Although grazing was historically important in these areas, it is said to be on a long-term decline on private and public lands. Increased restrictions predate the Plan. Riparian protection constraints to grazing came with the Plan and ESA-listed species.

Washington state has been undergoing a 10-year review process to revise the 1992 Forest Resource Plan. The Policy for Sustainable Forests was scheduled for completion in 2005. In 1997, a habitat conservation plan agreement with U.S. Fish and Wildlife Service was implemented in Washington to manage for the northern spotted owl (*Strix occidentalis caurina*). This did not change harvest levels at first, but it now appears that harvest may drop 50 to 75 percent (from 20 mmbf) for 10 years or longer.

Washington state initiated a program in 2004 to address forest health problems concerning overstocking and species composition. Under this limited program, DNR has a new contracting option that enables them to separate the logging from the timber product businesses. The state can hire logging contractors who sort the harvest into different decks based upon local markets and species. The state then sells these sorts to purchasers for a delivered price to the mill. The purchasers can bid on individual sorts. This is intended to help with marketing of small-diameter species and also benefit small businesses. This may have some short-term negative consequences to schools, but beneficial consequences in 5 to 15 years.

Changes in fire management and fire threat to the public were of concern to all those interviewed. Although fire and disease were acknowledged as an integral part of the east side of the Cascades ecosystem, everyone mentioned the recent visible change in the degree of pest infestation, number of dead trees, and frequency of fires. Many residents recognized the connection between intensified infestation levels and the current drought. All expected an enormous fire event to happen. The area above the city of Naches on the Naches River is not part of a fire district. Not only does this affect initial attack resources, but

insurance businesses are increasingly reluctant or unwilling to insure homes in these areas. This is an issue that local government entities are currently attempting to address. The small river communities, surrounded by national forest lands, are those primarily affected by this situation. Farther down the drainages are the state-managed transition zones, largely grasslands, which do not present a high degree of risk to the larger communities.

With very limited private land along the Tieton and Naches Rivers, the numbers and kinds of businesses were described as basically the same over time; the only change has been in ownership of these businesses. Lower in the watershed, many smaller family orchards struggled during the latter half of the 1990s as global competition increased, requiring further mechanization and sophisticated and adaptive marketing to be competitive. Advances in irrigation and mechanization shifted prime agricultural areas from smaller, higher elevation valley areas such as Naches to larger areas in the broader Yakima Valley. The domestic apple market is reportedly static, and orchardists are competing for Asian markets. Agricultural markets have diversified out of necessity, and larger agri-businesses have emerged. At the same time, many smaller family-owned orchards have disappeared, no longer able to offer competitive pricing. Families who no longer find farming in the Naches Valley area economically viable have reportedly sold their agricultural land for residential development.

An influx of new residents and the transition in the employment base have had different effects on various parts of the county and Naches Valley. In rural, unincorporated areas higher in the watersheds where there is very little private land, the economy is now based increasingly on recreation and tourism. There are few permanent residents, and of these, many are retirees.

Historical data show that timber and family farms were an important part of the agricultural sector at the base of the mountains. Now younger professionals live there and commute to work in Yakima. Although they are adjacent to public lands, they do not have strong economic ties to timber-related work. There are ongoing economic development efforts to build a new recreation and tourism gateway economy in Naches.

Interviewees from outside the timber industry generally do not see the Yakima area as greatly impacted by the loss of timber industry jobs, especially when compared to other parts of the state, but there were a number of people in the Naches Valley whose jobs and lifestyles were affected.

Some interviewees described a loss of the rural lifestyle where residents could patch together ranching, logging, farming, orcharding, and maybe a day job of teaching to make a living. Much of the blame for this loss is attributed to the arrival of global economic markets with cheaper labor and government intervention and subsidies.

Demographic Indicators

Naches Valley has attracted a number of new residents over the past decade. Between 1990 and 2000, the population increased by 34.6 percent to 6,269 (table 10). Interviewees indicated that most of the population growth was in towns such as Naches, Nile, and the Ahtanum Road area, which are near the outskirts of the city of Yakima. Residents report continual new residential construction as small farms are often sold for subdivision development. Interviewees described new residents in the Naches River area as likely to be employed in health care, education, or government, who commute to Yakima for work, and have school-age children. They are reportedly attracted to the rural setting with a short, 15-mile commute to Yakima. The majority of Naches residents identify as White (fig. 32). In the 2000 census, 20.1 percent of Naches residents categorized themselves as Hispanic (table 11).[1]

Table 10—Naches Valley population, 1990 and 2000

Indicator	1990	2000	Change
			Percent
Total population, Naches Valley	4,659	6,269	34.6
Total population, Yakima County	188,823	222,581	17.9
Median age, Naches Valley (years)	35.1	37.6	7.1
Median age, Yakima County (years)	31.6	31.4	-0.4

[1] Race and ethnicity categories are defined by the U.S. census for 2000. Race categories are White, Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian or Other Pacific Islands, and Some Other Race. Ethnicity is distinguished as either Hispanic or Latino or Not Hispanic or Latino (Greico and Cassiday 2001).

Table 11—Hispanic population in Naches Valley, 1990 and 2000

	Hispanic residents		Change in Hispanic population
	1990	2000	
			Percent
Naches Valley	11.42	20.08	75.83
Yakima County	23.58	35.92	52.33

The median age in Naches Valley increased from 35.1 years in 1990 to 37.6 in 2000 (table 10). This is in contrast to Yakima County where the median age remained 31 years. The number of residents age 20 to 29 increased in Naches Valley at nearly six times the rate for the county (table 12). Naches Valley also had a far greater increase in residents older than 65 (27.5 percent) than did the county (1.7 percent). Figure 33 illustrates some differences between Naches Valley and the county in the distribution of ages as a percentage of the total population. School age children in Naches Valley made up a slightly smaller percentage of the total population in 2000 than in 1990, whereas countywide, this age group increased by 1.7 percent. However, the percentage of 20- to 29-year-olds increased in Naches by 1.9 percent in 2000 while this age group decreased as a percentage of the county's population.

Although younger residents have declined as a percentage of the total population, their overall numbers have increased, and this was reflected in the growing school district. Enrollment in the Naches Valley School District grew by 33.6 percent between 1990 and 2000 (table 13). The school district had a good reputation with higher test scores than most schools in the Yakima Valley, and was said to be one reason families desired to live in Naches even if they had to commute to Yakima for work. Education levels of adults in Naches Valley also increased between the two periods. Residents who had completed high school increased by 16.9 percent while those with a bachelor's degree or higher increased by 26.8 percent (table 13).

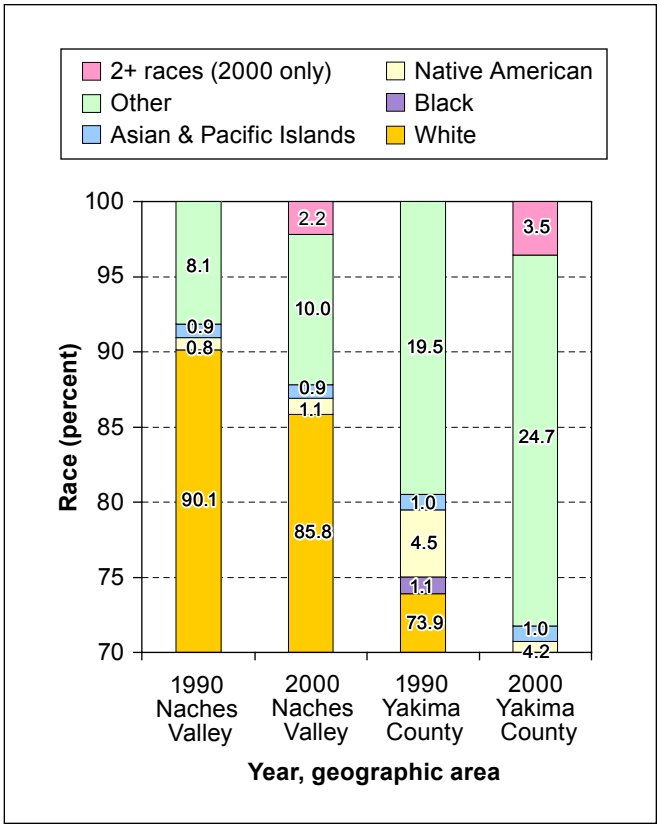

Figure 32—Race distribution in Naches Valley and Yakima County, 1990 and 2000.

Table 12—Age distribution, Naches Valley population, 1990 and 2000

	0–4	5–19	20–29	30–44	45–64	65 and up	Total
Naches							
1990	343	1,101	449	1,131	988	647	4,659
2000	440	1,419	720	1,347	1,518	825	6,569
Change (percent)	28.28	28.88	60.36	19.10	53.64	27.51	34.6
Yakima County							
1990	16,595	46,216	26,820	41,778	32,943	24,471	188,823
2000	19,132	58,255	29,523	47,564	43,211	24,896	222,581
Change (percent)	15.29	26.05	10.08	13.85	31.17	1.74	17.9

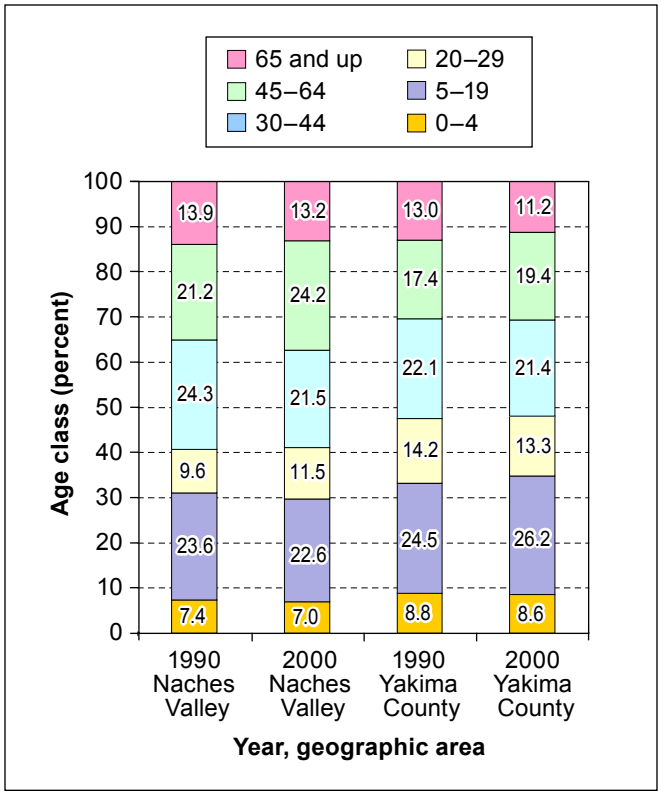

Figure 33—Age distribution in Naches Valley and Yakima County, 1990 and 2000.

Economic Indicators

The economic data for Naches Valley indicate positive growth between 1990 and 2000, generally at a rate faster than that of Yakima County. The median household income surpassed the county's, rising by 37.6 percent to $39,373 between censuses (table 14). The number of households earning more than $50,000 per year showed a significant increase (table 15). The growth rate in these higher income brackets was more than double that of the county. Both Naches Valley and the county had a similar decline in households earning less than $25,000 (25 and 26 percent, respectively). The number of households living in poverty increased 2.6 percent in Naches Valley while declining by 2.7 percent in the county between 1990 and 2000 (table 14).

Unemployment in Naches Valley was 4.9 percent in 2000, declining by 3.4 percentage points since 1990 (table 14). In contrast, unemployment rose by 1.3 points in the county during the same period to 11.1 percent. School officials report that graduates and displaced workers are able to find employment in the area, although there is less work in logging and milling nearby. Interviewees generally

Table 13—Education indicators, Naches Valley, 1990 and 2000

Indicator	1990	2000	Change	Change as percentage of population
			- - - - - *Percent* - - - - -	
School enrollment, Naches Valley	1,014	1,355	33.63	
School enrollment Yakima County	40,785	56,564	38.69	
Completed high school, Naches Valley (%)	63.30	74.01	16.92	10.71
Completed high school, Yakima County (%)	66.14	68.66	3.81	2.52
Bachelors, graduate, professional degrees, Naches Valley (%)	10.43	13.22	26.75	2.79
Bachelors, graduate, professional degrees, Yakima County (%)	13.69	15.30	11.76	1.61

Table 14—Economic indicators, Naches Valley, 1990 and 2000

Indicator	1990[a]	2000	Change	Change as percentage of population
			- - - - - *Percent* - - - - -	
Median household income, Naches Valley	$28,606	$39,373	37.64	
Median household income Yakima County	$29,303	$34,828	18.85	
Percentage unemployed, Naches Valley	8.35	4.93	-40.96	-3.42
Percentage unemployed, Yakima County	9.78	11.12	13.70	1.34
Percentage in poverty, Naches Valley	13.62	13.97	2.57	.35
Percentage in poverty, Yakima County	20.22	19.67	-2.72	-.55

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

Table 15—Household income distribution,[a] Naches Valley, 1990 and 2000

	<$10,000	$10,001–$14,999	$15,000–$24,999	$25,000–$34,999	$35,000–$49,999	$50,000–$74,999	$75,000–$99,999	$100,000–$149,999	$150,000 and up	All
					Number of households					
Naches Valley										
1990	296	137	484	355	268	123	27	0	0	1,690
2000	194	161	334	324	456	512	136	95	34	2,246
Yakima County										
1990	13,103	7,298	14,382	11,083	10,469	6,778	1,661	774	626	66,174
2000	8,127	5,528	12,036	11,488	12,671	13,557	5,449	3,515	1,646	74,017

[a] These data are not adjusted for inflation.

attributed the increases in employment by Naches Valley residents to those who commute to work in Yakima. Average travel time to work did increase 14 percent between 1990 and 2000 to 27.3 minutes (table 16). Countywide, the commute to work increased by 12.5 percent to 19.9 minutes during the same period.

Table 16—Average commute times for Naches Valley residents, 1990 and 2000

Indicator	1990	2000	Change
	- - - Minutes - - -		*Percent*
Naches Valley	23.92	27.27	14.01
Yakima County	17.66	19.86	12.46

The median home value in Naches Valley increased 65.1 percent between 1990 and 2000, while increasing 57.3 percent in Yakima County (table 17). Monthly rent increased at a slight slower rate in Naches Valley (23.5 percent) than it did countywide (26.8 percent), however.

Table 17—Median rent and house values, Naches Valley, 1990 and 2000

	1990[a]	2000	Change
	- - - - Dollars - - - -		*Percent*
Median gross rent			
Naches Valley	417	515	23.54
Yakima County	421	534	26.84
Median house value			
Naches Valley	67,246	111,010	65.08
Yakima County	68,132	107,200	57.34

[a] The 1990 values have been adjusted for inflation and are reported in 2000 dollars.

The socioeconomic well-being of Naches Valley was rated as medium in both 1990 (66.40) and 2000 (67.61) (see introduction for discussion on our socioeconomic well-being index).

Changes in Naches Valley Economic Structure

The number of jobs held by Naches Valley residents increased by 42 percent between 1990 and 2000 (table 18). Although the lumber mill in Naches is still one of the larger employers in the community and provides stable employment, as does the fruit warehouse in Tieton, the area's employment base appears to be strongly tied to the economy in the city of Yakima. For example, 19 percent of Naches Valley residents worked in the health and education sector in 2000 (fig. 34), making this the largest sector in the valley, but most of these jobs are in Yakima. In addition to the school district, the county has a large welfare facility in Yakima and administers to both Yakima and Kittitas Counties in the Department of Social and Health Services. Retail trade is the second largest sector for workers from Naches Valley, and some of these jobs may also be in Yakima.

The agriculture, forestry, fishing, and mining sector declined slightly between 1990 and 2000 (table 18). At the time of this writing, little timber industry work was available locally other than at the remaining plywood plant owned by Yakima Resources, LLC, with about 248 employees, and the Yakama Reservation, whose mills employ about 200. The fisheries component of this sector has reportedly increased through hiring by the Bonneville Power Administration for mitigation projects associated with dams on the Columbia River and for ESA-related projects. The fisheries

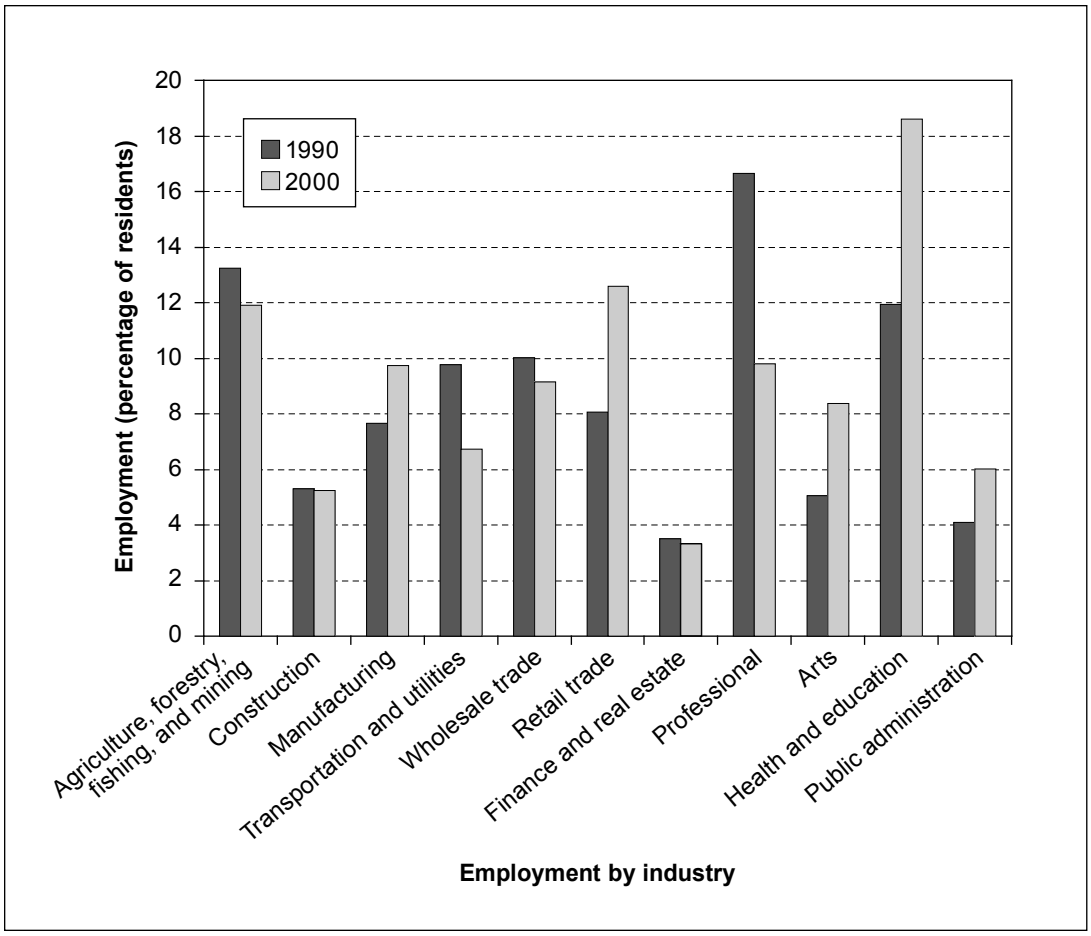

Figure 34—Employment by industry, Naches Valley.

Table 18—Employment by industry, Naches Valley, 1990 and 2000

Year	Agriculture, forestry, fishing, and mining	Construction	Manufacturing	Transportation and utilities	Wholesale trade	Retail trade	Finance and real estate	Professional	Arts	Health education	Public administration	Total
1990	354	105	151	193	198	159	69	329	100	236	81	1,975
2000	292	147	273	189	257	353	93	275	235	522	169	2,805
Change (percent)	-17.51	40.00	80.79	-2.07	29.80	122.01	34.78	-16.41	135.00	121.19	108.64	42.02

program on the Yakama Reservation has also grown over the past decade and now has more than 100 employees. It is estimated that about half of that employment is related to fisheries on ceded land off the reservation.

The Role of Federal Forest Management Policy in Influencing Change

The Plan was viewed as one of several factors affecting natural resource management in the Naches Valley. Grazing restrictions were reported to have increased over time, even before the Plan was implemented. The ESA listing of the bull trout is one of the most recent causes for restriction. Riparian protection constraints came with the Plan and ESA-listed species. Land exchanges from Washington's DNR to WDFW may also affect grazing availability because the WDFW mission is focused on fish and wildlife benefits. In addition, elk can compete with cattle for available forage.

Forest management affects the hydrology of the Naches basin and the water quantity and quality in the Naches and Yakima Valleys. Forest practices mentioned by interviewees that can affect water were forest pest management, road management, fire management, and recreation management, including the proposed enlargement of the White Pass Ski Area. In addition, Native American treaty rights and the ESA have affected water availability over the last 20 years.

The extensive checkerboard ownership pattern of mixed state and timber industry lands that characterizes much of the study area forms a buffer between much of the national forest and other private land in the valley below. This has long presented potential sources of conflict owing to different management objectives on federal, DNR, WDFW, and timber industry lands. Increasing shifts in ownership by large landholders in the area, including Boise Cascade, Plum Creek, and Washington state, are underway with important implications to management of the OWNF for fuels, recreation, wildlife, and grazing.

Although the Naches Valley is largely public land and the remainder mostly unincorporated private land, proximity to large population areas in the Puget Sound to the northwest and the Tri-Cities area to the southeast greatly affects the demand for a wide range of public benefits on forest lands, especially recreation and tourism. In addition to popular recreation camps and residences, the OWNF has supported an extensive snowmobile trail network that is highly valued by locals and visitors alike. Controversy surrounds meeting further demand for more motorized vehicle use on the OWNF. Opportunities exist to build on the highly successful collaborative model that manages this snowmobile system. Other opportunities are emerging to use the town of Naches as a gateway or portal into the national forest and the Scenic Highway Loop in this part of the Naches Valley.

Interviewees frequently mentioned curtailed services and infrastructure, as well as an inability to address recreation needs as related to decreased Forest Service budgets. Local contractors missed Forest Service contracting opportunities. Further collapse of timber industry forest-related work opportunities is more recent and likely will have effects on the remaining contractors.

Most importantly, forest policy was viewed by most interviewees as directly tied to visible change in the degree of pest infestation, number of dead trees, and frequency of fires. Much of the upriver areas of the OWNF surrounding unincorporated communities became late-successional reserves with the Plan, limiting management activities. Fuel reduction activities are not apparent to the public driving on the highways. However, some interviewees knew of fuel reduction activities around recreation camps and residences. Residents of these areas stated these fuel reduction activities are helpful, but do not believe that they will be protected from a fire event of the size that they expect. There appeared to be a high level of positive interaction and communication between the camps and the Forest Service.

Besides the immediate threat of fire to their homes, those who lived in the area also mentioned the negative effect of drought and fire threat on recreation and tourism-based incomes. Campgrounds and recreation residences and camps dependent upon surface water have had water supplies cut off or threatened. Campground use has been restricted because of fires during the summer. In addition, local businesses report campground closures during

the shoulder seasons in spring and fall. Reports of fires and fire closures deter travel into these areas by visitors. Other businesses report fire contracting opportunities as a temporary boost in the economy although some report that they are unable or unwilling to meet increasing requirements for procurements.

Other land managers and provincial advisory committee (PAC) members note a shift in fire management. Fire control over the last decade has moved to management in an interagency command system, unifying jurisdictions. The Forest Service and the state are doing more fuel management activities, including prescribed (controlled) burns. Because of large fires and through initiation of "fire use" in the wilderness areas, the Forest Service has engaged the public to think in new ways about the role of fire in the ecosystem. Responses by interviewees indicate a need for more education; furthermore, there is lack of trust in the agency's ability or willingness to respond to the public's sense of threat.

The Role of the Forest Service in Mitigating Plan Effects

Community economic assistance programs made some positive contributions locally. The few interviewees involved directly with economic development grants were familiar with Forest Service grant programs. Only one was familiar with the NEAI and knew this program was related to the Plan. Nonprofit and economic development groups were tied into these government sources of money, the Community Economic Revitalization Team (CERT) process, and Forest Service community assistance personnel. Those who used the CERT process appreciated it as an important mechanism for assessing priorities at the local level. Now that the money is gone, and there is no mandate at the executive level to participate, the process was said to have unraveled at the state level and reverted back to an informal system of personal influence. Forest Service personnel who assisted with implementation of the NEAI at the regional, state, and district levels were highly valued.

The city of Naches used a Forest Service grant to develop a Community Action Plan and assist in building a sewer system. Naches received a Forest Service grant for the Naches Depot and Trail project that is designed to create positive effects on the economy and alleviate the impacts of large numbers of visitors on the environment. A shuttle service is proposed from the old railroad depot to the White Pass Ski Area, the state elk and sheep feeding stations, and rafting on the Tieton River. There were plans for tours for seniors and an extension of the existing Yakima River Greenway trail from the Yakima city limits to the town of Naches. The project would position the town as a gateway for tourism for the Tieton and Naches Rivers area.

Local residents have participated on both the Wenatchee-Okanogan and North Gifford-Pinchot Resource Advisory Committees (RACs) that provide recommendations for projects to be funded under Title II of the Secure Rural Schools Act. Yakima County allocated money to Title II Payments-to-States projects for the first time in 2005. Community members interviewed were not aware of this natural resource project funding program. The RAC members interviewed seemed satisfied with the process and projects, with the exception of the amount of money the Forest Service charged for overhead. Over the 5 years the money had been available, Title II funds averaged approximately $610,000 annually for the Wenatchee-Okanogan RAC, spread over three counties (and four including Yakima County in 2005) (USDA FS, n.d.). The RAC appears to have more satisfied members than the PAC because they felt a sense of project accomplishment.

One local economic development group, in conjunction with the county, obtained Forest Service grants to develop policies and a plan for using state sales tax infrastructure funds. As a result, an industrial park is now pulling in significant project funding. Another local economic development group focused on adjacent Kittitas County because of the perception by board members that there was greater need there compared to Yakima County. Large planned developments, to be located between existing development and public lands, presented issues concerning access to public lands. A Forest Service planning grant has identified land-use policies associated with natural resources for the county to respond to rapid population growth.

Collaboration and Joint Forest Stewardship

The Northwest Forest Plan created specific institutional arrangements to promote collaboration with communities in the form of PACs and adaptive management areas (AMAs). The Eastern Cascade PAC and Yakima PAC were combined to serve eastern Washington and the OWNF. Community participants who commented on the PAC reported that initially it had been a positive, educational experience and that interagency communication had improved. Community participants felt engaged as advisors on policy issues. This was viewed as an important step forward from the previous Forest Service approach of sending out lists of projects for comment. Over time, however, the sense arose that the Forest Service was uncomfortable with the community advisory position. The PAC members perceived their current role as a forum for information exchange and project feedback. In general, respondents indicated that the PAC concept was valuable, but not fully utilized by federal officials.

Interviewees credited the PAC with improving communication between the OWNF and the community, and between the Forest Service and other agencies. But they still see a need for better communication on issues common to the Forest Service and the DNR such as recreation, law enforcement, and the National Fire Plan.

A variety of collaborative work on the forest is done with volunteers. Snowmobiling groups are particularly well organized in Naches. These groups have worked with their ranger district to map and groom trails, construct and maintain warming huts, and educate the public about regulations. The Trail and Wilderness Interest Group (TWIG) is another collaborative effort in the Naches Valley involving volunteers, the Forest Service, and state funding that appears to be highly popular and successful. Members of different interest groups collectively prioritize projects for the Forest Service. The coalition of individuals and different interests feel empowered as a group in a way that they didn't feel as individual entities. A big source of funding is the state Interagency Committee for Outdoor Recreation (www.iac.wa.gov/iac/grants.asp) that requires a local funding match in cash or other service by the project proponent. Project volunteers from these groups can provide that match for the Forest Service projects. This process and way of relating to the public was viewed by one interviewee as probably related to the Plan emphasis on collaboration and its style of aligning priorities for projects from the local level.

Other collaborative interactions with the Forest Service mentioned by interviewees include Backcountry Horsemen trail work, outdoor education presentations by Forest Service specialists at recreation camps, coordinated resource management plans across jurisdictions for grazing, and a student internship "job shadow" program with the Naches Valley School District. The WDFW was said to have an improved relationship with the Forest Service since the Plan's shift to ecosystem management from an emphasis on timber management.

A local coordinating group has formed to work on community wildfire protection plans and projects related to the National Fire Plan. Participants include the Forest Service, the DNR, the Yakama Nation, Yakima County, and local fire districts. Initially formed to submit fuel removal grants, they are becoming more organized with group bylaws and are discussing having a broader county fire plan. The group has submitted fuel reduction proposals for activities across private and Forest Service land around Goose Prairie, a community on a dead-end road completely surrounded by national forest.

Issues and Concerns Relating to Forest Management

Many interviewees expressed a lack of knowledge about forest management and policies, but almost everyone was tuned into water issues, fire threat (expressed primarily in association with vegetation management practices related to spruce budworm and fuel reduction), and recreation use issues.

Recent drought and associated pest infestations and increased threat of fire compound water quantity and quality issues. Limited water resources will likely always play a major role on the arid east side of the Cascade mountain range. Riparian issues associated with the Plan

and ESA listing of bull trout are relatively small and recent constraints added to a history of water regulations in this area with high demand and a limited supply. Water has been stored in reservoirs on the national forest since the early 1900s. Legal resolution of the ownership and hierarchy of water rights will affect fisheries and other uses of the forest. Special use permittees with junior water rights have recently been affected, and campground use has been curtailed. Forest Service management of the headwaters of the water supply in the Naches Valley is considered to have important effects on the hydrology of the watershed.

The increasing spruce budworm infestation and large areas of defoliated trees are apparent to locals and visitors alike along the main highways on the river corridors. Recent fuel treatments are not visible along the most commonly traveled routes. Those interviewed who were involved in fuel reduction efforts around recreation residences and camps appreciate these activities but do not believe that this will avert a large-scale disaster that is just waiting to happen. The amount of treatment is not viewed as capable of keeping up with the pace of the infestation. Extensive tree mortality raises residents' concerns regarding catastrophic fires. Both the infestation and potential fires are expected to have major effects on water quality and recreation and tourism. The Forest Service is perceived as not responding adequately to the public's sense of threat.

Views diverge over the best management of forests for late-successional species. Many believe that the pest infestation triggers the need for more harvests to lower fire threat, which would, in turn, support the timber infrastructure necessary to maintain a healthy forest. An alternative belief is to hold the current course of large reserves under a regime of minimal management. As industrial, state, and national forest timber harvest activities subside, it becomes more difficult to support a viable business infrastructure to maintain national forest, DNR, and Yakama Reservation land.

There is a vigorous ongoing community debate about the appropriate level of recreation use that will accommodate the needs of a growing population and protect the resources. Expansion of the White Pass Ski Area has been proposed for over a decade, with three successive environmental analyses. Snowmobile use has increased over the decade and is described as well organized and funded. The level of use appears to be controlled by the size of the crowded snowparks. Residents have concerns for the effects of recreation development and road management on the hydrology and water quality in the watershed.

All terrain vehicle (ATV) use has escalated at a rate that appears to be faster than the ability of public land managers to organize policies, plans, regulations, infrastructure, and funding mechanisms. The Naches Valley has many roads crossing federal, state, and former industry lands. This roaded area is subject to different rules for on- and off-road usage on different ownerships. In this situation it is both difficult for the public to understand the rules and for agencies to enforce them. Ongoing ownership consolidation in the area and emerging Forest Service off-highway vehicle (OHV) policies will help address this confusion. Coordination across ownerships is needed.

Increasing constraints on public lands are viewed by many as hampering tourism, special use permits, and commercial opportunities. The decline in logging, recreational fishing, and grazing sources of income were frequently mentioned. Campground closures in the shoulder seasons and shutdown of surface water to recreation residences and permitted camps and businesses not only directly reduces the number of users, but it also reduces the customer base for businesses in adjacent small communities. Many view increasing fees at recreation sites and lack of sufficient facilities as reducing tourism business as well as causing increasing dispersed use outside campgrounds and consequent damage to the resources. Other sources of forest-related businesses are also mentioned as becoming more difficult for small businesses. Examples mentioned include new requirements for expensive pre-purchase of trailhead permits by local businesses for resale to passing customers, and the requirements of government vendors to satisfy national standards for fire-related work. Many associate the decline of these small businesses, entrepreneurs, and historical uses with a loss of rural lifestyles and quality of life.

Chapter 4: Cashmere and the Northwest Forest Plan

The town of Cashmere (population 7,576 in 2000) sits on the banks of the Wenatchee River between the larger towns of Leavenworth and Wenatchee in Chelan County (fig. 35). The Entiat Mountains rise to the northeast and the Wenatchee Mountains to the southwest. The Okanogan-Wenatchee National Forest (OWNF) composes a significant portion of the study area. For this study, the Cashmere community includes the city of Cashmere and the surrounding unincorporated areas.

The first industries to develop in the area were fruit farms and logging. Because the valley lies in the rain shadow of the Cascade Range, an extensive irrigation system is needed to maintain the fruit industry. The Peshastin irrigation ditch was completed in 1901, transporting water from the Wenatchee River to the orchards. In 1902 the Schmitten lumber mill began operation. Grazing and mining were also historically important industries.

The Great Northern Railroad was routed to pass through Cashmere in 1892. The rail line provided employment opportunities for local residents and facilitated the transportation of local fruit products to outside markets (Cashmere Tourism and Development Group, n.d). The railroad and Highway 2 link Cashmere economically and socially to towns along the Wenatchee River such as Leavenworth and Wenatchee. These transportation links have contributed to the development of Cashmere as a residential "bedroom community," with many families living in town but working in Wenatchee 11 miles away. Subsequently, local family-run businesses in Cashmere have had a harder time competing with the large discount retailers that have emerged in Wenatchee.

Although Cashmere is surrounded by state and federal forest land, it considers itself an agricultural community rather that a forest-based community. A ranger station has been located in Cashmere various times throughout the 20th century, but not at the time of this study. The nearest Ranger District is located in Leavenworth. The sawmill in Cashmere shut down in the 1980s. In the early 1990s, Longview Fibre opened a small-diameter wood mill in Winton, approximately 25 miles from Cashmere. In 2004, Longview Fibre was the only remaining mill along the Wenatchee River corridor and provided about 100 jobs to residents in the greater Wenatchee River valley, including some residents of Cashmere. Longview Fibre is a relative newcomer to north-central Washington, but has been a long-term presence in southwest Washington; its arrival in the area coincided with the closures of regional mills.

Previous to arrival of European settlers, the area that now encompasses Cashmere was home to the Chelan, Entiat, and Wenatchee bands of Native Americans. In 1855, the Walla Walla Treaty moved most of the Native Americans in the area to the Yakama Reservation. Today, many descendents of Native Americans from the Wenatchee River area live on the Yakama Reservation. The Yakama Nation and the Colville Confederated Tribes maintain treaty rights to hunting, fishing, and gathering in the watershed and are participants in joint forest stewardship activities.

Interviews were conducted with 16 members of the Cashmere community (app. A).

Community Change, 1980s to Present

Community change in Cashmere dates to the 1950s when Highway 2 was widened to four lanes and rerouted to circumvent Main Street. Cashmere's central business district experienced further hardships when the timber industry declined and the local mill closed in the 1980s. The few businesses that remain face intense competition with discount retail stores in Wenatchee (e.g., Wal-Mart, Target, Home Depot, etc.) less than 15 minutes away. Even though the local mill closed more than 20 years ago, the event is still referred to as a major contributor to economic change in Cashmere.

The mill closure prompted some workers to leave the area. Some formerly employed in the timber industry found work in Wenatchee, and others participated in worker retraining programs at the local community college and acquired skills for working in local orchards.

The Cashmere Chamber of Commerce advertises the town as a recreation and tourism destination, and the city has developed a variety of tourist attractions. There is Liberty Orchards, which produces a well-known candy called "Applets and Cotlets." The Chelan County Museum is also located in Cashmere. It is small but well maintained and has an educational pioneer village replica. In 2004, Cashmere

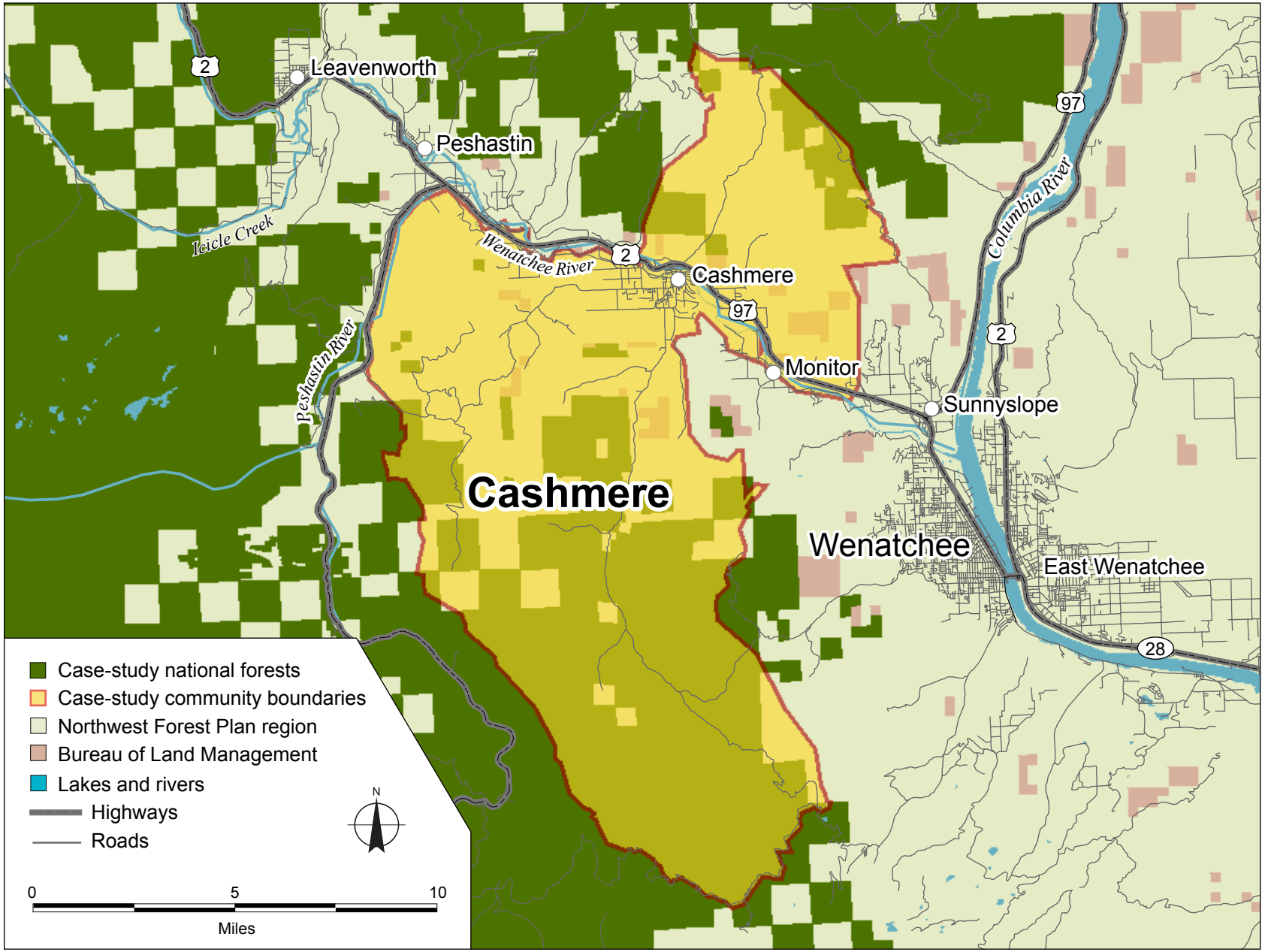

Figure 35—Cashmere study area.

celebrated its centennial, and every June the city celebrates Native American, pioneer, and early settler history with "Founders Days." To mark the community's connection to fruit agriculture, "Apple Days" is an annual celebration held in October.

The downtown business district was added to the National Register of Historic Places in 2002. The "Cottage Avenue Historic District" consists of 51 buildings and 125 acres in downtown Cashmere. The Columbia Cascade Winery Association is also located in Cashmere, providing information on local vineyards and wineries. The city also has developed a walking arboretum tour to showcase its identity as a "Tree City USA," a designation it has been awarded for the past 17 years.

There are seven public parks in the town of Cashmere. The most popular is Riverside Park offering a playground, volleyball court, picnic area, take-out ramp for rafters and kayakers on the Wenatchee River, and an open playing field. Commercial rafters pay to use the ramp, and this revenue has been used to maintain and upgrade the park. The park also features a paved trail for walking, biking, and skating. The Riverside Center was recently built to attract visitors and can be used for meetings or for social events such as reunions and weddings.

Numerous recreation opportunities exist near Cashmere, including mountain biking, river rafting, hiking, fishing, and even paragliding. Services for tourists, however, currently are limited. The restaurants in town cater more to the local population than to travelers passing through. The town has one modest motel, although more accommodations are available in Wenatchee and Leavenworth. Leavenworth is a unique destination drawing tourists interested in nature-based recreation as well as the town's "Bavarian Village" theme; this draw may have spill-over effect for Cashmere.

Demographic Indicators

The population in Cashmere increased 25.3 percent between 1990 and 2000 (table 19). This rate of growth was slightly lower than the 27.5-percent increase in Chelan County. In 2000, 85.5 percent of the community identified themselves as White, and 1.2 percent of the population identified as Native American, Black or African American, and Asian (fig. 36). The remaining 13 percent was categorized as "some other race" or as "more than two races." This pattern of racial distribution is similar to that of Chelan County.

Table 19–Cashmere population, 1990 and 2000

Indicator	1990	2000	Change
			Percent
Total population, Cashmere	6,045	7,576	25.3
Total population, Chelan County	52,250	66,616	27.5
Median age, Cashmere (years)	35.2	36.0	2.3
Median age, Chelan County (years)	35.0	36.4	3.9

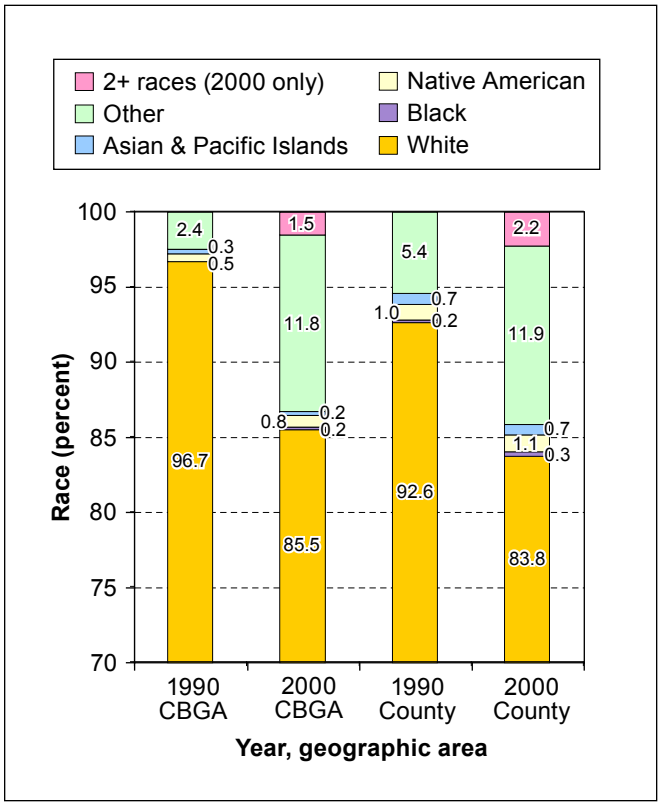

Figure 36—Race distribution in Cashmere and Chelan County, 1990 and 2000. CBGA = census block group aggregate.

The data for Hispanic ethnicity indicate that this group is increasing at a faster rate in Cashmere than in the county (table 20). In 2000, 21.9 percent of Cashmere's residents described themselves as Hispanic or Latino.

Table 20—Hispanic population of Cashmere, 1990 and 2000

	Hispanic residents		Change in Hispanic population
	1990	2000	
			Percent
Cashmere	7.71	21.91	184.18
Chelan County	8.78	19.36	120.50

The median age in Cashmere rose from 35.2 years to 36.0 (2.3 percent) between 1990 and 2000 (table 19). Countywide, the increase in median age was slightly greater, increasing from 35.0 years to 36.4 (3.9 percent). Cashmere experienced growth in all age groups between 1990 and 2000 (table 21), but distribution of ages within the community shifted slightly (fig. 37). In 2000, 5- to 19-year-olds made up the largest percentage of the population in Cashmere (26.1 percent) followed by 45- to 64-year-olds (21.7 percent). The percentage of residents age 65 and over declined from 16.2 percent in 1990 to 13.8 percent in 2000 (fig. 37); this is consistent with interviewees' perceptions that Cashmere was not experiencing the influx of retirees that it had in the early 1990s.

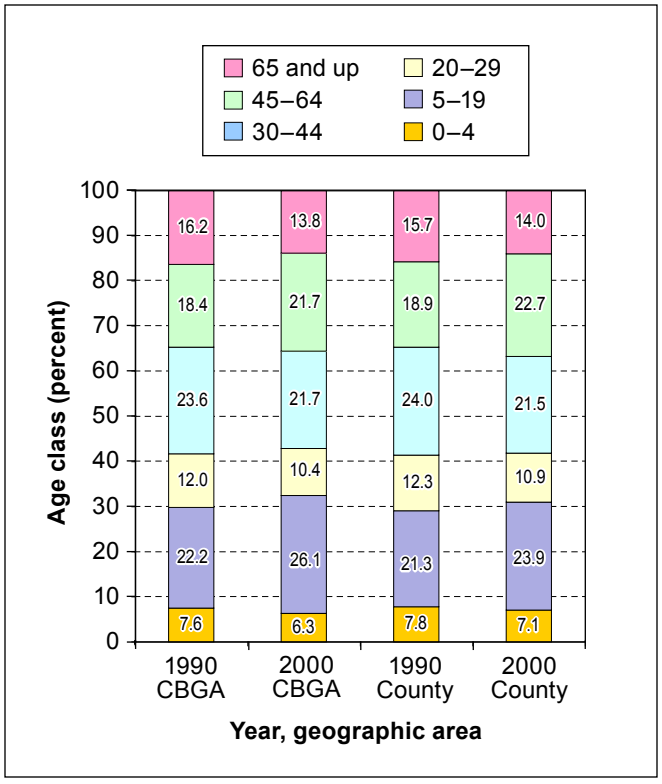

Figure 37—Age distribution in Cashmere and Chelan County, 1990 and 2000.

School enrollment increased by more than 45 percent in Cashmere (table 22). For adults, educational attainment in Cashmere did not change significantly between 1990 and 2000. About 75 percent had completed high school in 2000 and 16 percent had a bachelor's degree or higher. These numbers are lower than those for the county (table 22).

Table 21—Age distribution, Naches Valley population, 1990 and 2000

	0–4	5–19	20–29	30–44	45–64	65 and up	Total
Cashmere							
1990	457	1,342	726	1,425	1,114	981	6,045
2000	481	1,974	788	1,640	1,643	1,049	7,575
Change (percent)	5.25	47.09	8.54	15.09	47.49	6.93	25.3
Chelan County							
1990	4,072	11,124	6,417	12,562	9,887	8,188	52,250
2000	4,737	15,895	7,266	14,298	15,106	9,314	66,616
Change (percent)	16.33	42.89	13.23	13.82	52.79	13.75	27.5

Table 22—Education indicators, Cashmere, 1990 and 2000

Indicator	1990	2000	Change	Change as percentage of population
			Percent	
School enrollment, Cashmere	1,264	1,836	45.25	
School enrollment, Chelan County	10,187	15,470	51.86	
Completed high school, Cashmere (%)	72.79	74.18	1.91	1.39
Completed high school Chelan County, (%)	74.25	79.07	6.49	4.82
Bachelors, graduate, professional degrees, Cashmere, (%)	14.16	16.05	13.35	1.89
Bachelors, graduate, professional degrees, Chelan County, (%)	16.70	21.91	31.20	5.21

Economic Indicators

Median household income in Cashmere rose from $28,930 to $38,329 (32.5 percent) between 1990 and 2000 (table 23). This rate of increase was higher than the 23.7-percent increase experienced by the county. In general, households earned more money in 2000 than they did in 1990, but this change may in part be attributed to inflation (table 24). The largest changes were the decline in percentage of households earning less than $25,000 and the increase in those earning more than $100,000. In Cashmere, the percentage of households in poverty fell by 37.7 percent between census periods, and poverty in the county fell by 18.6 percent during the same period (table 23). In contrast to these economic gains, unemployment in Cashmere increased from 7 to 14 percent between 1990 and 2000; this was a greater increase than that experienced by Chelan County, where unemployment increased by 2.5 points to 10.4 percent in 2000 (table 23).

Table 23—Economic indicators, Cashmere, 1990 and 2000

Indicator	1990[a]	2000	Change	Change as percentage of population
			Percent	
Median household income, Cashmere	$28,930	$38,329	32.49	
Median household income, Chelan County	$30,172	$37,316	23.68	
Percentage unemployed, Cashmere	7.11	14.03	97.33	6.92
Percentage unemployed, Chelan County	7.88	10.40	31.98	2.52
Percentage in poverty, Cashmere	11.83	7.37	-37.70	-4.51
Percentage in poverty, Chelan County	15.26	12.43	-18.55	-2.83

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

Table 24—Household income distribution,[a] Cashmere, 1990 and 2000

	<$10,000	$10,001–$14,999	$15,000–$24,999	$25,000–$34,999	$35,000–$49,999	$50,000–$74,999	$75,000–$99,999	$100,000–$149,999	$150,000 and up	All
					Number of households					
Cashmere										
1990	414	310	511	378	333	285	52	13	34	2,330
2000	244	253	367	466	504	453	187	193	48	2,715
Chelan County										
1990	3,643	2,552	4,441	3,288	3,126	2,444	685	246	213	20,638
2000	2,234	1,885	4,038	3,580	4,120	4,730	2,027	1,486	862	24,962

[a] These data are not adjusted for inflation.

Residents did not perceive the rise in median income to be distributed equally or generated locally. Many interviewees attributed the rise to newcomers with higher incomes moving into Cashmere from west of the mountains, but interviewees did not explain the employment trends of newcomers. One interviewee described a growing number of children who qualify for the government-funded Head Start educational program whose parents work in low-paying service sector jobs.

Home values and rents increased at a faster rate in Cashmere than they did throughout Chelan County between 1990 and 2000 (table 25). In the 10-year period, the median values for homes in Cashmere increased by 74.8 percent (compared to a 60.9-percent increase in the county), and the median monthly rent increased 34.4 percent (while increasing 25.7 percent in the county).

The socioeconomic well-being rating for Cashmere decreased slightly between 1990 (73.36) and 2000 (68.50) but still remained a medium ranking.

Table 25—Median home values and rent, Cashmere, 1990 and 2000

	1990[a]	2000	Change
	- - - - *Dollars* - - - -		*Percent*
Median gross rent			
Cashmere	370	497	34.35
Chelan County	426	535	25.68
Median house value			
Cashmere	83,612	146,121	74.76
Chelan County	89,105	143,400	60.93

[a] The 1990 values have been adjusted for inflation and are reported in 2000 dollars.

Changes in Cashmere's Economic Structure

The number of jobs held by Cashmere residents increased by 16 percent between 1990 and 2000 (table 26). The health and education sector accounted for 22 percent of the jobs by the 2000 census, making it the largest sector (fig. 38). Some interviewees attributed this growth to increasing school enrollment. According to some interviewees, the Cashmere school system has such a good reputation, parents with young children are willing to work in Wenatchee but live in Cashmere so their children can attend school there.

In 2000, agriculture, forestry, fishing, and mining was the second largest sector with 12 percent of the jobs; this was a slight decline from 1990 when it provided 13 percent of the jobs (fig. 38). The professional and manufacturing sectors had the largest declines during the 10-year period. One new employer in the manufacturing sector was Crunch Pak, a company that prepares sliced apples for restaurants and grocers. Some interviewees characterized the available jobs with Crunch Pak as minimum wage filled primarily by Hispanic workers.

Census data do not specify where these sources of employment are located; they simply indicate which sectors employ Cashmere workers. Thus, Cashmere residents may work in these sectors but the place of employment may be outside the community. The average time spent commuting to work for Cashmere residents increased by 15.6 percent to 19.3 minutes between 1990 and 2000; most likely residents are commuting to places like Leavenworth and Wenatchee.

Table 26—Employment by industry, Cashmere, 1990 and 2000

Year	Agriculture, forestry, fishing, and mining	Construction	Manufacturing	Transportation and utilities	Wholesale trade	Retail trade	Finance and real estate	Professional	Arts	Health education	Public administration	Total
1990	358	179	329	178	210	280	94	404	198	378	96	2,704
2000	375	221	247	214	283	270	140	316	312	679	92	3,149
Change (percent)	4.75	23.46	-24.92	20.22	34.76	-3.57	48.94	-21.78	57.58	79.6	-4.17	16.45

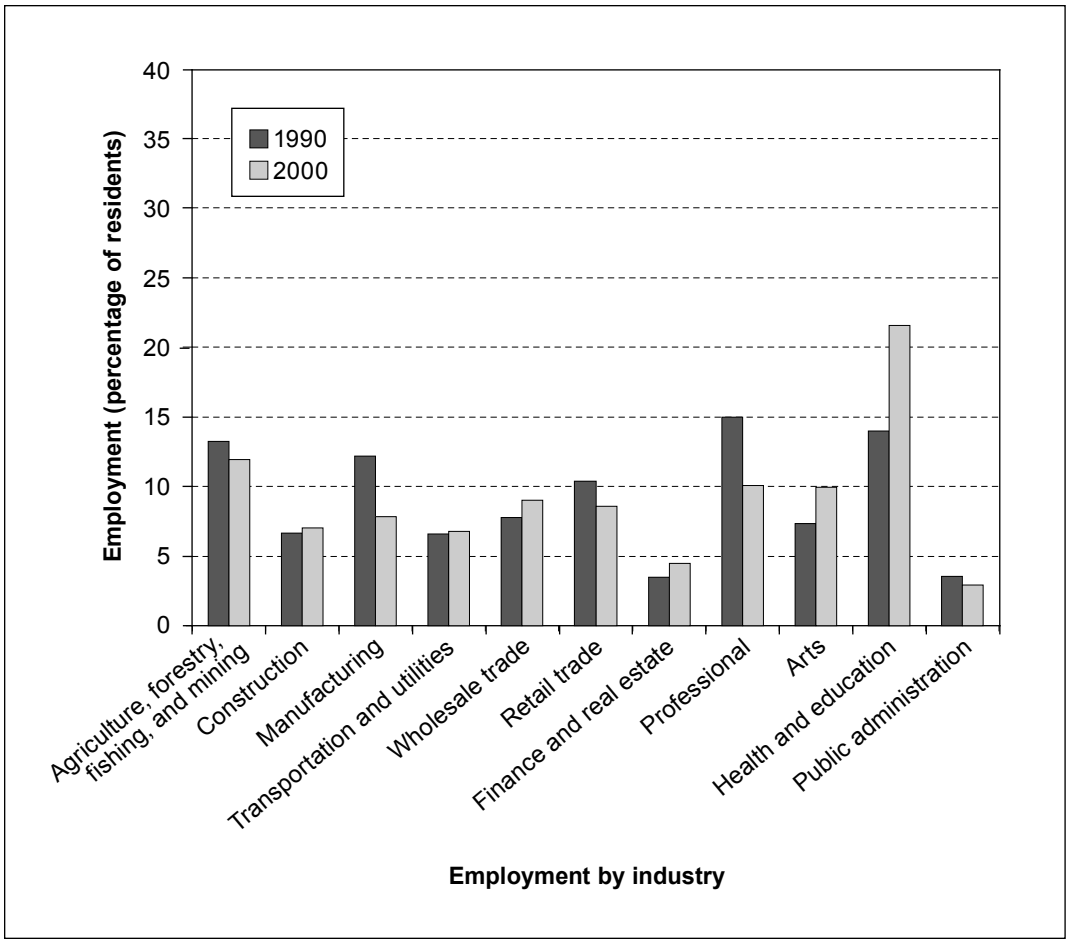

Figure 38—Employment by industry, Cashmere.

The commute time for residents of Cashmere is longer than the average commute for residents countywide, which increased by 10.5 percent to 17.6 minutes during the same period (table 27).

Table 27—Average commute times for Cashmere residents, 1990 and 2000

Indicator	1990	2000	Change
	- - - Minutes - - -		*Percent*
Cashmere	16.67	19.27	15.59
Chelan County	15.97	17.64	10.50

The Role of Federal Forest Management Policy in Influencing Change

Interviews and census data do not indicate that recent economic and social changes are linked to forest management policy, or to changes brought about by the Northwest Forest Plan (the Plan). Declines in the timber industry, namely the closure of the local mill, preceded the Plan. Further, it does not appear that OWNF has played a large role in peoples' adaptation strategies thus far. The forest and its resources, however, are significant assets for the budding tourism and recreation developments in the community. If tourism and recreation are going to succeed as an economically viable industry, visitors to the area will need to be able to access and use Forest Service land for many of the recreational activities.

The Role of the Forest Service in Mitigating Plan Effects

Because social and economic changes in Cashmere were not seen as singularly resulting from the Plan or from recent changes in forest management policy, neither the Forest Service nor the Bureau of Land Management were perceived as playing a significant role in helping communities adapt to changing circumstances. This was not necessarily perceived negatively by local residents because they saw themselves further removed from the national forest than other towns and cities in Chelan County.

The community appeared to be responding proactively to social and economic changes occurring outside the realm of the Forest Service. The city completed a comprehensive land use plan to accommodate new commercial opportunities. Recent changes were driven in part by Cashmere's goals and policies instigated by the Growth Management Act (enacted statewide in 1990). The Growth Management Act requires that each county in Washington, in cooperation with local cities and towns, use population projections to plan growth and development. Since January 1998, the city planning commission in Cashmere has held monthly public meetings regarding land use issues. The emphasis has been on developing facilities to support tourism and recreation and facilitating commerce to gain the greatest benefit from local resources. Conserving fish and wildlife habitat was seen as important to capitalizing on tourism activities. Because the Forest Service is the largest land manager in the area and many of the forest amenities are feature attractions, a working relationship between the community and the agency is essential for bringing these plans to fruition.

The Forest Service was not perceived as offering much in the way of contracts or other jobs within the community. On the Wenatchee National Forest, labor, equipment, and technical contracting dropped significantly between 1991 and 2003. Generally speaking, the community did not perceive Forest Service contracts to contribute significantly to the local economy. One interviewee noted there had been a bit of salvage logging after the Fischer Fire, which burned in 2004, and some thinning contracts up Mission Creek. But the overwhelming perception was that community residents do not benefit from contract opportunities.

Few jobs with the Forest Service were perceived to exist. Those that exist were thought to be filled by outsiders and often only provided seasonal employment. Some interviewees knew Forest Service employees who lived in town, and these employees were seen as contributing members to the Cashmere community. Interviewees saw minimal economic benefit to the community from the inflow of seasonal firefighters because firefighters tend to use few of the town resources other than the convenience store. One interviewee, however, thought the Forest Service was an important source of jobs for local residents. Another interviewee had heard of ecosystem restoration projects available to local residents and thought the Forest Service did a good job advertising the projects.

Available data and interviews indicate that Northwest Economic Adjustment Initiative (NEAI) grants had not been received by Cashmere, and money received at the county level was not perceived as trickling down to the community of Cashmere. This may be partly because there is no ranger station in Cashmere. Most interviewees understood that money is out there but that it is generally accessed at the county level. One resident knew of grants available to a community for fire protection and fuel reduction on private land. Another resident was interested in finding a grant to help homeowners with fire prevention.

Collaboration and Joint Forest Stewardship

The Cashmere community and the Forest Service did not have a strong relationship at the time of this study. The community has not engaged or collaborated much with the OWNF in joint forest stewardship or resource management activities. Community members felt they are more of an agricultural town than a forest town, and that other communities in Chelan County have a stronger relationship with the Forest Service. Community members did not feel that the Forest Service is an integral part of their community and day-to-day life. Some of this sentiment stems from the absence of a ranger district in Cashmere and to the consolidation of the Wenatchee and Okanogan National Forests. Accordingly, people identified the Forest Service as having more involvement at a regional scale than directly with the community.

One interviewee felt the district rangers tried hard to stay in touch with residents and meet the public's needs. Another interviewee explained the lack of collaboration as less of an agency problem and more of a practicality given Cashmere's lack of identity as a forest-based community: it is not that the Forest Service has neglected Cashmere in collaborative activities, but simply that opportunities have not arisen. Another respondent felt that lack of Forest Service collaboration resulted from systemic and organizational characteristics. The agency was perceived as too large to interact effectively at the community level.

A few examples of community and agency collaboration were given, however. For example, the Wenatchee watershed analysis was cited as a good example of Forest Service collaboration. One respondent, when asked if the Forest Service was a player in watershed management, explained that it was present but not as active as the state agencies. The Cashmere Boy Scout Christmas tree program was described as another example of collaboration. Local Boy Scouts help thin and maintain the Forest Service's seed orchard and then, as an organizational fundraiser, sell some of the thinnings as Christmas trees.

Residents noted a recent increase in collaboration regarding forest management issues and the promotion of joint forest stewardship. One respondent had noticed trail work in the area, especially in Devil's Gulch, an area popular with mountain bikers. Another respondent also mentioned that the Forest Service was involved with a multiagency collaboration for the annual Salmon Festival. Some residents wanted a greater role in forest management. Their vision for the future direction of joint stewardship is one that values local knowledge of the land and involves local people in forest management, preservation, and decisionmaking. Joint stewardship activities appeal to respondents because they see it as a way to create local jobs, such as small-scale timber operations or fire work.

Issues and Concerns Relating to Forest Management

Residents of Cashmere were very concerned about fire. They felt their community and general quality of life is at risk. Residents feared that unthinned stands and restrictions on firewood gathering were creating conditions that could result in a catastrophic fire in the near future.

Access was another issue. Many respondents felt they are losing access to the national forest. They were unhappy about permits and fee requirements. Respondents who gather firewood didn't think they should have to pay for a permit when they saw themselves as helping reduce the fuel load. One grazing stakeholder expressed frustration at Forest Service policies over the past 15 years and felt that Forest Service policy has been particularly unfavorable to ranching and grazing activities. Several interviewees asserted that grazing helps reduce fire danger because it keeps the grass down.

Chapter 5: Entiat and the Northwest Forest Plan

The Entiat Valley is situated in north-central Washington, east of the Cascade Range in Chelan County (fig. 39). It is flanked by the Entiat Mountains to the southwest and the Chelan Mountains to the northeast. It extends into the Okanogan-Wenatchee National Forest (OWNF) along the Entiat River and includes a secondary tributary, the Mad River. The Forest Service manages about 87 percent and the Bureau of Land Management (BLM) manages about 1 percent of the land in the watershed. Late-successional reserves account for nearly 24 percent of the total land managed by the Forest Service on the Entiat Ranger District. Trails originating in the Entiat District access the Glacier Peak Wilderness Area. The Entiat Ranger District office is located in the city of Entiat and has had a presence in the community since 1908. The U.S. Fish and Wildlife Service maintains a national fish hatchery on the Entiat River, in operation since 1930 (Entiat Valley Watershed Study 2002).

In this study, the Entiat Valley includes the residents who live in the Entiat River valley (including Ardenvoir and Farris settlements), the residents in the city of Entiat, and the settlements of Winesap and Maplecreek, a combined population of 2,101 people in 2000. The valley is accessed from the north or south by the alternate route of Highway 97, which junctions with Highway 2 in Wenatchee, 17 miles south of Entiat. Wenatchee is the largest town in the area and the main service center. The southern portion of the Entiat Valley has a checkerboard ownership pattern of Forest Service, BLM, and private land.

Most of the privately-owned land lies within 1 mile of the Entiat River and is surrounded by national forest land. Homes are interspersed with orchards, and small population clusters are found near the former mill sites of Ardenvoir, Crum Creek, and Muddy Creek, and at Brief, near a former Civilian Conservation Corps campsite. Fruit orchards are planted in the lower 15 miles of the valley along the river and are irrigated by an extensive ditch network. Fruit production remains one of the most important industries in the watershed. Main sources of employment in Entiat are the Forest Service at the Ranger District Office, the Entiat Interagency Hot Shot Crew during wildfire season, the public schools, small retail services, and a foundry with about 100 employees from around the region.

The current town of Entiat is located near the confluence of the Entiat and Columbia Rivers. The central business core of Entiat has been located in three different places over the past 100 years. The first town site was destroyed by fire in 1921, and the second was relocated in 1959 owing to pending flooding from the construction of the Rocky Reach hydroelectric dam on the Columbia River. The businesses and property lost in the second move strained the social and economic fabric of the community, and interviewees felt Entiat had only recently recovered. The Rocky Reach hydroelectric dam supplies the valley with power, and the backwaters have created Lake Entiat, a source of recreational opportunities (Stewart 1999).

The Entiat River Valley adopted its name from its Native American predecessors: The Entiaqua, meaning "rapid waters." The valley was an important location for gathering food and resources, fishing and hunting for Native Americans across the region. Two Native American groups, the Yakama Nation and the Colville Confederated Tribes, maintain rights to hunting, fishing, and gathering in the watershed and are participants in joint forest stewardship activities.

The Entiat Valley was historically a natural-resource-based community. Logging, trapping, mining, fruit agriculture, fishing, and ranching attracted early Euro-American settlers in the late 1800s and became the mainstays of the economy. Between 1892 and 1979, the Entiat Valley was home to 11 stationary and several portable mills as well as small independent logging operations (Long 2001). Timber harvest reached its peak just after the 1970 Entiat fires when fire-salvage timber was sold from national forest lands; a large percentage of the forest on the Entiat District has burned since the 1970s. Logging began declining in the late 1970s, and in 1979 the Ardenvoir mill closed, leaving 120 mill employees unemployed.

Fruit production remains one of the most important industries in the valley. Extensive irrigation ditch networks were built in the early part of the 20th century. Orchards span up the valley from the mouth of the river. In 1996, it was estimated that 910 acres of irrigated orchard remained (Entiat Valley Watershed Study 2002). Most of the orchards are owned and operated by local residents. Given the

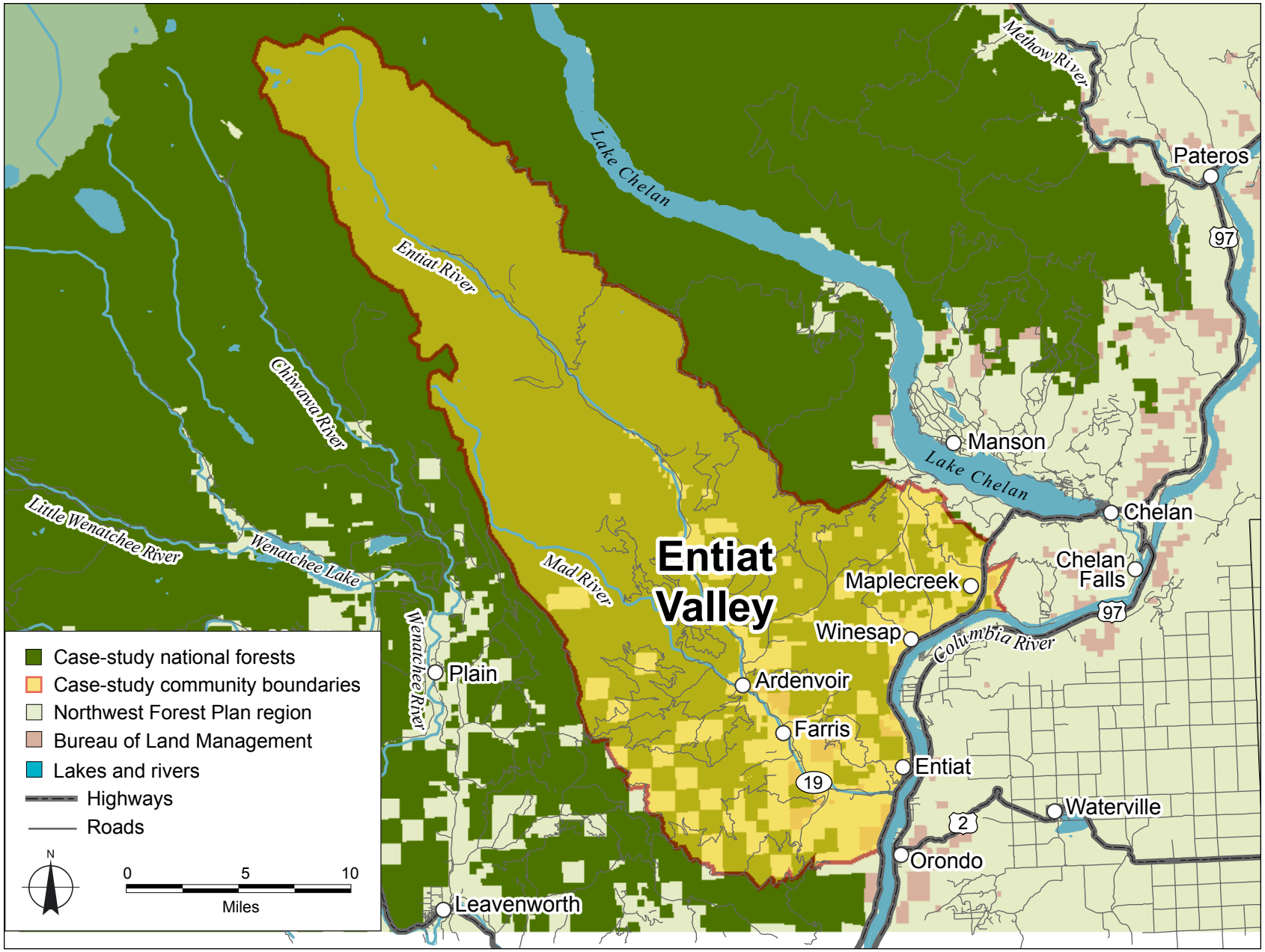

Figure 39—Entiat Valley study area.

topography of the Entiat Valley, orchards run adjacent to the river. Hence, orchardists have to cooperate with aquatic ecosystem management issues.

Although the economy in Entiat Valley is changing from one based on agriculture and timber to one based on services, most of the people interviewed for this study consider the community to be forest-based. Entiat Valley is surrounded by the national forest, and residents value the forest for its recreation-related opportunities, nontimber forest products (mushrooms, firewood, and berries—all primarily for personal consumption), grazing, and its ability to maintain a healthy water flow for the orchards. The continued presence of the Entiat Ranger District since 1908 also contributes to Entiat's forest-based identity.

Interviews were conducted with 21 members of Entiat Valley community (app. A).

Community Change, 1980s to Present

Demographic Indicators

The population in Entiat Valley increased by 35.7 percent between 1990 and 2000 (table 28), exceeding the 27.5-percent growth in the surrounding Chelan County. The Rocky Reach dam reliscensing report (in 2000) suggested that some of the population increase during the decade of 1990–2000 was due to land annexations by the city of Entiat: eight parcels encompassing 0.607 square miles of land with a total of 60 occupied housing units and a population of 178 people were located in the annexed parcels. Since the mill closure in 1979, there has been a demographic shift in Entiat bringing in more commuters, retirees, and affluent residents. Interviewees attributed the recent influx of people to the area's scenic beauty and recreation opportunities together with affordable real estate, links to Wenatchee and Chelan (via State Highway 97A and the railroad), and a small local employment base (U.S. Castings, a foundry that hires approximately 100 employees from around the region, and the Forest Service, including the Entiat Interagency Hot Shot Crew who seasonally employ about 20 during wildfire season).

Table 28—Entiat Valley population, 1990 and 2000

Indicator	1990	2000	Change
			Percent
Total population, Entiat Valley	1,548	2,101	35.7
Total population, Chelan County	52,250	66,616	27.5
Median age, Entiat Valley (years)	31.8	36.2	14.0
Median age, Chelan County (years)	35.0	36.4	3.9

The racial distribution in Entiat Valley and the county was similar, with more than 80 percent of the population categorizing themselves as White (fig. 40). Residents categorizing themselves as Native American declined by 35.5 percent, but changes to the 2000 census allowing people to identify themselves as "two or more races," may partially explain this change. About 19 percent of residents in Entiat Valley and the county described themselves as Hispanic or Latino in 2000, up from 8 percent in 1990 (table 29).

The median age in the Entiat Valley increased from 31.8 to 36.2 years (14.0 percent) between 1990 and 2000 (table 28). During the same period, the median age in Chelan County increased from 35.0 to 36.4 years (3.9 percent). Interviewees attributed the population growth

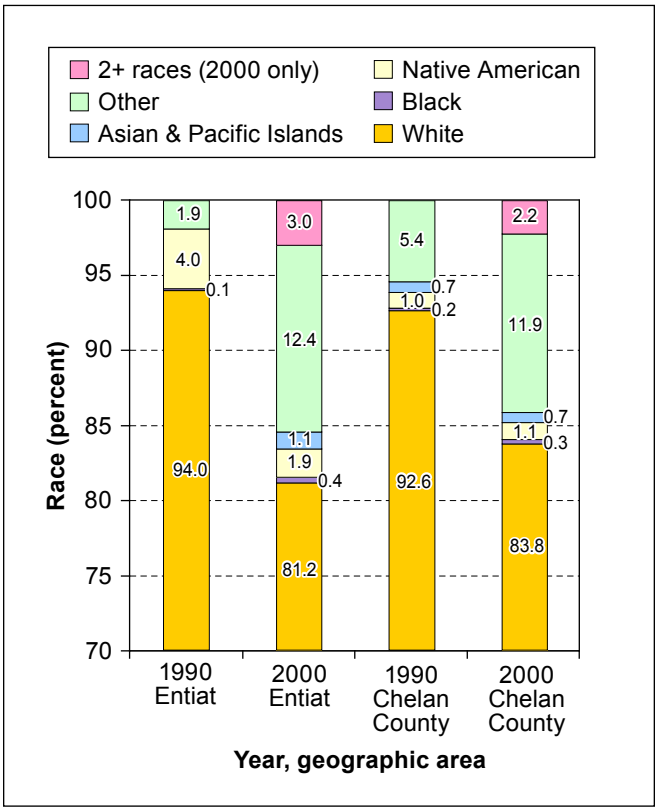

Figure 40—Race distribution in Entiat Valley and Chelan County, 1990 and 2000.

Table 20—Hispanic population of Entiat Valley, 1990 and 2000

	Hispanic residents		Change in Hispanic population
	1990	2000	
			Percent
Entiat Valley	8.14	19.11	134.77
Chelan County	8.78	19.36	120.50

and increase in median age to the quality of life associated with the forest which has attracted new, older residents. The fastest growing age group is 45 to 64 (table 30), followed by an increase in school-aged children (5 to 19), mirroring an 82 percent increase in school enrollment (table 31). The number of people between the ages of 20 to 29 declined by 22.5 percent, however, and those ages 0 to 4 dropped by 12.6 percent. The decline in these age groups suggests that those in their 20s are leaving the area. Several factors may be behind this trend: few economic opportunities exist in Entiat for this coming-of-age workforce, and a greater number of young adults are leaving to attend college or join the military than in the past. Figure 41 illustrates that although changes in age distribution as a percentage of total population shifted in the same direction in Entiat Valley and Chelan County, the magnitude of change was greater in Entiat Valley. For example, the 45 to 64 age group increased by 9.4 percent in Entiat Valley from 1990 to 2000, compared to the increase of 3.8 percent in the county.

More residents of Entiat Valley are completing high school (11 percent increase) and earning college or professional degrees (25 percent increase) (table 31). Despite the increases, educational attainment in Entiat continues to lag the county. Interviewees suggested a correlation between the mill closure and higher education indicators: once mill jobs were no longer available, college became a more attractive option as a way to secure a good job. The data do not indicate if the increased level of educational attainment is correlated with new residents to the area or existing Entiat residents heading off to college.

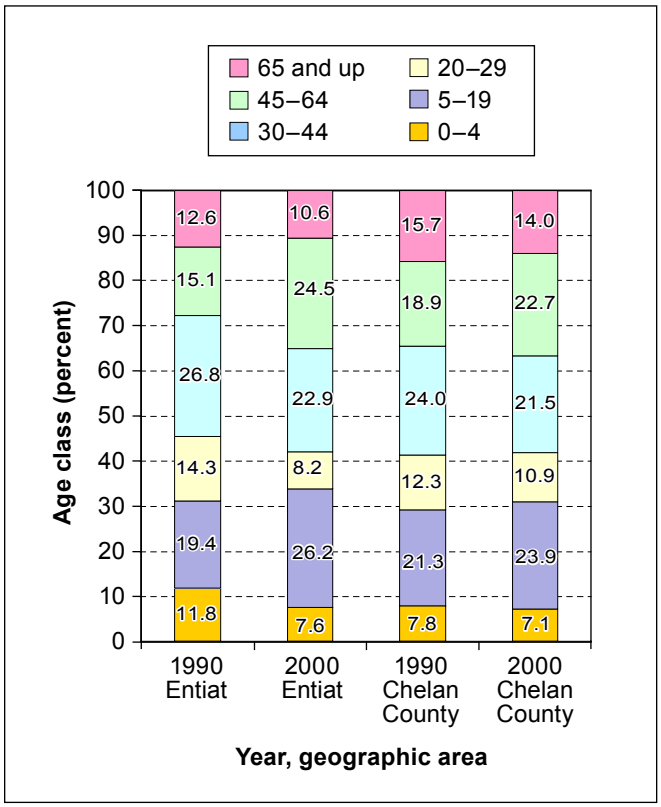

Figure 41—Age distribution in Entiat Valley and Chelan County, 1990 and 2000.

Table 30—Age distribution, Entiat Valley population, 1990 and 2000

	0–4	5–19	20–29	30–44	45–64	65 and up	Total
Entiat Valley							
1990	182	300	222	415	234	195	1,548
2000	159	551	172	481	515	223	2,101
Change (percent)	-12.64	83.67	-22.52	15.90	120.09	14.36	35.7
Chelan County							
1990	4,072	11,124	6,417	12,562	9,887	8,188	52,250
2000	4,737	15,895	7,266	14,298	15,106	9,314	66,616
Change (percent)	16.33	42.89	13.23	13.82	52.79	13.75	27.5

Table 31—Education indicators, Entiat Valley, 1990 and 2000

Indicator	1990	2000	Change	Change as percentage of population
			- - - - - *Percent* - - - - -	
School enrollment, Entiat Valley	294	536	82.31	
School enrollment, Chelan County	10,187	15,470	51.86	
Completed high school, Entiat Valley (%)	69.27	77.05	11.23	7.78
Completed high school Chelan County, (%)	74.25	79.07	6.49	4.82
Bachelors, graduate, professional degrees, Entiat Valley, (%)	10.21	12.78	25.17	2.57
Bachelors, graduate, professional degrees, Chelan County, (%)	16.70	21.91	31.20	5.21

Economic Indicators

The median household income in Entiat Valley rose 31.9 percent between 1990 and 2000 to $38,045; during that same period the median income in Chelan County rose 23.7 percent to $37,316 (table 32). Wealth is not spread evenly throughout Entiat Valley, and many interviewees attributed the increases in median income to new, affluent residents moving into the upper Entiat River area. Households earned more money in 2000 than they did in 1990, but the gains were weighted to the higher income brackets while the number of households earning less than $25,000 only declined by 6.7 percent (table 33).

Unemployment declined in Entiat Valley by 13.4 percentage points between censuses (table 32). In 1990, the unemployment rate in the valley was nearly three times that of the county, but by 2000 had declined to 7.1 percent, 3.1 percentage points lower than the county's. In contrast, unemployment countywide rose by 2.5 points to 10.4 percent in 2000.

Despite the increase in median income and a reduction in unemployment, the number of persons in poverty in Entiat Valley increased by 15.8 percent in the last decade (table 32). This contrasts sharply with an 18.5-percent decline in the number of persons in poverty throughout the

Table 32—Economic indicators, Entiat Valley, 1990 and 2000

Indicator	1990[a]	2000	Change	Change as percentage of population
			- - - - - *Percent* - - - - -	
Median household income, Entiat Valley	$28,851	$38,045	31.87	
Median household income, Chelan County	$30,172	$37,316	23.68	
Percentage unemployed, Entiat Valley	20.67	7.29	-64.73	-13.38
Percentage unemployed, Chelan County	7.88	10.40	31.98	2.52
Percentage in poverty, Entiat Valley	11.98	13.87	15.78	1.89
Percentage in poverty, Chelan County	15.26	12.43	-18.55	-2.83

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

Table 33—Household income distribution,[a] Entiat Valley, 1990 and 2000

	<$10,000	$10,001–$14,999	$15,000–$24,999	$25,000–$34,999	$35,000–$49,999	$50,000–$74,999	$75,000–$99,999	$100,000–$149,999	$150,000 and up	All
					Number of households					
Entiat Valley										
1990	75	106	133	143	61	24	20	3	0	565
2000	76	107	110	147	156	97	14	24	18	749
Chelan County										
1990	3,643	2,552	4,441	3,288	3,126	2,444	685	246	213	20,638
2000	2,234	1,885	4,038	3,580	4,120	4,730	2,027	1,486	862	24,962

[a] These data are not adjusted for inflation.

county. Volunteers with the Entiat Food Bank corroborated the increase in poverty, observing that more people needed their services. They attributed the increase to hardships in the fruit industry. Entiat has experienced a shift toward greater economic disparity over the past 10 years (comparing the number of households in higher income brackets to lower income brackets), which may help explain how it is possible to have a greater median income and greater rates of poverty simultaneously.

Home values and rent increased at a faster rate in Entiat Valley than they did throughout the county between 1990 and 2000 (table 34). In the 10-year period, the median value for homes in the Entiat Valley increased by 79.2 percent (compared to a 60.9-percent increase in the county), and the median monthly rent increased 50.7 percent (while increasing 25.7 percent in the county).

Table 34—Median rent and house values in Entiat Valley, 1990 and 2000

	1990[a]	2000	Change
	- - - - *Dollars* - - - -		*Percent*
Median gross rent			
Entiat Valley	280	422	50.69
Chelan County	426	535	25.68
Median house value			
Entiat Valley	68,702	123,109	79.19
Chelan County	89,105	143,400	60.93

[a] The 1990 values have been adjusted for inflation and are reported in 2000 dollars.

Changes in Entiat Valley's Economic Structure

The number of jobs held by Entiat residents increased by 57 percent between 1990 and 2000 (table 35). The health and education sector surpassed the agriculture, forestry, fishing, and mining sector as the largest employer in 2000 (fig. 42). Sectors with the greatest growth were public administration, transportation and utilities, health and education, and retail trade. Overall, Entiat employment was more diversified in 2000 than in 1990. The socioeconomic well-being ranking for the Entiat Valley increased from 53.31 (a low measure) to 62.36 (a medium measure) over the decade.

Many respondents described Entiat as a "bedroom community" for residents working in the nearby city of Wenatchee. Census data confirm a 13.1 percent increase in commute time (table 36). But many respondents also described another segment of the working population that works from home (particularly, Internet-based businesses), which reduces their commute time to zero. This suggests that those who are commuting may actually be commuting more than the average 27.6 minutes. The links between Entiat and the surrounding area are not unidirectional, however, as about 40 percent of the foundry (U.S. Castings) employees live outside the town of Entiat.

Table 36—Average commute times for Entiat Valley residents, 1990 and 2000

	1990	2000	Change
	- - - *Minutes* - - -		*Percent*
Entiat Valley	24.44	27.63	13.07
Chelan County	15.97	17.64	10.50

Table 35—Employment by industry, Entiat Valley, 1990 and 2000

Year	Agriculture, forestry, fishing, and mining	Construction	Manufacturing	Transportation and utilities	Wholesale trade	Retail trade	Finance and real estate	Professional	Arts	Health education	Public administration	Total
1990	120	33	76	19	71	54	14	99	31	68	7	592
2000	143	60	93	67	57	123	16	86	70	168	49	932
Change (percent)	19.17	81.82	22.37	252.63	-19.72	127.78	14.29	-13.13	125.81	147.06	600.00	57.43

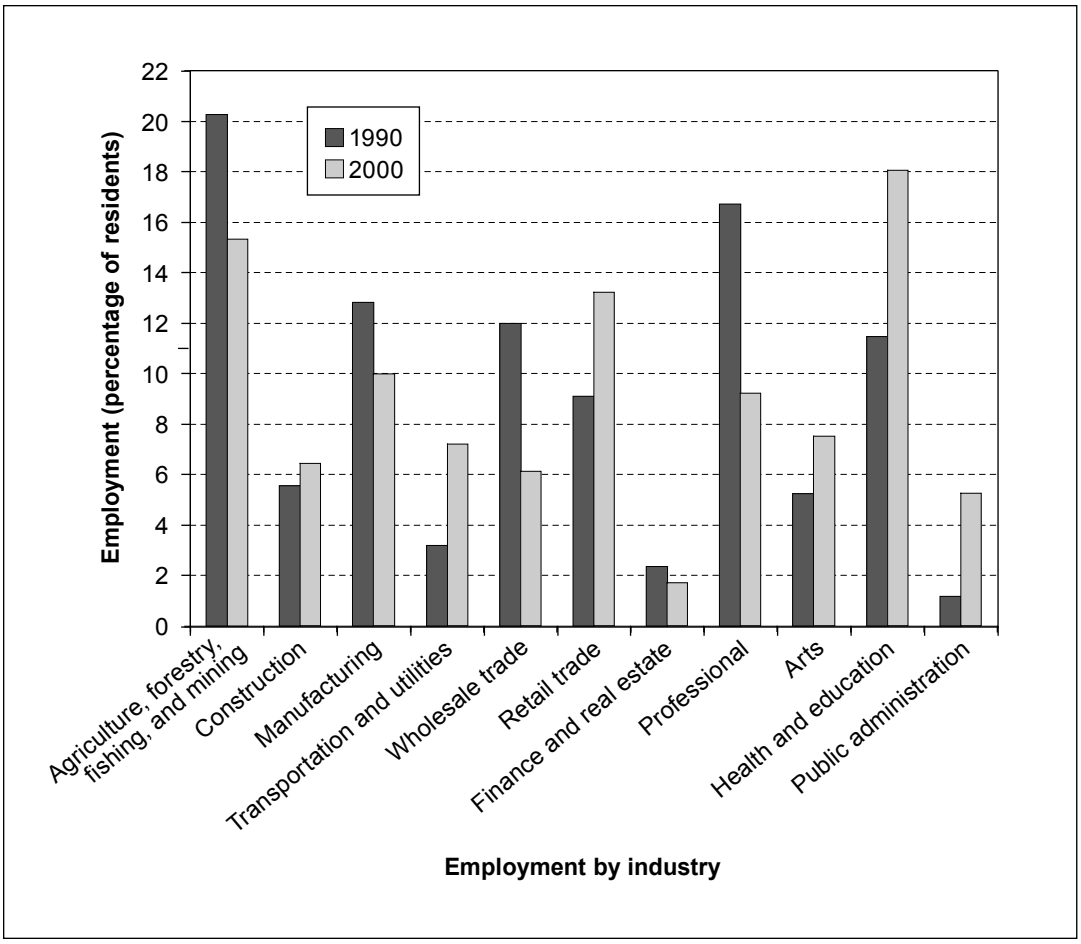

Figure 42—Employment by industry, Entiat Valley.

The Role of Federal Forest Management Policy in Influencing Change

Interviewees gave several reasons for the demise of the timber industry and ranching: (1) federal forest management policies (the Northwest Forest Plan), (2) legal injunctions filed in the interest of environmental protection, (3) lack of timber supply resulting from catastrophic fires since 1970 and overharvesting (both related to management practices on the OWNF), and (4) an industry shift toward corporate consolidation without reinvesting in local industry and capacity. Some interviewees recognized the shift away from a timber and forest-based economy in the Entiat Valley as part of a larger set of social and economic changes taking place beyond the community. Increased specialization and mechanization of the industry, higher labor costs in the United States, and cheaper international markets were perceived by some as leading to a general restructuring of rural economies. These larger political and economic changes have affected both agriculture and forestry.

The Forest Service's grazing policies over the past 15 years have increased costs for ranchers. Fencing off riparian areas as part of the Plan's Aquatic Conservation Strategy and replacing fencing after large fire events has been particularly burdensome for area ranchers. Ranchers also lamented the inadvertent consequences of Forest Service land acquisitions and exchanges. For example, some land exchanges (sales and acquisitions) have split the range area available to ranchers; in other cases, when previously held private property converts to Forest Service land, the burden of improvements (such as fencing) falls solely on the shoulders of the remaining private landowner, a burden

that was once shared by the owners in common. Ranchers did not perceive the Forest Service and the BLM as good neighbors. Yet, interviewees also acknowledged that the Entiat Valley, with its deeply incised valley, steep gradient, and loose soils, is not an ideal landscape for grazing (cattle in particular), despite the historical importance of this activity. One rancher saw grazing as an environmental benefit, particularly in a fire-prone environment, observing that areas that had been grazed seemed to suffer less fire damage.

The Role of the Forest Service in Mitigating Plan Effects

The Entiat Ranger District has contributed to the community by assisting with Community Action Plans, Jobs-in-the-Woods, and the Columbia Breaks Fire Interpretive Center. The City of Entiat has taken advantage of the Rural Community Assistance Program (RCAP) and used the associated funding and leadership from the Forest Service to develop a Community Action Plan and a Business District Vision for Entiat in 1993, 1998, and an update in 1999. City leaders have used the Community Action Plan to assess and guide community development. The RCAP funds were also used toward the planning and development of the Columbia Breaks Fire Interpretive Center, a greenhouse feasibility study with the Entiat School District, and to fund technical staff for the watershed planning unit. The longevity and personal leadership of the current ranger is seen to be a force in fomenting the positive relationship between the Entiat community and the Forest Service.

Interviewees did not generally perceive Forest Service contracts as contributing significantly to the local economy. Contract procurement on the OWNF has gradually tapered off over the past 15 years, with some anomalous years attributed to postfire management spending (for example, after the 1994 Tyee fires). But even postfire contract work was perceived as often going to workers from outside the community.

The Forest Service is perceived as an important source of jobs in Entiat Valley, and a good summer employer for local youth. When Forest Service jobs are filled by people from outside the community, however, interviewees do not see the community receiving much benefit. Some interviewees felt any amount of increased retail and real estate activity would help a small rural economy such as Entiat. Others questioned the general soundness of a service-based economy that does not contribute to gross domestic product. One respondent was hopeful that new stewardship contracting might emphasize hiring locally.

Most interviewees did not recognize any significant benefits from grants, primarily because they were unaware of the Forest Service contribution. The few who were aware of these contributions held administrative positions or had directly participated in the grant projects. Even those who thought Forest Service grants were important to the community acknowledged that these sources of money and support were not well known. They suggested that greater efforts to inform the community of the Forest Service contributions would likely ease some lingering tension and distrust between the agency and the community.

Collaboration and Joint Forest Stewardship

One of the most celebrated collaborative efforts undertaken by various members of the Entiat community, the Forest Service, and other agencies is the Watershed Analysis project. It is recognized across the state as a model process in collaboration. Other collaborative activities and joint stewardship include cooperative fire management and firefighting involving the Forest Service and Chelan County Fire District, sharing forest ecology information with the local schools, development and update of the Community Action Plan with the City of Entiat, and the Columbia Breaks Fire Interpretive Center.

Respondents indicated that problems with collaboration arose from budget constraints, slow bureaucratic processes, and controversial issues such as road decommissioning, Northwest Forest Pass fees, firewood permit regulations, and the amount of land managed in the Entiat Valley by the Forest Service. One interviewee, a former mill worker, wanted the Forest Service to engage citizens more in research and hazardous fuel reduction activities. Another was concerned that the revision process for the Okanogan-Wenatchee Forest Plan would not be collaborative and

should focus on watersheds as the unit of analysis rather than the whole national forest.

The Yakama Nation and the Colville Confederated Tribes maintain rights to hunting, fishing, and gathering in the watershed, and are participants in joint forest stewardship activities. The Yakama tribal representative was positive about collaborative relationships between the Forest Service and the tribe, stating the Forest Service has improved its communication with tribal interests about forest management and policy revisions. The representative pointed out, however, that the Forest Service and the tribal government do not engage on the same institutional level: true collaboration would require the interaction between senior policy people from the Forest Service and senior policy people of the Yakama Nation. The tribal representative also said that enrolled members of the Yakama Nation do not feel they need to ask permission to hunt and gather on land that was once theirs. Increased communication and collaboration is predicated on a common cultural understanding about resource use, said the tribal representative; the cultural context for resource use may be very different for tribal and nontribal members.

Issues and Concerns Relating to Forest Management

Interviewees were very concerned about fire and fire management, particularly the perceived let-burn policy. Access to the OWNF and its resources was another main concern of respondents. Northwest Forest Pass fees and road closures were perceived by some as limiting access to the forest as were some of the restrictions on off-road vehicle uses, and closure to fishing on the Entiat River.

Several interviewees recognized that the Northwest Forest Pass program offset the cost of maintaining trails and campgrounds; others felt it deterred recreation. Several residents resented paying to access public land for which they already had paid taxes. One interviewee suggested a fee exemption for Entiat residents based on a principle of "sweat equity" because their family members helped build the Forest Service road and trail system over the past century. Other interviewees who resented the Northwest Forest Pass remarked that Entiat area residents already "pay" for the forest through the limited private land and tax base that comes from being surrounded by federal land.

Although timber no longer plays a key role in the local economy, Entiat residents considered themselves living in a forest-based community. Hunting is a popular activity, and many residents would like to see fishing restored in the Entiat River. Mushrooms are harvested for personal use as is firewood, although occasionally firewood is resold. Several interviewees were frustrated with firewood cutting fees, which they felt were too high and allowed for more wood than was needed.

Chapter 6: Twisp and the Northwest Forest Plan

Twisp is located in the heart of the Methow Valley on the eastern slopes of the northern Cascade Range in Okanogan County. State Route 20 and the Methow River run through the valley, passing through the communities of Mazama, Winthrop, Twisp, Carlton, and Methow (fig. 43).

In this study, Twisp is represented by U.S. Census Block Group Aggregate (BGA) 7027. The BGA includes residents of the incorporated town as well as those living to the east along the Twisp River in unincorporated areas. The northern boundary of the BGA is the Twisp River. Interviewees said that the community of Twisp extends to both sides of the Twisp River; they drew the boundaries of Twisp slightly north of the line delimiting BGA 7027. The population of the BGA was 2,894 in the year 2000. About one-third of the people live in the incorporated town of Twisp (population 938), the rest live in unincorporated areas.

Almost 80 percent of the land in Twisp is publicly owned. The Forest Service manages about 70 percent, Washington state manages about 8 percent, and the Bureau of Land Management (BLM) and the National Park Service manage less than 1 percent. There are five wildlife areas, managed by the Washington Department of Fish and Wildlife (WDFW), near Twisp. These areas are managed primarily for mule deer (*Odocoileus hemionus*), blue grouse (*Dendragapus obscurus*), and nongame species. The wildlife areas are also integral parts of migratory corridors in and out of the Twisp drainage. The WDFW manages a supplemental hatchery for the Douglas County Public Utilities District on the Twisp River.

The town of Twisp offers most basic services. There are medical and dental offices, as well as a supermarket, a pharmacy, a tire store, gas stations, auto parts stores, law offices, insurance agencies, and a bank. Twisp is also home to the Methow Valley News, which was established in the early 1900s and remains the main source of information about local events in the Methow Valley. An old schoolhouse in Twisp now functions as a community center, housing a library, senior center, information center, and a private school, as well as space for arts performances and classes.

Residents of Twisp call it the "real" town, in contrast to neighboring Winthrop, which is one of Washington's main tourist attractions. Winthrop's main street was renovated in the early 1970s to resemble an 1800s frontier town, complete with wooden sidewalks. Many tourists visiting Winthrop as their primary destination also stop in Twisp, which is only 8 miles away.

The towns of the Methow Valley are distinct and interdependent at the same time. Residents of Winthrop travel to Twisp for supplies and services. Although most daily necessities are available in Twisp, the closest hospital is in Brewster, which is about 40 miles away. Residents frequently use the hospitals in Wenatchee, which is 90 miles from Twisp. In addition, they make regular trips to Wenatchee to stock up on supplies at Costco and other stores. Long-time residents of Twisp still think of it as a blue-collar town. As in Winthrop and Mazama, however, the number of seasonal residents in Twisp increases every year. In the Methow Valley, more than half of the land is owned by seasonal residents.

Tourists visit Twisp for outdoor recreation and for arts. The natural beauty and recreational opportunities near Twisp attract tourists and those who relocate permanently to the area. Fishing, hunting, cross-country skiing, mountain biking, camping, and sightseeing are popular recreational activities on the nearby forest. In 1988, an art gallery was established. The gallery exhibits the work of local and regional artists. The gallery and local arts organization sponsors lectures, films, musical events, and art classes. Up the street from the gallery is a popular bakery. A high-end pizzeria serves European-style entrees with wine. Nearby is a playhouse for professional theater productions.

From the 1890s through the early 1900s, Twisp's economy was based on gold mining along the Twisp River. In addition to mining, the pioneer families also planted fruit orchards in the valley. Ranches were established and thousands of cattle grazed on land managed by the Twisp Ranger District. When mining declined in the 1920s, agriculture increased in importance. An irrigation project adopted by the Methow Valley Irrigation District helped Twisp residents develop productive farms in the lowlands (Portman 1993).

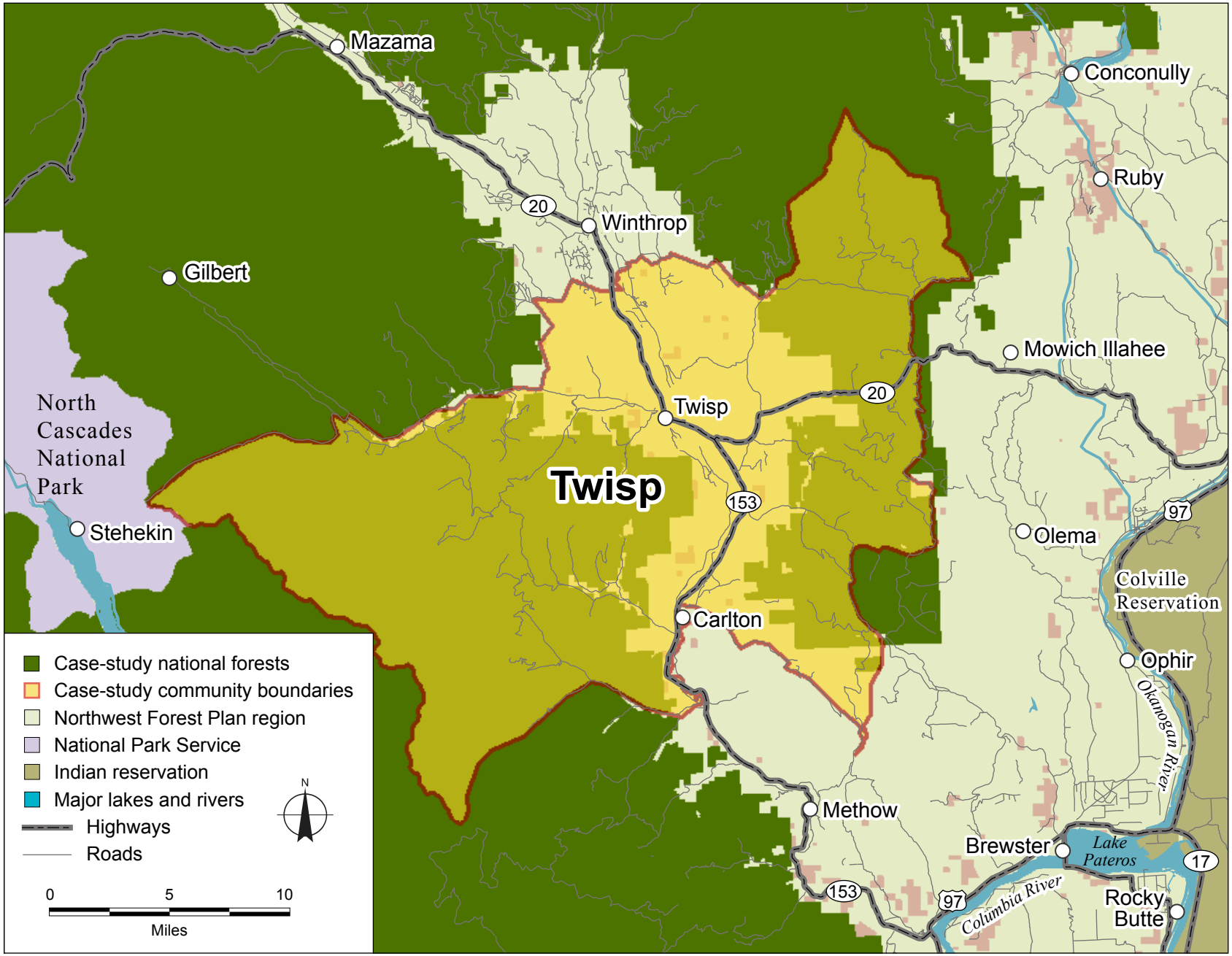

Figure 43—Twisp study area.

Timber was also one of the predominant industries in Twisp from the early 1900s to the late 1960s. The Twisp-Wagner Lumber Company was established in the late 1930s and a new mill was built in the early 1940s. The mill was vital to Twisp's economy and central to the town's identity. In 1969, Otto Wagner sold the mill to Biles Coleman. Soon after, the mill was sold again to Crown Zellerbach Co. It burned down in 1984 and was not rebuilt (Portman 1993).

Twisp's economy changed significantly during the late 1960s and early 1970s. A freeze killed the fruit trees in 1968, and most farmers did not replant their orchards. In 1969, a lumber mill in Twisp with several hundred employees changed owners and reduced its staff. Three years later, the North Cascades Highway opened bringing more change to the area. The highway improved access to the area and led to a boom in the tourism industry. The economy and land use changed as former orchardists and ranchers sold their land to a wave of relatively wealthy young adults and retirees.

In the early 1970s, Twisp's economy began changing from a resource-based economy heavily dependent on timber and agriculture to an economy based on tourism and recreation. The proliferation of cross-country ski trails on national forest land during the 1980s further stabilized the economy by bringing year-round recreation opportunities and tourism to the area, which has a good snow-pack even in years when the rest of the state lacks snow. The community successfully opposed proposed downhill ski resorts in the 1970s and 1980s. Opponents feared the resorts would change the lifestyle they valued.

As Twisp becomes increasingly popular, land values have risen. Interviewees feared that local workers will not earn enough to buy homes in the area. Those that already own homes may not be able to afford the high taxes. One interviewee worried that Twisp would become similar to Sun Valley, Idaho, where the police and fire chiefs reportedly cannot afford to buy homes in the community they serve.

Fourteen members of the Twisp community were interviewed for this study (app. A).

Community Change, 1980s to Present

Although Twisp has historical connections to timber, agriculture, and gold mining, these activities have not had a significant role in the economy for several decades. Today, Twisp is known for its Saturday markets with locally produced organic vegetables, art gallery, local microbrew, and art and music events that attract tourists (and perhaps future residents) from the greater Seattle metropolitan area.

Demographic Indicators

The population in Twisp (including the incorporated and unincorporated areas) increased by 18.4 percent between 1990 and 2000 (table 37). This rate of growth nearly matched that of Okanogan County (18.6 percent). Residents of Twisp are predominately White (93 percent), with Native American, Asian and "some other race" categories composing about 6.5 percent of the population (fig. 44). Three percent of residents characterized themselves as ethnically Hispanic in 2000 (table 38).

Table 37—Twisp population, 1990 and 2000

Indicator	1990	2000	Change
			Percent
Total population, Twisp	2,445	2,894	18.4
Total population, Okanogan County	33,350	39,654	18.6
Median age, Twisp (years)	37.0	44.0	18.9
Median age, Okanogan County (years)	35.0	38.2	9.1

Table 38—Hispanic population in Twisp, 1990 and 2000

	Hispanic residents		Change in Hispanic population
	1990	2000	
		Percent	
Twisp	1.00	3.00	200.00
Okanogan County	8.41	14.54	72.89

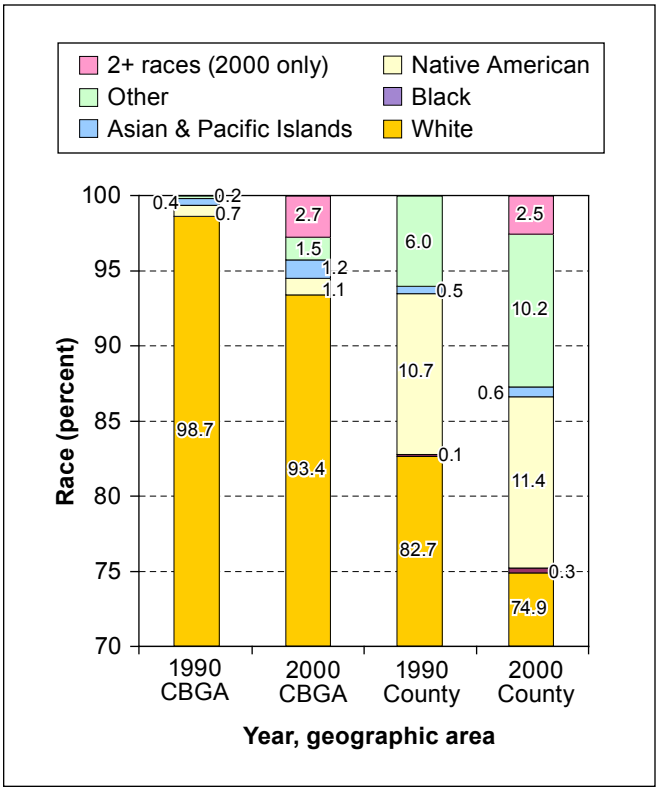

Figure 44—Race distribution in Twisp and Okanogan County. CBGA = census block group aggregrate.

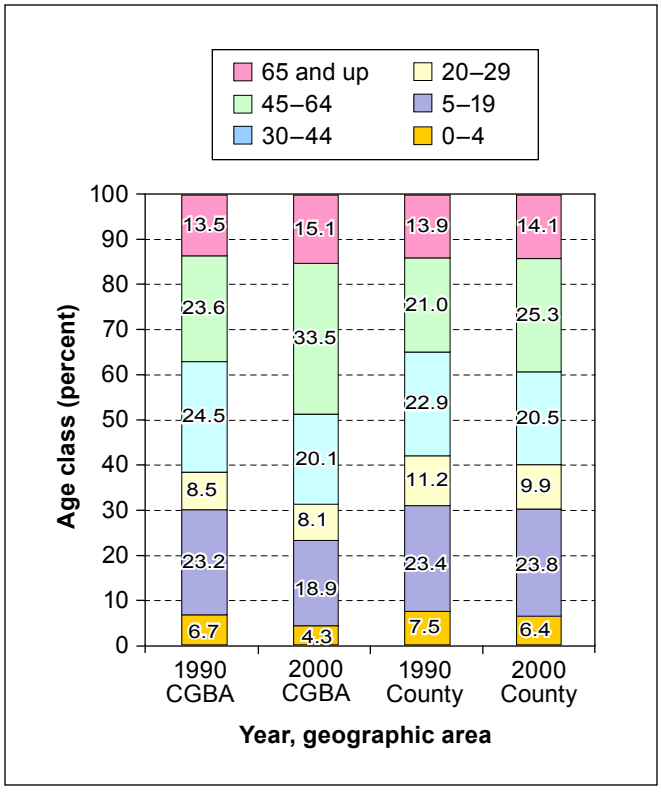

Figure 45—Age distribution in Twisp and Okanogan County. CBGA = census block group aggregrate.

The median age increased from 37 to 44 between censuses (table 37). During the same period the median age in the county increased from 35.0 to 38.2 years. In Twisp, the increasing median age was driven by the greater number of residents age 45 to 64 (table 39). In 2000, the 45 to 64 age group made up 33.5 percent of Twisp's total population, nearly a 10-percent increase from 1990 (fig. 45). Countywide, this age group comprised 25.3 percent of the population. Interviewees agreed that Twisp's population is aging and that Twisp is becoming a popular retirement community. Interviewees also noted that Twisp is attracting young people who move to town for its outdoor amenities and work on organic farms and in the hospitality industry. This may account for the slight increase in the 20 to 29 age

Table 39—Age distribution, Twisp population, 1990 and 2000

	0–4	5–19	20–29	30–44	45–64	65 and up	Total
Twisp							
1990	165	568	207	599	576	330	2,445
2000	124	548	234	581	970	438	2,895
Change (percent)	-24.85	-3.52	13.04	-3.01	68.40	32.73	18.4
Okanogan County							
1990	2,502	7,816	3,723	7,652	7,010	4,647	33,350
2000	2,513	9,430	3,925	8,117	10,010	5,569	39,564
Change (percent)	0.44	20.65	5.43	6.08	42.80	19.84	18.6

group. As a percentage of the total population, residents age 0 to 19 declined (fig. 45), but school enrollment in Twisp still increased by 10.5 percent (table 40). County growth was greater, with enrollments increasing by 30.6 percent.

As the percentage of older individuals rose in Twisp, so did the level of educational attainment. Twisp residents with bachelor's degrees or higher increased by 70 percent between 1990 and 2000 (table 40). Countywide, this education measure increased by 32.6 percent during the same period. Thus, the newcomers to Twisp were predominately older and well-educated.

Economic Indicators

The median household income in Twisp increased by 12.4 percent between 1990 and 2000, although this was lower than the county's increase of 18.0 percent (table 41). The rise in income was not distributed evenly across the community, however. The number of households earning more than $25,000 increased by 81.9 percent between 1990 and 2000, with even more dramatic increases in the higher income brackets (table 42). Those earning less than $25,000 decreased by 6.5 percent during the same period, although there was an increase in households earning $10,001 to

Table 40—Education indicators, Twisp, 1990 and 2000

Indicator	1990	2000	Change	Change as percentage of population
			- - - - - Percent - - - - -	
School enrollment, Twisp	485	536	10.52	
School enrollment, Okanogan County	7,067	9,230	30.61	
Completed high school, Twisp (%)	77.80	86.60	11.31	8.8
Completed high school, Okanogan County (%)	71.30	76.62	7.46	5.32
Bachelors, graduate, professional degrees, Twisp Valley (%)	14.00	23.80	70.00	9.8
Bachelors, graduate, professional degrees, Okanogan County (%)	12.03	15.95	32.59	3.92

Table 41—Economic indicators, Twisp, 1990 and 2000

Indicator	1990[a]	2000	Change	Change as percentage of population
			- - - - - Percent - - - - -	
Median household income, Twisp	$28,201	$31,692	12.38	
Median household, Okanogan County	$25,196	$29,726	17.98	
Percentage unemployed, Twisp	10.10	12.00	18.81	1.9
Percentage unemployed, Okanogan County	10.20	12.00	17.65	1.8
Percentage in poverty, Twisp	13.20	16.40	24.24	3.2
Percentage in poverty, Okanogan County	21.54	21.34	-0.93	-.2

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

Table 42—Household income distribution,[a] Twisp, 1990 and 2000

	<$10,000	$10,001–$14,999	$15,000–$24,999	$25,000–$34,999	$35,000–$49,999	$50,000–$74,999	$75,000–$99,999	$100,000–$149,999	$150,000 and up	All
					Number of households					
Twisp										
1990	206	83	237	185	147	77	22	14	2	973
2000	193	120	179	282	228	178	82	28	15	1,305
Okanogan County										
1990	3,046	1,609	2,972	2,103	1,675	1,006	193	99	70	12,773
2000	2,111	1,537	2,745	2,400	2,648	2,099	864	372	242	15,018

[a] These data are not adjusted for inflation.

Table 43—Median rent and home values in Twisp, 1990 and 2000

	1990[a]	2000	Change
	- - - - *Dollars* - - - -		*Percent*
Median gross rent			
Twisp	327	423	29.36
Okanogan County	344	423	22.97
Median house value			
Twisp	74,120	141,888	91.43
Okanogan County	62,796	90,300	43.80

[a]The 1990 values have been adjusted for inflation and are reported in 2000 dollars.

$14,999. Respondents partially attributed the rise in median income to wealthy newcomers.

Illustrating the growing economic disparity within the community, unemployment and poverty also increased between censuses. Change in unemployment in Twisp and Okanogan County was nearly identical, rising from about 10 to 12 percent between 1990 and 2000 (table 41). The number of persons in poverty, however, rose much faster in Twisp, increasing by 24.4 percent while the number of persons in poverty in the county declined by 0.9 percent. That said, in 2000 the poverty rate in Twisp (16.4 percent) was still lower than the county's (21.3 percent).

Median home values in Twisp nearly doubled between 1990 and 2000, rising from $74,120 to $141,888, while monthly rent increased by 29.4 percent (table 43). Anecdotal evidence suggests that values have doubled again since 2000. Interviewees commented that the explosive growth in home and land values during the past few years has led to a shortage of affordable housing. The community's socioeconomic well-being rating declined from 68.03 in 1990 to 61.19 in 2000. Despite the decline, it remained a medium rating.

Changes in Twisp's Economic Structure

The number of jobs held by Twisp residents increased by 14 percent between 1990 and 2000 (table 44). The health and education sector grew by 70 percent between censuses, making it the largest employer of Twisp residents in 2000. The art sector was the second largest employer, followed closely by the professional sector (fig. 46). The agriculture, forestry, fishing, and mining sector accounted for 12 percent of the jobs in Twisp. Employment in organic farming and wildland firefighting may be sources of gain in the agricultural sector. The number of residents employed in manufacturing, wholesale trade, retail trade, public administration, and construction declined significantly (table 44). Some of the jobs lost in public administration may be attributed to the consolidation of Twisp and Winthrop Ranger Districts in 1998, the current Methow Valley Ranger District office is located in Winthrop. Losses in these other sectors may be a byproduct of rising rents and home prices. Some respondents feared they would be eventually priced out of Twisp, and envisioned moving to a less expensive community in the valley and commuting into Twisp for work. Not surprisingly, as land values rose in Twisp, the real estate industry also grew. Between 1990 and 2000, the number of jobs in finance and real estate increased by more than 100 percent (table 44).

Table 44—Employment by industry, Twisp, 1990 and 2000

Year	Agriculture, forestry, fishing, and mining	Construction	Manufacturing	Transportation and utilities	Wholesale trade	Retail trade	Finance and real estate	Professional	Arts	Health education	Public administration	Total
1990	108	125	131	26	18	141	30	186	100	140	55	1,060
2000	185	120	42	52	4	96	61	187	192	238	33	1,210
Change (percent)	71.30	-4.00	-67.94	100.00	-77.78	-31.91	103.33	0.54	92.00	70.00	-40.00	14.15

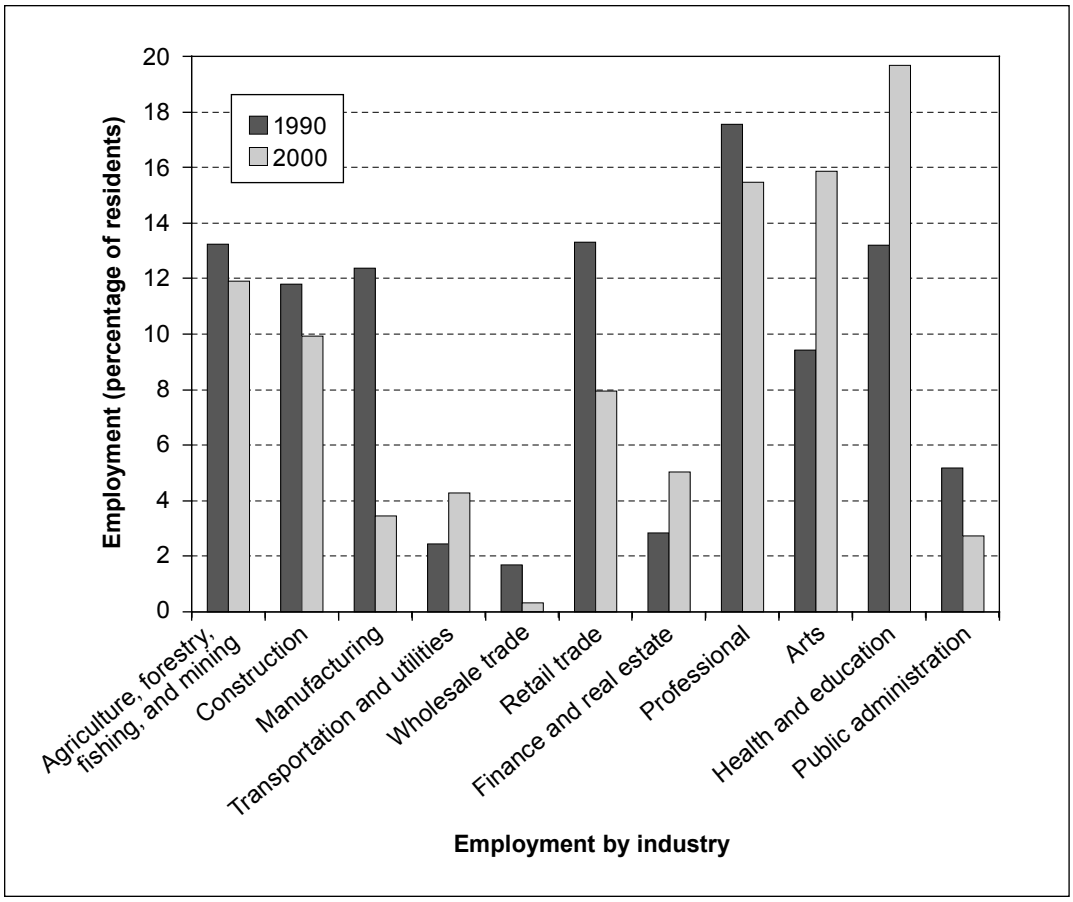

Figure 46—Employment by industry, Twisp.

Twisp residents spent an average 24.6 minutes commuting to work in 2000, a 21.2-percent increase from 1990. Countywide, residents spent 18.7 minutes commuting to work in 2000, which was a 16.9 percent increase from 1990 (table 45).

Table 45—Average commute times for Twisp residents, 1990 and 2000

	1990	2000	Change
	- - - Minutes - - -		*Percent*
Twisp	20.28	24.58	21.20
Okanogan County	15.99	18.69	16.89

The Role of Federal Forest Management Policy in Influencing Change

Many of the changes that have occurred in Twisp since the inception of the Northwest Forest Plan (the Plan) have happened outside the realm of the Forest Service. Although the timber industry in Twisp had declined prior to the Plan, those associated with the industry blame the Plan, in particular, for damaging Twisp's economy and for changing the way of life. One interviewee lamented that his family timber business now employs fewer than a dozen workers, whereas before the Plan, it had 300 employees. Even if the Forest Service began to allow logging on the forests again, he said that the local timber industry would not regain its former strength because the skilled workers have moved out of the area. Some in the logging industry interviewed also complained that Forest Service jobs and contracts were going to people outside of the community.

Some Twisp interviewees not associated with the timber industry complained that the Forest Service was failing to manage the forest. They objected to Forest Service regulations that prevented the harvest of valuable timber, which has the potential to fund local schools. Forest Service regulations, they complained, not only left timber rotting in the forest, but also worsened forest fires. On the other hand, some interviewees associated with the organic farming community and the related tourism industry perceived the Plan as protecting the landscape.

Twisp had rich grasses that attracted ranchers to the area in the 1800s. Ever since, ranching has been important to Twisp's identity. When the Forest Service established itself in the Methow Valley in the early 1900s, it began providing ranchers with rights to graze cattle on public land. Ranchers interviewed for this study expressed that grazing allotments are becoming more difficult to obtain from the Forest Service. Ranchers complain that expenses have increased as regulations protecting salmon require more fencing. Water is also an increasingly scarce resource. As ranching becomes less profitable and real estate becomes more valuable, some ranchers are selling land to newcomers for vacation homes. Others are deeply committed to maintaining their family ranches and traditions.

The Role of the Forest Service in Mitigating Plan Effects

The Forest Service has provided community assistance to Twisp through several grant programs. Together with the Washington State Department of Community, Trade and Economic Development (CTED), the Forest Service provided a grant to the Methow Food Alliance and the Partnership for a Sustainable Methow (PSM) to assist with the establishment of a small business development resource center and a certified commercial kitchen for community use. The kitchen opened in October 1999 and was used by both small food businesses and individuals until 2005.

The PSM is a 501(c)3 nonprofit organization based in Twisp, working on long-term community sustainability. Its programs include Sustinere, a quarterly journal of sustainable living, the Classroom in Bloom Schoolyard Garden, the Buy Local and Organic Campaign, and the Carrying Capacity Project, which assesses local food and energy production capacity. The Carrying Capacity Project also includes biomass energy, tours of organic farms and gardens and sustainable homes, and the Harvest Dinner, a free community dinner using only locally produced food.

The Forest Service helped several interviewees apply for grants to improve their water systems, which, interviewees said, had been compromised by requirements of the Endangered Species Act. In 2000, Twisp received federal Community Development Block Grants from USDA Rural Development to improve the existing water system. The town qualified for the grants because at least 51 percent of its population was considered low-income or moderate-income (McCreary 2002).

Major investments in Twisp and the Methow Valley as a whole came from the Salmon Recovery Funding Board for irrigation ditches, piping, and screening. The board also provided Conservation Easements for riparian protection. Together these programs have brought over $10 million to the Methow Valley in the past decade.

Collaboration and Joint Forest Stewardship

The Hungry Hunter Ecosystem Restoration Stewardship Project, which was awarded a contract in fiscal year 2005, is a good example of collaboration. The project had its origins in the Eastern Washington Provincial Advisory Committee (PAC), which operates in a collaborative multiparty process. The Hungry Hunter Project works with PAC subcommittees to manage and protect late-successional ecosystems in areas, including Twisp, that may be lost in a catastrophic fire. Project activities include managing vegetation to reduce the risk of wildfires and to enhance potential late-successional habitat, providing opportunities for the removal of timber and other forest products; and rehabilitating the road system to improve habitat, reduce erosion, and reduce road maintenance. As part of the Hungry Hunter project, these activities are designed to create closer relationships with the members of the Twisp community (Pinchot Institute 2004).

Some respondents said the closure of the Twisp Ranger District office made communication with the Forest Service more difficult than in the past.

Issues and Concerns Relating to Forest Management

Water was the issue of greatest concern to community members engaged in ranching and agriculture. One interviewee explained that water was the next "spotted owl." Water is not a new problem, but is exacerbated by the growing population. Back in 1980, ranchers were concerned about the collective impact of newcomers who were allowed to pump 5,000 gallons per day for residential use without prior water rights (Hutchins 1981: 12). Now the issue is even more acute, and ranchers and farmers are concerned about water shortages. Agriculture and ranching are not only the mainstays of traditional ways of life in Twisp, but are also important for tourism. The lush irrigated valley is part of Twisp's beauty for locals and tourists.

Twisp residents are also concerned about fire, particularly personal safety, smoke, and lost tourism. Others perceive that timber is being wasted that could contribute to the local economy.

Methow Valley residents have expressed concern over a lack of recreational management and funding for the Methow Valley Ranger District, which includes Twisp. In July 2004, the Methow Valley Recreation Coalition, made up of 14 citizen groups, signed a letter written to Washington State Representative Nethercutt. In the letter, the coalition asked for more local community involvement in the Methow Valley Ranger District decisionmaking process. The letter also asked for better communication between Forest Service officials and the public regarding allowed and prohibited uses, along with reasons behind those uses.

Chapter 7: Upper Okanogan Valley and the Northwest Forest Plan

The Upper Okanogan Valley lies in north-central Washington in Okanogan County. The portion of the valley included in this study (referred to in this chapter as the Valley) runs from the Canadian border in the north to State Highway 20 and the Colville Indian Reservation in the south (fig. 47). The eastern boundary is the county line between Okanogan and Ferry Counties. The western boundary is roughly the crest of the ridge between the Okanogan and Methow Valleys. This ridge also approximates the eastern boundary of the Northwest Forest Plan (the Plan) area. The Okanogan River flows through the middle of the valley, parallel to U.S. Highway 97, approximately 70 miles from the border to its confluence with the Columbia River. The valley floor supports most of the population and agriculture, especially fruit orchards, and until recently has been the economic base in the area. Water scarcity limits development throughout the area (E.D. Hovee & Co. 1996). Forty-seven percent of the land in the Valley is private land.

Oroville (population 1,653 in 2000), Tonasket (population 994 in 2000), and Conconully (population 185 in 2000) are incorporated towns within the Valley. The neighboring cities of Omak (population 4,721 in 2000) and Okanogan (population 2,484 in 2000) are the large population centers in the area. These cities are 5 miles apart at the crossroads of Highway 20 and U.S. Highway 97 just outside the southern end of the Valley. They have more diversified economies than the rest of the area and provide many regional services. Since Omak and Okanogan are more than 5 miles from the Okanogan-Wenatchee National Forest (OWNF), they are not included in this assessment.

Until a Wal-Mart was built in the early 1990s in Omak, most regional services were provided in Wenatchee, approximately 100 miles from Omak. There are hospitals in Tonasket and Omak, and a clinic in Oroville. Oroville is at the southern end of Lake Osoyoos, adjacent to the Canadian border. Just over the border in British Columbia is the city of Osoyoos, which has a strong tourism economy and is a remarkable contrast to the sparse landscapes and limited services along the Okanogan River in the United States. Unincorporated settlements include Loomis, Nighthawk, Chesaw, Molson, Havillah, Ellisforde, the Aeneas Valley, and Wauconda. These smaller communities have few to no services.

The Tonasket Ranger District of the combined OWNF is located in Tonasket, and another office, the previous Okanogan National Forest headquarters, is located in the city of Okanogan. The Okanogan National Forest makes up 27 percent of the Upper Okanogan Valley. Extensive bark beetle activity over the last 18 years has resulted in about 187,000 acres of dead lodgepole pine (*Pinus contorta* Douglas ex Louden) and spruce (*Picea* spp.) in the mostly roadless "Meadows" area. This is the largest continuous expanse of dead trees in the OWNF. Mortality is expected to continue over the next 5 years, and most Engelmann spruce (*Picea engelmannii* Parry ex. Engelm.) larger than 8 inches in diameter are expected to die (USDA FS 2004).

State land holdings make up 21 percent of the Valley and are administered by either the Department of Natural Resources (DNR) or the Department of Fish and Wildlife. Loomis State Forest is the largest state land holding in the Valley and is part of the state land trust for public schools. A road through the state forest provides access to the northeast corner of the Pasayten Wilderness area. The state forest is currently part of a landscape plan revision process that is examining harvest levels and lynx (*Lynx lynx*) wildlife issues. The Bureau of Land Management (BLM) also manages some land in the northwest corner of the valley, bordering the Loomis State Forest on the east. Residents describe the BLM as having a distant presence with relatively little effect on the county. The state and BLM lands form a north-south buffer between the national forest and private land along the Okanogan River corridor.

The east side of the Upper Okanogan Valley is a different setting with moderately sized blocks of Okanogan National Forest and small, scattered state lands dispersed within large areas of private ownership. The national forest blocks are generally the more mountainous, forested portions of the landscape with valley grasslands in between. Since 1990, the east side around Mount Hull has had extensive mortality from spruce budworm (*Choristoneura occidentalis*) outbreaks. Roads rise quickly out of the Okanogan River Valley into the Okanogan Highlands.

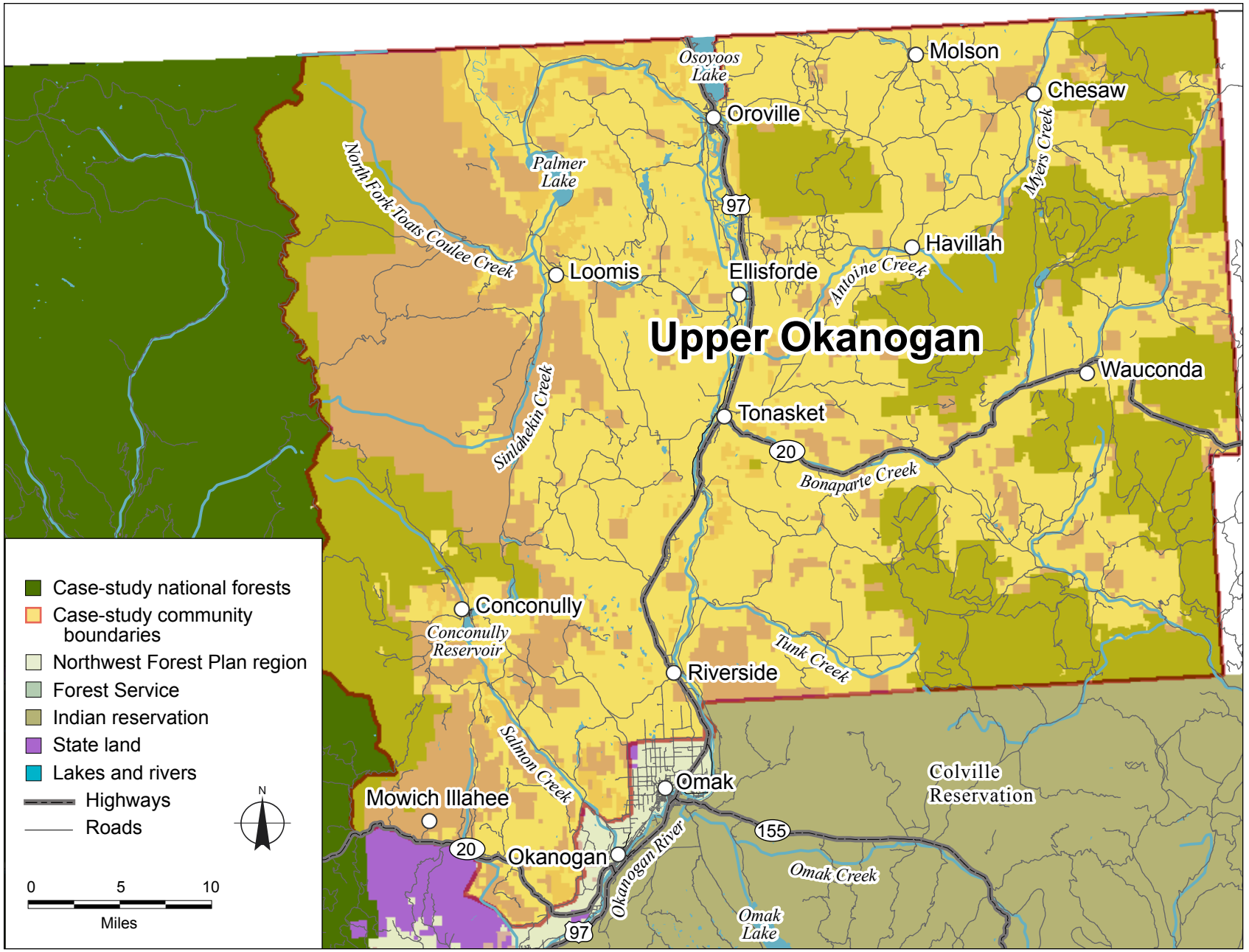

Figure 47—Upper Okanogan Valley study area.

This "north half" area was part of the Colville Indian Reservation from 1872 to 1892, and hunting and fishing rights for tribal members were retained (E.D. Hovee & Co. 1996: 67). The area is at a relatively high elevation with a short growing season and limited ground water for development purposes. It is considered very good grassland for cattle.

Native Americans used the north-south valley along the Okanogan River for centuries as a transportation corridor from the Columbia River north into the upper Fraser area of British Columbia. This corridor, known as the Caribou Trail, was also used by White settlers headed south to the Tri-Cities area at the confluence of the Snake and Columbia Rivers (E.D. Hovee & Co. 1996, Hutchins 1981). U.S. Highway 97 follows this corridor and serves as a major north-south passageway between Alaska and Mexico.

In spite of this major transportation corridor, little new commerce has materialized along this highway or in the surrounding area. For the most part, tourists headed to or from Canada simply pass through. Although population growth in the Seattle/Tacoma urban area on the west side of the Cascade Range has created significant demand for recreation and tourism on the eastern side of the mountains for places such as the Methow Valley, Lake Chelan, and Wenatchee, this phenomenon has had less of an influence on the Okanogan Valley as it is a longer drive from Seattle and attracts those who prefer less developed, uncrowded areas. The Okanogan Valley is described as a "blank" in between the development of the Methow, Lake Chelan, Wenatchee, and Osoyoos areas.

As in many rural resource-based communities in the American West, mining, logging, and agricultural activities transformed the landscape in waves. From the 1930s through the 1950s, a series of dams were built on the Columbia River for flood control and irrigation. Chief Joseph Dam on the Columbia River, above the confluence with the Okanogan River, blocks all anadromous fish passage beyond that point. The construction of these dams facilitated a major shift in the economy as access to electric power and water for irrigation increased. This enabled a large orchard industry to develop and moderated the boom and bust cycles typical of natural-resource-based economies.

More recent effects from global markets and the national shift from a manufacturing to a service economy, as well as restrictions in timber supply, have disrupted this relatively stable period. The economy appears again to be in a wave of transition. For a variety of reasons, the area has experienced significant economic disruptions for the last 30 or more years. The two largest industries, agriculture and timber, have undergone major changes. At the community scale, the impacts of frequent fluctuations in the dominant industries are not fully understood by looking at decadal census data alone.

While global, market-driven businesses have experienced major adjustments through this period, government employment has been a relatively stable piece of the economy. Until recently, schools have grown. Health care services continue to grow. State and federal agencies maintain offices in the area. Occasional government construction projects, a new focus on homeland security, and periodic firefighting efforts bring additional sources of income into the area.

The Valley is fairly large and administered by a mix of government entities including the Forest Service, BLM, and Washington state. Many members of the public do not readily distinguish between state and various federal lands. Technically the Upper Okanogan Valley is outside the Plan area, but residents are not aware of any differences in management across the national forest. However, they are aware of differences in rules for use of public lands between agencies and strongly object to the confusion and resultant law enforcement problems this causes for the public. Some communities in the area are relatively isolated, away from highways, in areas surrounded largely by public lands. Interviewees expressed concern that management agency decisions in small, isolated communities can "make or break" the local economy and that the agencies were not fully aware of the impact of their decisions in rural communities dependent on resource industries.

Washington has a Growth Management Act that identifies and limits urban growth areas. In some counties this has moderated the loss of larger tracts of land and small farms and ranches. Counties under 50,000 in population, such as Okanogan County, were able to opt out of

this planning requirement (Washington State Legislature 1995). Many were worried that relieving the restrictions on development would diminish their greatest asset variously described as the small town feeling, open space, unspoiled natural resources, and a rural quality of life.

The Colville Tribe is composed of 12 tribes with 8,700 members. The Colville Indian Reservation borders the cities of Omak and Okanogan. The reservation is viewed by some as having greater impact on the county than the Forest Service. The tribe's assets include the Omak sawmill and a plywood mill (since 1984), a cogeneration facility, and its own timber base to supply the mills. There are three casinos: two on the reservation, and one in Manson on trust land. Reservation budgets are reportedly much larger than the county budget, and the tribe is one of the largest employers in north-central Washington. However, the unemployment rate on the reservation remains very high.

Although not readily apparent, one unique feature of the Upper Okanogan Valley is its cultural diversity. As one interviewee observed, not only are there large numbers of Native Americans associated with the reservation, there are large numbers of Hispanic residents associated with the fruit farming industry. In addition, he pointed out the diversity within the White population, mentioning an "alternative community," older retirees, and most recently younger retirees that have migrated in waves into the area joining earlier settlers.

Many earlier settlers—long-term community members—are culturally linked with logging, ranching, and farming. One described this relationship to the land as a special calling from deep inside and expressed concern that this relationship is being lost with younger generations. More than one interviewee depicted the Okanogan Highlands as stepping back in time about 30 years, a readily apparent difference from other rural areas in central Washington. Those who expressed these ties to the land also valued a strong sense of community and the importance of playing a community role.

In the beginning of the 1970s, new residents associated with the back-to-the-land movement settled in five or more big communes in the northern part of the Okanogan Valley. This group also reportedly played an important part in weathering economic fluctuations in the area. For example, a Natural Foods Co-op was formed, and members of the community started an Okanogan Barter Faire that now attracts several thousand people annually, contributing socioeconomic benefits to the community. Admission was used to purchase the Natural Foods Co-op building and an adjacent community cultural center in Tonasket. This self-characterized "alternative community" has been active in public policy and environmental concerns in the Valley. Their active environmentalism did not make them popular with some of the older residents. They are integrated into society, but they also maintain their identity with the alternative community.

Two distinct retirement groups have come into the Valley: the first wave of retirees commonly referred to as older retirees and the newer migration of younger retirees. Homes are less expensive in Okanogan County, making it possible for people coming from urban areas to sell their homes and use the equity for retirement living expenses in the Valley. Both older and younger retirees bring their skills with them and are said to contribute to community activities. Some interviewees mentioned that retirees do not contribute as much as one might expect to the economy, buying their insurance and other big purchases elsewhere. Older retirees are also said to leave after several years to be close to their families, better health care, and an environment where they do not have to drive as much for services and fight the winter snows.

Older and newer residents are attracted to the area by the rural lifestyle. Land was cheap enough to enable residents to simply pursue home-based activities such as growing and preserving food, sewing, and taking care of livestock and children. Some were merely escaping the urban environment. More recently, some refer to escaping a perceived terrorist threat in the coastal cities. Many of those interviewed referred to differences between older and newer residents' understanding of the land and environmental ethic. One respondent captured this sentiment: "The Indians, as well as the people who have lived here for the last 200 years, work in the environment they live in. They understand how it really works. What the newcomers are doing is learning how to live in this environment. It takes time to do that."

Discussions with residents revealed that there are many qualities common to people attracted to the area that were shared across all groups: independence, distrust of authority, self-reliance, a value system that prioritizes quality of life and family over material wealth, and a strong appreciation for natural beauty and resources. Existing socioeconomic studies describe these same personal qualities as well as changes occurring through the 1980s and early 1990s that many would use to characterize the area today (E.D. Hovee & Co. 1996, Hutchins 1981). Changes noted in the area include an increase in the permanent Hispanic population, the decline of traditional resource-based industries—forest products, orchards, and cattle—and the increased attractiveness of the area for retirees and others on low or fixed incomes.

Sixteen members of the Upper Okanogan Valley community were interviewed for this study (app. A).

Community Change, 1980s to Present

Apples are the best-known product of Okanogan County. Over the last decade, however, this industry has suffered as the global preference for apple varieties has changed. In response, farmers have diversified their orchards with different apple varieties and other fruit. Respondents generally described the first orchard crisis in the county as occurring in the early 1990s. In the Upper Okanogan Valley, apple warehouses closed in 1999 and 2001, indicating a major transition in the valley's resource economy.

Ranching and other farming activities also take place in the Valley. Like elsewhere in the West, the trend is toward larger operations. Ranchers in the Valley reportedly have at least 200 head of cattle each, and typically 300 to 400 head, a contrast to the 1960s when small ranchers reportedly had 40 to 60 head of cattle. Some ranchers continue to use public lands for grazing. Recent drought and water rights issues throughout the Columbia River Basin have made small ranching and farming operations a difficult enterprise. Some ranchers think they may lose out to those with more money to purchase water rights.

Another issue for ranchers is the consolidation of the meat packing industry. Ranchers must travel farther to auction their stock, incurring higher fuel costs and losing value as the livestock lose weight while traveling. Global markets and the proximity of Canada reportedly favor bigger foreign businesses. Import and export regulations, feed additive restrictions in the United States, and business tax structures for corporations and their U.S. subsidiaries create differential environments for labor, products, and markets. On the other hand, because fewer families are ranching these days, it has apparently become easier to find pasture to rent.

The ranching lifestyle has changed. Many ranchers and farmers also are involved in logging. Some have added guest ranch operations with environmental and recreation-related activities for additional income. One interviewee who ranches has taken advantage of Forest Service and other grant programs to design attractive recreation materials for these markets. This diversification allows the ranching lifestyle to continue, but does not add much of a cushion; injury, sickness, or another major event could leave the family no option but to sell their land. Some of the ranches and farms in the area that have been sold over the years have been auctioned off whole, but many have been subdivided into residential tracts, typically 20-acre parcels.

The local timber industry has declined over the years and, like the fruit industry, has fluctuated tremendously. In Okanogan County, timber historically came from the national forests, state land (primarily Loomis State Forest) and the Colville Indian Reservation. Changes in ownership, downsizing, and closures of the mill in Omak since 1970 have been sources of periodic instability in the local economy. The Colville Tribe purchased the mill and reopened it after its most recent closure in 2000. It remains the largest sawmill in the county, employing about 200 people. Mill closures were not attributed to the Plan. The other sawmill business in the county, Zosel Lumber in Oroville, has been a family operation for three generations and has employed approximately 30 to 35 people throughout the last decade. Recent timber sales to promote healthy habitat on the state-administered Sinlahekin Wildlife Refuge also contributed to the local economy.

The declining timber industry in the Okanogan Valley stands in contrast to the timber industry just across the Canadian border, which has mills equipped to handle local, smaller diameter logs. The North American Free Trade

Agreement of 1994 has reportedly created a more favorable business environment for larger companies with greater resources and for American subsidiaries of Canadian companies in terms of log and lumber supplies and development of sophisticated markets.

Four remanufacturing and reloading operations exist within the county that take advantage of products declared surplus by Canadian businesses. These "reman/reload" businesses are American subsidiaries of Canadian companies that simply reload products or remanufacture them for delivery to American markets. The largest of these operations employs approximately 50 people and produces specialty lumber "minipaks" products for large American retailers. This has provided some new jobs in the area.

The Upper Okanogan Valley is highly regarded for hunting and fishing with many easily accessible reservoir lakes and wildlife hunting areas managed by various state and federal agencies. There are well-organized local snowmobile clubs who have taken the initiative with the Forest Service to designate and map trails and loop routes through the state and federal lands and to educate the public about their usage. Snowmobiling has been a rapidly growing sport throughout the 1990s, and off-highway vehicle (OHV) use is reportedly growing even faster. All-terrain vehicle (ATV) sales are said to be booming in Okanogan. There is confusion over different requirements on the state lands that only allow travel on roads for these vehicles, while adjacent national forest lands allow travel only on closed roads or off roads. Forest Service special land allocations and habitat restrictions related to the Endangered Species Act require complex route designations and seasonal restrictions.

The town of Conconully at the southern end of the study area is surrounded by public lands and is dependent on road-based recreation and hunting and fishing. There is a string of eight lakes along the road through Conconully. The town is also a trail access point to more remote, back-country lakes. Recreational driving, including cars, snowmobiles, and ATVs, is attracting an older population that has money and is not as attracted to hiking and backpacking. Years of drought and related water and fisheries issues have resulted in long periods of lowered lake levels that affect the fishing quality. The drought has also affected the use of the remote lakes, restricting campfire use for the last 5 years. In an apparently uncoordinated timing of events, water levels were lowered for dam construction and fisheries-related issues over the last 5 years by different agencies. It takes a number of years for water levels to recover, greatly affecting the town's economy. The agencies apparently had not considered the combined impacts of the drought, fisheries issues, and dam reconstruction on the residents.

Conconully is the only town in the county where a snowmobile can drive up to a gas station to refuel. There are 300 miles of groomed trails that surround the town with extensive loop routes to the north and south and connections to the Methow Valley. Residents fear further road closures on the OWNF and loss of snowmobile routes related to resource issues. There is fear that the Okanogan/Wenatchee/Colville Forest Plan revision currently underway will result in diminished snowmobile routes. Some of these routes connected to the Methow Valley and the meadow areas are considered the most attractive snowmobile recreation in the area.

Snowmobiling around Mount Bonaparte on the east side of the Upper Okanogan Valley is also popular. The snowmobile clubs and local recreation-related businesses would like to see completion of a loop trail around the mountain both to attract more users and to provide a more enjoyable experience. Loop trails are very appealing to these groups. They believe that loops also create less impact by distributing use over a larger area because the sleds go only one way instead of out and back on the same route. This area apparently has some resource and user-group conflicts that would need to be resolved for enhancement of this economic opportunity.

Although the quality and quantity of existing recreation is highly regarded by local residents, the value of tourism and increased recreation use from people outside the area evokes mixed opinions and emotions among residents. Some see tourism as a poor replacement for industry-based jobs that paid enough to support a family. Tourism jobs often pay only minimum wage. Some say that recreation and tourism cause an increasing division between income classes: those on minimum wage servicing those with high

incomes who come and use the area and then leave. Some say that tourism lacks potential because the state is very unfriendly for small business owners, with the highest minimum wage in the country and relatively expensive taxes and Worker Compensation requirements. The lack of local infrastructure for tourism is seen as a barrier to development. Some value the small, quiet, rural quality of life and feel that increased use threatens this. Some residents see more resource conflicts occurring because of increased usage and more need for law enforcement presence.

Others see tourism as an important component of economic diversification and do not want to return to an economy based solely on farming and timber industries. Some believe that it is an industry that will have little impact on resource quality. The Okanogan Tourism Council is active in promoting tourism as a way to diversify the local economy. In 2003, the U.S. Highway 97 corridor from Pateros on the Columbia River to the Canadian border was designated a state scenic byway. Many see tourism as poised to boom in Oroville just south of the Canadian border. The area around Osoyoos Lake, which lies mostly in Canada, has experienced tremendous growth over the last decade and an explosion of property values. Recent border restrictions for passage of boats in the lake have made it inconvenient for Canadian boaters to use the quieter southern end of the lake, and Canadians are now bringing their boats into the United States to launch. Canadians also have reportedly discovered the relatively cheap land on the lake on the U.S. side of the border, and there are plans for constructing 270 homes and a championship golf course there.

County economic development groups have reformed to focus anew on efforts toward economic diversification. The Economic Alliance arose out of two previous groups, Partnership 2005 and the Okanogan County for Economic Development (OCED). They have reformed the Economic Development District for the north-central Washington region to help make them more competitive for Economic Development Administration grants. The Washington Department of Community Trade and Economic Development worked with Washington Department of Fish and Wildlife to come up with the Watchable Wildlife Program. This program will provide wildlife recreational opportunities without diminishing existing fishing and hunting opportunities and will offer year-round tourism opportunities in the community.

Change over time from working at home on family businesses to working outside jobs has affected community volunteerism. As one person described it, the population is small, but they have the same issues and problems that exist in urban areas. An urban area might have a paid position, but everything in small rural areas is volunteer work. When both adults in the household are working, there is little time or energy for volunteer work. Interviewees said that younger people do not participate as much. This is partially offset by the increasing number of retirees who reputedly contribute a great deal to the community.

Demographic Indicators

The population of the Upper Okanogan Valley increased from 10,729 in 1990 to 13,231 in 2000 (23.3 percent) (table 46). Interviewees, however, report the population has declined since the 2000 census because of apple warehouse closures in 1999 and 2001. There is some reported counterbalancing of this effect from increased hospital services in Tonasket and Omak/Okanogan that attract retirees and from the arrival of Wal-Mart in Omak. The community is primarily White (86 percent), with Native Americans making up 2.5 percent of the population (fig. 48). In the 2000 census, 12 percent of Valley residents characterized themselves as Hispanic or Latino (table 47). Interviewees mentioned that Hispanic residents had

Table 46—Upper Okanogan Valley population, 1990 and 2000

Indicator	1990	2000	Change
			Percent
Total population, Upper Okanogan Valley	10,729	13,231	23.3
Total population, Okanogan County	33,350	39,564	18.6
Median age, Upper Okanogan Valley (years)	36.2	41.0	13.4
Median age, Okanogan County (years)	35.0	38.2	9.1

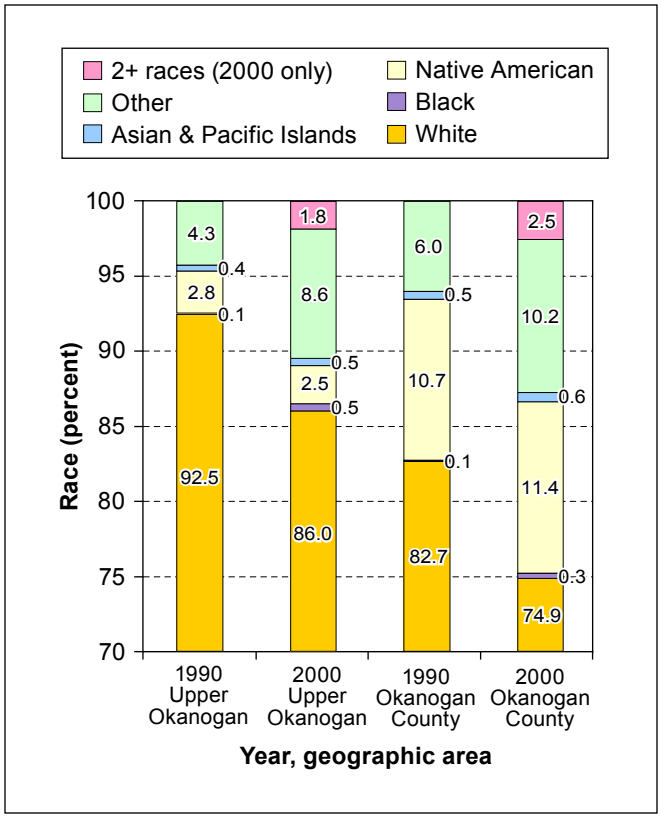

Figure 48—Race distribution in Upper Okanogan Valley and Okanogan County.

transitioned from being seen as "outsiders" to integrated members of the community over the last decade. The year-round work at the apple warehouses allowed many previously migrant families to settle in the area. Some left when the warehouses closed, but many found other employment in the area. Some Hispanic residents have purchased established ranches, farms, and orchards.

Table 47—Hispanic population in Upper Okanogan Valley, 1990 and 2000

	Hispanic residents		Change in Hispanic population
	1990	2000	
		Percent	
Upper Okanogan Valley	7.17	12.03	67.78
Okanogan County	8.41	14.54	72.89

Although the Tonasket school district reports roughly 20 percent of its students are Hispanic, the school districts in cities along the Columbia River in the Upper Okanogan Valley are estimated to be 80 to 90 percent Hispanic. There are hardly any Native American students in the local school district, even though the district borders the Colville Reservation.

White populations report a declining economic tie to natural resources, viewing public resources more as a place to recreate. Hunting, fishing, and firewood cutting are considered recreational activities rather than subsistence activities as in the past. In contrast, the relatively newer Hispanic populations are typically reported to have more of an economic tie to resources, but recreate closer to town on the Columbia River or nearby lakes where they go fishing with the family.

The median age of Upper Okanogan Valley residents increased by 4.8 years to 41.0 between 1990 and 2000 (table 46). Countywide, the median age increased by 3.2 years to 38.2. Age distribution data indicate an increase in younger and older residents in the Valley, but fewer residents in their 20s (table 48). As a percentage of the total population, the

Table 48—Age distribution, Upper Okanogan Valley population, 1990 and 2000

	0–4	5–19	20–29	30–44	45–64	65 and up	Total
Upper Okanogan Valley							
1990	707	2,461	1,099	2,414	2,500	1,548	10,729
2000	729	3,164	1,035	2,624	3,681	1,998	13,231
Change (percent)	3.11	28.57	-5.82	8.70	47.24	29.07	23.3
Okanogan County							
1990	2,502	7,816	3,723	7,652	7,010	4,647	33,350
2000	2,513	9,430	3,925	8,117	10,010	5,569	39,564
Change (percent)	0.44	20.65	5.43	6.08	42.80	19.84	18.6

20 to 29 and 30 to 44 age groups declined in both the Upper Okanogan Valley and Okanogan County (fig. 49). The older age groups, 45 to 64 and 65 and up, composed a larger percentage of the population in both geographic areas in 2000. These data support the observations by interviewees that many new residents to the area are retirees.

The education level of adult residents increased from 1990 to 2000; those who had successfully completed high school increased 9.0 percent, and those who had bachelor's degrees or higher increased by 22.3 percent (table 49).

A comparison of 2000 census and more current school district data presents an example of the magnitude of direct effects on local demographics from sudden changes in dominant sources of employment in the Valley. School enrollment increased by 36.6 percent in the 10 years between censuses (table 49), although school district data since 2000 indicate a sharp decline in enrollment in the Tonasket school district. The decline since the 2000 census is greatest among elementary school students and is apparently related to the closure of the two apple warehouses and the Omak sawmill, although the sawmill has since reopened. This decline may also be partially attributable to a large cohort of graduating high schoolers, children of baby boomers who moved to the area in the 1970s. Retirees moving into the area typically do not have children. Owing to the lack of elementary school children, the school district in Tonasket eliminated two school bus routes in 2004 and expects teacher layoffs in the near future.

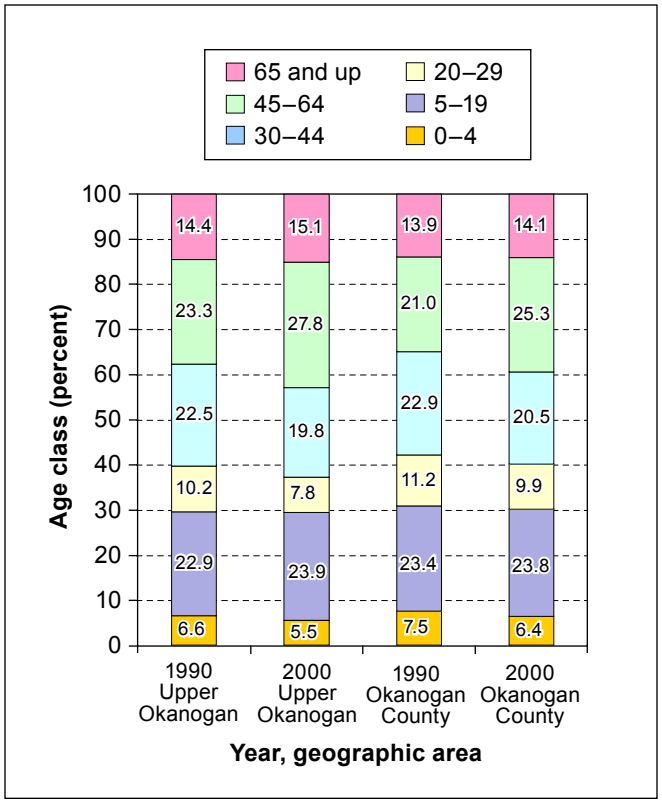

Figure 49—Age distribution in Upper Okanogan Valley and Okanogan County.

Economic Indicators

Census data from 1990 and 2000 show quantitative changes between these two points in time. But from most accounts, these two points in time do not adequately illustrate the disruptive effects of a number of fluctuations that occurred in the commodity-based economy during those 10 years.

Table 49—Education indicators, Upper Okanogan Valley, 1990 and 2000

Indicator	1990	2000	Change	Change as percentage of population
			Percent	
School Enrollment, Upper Okanogan Valley	2,252	3,076	36.59	
School Enrollment, Okanogan County	7,067	9,230	30.61	
Completed high school, Upper Okanogan Valley (%)	68.93	75.15	9.02	6.22
Completed high school Okanogan County (%)	71.30	76.62	7.46	5.32
Bachelors, graduate, professional degrees, Upper Okanogan Valley (%)	10.02	12.25	22.26	2.23
Bachelors, graduate, professional degrees, Okanogan County (%)	12.03	15.95	32.59	3.92

Economic change did not occur in a smooth, linear fashion, but instead was precipitated by large events, such as closures and reopenings in local resource-based businesses throughout the decade. Although the mill closures were not perceived to be directly related to forest policy by most interviewees, reductions in harvest levels from public lands were viewed as adding to local economic instability. Rural communities and economies, because of their relatively small size, can easily be overwhelmed by regional, national, and, increasingly, global policies, and by demographic and economic changes. By most accounts, the resource-related boom and bust cycles have become more frequent and more unpredictable in the last decade.

The median income in Upper Okanogan Valley increased by 22.2 percent between 1990 and 2000; this was slightly higher than the 18.0 percent increase countywide (table 50). The income difference between the top 50 percent of the households and the lower 50 percent grew by about 5 percent between censuses. However, households in Upper Okanogan Valley earning less than $25,000 were fewer in 2000 than in 1990 (table 51). The remaining income brackets all showed increases, with the greatest (402 percent) occurring in the number of households earning $75,000 to $99,999. Many respondents did not believe the data showing increased incomes, attributing it to small numbers of people with very large incomes.

Poverty in Upper Okanogan Valley (20.9 percent) and Okanogan County (21.3 percent) was substantially higher than the state average (10.6 percent) (table 50). In the Valley, however, poverty declined by 17.3 percent between censuses, whereas the county poverty level stayed about the same. Unemployment in the Valley increased by 1.8 percentage points between 1990 and 2000 to 11.4 percent (table 50). The county had a similar increase, and in 2000 its unemployment rate was 12.0 percent. The valley's socioeconomic well-being rating went from a low rating of 58.18 in 1990 to an even lower measure of 53.70 in 2000.

Census data indicate that the median house value in Upper Okanogan Valley increased 45.4 percent between 1990 and 2000, while increasing 43.8 percent in Okanogan County (table 52). Rents also increased in Upper Okanogan Valley (21.5 percent) but at a lower rate than in the county

Table 50—Economic indicators, Upper Okanogan Valley, 1990 and 2000

Indicator	1990[a]	2000	Change	Change as percentage of population
			- - - - - *Percent* - - - - -	
Median household income, Upper Okanogan Valley	$22,559	$27,575	22.24	
Median household income county	$25,196	$29,726	17.98	
Percentage unemployed, Upper Okanogan Valley	9.66	11.44	18.43	1.78
Percentage unemployed, Okanogan County	10.20	12.00	17.65	1.8
Percentage in poverty, Upper Okanogan Valley	25.27	20.88	-17.37	-4.39
Percentage in poverty, Okanogan County	21.54	21.34	-0.93	-.2

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

Table 51—Household income distribution,[a] Upper Okanogan Valley, 1990 and 2000

	<$10,000	$10,001–$14,999	$15,000–$24,999	$25,000–$34,999	$35,000–$49,999	$50,000–$74,999	$75,000–$99,999	$100,000–$149,999	$150,000 and up	All
					Number of households					
Upper Okanogan Valley										
1990	1,199	606	977	616	465	286	45	33	15	4,242
2000	786	573	949	799	891	639	226	128	63	5,054
Okanogan County										
1990	3,046	1,609	2,972	2,103	1,675	1,006	193	99	70	12,773
2000	2,111	1,537	2,745	2,400	2,648	2,099	864	372	242	15,018

[a] These data are not adjusted for inflation.

Table 52—Median rent and house values in Upper Okanogan Valley, 1990 and 2000

	1990[a]	2000	Change
	- - - Dollars - - -		*Percent*
Median gross rent			
Upper Okanogan Valley	330	401	21.52
Okanogan County	344	423	22.97
Median house value			
Upper Okanogan Valley	62,986	91,607	45.44
Okanogan County	62,796	90,300	43.80

[a]The 1990 values have been adjusted for inflation and are reported in 2000 dollars.

(23.0 percent). Although property values have increased, they are said to be relatively cheap compared to other areas and attract an influx of those who are on fixed incomes. In Tonasket, property values since the 2000 census have reportedly declined following the closure of two of the three large apple processing warehouses within the last 5 years.

Changes in the Upper Okanogan Valley Economic Structure

The number of jobs held by residents in Upper Okanogan Valley increased by 10 percent between 1990 and 2000 (table 53). In spite of this increase, residents report a shortage of employment opportunities, perhaps because the workforce-aged population, age 20 to 64, increased by 22 percent during that same period (table 48). Although larger businesses and industries have been in flux, small businesses are said to have remained much the same in the area over the last 10 to 15 years. Retirees moved in as agriculture, forestry, and manufacturing were phasing out, helping to mitigate effects to the economy. There is ongoing construction associated with the influx of this group, but they have fewer children to replace those of the current school population as they graduate. There is reported to be some competition for the few jobs available.

The health and education sector was the largest in the Valley, and fastest growing between 1990 and 2000 (fig. 50). The agriculture, forestry, fishing, and mining sector decreased slightly and was the third largest employment sector, following professional positions. Retail trade was equal to agriculture, forestry, and fishing. Wal-Mart became an employer in the community in the early 1990s, and in 2003 became a superstore, doubling its size. Although this had a negative effect on some smaller local businesses, it has provided employment for some of the workers laid off from natural resource industries. Wal-Mart also attracts shoppers around the region, including the Methow Valley and Canada.

The commute time for Upper Okanogan Valley residents increased by 19.4 percent to 20.2 minutes between 1990 and 2000 (table 54). Countywide, the commute to work increased by 16.9 percent to 18.7 minutes during the same period.

Government plays a big role in the economy. A large portion of state government jobs were in elementary and secondary education in 2002. There are also occasional government projects that inject a lot of money into the community for short periods. The Federal Bureau of Reclamation reportedly spent $88 million on the Oroville-Tonasket Irrigation District in the mid 1990s. Since 2000, border-related employment has increased substantially.

Table 53—Employment by industry, Upper Okanogan Valley, 1990 and 2000

Year	Agriculture, forestry, fishing, and mining	Construction	Manufacturing	Transportation and utilities	Wholesale trade	Retail trade	Finance and real estate	Professional	Arts	Health education	Public administration	Total
1990	772	230	561	241	449	501	119	555	269	556	217	4,470
2000	880	256	189	266	283	585	163	647	323	1,042	305	4,939
Change (percent)	13.99	11.30	-66.31	10.37	-36.97	16.77	36.97	16.58	20.07	87.41	40.55	10.49

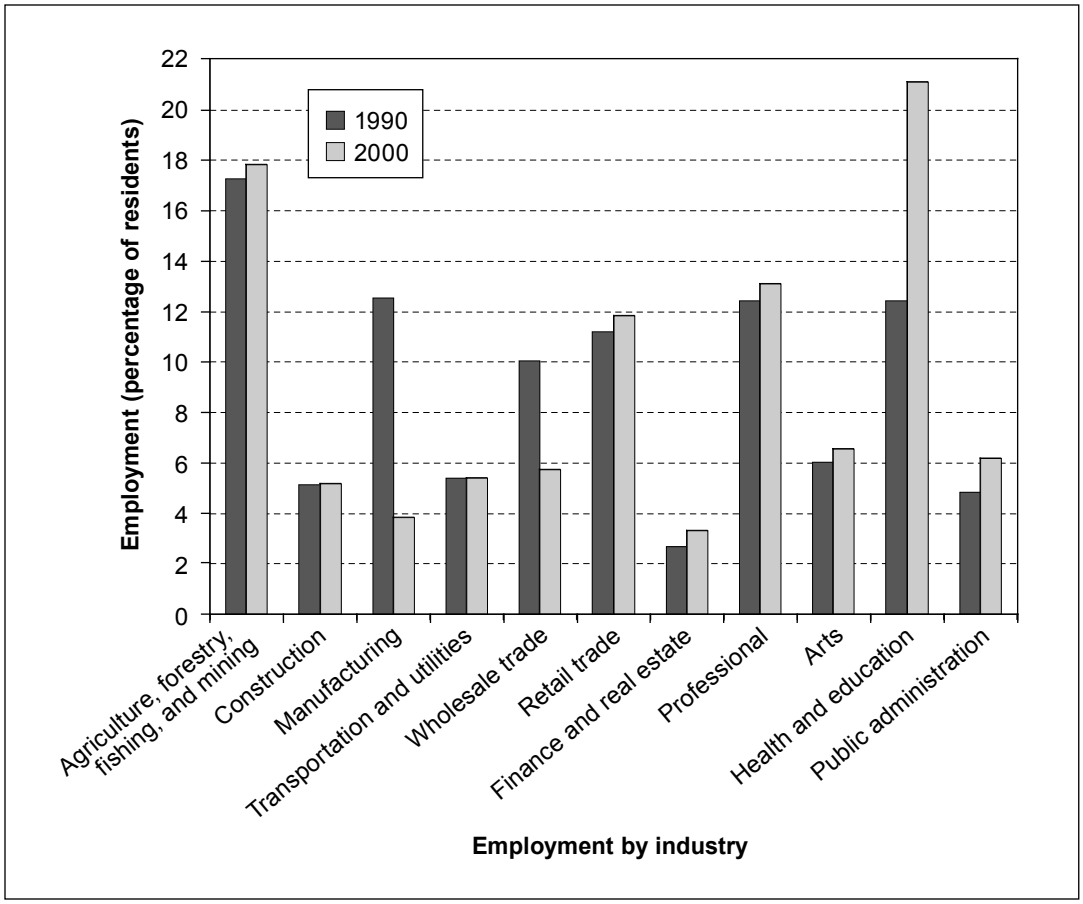

Figure 50—Employment by industry, Upper Okanogan Valley.

Table 54—Average commute times for Upper Okanogan Valley residents, 1990 and 2000

	1990	2000	Change
	- - - Minutes - - -		*Percent*
Upper Okanogan Valley	16.89	20.17	19.42
Okanogan County	15.99	18.69	16.89

Recently the sources of federal money are tightening, having a ripple effect on government jobs. Population demographics and economic effects have affected the numbers of school children, which will in turn affect this employment sector. Many people expressed dislike of a strong government presence, but some also lamented the loss of personal contact with public officials in their communities with the decline in quality government jobs.

Changes in the area have affected the cities somewhat differently. The increase in border security employment since 2000 has had big effects in the Oroville area. Many of these employees have children, helping to offset a recent loss of children in the school system. A new building has been built jointly with the Canadians. On the negative side, there are not many businesses in the U.S. Highway 97 corridor because of the abundance of cheaper services just over the border. Retail businesses are affected by the exchange rate and the differential costs of products such as gasoline that sell well at the station at the north end of Oroville, a short distance from populated centers in Canada. Restaurants and motels on the U.S. side have tough competition. Businesses have responded to changes in the local clientele. Retailers no longer serve primarily farmers, but residential consumers. There are different kinds of restaurants now, supported by a shift to a population that goes out to dinner.

In Tonasket, the schools, the hospital, and the Forest Service office are important to the local economy. The

hospital in Tonasket is expanding, and more health care facilities are planned. In Omak, a nursing home with an assisted living facility has been expanded, providing additional services for senior citizens. The community college in Omak offers a 2-year nursing program, which has supplied training for new jobs in the area. Most interviewees did not notice a big change in the Forest Service office size in Tonasket.

Conconully is nearly 20 miles from the U.S. Highway 97 corridor and is surrounded by public lands, and therefore, has limited economic opportunities. To address this challenge, residents developed a sophisticated marketing strategy to attract tourist traffic off the I-90 freeway approximately 130 miles away into their town. The Okanogan Tourism Council and Conconully community members participate in trade shows and snowmobile shows, and they conducted a media blitz in the Tri-Cities and Spokane areas to generate tourism in Conconully.

The Role of Federal Forest Management Policy in Influencing Change

Big reductions in national forest harvest levels around 1990, following the court injunction precipitated by the northern spotted owl (*Strix occidentalis caurina*) issue, greatly affected log supplies. In 2001, timber harvest levels on national forests in Washington were 5 percent of the volume at their high point in 1988 (WDNR 2006). However, state forest harvests during the same period remained a source of volume to sustain local infrastructure and employment, although at a much lower level. Around 1994, the Loomis State Forest volume was reportedly reduced about 50 percent when timber rights were purchased by Seattle-area environmental groups. Continued shrinkage of the regional log supply has resulted in longer travel distances for the remaining timber companies; for example, Boise Cascade located in Kettle Falls has reached as far as Okanogan County for supply, approximately 100 miles. Private nonindustrial lands are a source of logs when the market is favorable. Since the Colville Tribe acquired the Omak mill, their purchase of some of the state timber and harvest from the reservation has brought some milling back into Okanogan County.

Both state and federal agencies have new programs to promote small-diameter log markets and utilization of this material by local businesses. In addition, small businesses can take advantage of preference categories of the federal government for contracts with businesses that have fewer than 500 employees.

One local business owner explained the challenges of small timber businesses and some of their adaptations to changing markets in the area. Even if there is a federal timber supply, it can be at a price too high for the market. Helicopter logging, road building, and salvage logging are examples of high-cost sales. Biomass markets are often variable. Hog fuel made from smaller diameter material often costs more money to haul to markets than it is worth; however, high-quality clean chips have a consistent pulp and paper market. Small timber operators' advantage over larger businesses is to adjust quickly to markets, find niche markets, and move a little more efficiently in the sense that they don't have to wait for meetings of a board of directors to make decisions. Local adaptations include installing chippers, parallel processing of peeler cores and chips, and exploring power plant operations. Smaller businesses refrain from investing in machinery unless they have an assured materials supply to avoid a supply risk in addition to the market risk.

Most interviewees do not report a big effect from the loss of Forest Service jobs. They do not see the same magnitude of impact when they compare Forest Service downsizing with the much larger and more sudden mill and apple warehouse closures. In contrast, it was an important economic and social impact when a whole office closed in the more distant past in Conconully. Likewise, the downsizing of the Okanogan Supervisor's Office, outside the study area, when the Okanogan and Wenatchee National Forests merged in 2001 was considered very important by the county commissioners. Some residents mentioned the strong community role that Forest Service employees play and the skills they bring to the area. Government jobs are recognized as good family-wage jobs that help support local businesses.

One of the more significant sources of income in the last few years has been catastrophic wildfires. This has

been a strong boon to employment. It is reported that many people now make a living working part-time on fires. Others describe this as an enormously wasteful use of public taxes. Despite the demand for skilled labor to satisfy fire-related employment on the national forests and volunteer fire departments in the unincorporated communities, there is no fire program at the local college.

Interviewees reported that anger over declines in logging and associated effects occurred in the Omak/Okanogan area where most of the timber industry-related employment was located. Although most interviewees attributed much of the decline to national and international forces, many believe there is still a lot of anger directed at the Forest Service over the issue.

Ranching has also declined in the Upper Okanogan Valley for several reasons, some of which are related to forest management. The early stages of forest regrowth after harvest accounted for 50 to 60 percent of the forage for cattle and other animals, according to one permittee. The decline in harvest has led to a decline in available forage. Ranchers have also incurred additional expenses by fencing off riparian areas as required by the Aquatic Conservation Strategy of the Plan. Furthermore, the grazing season has been shortened on public land, which may make some range allotments economically unviable.

The Role of the Forest Service in Mitigating Plan Effects

Fluctuations in the economy and population growth have caused sudden changes in the Upper Okanogan Valley, where there had been relatively little change for some time. This is a topic important to all residents, and the national forest is only one component of this change. Because many of the changes are outside the realm of the Forest Service, the agency has had a limited ability to assist in the community's transition.

That said, the Forest Service has been involved with several projects associated with the Plan and tried to assist the community. For example, the Forest Service worked with the Eastern Cascades Provincial Advisory Committee (PAC) for more than 10 years to develop the Hungry Hunter Stewardship Project. The project was conceived to provide habitat connectivity between some of the late-successional and riparian reserve lands and to develop economic opportunities using small-diameter wood within the community. Interviewees observed that the Forest Service invested time and effort in developing this stewardship project, but the subcommittee reportedly had to keep pushing the Forest Service to carry it through. Boise Cascade in Kettle Falls, Washington, nearly 100 miles away, was awarded the contract. Small businesses reportedly had difficulty competing given the collection of activities in the project and the size categories of the timber. Bigger businesses have advantages of more personnel and other resources and are able to travel farther for necessary log supplies to maintain economically viable operations. The Hungry Hunter Project is intended to be a model the Forest Service can use elsewhere on the OWNF.

Some contractors are reported to be frustrated with the Forest Service because the only work left is "grunt work" such as thinning and planting trees. They say that there is no future in these jobs because they cannot make a living wage. New kinds of work and the manufacturing of value-added products have not materialized or proved to be profitable.

Hardly any of the interviewees knew of the Northwest Economic Adjustment Initiative (NEAI) or its association with the Plan. When shown data about the initiative grants, some were aware of individual projects. Two interviewees had worked on grant projects funded by the NEAI. One did not know that the project had been funded by the initiative, while the other was very familiar with the initiative and considered it part of his job to know about funding sources. These interviewees described some individual projects as money well invested. Those familiar with the county economy recognized that it could take 10 years or more to accomplish something and see the results from projects funded by the initiative. One person had obtained National Fire Plan grants.

Few people were familiar with the payments to county government, the Title II Resource Advisory Committee (RAC) funds, or the availability of grants to the community. One person had obtained grants from the RAC, and another was interested in learning that the RAC existed

and requested more information for possible use in tribal educational programs. Those who were most familiar with these payments indicated that there were problems at the county and state levels with deductions from school budgets and payments in lieu of taxes, which left local budgets constrained or without increases from the federal programs.

Interviewees expect the OWNF to play a major role in the development of recreation and tourism in the Valley because the agency administers large areas of public land, and population growth in the Seattle/Tacoma urban area west of the Cascade Range has created significant demand for recreation and tourism in the areas that lie on the eastern side of the mountains. The Okanogan Valley is known for its fishing and hunting opportunities on state and federal lands. Well-organized snowmobile clubs have worked with the Forest Service to designate and map extensive trails and routes through public land. Currently, however, local infrastructure for tourism development is lacking.

Collaboration and Joint Forest Stewardship

The Eastern Cascades PAC that came into existence under the Plan still has fair attendance. According to interviewees, the PAC has had success in bringing together agency members and the public to discuss issues. Some members were frustrated with the agency's lack of assistance in defining the PAC's advisory role that was designated by the Plan, and not utilizing them fully in that role.

A partnership has developed between the Forest Service, the BLM, and the Pacific Northwest Trail Association to maintain trails with area youth. This program has successfully obtained funding through RAC Title II. The trail association also is coordinating a project to complete a portion of the Pacific East-West Trail, which runs just south of the Canadian border from Idaho to the West coast. The local portion is a Rails-to-Trails project from Oroville to Nighthawk on an old railroad grade. Many anticipate substantial economic benefits from completion of this trail. There has been ongoing discussion about Forest Service participation in this project. The Forest Service has been criticized for not initiating recreation projects and for appearing to be a reluctant or unwilling participant.

Most nonagency interviewees described agency-community relations as very poor, but at the same time described the local district ranger and many Forest Service employees as doing an outstanding job of relating to the public and resolving their problems. Many times employees were described as unfriendly, as though they did not believe that public interface was part of their job. Employees also were perceived as interpreting the rules very differently in different areas, giving the impression that they were imposing their own will on the public. Many described their main contact with the agency as through law enforcement officers telling them what they can't do. Forest plans and maps were described as too complex, and not developed with the public in mind. Maps that are difficult to understand may cause more confrontations with law enforcement if users misinterpret them or are unaware of use restrictions.

Shifts in natural resource management and policy happened in Washington state around the same time that federal forest management and policy were changing. Although this shift is not directly seen as connected with the Plan, some similar new processes resulted. For example, watershed analysis processes were initiated for state Columbia River Basin assessments, state forest lands, and Forest Service lands. The Forest Service uses watershed analysis as a planning tool, whereas the DNR uses watershed analysis as more of a regulatory and implementation tool. The DNR uses the analysis to incorporate resource recovery in its regulation practices. The basin assessments are related to ESA recovery plans. All of these analyses have different groups, different purposes, and different timing. The confusion over purpose, and amount of citizen involvement demanded by all of these planning processes, overwhelms many citizens. Some of the same people sit on multiple committees, some disengage from public processes altogether, and some go to their elected officials seeking change. The multiple processes make it more challenging for community members to collaborate with the OWNF.

There is the potential for greater collaboration between the OWNF and the state. Although the area of public lands surrounding the community managed by the state is smaller than what is managed by the Forest Service, the state's administrative jurisdiction is very large because it

covers practices on private lands. In this sense, the state has relatively small forest management staffs compared to the federal forest management agencies. The Loomis State Forest covers approximately 174,000 acres of trust lands managed to generate income for primary and secondary public schools. In recent years these lands have taken advantage of National Fire Plan or state assistance funding. This fuels-related work is expected to generate community jobs and to focus on the community and national forest interface with state lands. The state has many of the same issues as the Forest Service regarding grazing, wildlife, and motorized recreation. Although the state has conducted its business separately in the past, and does not have the staff to engage in the level of public involvement that the Forest Service has, catastrophic fires have brought the agencies together to work on incident command teams during local wildfires.

An Okanogan Highlands Local Coordinating Group comprising state, Forest Service, and private members has formed to prioritize fuels treatment projects. The county may take the lead on a countywide community fire plan that would encompass the Methow Valley as well. This is expected to make the group more competitive for grants. There is also an Okanogan County recreation/snowmobile advisory group that has representation from the DNR and the Forest Service. The DNR trains volunteer fire districts and, together with the Tonasket Ranger District, has put together a brochure on beetle infestations.

Issues and Concerns Relating to Forest Management

The Forest Service formerly was perceived as a desirable neighbor by many, increasing the attractiveness and land values of private property. Now some perceive the Forest Service as a threat and liability because fires, insect infestations, and blowdowns on federal land affect private property values and livelihoods related to forest resources. They fear catastrophic fire will destabilize the local economy, and lead to lost jobs, wildlife, habitat, and recreation opportunities. The cost of suppressing fires and restoring burned areas was seen negatively by some respondents. Unburned areas were perceived as threatened by increased use while the burned areas recover. Many see the potential for a devastating fire as forest mismanagement.

The Forest Service and the county as a whole were described as trapped in crisis management: they seem unable to move ahead and manage to prevent foreseeable fuels and recreation use problems. Some interviewees anticipated future problems managing vegetation in the forest because of the lack of timber infrastructure. Small operators do not have enough capital for the investment required to make a living from low-value small-diameter material. Increasing distance from project sites to manufacturing facilities makes these materials uneconomical to handle. Some interviewees thought it was in the best interest of the Forest Service and the public to help these small-wood mills. The agency was described as reluctant to move forward, and communities and individuals felt they had to push for action constantly.

As federal decisionmakers become physically farther removed from the national forest (a result of Agency consolidations), their decisions appear disconnected to local realities. Government personnel are perceived as not understanding the ripple effect through the economy and indirect effects on businesses and the community created by their decisions. Interviewees described Forest Service-community relations as critically dependent on the local district ranger. Forest Service personnel are often seen to lack accountability because they must transfer for career reasons and are not around long enough to learn from the projects they have implemented. There is no apparent institutional framework to transfer responsibility. Policy and important decisions are no longer perceived to be made locally. Locals see the need to be involved in national groups and politics to affect their local area. Many describe national rulemaking processes (such as the Roadless Rule) and court rulings from litigation as driving management, and not forest plans or project-level National Environmental Policy Act decisions. Within this context, the Okanogan-Wenatchee Forest Plan revision process is not given great importance.

Conflicts were formerly perceived to be between local extractive users of the forest and urbanites with environmental preservation values. This has changed over the last

decade, but is very slow to be recognized. Increases in recreation and tourism have been viewed by many as the low-impact solution to rural unemployment and depressed economies. Now urban recreationists pursuing motorized activities want increasing access, and a conflict in urban user group values has emerged. These issues are surfacing locally with the extensive snowmobile trail network. Based upon what is occurring elsewhere closer to the Seattle metropolitan area, many expect that conflicts will increase in the Upper Okanogan Valley as population growth in urban areas induces increased recreation use and more migration and development. Agencies appear to many to have shifted to a defensive position to try to prevent resource damage from the increasing volume of use rather than accommodating the demand for increased use.

Chapter 8: Communities and Forest Management

Collaboration and Joint Forest Stewardship

One goal of the Northwest Forest Plan (the Plan) was to improve collaboration between land management agencies and communities in forest management and joint forest stewardship activities. In chapters 3 through 7, we discussed collaborative relations from the community perspective. Here we discuss change in collaboration and joint forest stewardship more broadly and include the perspectives of Forest Service interviewees.

Forest Service interviewees identified several mechanisms the Okanogan-Wenatchee National Forest (OWNF) uses to collaborate and communicate with other agencies and the public. These include the Eastern Washington Provincial Advisory Committee (PAC) and the Wenatchee-Okanogan Resource Advisory Committee (RAC). The RAC, a collaborative committee with access to funds for natural-resource-related projects (see chapter 2), was seen as being more pragmatic than the PAC, a Plan-created collaborative advisory committee. Participants seemed to be energized by the visible results of the funding RACs helped allocate. One Forest Service interviewee noted it was difficult to recruit RAC members for the 3-year position, and even more difficult to recruit members with diverse backgrounds. The nonvoting status of "replacement members" (filling in for voting members) was seen as an inefficient use of time and human resources, according to one respondent. A certain number of voting members are needed to make the meeting official. If the replacement member were to be given the ability to vote when a full-status member was not able to attend the meeting, this might serve as a recruitment tool.

Forest Service staff considered PACs to have been important, not only in collaborating with the public, but with other agencies. The PACs were involved in nearly every issue on the forest. Staff viewed both the PACs and the RACs positively, although PACs were seen as having less of an obvious impact on the forest and, consequently, losing focus and interest over time.

In terms of working with other agencies, some relationships have improved; the Fish and Wildlife Service and Bureau of Land Management were mentioned as two consistent partners. The relocation of a Fish and Wildlife Service office to the same building as the Forest Service was seen to improve communication between the two agencies. One Forest Service interviewee noted that the Endangered Species Act (ESA) made it necessary for regulatory agencies to work together, but several indicated the Plan helped improve relations between agencies and the public, at least to some degree.

Grants and agreements in 2003 totaled nearly $3.5 million. Forty-six percent ($1.6 million) was from the OWNF, 16 percent ($0.5 million) from nonfederal partners, 11 percent (nearly $382,000) came from other federal partners, and 27 percent ($930,000) of grants and agreements came from state partners (USDA Forest Service INFRA database). Unfortunately, comparable data from earlier years do not exist in corporate databases, so it was not possible to identify trends in grants and agreements funding. In 2003, the OWNF spent roughly three times the amount on grants and agreements as it did on procurement contracting for land management work. However, the OWNF contribution to the total cost of the projects supported by grants and agreements was less than 50 percent; partners provided the balance of funds by contributing to projects that had ecosystem management benefits to the Forest Service. These data indicate that the OWNF was able to leverage substantial resources through partnership agreements, and illustrate the rationale for investing in them as an alternative to procurement contracting. Another advantage of grants and partnership agreements is that once money is transferred to a partner, that partner can hire people to do the work without facing agency procedures associated with procurement contracts. By using local partners to accomplish work, it can be easier to employ local residents, as the partners are closely tuned in to diverse workforce opportunities.

Groups in ongoing partnerships with the OWNF include 4-H, the Northwest Youth Corps, the Washington Trails Association, Backcounty Horsemen, the Audubon Society, and the Cascade School District. Title II money enabled the OWNF to form a valuable partnership with Chelan County, according to one Forest Service interviewee, in which inmate crews eradicate noxious weeds.

Fire management and firefighting changed during this period of the Plan, according to Forest Service interviewees. State and federal fire districts have been combined, and the OWNF partners with the counties and communities on fire management and firefighting. Cross-border fire management also occurs with Canada.

The OWNF also participates as required by federal laws in analyses and projects that cross administrative jurisdictions. For example, the OWNF is a part of the Upper Columbia Salmon Recovery Board, a regional salmon recovery planning unit for ESA-listed salmonid species, along with the three counties and the Colville and Yakama Tribes. Other examples of collaboration between the Forest Service, the tribes, communities, and other state and federal agencies, include local watershed planning and water resource monitoring.

Table 55 shows that volunteers are active on the forest. Snowmobiling clubs and hiking groups do trail work in both winter and summer. The Cashmere Boy Scout troop has an ongoing volunteer project involving maintenance on the Forest Service seed orchard.

The OWNF has several communication outlets for reaching the public. It produces two newsletters, one in English and the other in Spanish, about current management activities and job opportunities on the forest. These are available at the OWNF headquarters, in district ranger stations, and on the OWNF Web site. Recreation updates are broadcast via radio.

The development of the dry forest strategy after the 1994 fires included public workshops to identify what sort of management the public wanted in the wake of the fires. Several collaborative workshops took place with local communities that were highly motivated to act on fire risk. Given the high level of public support for both these workshops and the management objectives developed in collaboration with Pacific Northwest Research Station (PNW) research staff, the OWNF was able to adapt the dry forest strategy (also referred to as the dry site strategy), which provides a framework for management to protect various forest values amidst dense dry forest situations, including habitat protection for spotted owls (*Strix occidentalis caurina*), as dictated by the site-specific findings. The OWNF also continues to conduct public outreach in relation to timber sales and fuels treatments.

Some of the barriers to collaboration and communication mentioned by Forest Service interviewees included a lack of time, the difficulty in involving a diverse public with different knowledge levels, and the amount of paperwork required to develop official partnerships. Some community interviewees thought the agency was too large to interact effectively at the community level, and others thought the district rangers were doing a good job staying in touch with residents and responding to the public's needs.

Protecting Forest Values and Environmental Qualities

The Plan codified a shift in forest management away from the intensive timber management practices of the 1970s and 1980s toward ecosystem management. In doing so, it aimed to balance the need for forest protection with the need to provide for the sustainable use of timber and nontimber forest resources. Hence, one of the Plan's socioeconomic goals was to protect the forest values and environmental qualities associated with late-successional, old-growth, and aquatic ecosystems. These forest values include amenity values (such as scenic quality, lifestyle), environmental quality values (such as clean air and water), ecological values (such as sustainability, biodiversity), public use values (recreation), and spiritual and religious values (Donoghue 2003: 334, Stankey and Clark 1992).

Other Plan monitoring is designed to collect and analyze biophysical data that will be used to assess how well the Plan has achieved the goals and expectations associated with protecting older forest habitat, associated species (northern spotted owls and marbled murrelets [*Brachyramphus marmoratus*]), and aquatic and riparian ecosystems. Here we address the topic of forest protection from the social perspective.

Fire is a significant concern on the OWNF, and the Plan was seen by many Forest Service and community interviewees as presenting obstacles to successful forest management. For example, the forest's late-successional reserves (LSRs) cover approximately 25 percent of its total area and are quite flammable. Some interviewees believed

Table 55—Senior, youth, and volunteer programs, 2000 through 2003

Year	Senior Community Service Employment Program	Hosted programs[a]	International volunteers	Volunteers	Youth Conservation Corps	Total
Okanogan:						
			Person years (260 days = 1 full-time employment position)			
2000	7.30	0	0	0	0	7.3
2001	4.39	0	0	16.10	0	20.49
2002	6.30	0	0	6.02	0	12.32
2003	No data	0	0	0	0	0
			Dollar value of work performed by enrollees			
2000	88,834	0	0	0	0	88,834
2001	99,103	0	0	303,515	0	402,528
2002	0	0	0	138,033	0	138,033
2003	No data	0	0	0	0	0
			Number of enrollees			
2000	12	0	0	0	0	12
2001	14	0	0	No data	0	14
2002	10	0	0	302	0	312
2003	No data	0	0	0	0	0
Wenatchee:						
			Person years (260 days = 1 full-time employment position)			
2000	10.01	0	0.47	7.82	1.87	20.17
2001	21.11	5.75	1.91	7.59	1.42	37.78
2002	16.65	0	.27	17.23	2.40	36.55
2003	No data	0	.31	11.95	0	12.26
			Dollar value of work performed by enrollees			
2000	197,237	0	9,268	139,325	29,266	375,096
2001	182,116	122,561	38,940	249,509	21,561	614,687
2002	58,782	0	5,760	408,573	29,808	502,923
2003	No data	0	6,894	152,043	0	158,937
			Number of enrollees			
2000	21	0	1	243	7	272
2001	21	12	No data	No data	8	41
2002	14	0	1	657	9	681
2003	No data	0	1	345	0	346

[a] Hosted programs include Student Conservation Association (SCA), Northwest Youth Corps (NYC), California Department of Corrections (CDC), California Conservation Corps (CCC), Greater Avenues for Independence (GAIN), and others.

management restrictions in the LSRs endanger aquatic and upland habitat, particularly when 40 percent of the OWNF is designated wilderness, which has its own management restrictions. Some staff also concede that, to fully implement the vision of the dry site strategy, greatly expanded budgets would be required. The forests east of the Cascade Range are more prone to disturbance such as fire than the forests on the west side of the Cascade Range, which make up the majority of the Plan area. Several Forest Service interviewees said this difference in disturbance regimes was not taken into account when the Plan was written.

Overall, Forest Service interviewees believed that the land allocation method applied to manage forests under the Plan had been unsuccessful because it left large areas of the

landscape inaccessible to beneficial management such as fuels treatments. They felt that landscape-level management developed with site-specific information, such as the dry forest strategy, would be more successful, particularly if combined with subregional information on public needs and issues in relation to the OWNF.

Most Forest Service interviewees thought the Aquatic Conservation Strategy and other Plan measures did benefit fisheries. Many staff expressed the opinion that much of what has taken place on the forest over the last 10 years would have occurred without the Plan, as management has been driven by so many other significant issues and requirements (e.g., many ESA species including four fish species listed in 1998–99, fire-prone forests with extreme fire behavior, state requirements, and extensive public use and scrutiny).

The original survey and manage requirements of the Plan were perceived as burdensome and a hindrance to forest management. For example, a campground was reportedly closed for more than a year because hazardous trees could not be removed. It was thought these trees might host a rare fungus, although the eventual survey did not find the fungus present. According to Forest Service interviewees, the OWNF lacked sufficient staff to conduct the required surveys, leading to lengthy delays in planning and implementation. The survey and manage requirements were amended in 2004. The new protocols for sensitive species will affect the whole forest, not just the portion within areas that allowed management for timber as did the original survey and manage requirements.

One Forest Service interviewee suggested the Plan could be strengthened if species surveys were not tied to a specific project but rather a surveying program for specific species existed on a regional level. The surveying program would be funded rather than placing the costs of the survey on a particular project. Forest staff acknowledged that an effective feed-back mechanism for learning is needed. As an example, Weyerhaeuser's audit branch was mentioned as effectively determining if actions accomplished desired goals.

Chapter 9: Meeting Northwest Forest Plan Goals and Expectations

To summarize, we draw on data presented in this document to asses how well the socioeconomic goals and expectations of the Northwest Forest Plan (the Plan) have been met over the last 10 years on the Okanogan-Wenatchee National Forest (OWNF). We also evaluate the two monitoring questions posed in the introduction of this report. Issues and concerns related to forest management on the OWNF are highlighted. We then identify lessons learned from the monitoring work that may be useful in the adaptive management context. Our findings from the Okanogan-Wenatchee case study along with findings from other federal forests and communities within the Plan area are used to draw broader conclusions about the effectiveness of the Plan in meeting its socioeconomic goals at a larger, regional scale. This larger regional analysis is presented in Charnley (2006).

Monitoring Question 1: Are Predictable and Sustainable Levels of Timber and Nontimber Resources Available and Being Produced?

Goal 1: Produce a Predictable and Sustainable Supply of Timber Sales, Nontimber Forest Resources, and Recreation Opportunities

Timber—

The volume of timber offered for sale on the Okanogan-Wenatchee National Forest was quite predictable. It exceeded the combined probable sale quantity (PSQ) and allowable sale quantity (ASQ) of 55 million board feet (mmbf) in 4 of the 10 years and almost met these amounts in 3 other years within that period. The average for the period 1994–2003 was 59.5 mmbf, close to Plan expectations. The high point in the past decade (129.2 mmbf offered in 1995) was considerably lower than the high before the Plan (347.5 mmbf offered in 1990), and this difference may color perceptions about the predictability of the timber sales. The volume of timber actually harvested was lower than offered. Although harvest volume has fluctuated some since the Plan's inception, since 2000, it has remained fairly constant, averaging about 31 mmbf annually. Community interviewees do not see a steady and predictable flow of timber coming off the forest, but did not fully attribute the decline in timber to the Plan. Mills in the area were already closing in the late 1970s through the 1980s.

Special forest products—

In general, special forest products harvesting became somewhat more restrictive under the Plan because it limited areas of the OWNF where some products could be collected. Harvest of poles and posts, firewood, and Christmas trees was lower in 2002 than in 1992, but the downward trend has stabilized or reversed in recent years. Other products such as mushrooms, transplants, boughs, and cones are also harvested on the forest. The data indicate large fluctuations in the amounts mushrooms, transplants, boughs, and cones harvested from year to year between 1996 and 2002.

Grazing—

The number of active grazing allotments and permit holders declined between 2002 and 1993. The Plan is perceived as creating an additional burden for ranchers. The cost of fencing associated with the Aquatic Conservation Strategy restrictions, shortened grazing seasons, and reduced forage associated with the decline in timber harvest activity are seen to threaten the economic viability of this livelihood.

Minerals—

There were fewer new claims and operating plans for locatable minerals in 2000 than in 1990; however, a $100 filing fee introduced in 1993 may be deterring less serious applicants. One plan currently under consideration by the OWNF would create the largest gold mining operation in Okanogan County. The amount of salable minerals removed from the forest fluctuated greatly from to year to year between 1994 and 2003. Sand, gravel, and stone are used by the OWNF to maintain roads, and much of this funding came from the timber program; as the timber program has declined, it is not surprising that removal of salable minerals has also declined.

Recreation—

Forest and community interviews indicated demand for recreation is greater than available infrastructure, and this has led to overuse and resource damage in some areas. During the mid-1980s, annual visits to the combined OWNF averaged about 3.6 million recreation visitor days

(RVDs). In 2000–2001, visits to the forest were equivalent to about 5.2 million RVDs. Many community interviewees did not feel the Forest Service was responding adequately to the demand. The forest's budget for recreation declined by 24 percent between 2001 and 2005, and Forest Service interviewees felt this was limiting their ability to maintain facilities and handle the increasing number of visitors.

Some community interviewees thought that recreation opportunities declined with the imposition of fees, road closures, and camping restrictions in riparian areas. Negative short- and long-term effects from catastrophic fires on recreation and tourism were a concern to many. Most community interviewees agreed there are limits to recreation, but there was disagreement about whether better recreation management could increase the current supply of recreation opportunities without damage to natural resources.

Forest Service interviewees generally thought the OWNF was supplying predicable levels of recreation. They noted a growing demand for recreation, and the 1989 and 1990 forest plans had identified the OWNF as a recreation forest. Although some of the access restrictions along waterways were tied to the Plan's riparian reserve standards and guides, these restrictions were also related to the Endangered Species Act.

Monitoring Question 2: Are Local Communities and Economies Experiencing Positive or Negative Changes That May Be Associated With Federal Forest Management?

Timber had always been one component of the local economies of the case-study communities, but never the sole industry. Such is the story for Cashmere and Naches, communities that tended to describe themselves as agriculture based rather than forest based. Because of this, although the declining timber industries had a negative economic effect on the communities, in some areas, the presence of other industry made them resilient to mill closures that began occurring in the late 1970s and throughout the 1980s and 1990s. The closure of multiple fruit-packing warehouses in Upper Okanogan Valley exacerbated the economic strain experienced from the closure of the sawmill (which has since been bought by the Colville Tribe and reopened). Interviewees cited factors beyond the scope of the Plan for these events: international markets, North American Free Trade Agreement, and changing import regulations.

The migration of financially well-off retirees to the five study communities is another large ongoing phenomenon that appears to require the attention of forest management. Forest management and migration are intertwined because the forest provides the scenic backdrop, recreational opportunities, and other natural amenities that contribute to the quality of life that attracts new residents.

In addition, community interviewees are very concerned about fire and consider it an imminent threat to their quality of life. Fire risk is increasing because of recent drought, tree kill from insect infestation, and dense stands. Most interviewees were not happy with current forest management, which they see as doing little to mitigate fire risk. Many thought more activities were needed on the forest to manage fuels and pests.

Goal 2: Maintain the Stability of Local and Regional Economies and Contribute to Socioeconomic Well-Being

Community respondents did not think this goal has been met, but respondents did not uniformly link instability or limits to socioeconomic well-being to forest policy. Respondents in Naches Valley saw the community's economic ties to the forest weaken as existing permitted and commercial uses of the forest decline. Small businesses related to a rural lifestyle were disappearing. Opportunities to expand commercial opportunities were described as limited, especially when faced with increased risk of catastrophic fire. Many residents linked fire risk issues to vegetation management on the OWNF. Large fires can result in not only personal loss, but also the loss of natural resource values that attract residents and visitors and provide the economic base for recreation and tourism as well as wood products businesses.

In Cashmere, where residents did not perceive the community as forest based, the Forest Service's forest management practices were not seen as impacting the community

one way or the other. Likewise in Entiat, respondents did not see how the reported improvement in their community's well-being was related to forest policy.

In the Upper Okanogan Valley, where the economy has been very unstable, respondents described this shift as very sudden; better warning of the impending change would have made it more palatable, less devastating, and perhaps have lessened the need for government assistance. Some respondents felt global market effects were driving the lack of success in developing a small-log timber market.

Forest interviewees did not see the Plan contributing to community stability. Some thought it was neutral, while others observed that the Plan's effects had differential impacts on groups in the communities: people in the timber industry were negatively affected, but timber was not the only industry in the region.

Goal 3: Assist With Long-Term Economic Development and Diversification

The few interviewees in Naches Valley who were aware of the Forest Service grant programs and the Northwest Economic Adjustment Initiative (NEAI) thought they were valuable. Grants and the NEAI were not viewed as comparable to what was lost, but as a contribution to a transitioning economy. The availability of Forest Service personnel to assist with the grant program at the district level was highly appreciated.

Most community interviewees in Cashmere did not attribute lost forest jobs to the Plan, but to previous declines in the timber industry dating back to the 1970s and 1980s. They did not perceive economic assistance from the Forest Service to be flowing into the community since the inception of the Plan.

Respondents in Entiat felt the Forest Service had achieved this goal more so than the first two goals, but still needed to do more. A landowner and a city official both claimed that the support given through grant programs (such as rural community assistance program and NEAI), specifically the Forest Service support with the Community Action Plan and the Jobs-in-the-Woods program, have helped the community.

As in Naches Valley, the only people in the Upper Okanogan Valley aware of the grant programs associated with the Plan were involved in economic development. Some were aware of some of the projects, but most were skeptical of their success. Most thought the local economy would have been better without the Plan and marginally better if the Plan had been implemented at the level that was proposed. The few people connected with the community assistance program saw active positive involvement by Forest Service personnel in community activities and associated this with policy shifts driven by the Plan.

Forest interviewees noted that the economic programs associated with the Plan helped in the short term, but when the money stopped, so did the work, making the long-term effect questionable.

Goal 4: Protect Nontimber Values and Environmental Qualities Associated With the Forest

This goal received mixed ratings in all five study communities. Some community interviewees thought the Plan provided a more balanced ecosystem management policy that protected old-growth forests and improved water quality. Some interviewees noted that late-successional reserves were important to overall watershed and forest health and were pleased to see these resources protected. Some of the road closures were appreciated for providing increased recreational uses in the forest (such as hiking and snowmobiling on closed roads).

In the Naches and the Upper Okanogan Valleys, in particular, insect infestation and the related fire threat were foremost in the minds of most interviewees. Management of the situation was perceived as inadequate and ominous. Many felt strongly that everything this goal seeks to protect could be destroyed by conditions the Plan has done little to mitigate. For example, as a result of restricting timber harvesting in late-successional reserves, fuel accumulates and creates a scenario for intense fire events that could destroy the late-successional reserves. Interviewees were concerned about their safety as well as the loss of wildlife, wildlife habitat, and scenic forested landscapes.

Forest Service interviewees tended to think the Plan had been successful in protecting environmental qualities important to the public. Several described the Plan as empowering the environmentalist community. Others thought the public input received during the formulation of earlier forest plans played a greater role in this than did the Plan. Interviewees described aquatic management as the most successful aspect of the Plan for protecting nontimber values, and thought a weakness in the Plan was not acknowledging that east-side forests are more prone to disturbance than west-side forests.

Goal 5: Promote Agency-Citizen Collaboration in Forest Management

In Naches Valley, many interviewees mentioned an apparent focus on better communication by the Forest Service over the past decade and some connected this with the Plan. But almost all interviewees agreed better communication in an honest, personable, and understandable style was needed from the agency. Improved interagency communication was noted by some interviewees, but they were frustrated with management inconsistency between state and federal lands regarding motorized off-road vehicle use.

In Cashmere, respondents had mixed views about this goal. Any collaborative efforts were perceived to occur at the county level rather than with individuals or organizations in the Cashmere community.

Respondents in Entiat felt the greatest amount of progress had been made toward this goal. The watershed analysis project undertaken by members of the community, the Forest Service, and other agencies was considered very successful and a model for collaborative resource management. Respondents talked positively about the increased face-to-face collaboration with Forest Service personnel, although some thought there was still room for improved communication.

Community interviewees in the Upper Okanogan Valley also described some progress toward this goal. Most described a greater tendency to talk about issues and attributed this to the Plan; they also saw this happening with state watershed planning. Increased and parallel watershed and fisheries assessments by the state and federal agencies had burned out the public. These efforts required multiple committees and volunteer time. Community members involved in policy or planning efforts described a proliferation of assessment efforts by the different agencies within the state, and described the number of meetings and agency personnel as excessive. Those involved with the Forest Service NEAI grant program indicated close ties with Forest Service personnel assigned to execute the program, but believed that network was disappearing.

Many Forest Service interviewees indicated they thought communication with the public had improved over the last decade. Whereas public meetings were described as "somewhat" effective, working groups such as the Resource Advisory Committee were described as effective ways to involve the public.

Community interviewees in the Upper Okanogan Valley also described some progress toward this goal. Most described a greater tendency to talk about issues and attributed this to the Plan; they also saw this happening with state watershed planning. Increased and parallel watershed and fisheries assessments by the state and federal agencies had burned out the public. These efforts required multiple committees and volunteer time.

Many Forest Service interviewees indicated they thought communication with the public who choose to participate had improved over the last decade. Whereas public meetings were described as "somewhat" effective, working groups such as the resource advisory committee (RAC) were described as effective ways to involve the public.

Issues and Concerns Relating to Forest Management

Fire, water, and access were the top three issues of concern for community interviewees. Fire is the greatest concern. Many community members perceived an increased threat of large fires as mismanagement of the forest. Extensive tree mortality and its association with catastrophic fires was another cause of residents' concern. The amount of treatment is not viewed as able to keep up with the pace of the infestation. Both the infestation and potential fires were expected to have major effects on water quality and

recreation and tourism within the foreseeable future. The Forest Service was perceived as not responding adequately to the public's sense of threat.

Community interviewees felt their community, commercial opportunity, homes, and quality of life might be destroyed by a large fire. Insurance vendors were reportedly reluctant or unwilling to insure homes in some areas surrounded by the national forest. The consequences mentioned included loss of economic value, loss of jobs, loss of commercial opportunities, loss of wildlife and habitat, and loss of recreation. Remaining unburned areas were observed to then have greater pressure for all resource uses and consequently, greater impact to the resources.

Many of those interviewed observed that the Plan may have serious consequences for dry-site forests. Both Forest Service and community interviewees expressed concerns related to a perceived conflict between the large areas allocated to low levels of management and the goals of the Plan. The rules governing late-successional reserves (LSRs) present a challenge to wildfire management, in terms of both fuel reduction and firefighting. For example, as fire fuels build up in LSRs, there is an increased risk for large-scale stand-replacement fire that will effectively destroy designated habitat for the northern spotted owl (*Strix occidentalis caurina*). In addition, members of the public are very concerned about the destabilizing effects, both short and long term, that loss of scenic and wildlife recreation values could have to their businesses and the economy, as recovery from large-scale catastrophic fires can take decades.

Water quantity and quality is a concern for residents in many communities on the drier eastern side of the Cascades, and the forest is valued for its ability to provide water. Water, imperative to local agriculture and in demand from population increases, is already in short supply given the recent drought and new regulations following the federal listing of four fish species under the Endangered Species Act (ESA). It was feared a large fire would damage water quality.

In the past, conflicts over use of the forest were perceived to be between local extractive users of the forest and urbanites with environmental preservation values. There are still many respondents who felt that locals were losing access to the forest. They were unhappy about permits, fee requirements, fishing restrictions, and confusion over areas that are open to off-road vehicle use. There are still many who view increases in recreation and tourism as the low-impact solution to rural employment and economies. However, because of the large volume of users from nearby highly populated areas, there is concern regarding access issues for the rapidly increasing number of recreationists pursuing motorized activities. Agencies appear to have shifted to a defensive position to assess the limits of resource development that is acceptable without environmental damage. Conflicts are expected to increase in areas close to urban areas and in rural areas where population increases and related development are occurring rapidly.

The need for communication and collaboration with the public and between the various government resource management agencies was a dominant theme expressed throughout discussions about resource issues. Public interaction in defining and accomplishing resource objectives and implementing projects was viewed as vitally important to the public.

Lessons Learned for Adaptive Management

The timber industry in the OWNF region began declining with mill closures in the 1970s and continued throughout the 1980s. The sell-off of industrial timberland in the last 5 years is the most recent contribution to the industry's decline. Declines in small family businesses in grazing, farming, and orcharding appear to be primarily related to external forces in global markets and labor. Some community interviewees saw the ESA and water rights as having a greater impact on their livelihood than the Plan. But there are still some residents with economic ties to the forest, and all the study communities viewed the forest as a potential source of economic development through recreation and tourism opportunities. The question now is how can the OWNF provide communities with socioeconomic benefits that will help them adapt to change and contribute to community well-being?

The monitoring data gathered through this study have several management implications. This discussion is not intended to provide recommendations, per se. Rather it is to summarize and analyze the experiences and observations made by the interviewees to how the OWNF could better interact with local communities and provide more community benefits.

Timber Production

Most community interviewees acknowledge that the days of big timber are over; in many respects, communities have already moved on. From a forest health perspective, however, most community interviewees thought that more logging than was currently happening was needed to reduce the fire threat exacerbated by the acres of beetle-killed trees and dense stands. Most agreed that removing timber to create a healthy forest is not the same type of harvest activity that occurred in the past, and that the materials have lower value. It was noted, however, that just across the border from Upper Okanogan Valley, the Canadian timber industry is using small-diameter logs and whole-tree mill technology.

Because so little harvesting and wood processing is occurring on the U.S. side of the border, the area is in danger of losing the infrastructure to carry out these activities. The current situation seems to favor larger companies that can afford to travel farther for jobs. There are not enough timber contracting options to keep smaller local operators in business. Working with the Yakama and Colville Indian Reservations may be one way to keep some timber infrastructure in the region. Working in conjunction with the state to explore contracting options and timing and location of sales to promote small-diameter markets and utilization of this material by local businesses could help develop markets of great value for agency vegetation management needs.

Ranchers

The more stringent grazing requirements under the Plan have created additional burdens for ranchers. Measures that could assist ranchers include thinning dense stands or creating openings within stands to increase grazing opportunities, working with ranchers to promote hunting or bird watching opportunities on their ranches, and continuing communication and sensitivity to their needs.

Recreation and Tourism

The OWNF has a large recreation program funded from various sources, including the state of Washington (via the Interagency Committee and the Snow Program). This coordination between the OWNF and the state is an asset to both and one to develop further. The checkerboard pattern of federal and state land, and the recreation issues that span them, necessitate strong working relationships between the two land management agencies. Coordination of off-road vehicle and snowmobile policies are examples that would likely benefit from further cross-boundary planning.

Demand for recreation and tourism on the OWNF is expected to continue to increase with a growing population. Debate over appropriate levels of development in this area has replaced logging as the controversial topic of the day. If the national forest's recreation budget continues to decline as it did between 2001 and 2005, this will exacerbate the challenges of providing recreation opportunities while maintaining the health of the natural resources. For communities wanting to further develop a tourism industry based in part on the forest, opportunity may exist to strengthen working relationships with the national forest to make this possible. The working relationships between the national forest and the Trail and Wilderness Interest Group (TWIG) and some of the snowmobiling clubs appear to be examples of successfully providing recreation while sharing the work.

The residential development planned around Lake Osoyoos will likely bring more recreationists to the area. Here and elsewhere around the OWNF, marketing the recreation opportunities available while educating the public about appropriate uses and venues for particular activities may lessen the sentiment expressed by some community interviewees that their only interaction with the Forest Service is through law enforcement. Local tourism agencies may be possible partners for communicating with visitors.

As a public agency, the Forest Service is responsible for ensuring its policies are inclusive of diverse cultural backgrounds and sensitive to local communities. Currently much

of the recreational use of the forest appears to be focused on user groups from outside the area with high levels of disposable income. As the recreation program develops, equity in access will be something to consider, particularly for the area's growing Hispanic population. It is also important to consider economic impacts to small, isolated communities when management options are evaluated.

Fuel Management

Community interviewees consider fire an imminent threat to their quality of life. The OWNF has an active fuel management program operating within its budget constraints. However, public awareness of fuel reduction efforts is lacking, and interviewees therefore perceive the Forest Service as indifferent to communities' concerns. The negative perceptions by the public could be mitigated by better informing the public of progress in reducing fuels, and moving forward with coordinated fuel reduction projects on public and private land.

Community Economic Assistance

Community respondents who were directly involved with economic development and grants were familiar with Forest Service grant programs; most other interviewees were not aware of the assistance provided by the Forest Service. Better communication about its actions and plans would likely show that, in fact, the agency is attempting to respond to community concerns and needs. By increasing public awareness of the contributions the Forest Service has made, the agency image and relations with the public would likely improve.

Collaboration

Forest and community interviewees tended to think collaboration and communication between the OWNF, other agencies, and the public had improved, but there was room for greater improvement. Where the public had regular contact with Forest Service staff, perceptions of the Forest Service tended to be more positive. Public relations were noted as an important part of all Forest Service jobs. There is tremendous potential for community partnership projects and educational and work opportunities on the national forest with local diverse cultural groups including Hispanic and Native American community members.

Big issues such as fire management, water allocation, and recreation and tourism go beyond a single agency or government entity. Coordinated planning processes and meetings among responsible officials and public representatives will likely be more effective and efficient in the long run and less likely to overwhelm and frustrate the interested public who want to participate. The OWNF and the state have many opportunities for continued collaboration. These include working closely with state resource agencies for off-road vehicle and snowmobile policies and road system designs, small-diameter-log market solutions, and the Watchable Wildlife program.

Forest-Community Relations

Many important questions related to understanding the socioeconomic relationship between national forests and rural communities were raised in this study. One finding was that the extent and nature of forest use was influenced more by the proximity of national forest lands to urban population centers than to rural communities. Proximity to transportation corridors also appears to be an important factor in demand for forest use, with highways facilitating access from population centers. This relation does not seem to correlate as well in the Upper Okanogan Valley, however, where the nearest large population center is across the Canadian border.

Significant local changes in land ownership patterns and demographics also affect management and use of national forests. We found that change in land ownership and use adjacent to the OWNF was an important factor in the southern end of the forest. The magnitude and scope of ownership changes in that area—resulting from state land exchanges and divestment of private industrial forest lands, for example—were not anticipated. Influxes of retirees adjacent to national forests and growth in nearby culturally diverse populations are important demographic considerations in defining and developing different opportunities for these user groups on the national forest.

Proximity of a rural community to national forest lands did not necessarily imply a forest-based economic

orientation in that community. One community located adjacent to the OWNF considered itself agriculturally based (Cashmere), another had a large nonresident population of second-home owners (Twisp), and others had more of a commuter economy (Entiat, Naches). Communities located near areas where recent large fires have occurred (Entiat) have constrained economic options linked to forest resources. A high percentage of public land within community boundaries may also be an indicator of low economic diversity unless alternative opportunities exist nearby—as in the Naches Valley, where many residents commuted to the nearby urban center for work.

The complexity and variety of situations in each community lends high value to the case-study approach. Census data, while useful, provide a limited picture of socioeconomic conditions in very small communities or in communities undergoing frequent changes (Upper Okanogan). The case-study approach makes it possible to consider questions that we did not set out to ask, but that the public brought forward, and helped us understand the indirect effects of the Plan on communities. For example, allocating large areas of forest lands near a community to late-successional reserves—a restrictive land use allocation with very limited options for active forest management—was perceived to have increased the threat of catastrophic fire to nearby communities (Naches).

Other insights emerged regarding the interdependence between national forests and rural communities. National forests are dependent on markets for forest products in order to accomplish their management objectives, especially as budgets decline, limiting availability of appropriated dollars for management activities. Small and large natural-resource-based businesses rely on a continuing supply of forest products like wood in order to invest in infrastructure development but also face other challenges to their success, like the ratification of international trade agreements and increased global competition. Future investigations will help provide information useful for better understanding these complex relations and their implications for management of natural resources.

Metric Equivalents

When you know:	Multiply by:	To find:
Inches	2.54	Centimeters
Feet	.305	Meters
Acres	.405	Hectares
Cubic feet	.0283	Cubic meters
Miles	1.609	Kilometers
Square miles	2.59	Square kilometers
Board feet	.0045	Cubic meters
Gallons	3.79	Liters
Bushel	2,150.4	Cubic inches

Glossary

ACEC	Area of critical environmental concern
ACS	Aquatic Conservation Strategy
ASQ	Allowable sale quantity
AMA	Adaptive management area
BGA	Block group aggregate
BLM	Bureau of Land Management
CTED	Washington Department of Community, Trade and Economic Development
DNR	Washington Department of Natural Resources
EA	Environmental assessment
EIS	Environmental impact statement
ESA	Endangered Species Act
FEIS	Final environmental impact statement
FS	Forest Service
FWS	Fish and Wildlife Service
HCAs	Habitat conservation areas
JITW	Jobs in the Woods
LSR	Late-successional reserves
LSRA	Late-successional reserves assessment
Mmbf	Million board feet
NEAI	Northwest Economic Adjustment Initiative
OHV	Off-highway vehicle
OWNF	Okanogan-Wenatchee National Forest
PAC	Provincial advisory committees
PILT	Payment in lieu of taxes
PSM	Partnership for a Sustainable Methow
PSQ	Probable sale quantity
RAC	Resource advisory committees
RCAP	Rural Community Assistance Program

ROD	Record of decision
RVDs	Recreation visitor days
The Plan	The Northwest Forest Plan
USDA	United States Department of Agriculture
USDA-FS	United States Department of Agriculture, Forest Service
USDI	United States Department of the Interior
USFWS	United States Fish and Wildlife Service
WDFW	Washington Department of Fish and Wildlife

Acknowledgments

We are indebted to all of the community participants and Forest Service staff for their generous support and participation in this study. We also thank Dr. Devon Peña (University of Washington, Anthropology Department) for his collaboration and the City of Entiat for providing charitable use of their facilities at city hall. We also thank Dr. Lee Cerveny and Dr. Annabel Kirschner for providing very helpful reviews on an earlier draft of the report.

References

Bernard, R.H. 2006. Research methods in anthropology: qualitative and quantitative methods. 4th ed. Walnut Creek, CA: Altamira Press. 585 p.

Buttolph, L.P.; Kay, W.; Charnley, S.; Moseley, C.; Donoghue, E.M. 2006. Northwest Forest Plan—the first 10 years (1994–2003): socioeconomic monitoring of Olympic National Forest and three local communities. Gen. Tech. Rep. PNW-GTR-679. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 84 p.

Cashmere Tourism and Development Group. [N.d.] Visit Cashmere Washington. http://www.visitcashmere.com/index.html. (January 3, 2006).

Clark, R.N.; Philpot, C.W.; Stankey, G.H. 1999. Overarching assumptions underlying the Northwest Forest Plan: imbedded implications for research at the PNW Research Station. Seattle, WA: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 46 p.

Clinton, W.J.; Gore, A., Jr.; 1993. The forest plan for a sustainable economy and a sustainable environment. Washington, DC. 7 p. [plus appendix].

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 volumes.

Charnley, S.; Dillingham, C.; Stuart, C.; Moseley, C.; Donoghue, E. [In press]. Northwest Forest Plan—the first 10 years (1994–2003): socioeconomic monitoring of the Klamath National Forest and three local communities. Gen. Tech. Rep. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station.

Danks, C.; Haynes, R.W. 2001. Socioeconomic research. In: Haynes, R.W.; Perez, G.E., eds. Northwest Forest Plan research synthesis. Gen. Tech. Rep. PNW-GTR-498. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station: 52–62.

Donoghue, E.M. 2003. Delimiting communities in the Pacific Northwest. Gen. Tech. Rep. PNW-GTR-570. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 51 p.

E.D. Hovee & Co. 1996. Crown Jewel Project: existing socioeconomic conditions baseline report. Vancouver, WA. 158 p.

Entiat Valley Watershed Study. 2002. Coordinated resource management plan. Draft. Watershed Resource Inventory Area 46. On file with: Melissa Poe, Pacific Northwest Research Station, 400 N 34th St., Seattle, WA 98103.

Forest Ecosystem Management Assessment 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 [and others]. [Irregular pagination].

Greater Yakima Chamber of Commerce. 2005. Demographics. http://www.yakima.org/custom2.asp?pageid=2728. (April 2008).

Grieco, E.M.; Cassidy, R.C. 2001. Overview of race and Hispanic origin. Census 2000 brief. Washington, DC: U.S. Census Bureau.

Hutchins, J.C. 1981. Social values and lifestyles in Okanogan County, WA: a social network analysis. Okanogan, WA: U.S. Department of Agriculture, Forest Service, Okanogan National Forest.

Long, A. 2001. Under the guard of the ole Tyee: a reflection of the early days in the Entiat Valley. Wenatchee, WA: Albert Long.

Kay, W.M.; Donoghue, E.M.; Charnley, S.; Stuart, C.; Moseley, C. 2007. Northwest Forest Plan—the first 10 years (1994–2003): socioeconomic monitoring of Mount Hood National Forest and three local communities. Gen. Tech. Rep. PNW-GTR-701. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 97 p.

McCreary, A. 2002. Twisp eyes grants for water system—town can't get permission for more water use from state, needs to build senior housing and industrial park. Methow Valley News. October 4. http://www.citizenreviewonline.org/Oct_2002/twisp_eyes.htm. (May 17, 2006).

McLain, R.J.; Tobe, L.; Charnley, S.; Donoghue, E.M.; Moseley, C. 2006. Northwest Forest Plan—the first 10 years (1994–2003): socioeconomic monitoring of Coos Bay District and three local communities. Gen. Tech. Rep. PNW-GTR-675. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 144 p.

Moseley, C.; Balaev, M.; Lake, A. 2003. Long-term trends in contracting and the impact of the National Fire Plan in northern California. Eugene, OR: Ecosystem Workforce Program, University of Oregon. 31 p.

Moseley, C.; Shankle, S. 2001. Who gets the work? National forest contracting in the Pacific Northwest. Journal of Forestry. 99(9): 32–37.

Okanogan Board of Commissioners. 2006. Record of proceedings. February 14th. http://okanogancounty.org/Commissioners/Minutes%202006/February%2014,%202006.htm. (May 15, 2006).

Pinchot Institute. 2004. Projects by region, community-based forest stewardship. www.pinchot.org/community/moneval/regional_projects/pacific_northwest/R1_Hungry_Hunter_2004.pdf. (May 17, 2006).

Portman, S. 1993. The smiling country: a history of the Methow Valley. Winthrop, WA: Sun Mountain Resorts, Inc. Chapter 13. 381 p.

Stankey, G.H.; Clark, R.N. 1992. Social aspects of New Perspectives in Forestry: a problem analysis. Milford, PA: Grey Towers Press. 33 p.

Stewart, J. 1999. Report on the update of the Entiat community action plan and vision and goals for Entiat, WA. On file with: City of Entiat, WA, and USFS, Entiat Ranger District, P.O. Box 476, Entiat, WA 98822.

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. 253 p.

U.S. Bureau of Reclamation. 1993. Yakima Project (3rd draft). http://www.usbr.gov/dataweb/projects/washington/yakima/history.html. (June 2005).

U.S. Department of Agriculture, Forest Service [USDA FS]. [N.d.] Payments to states. www.notes.fs.fed.us:81/r4/payments_to_states.nsf. (January 5, 2006).

U.S. Department of Agriculture, Forest Service [USDA FS]. 1989. Land and resource management plan. Final environmental impact statement. Okanogan National Forest. www.fs.fed.us/r6/wenatchee/planning/reportlink.htm. (December 1, 2006).

U.S. Department of Agriculture, Forest Service [USDA FS]. 1990. Land and resource management plan. Wenatchee National Forest. http://www.fs.fed.us/r6/wenatchee/planning/reportlink.htm. (December 1, 2006).

U.S. Department of Agriculture, Forest Service [USDA FS]. 1990, 1995, 2000a. Mineral material production for National Forest System lands for fiscal years 1990, 1995, 2000. http://www.fs.fed.us/geology/mgm_production.html. (April 7, 2008).

U.S. Department of Agriculture, Forest Service [USDA FS]. 1990, 1995, 2000b. Management attainment reports for fiscal years 1990, 1995, 2000. On file with: Susan Charnley, Forestry Sciences Laboratory, Pacific Northwest Research Station, P.O. Box 3890, Portland, OR 97208.

U.S. Department of Agriculture, Forest Service [USDA FS]. 2000. Strategy for management of dry forest vegetation Okanogan and Wenatchee National Forests. Okanogan-Wenatchee National Forest. www.fs.fed.us/r6/wenatchee/district/dry_site_strategy.pdf. (July 5, 2006).

U.S. Department of Agriculture, Forest Service [USDA FS]. 2003. 2003 forest insect and disease conditions report. http://www.fs.fed.us/r6/nr/fid/health/con-rpt-03.pdf. (February 21, 2007).

U.S. Department of Agriculture, Forest Service [USDA FS]. 2004. Forest health assessment for the Okanogan and Wenatchee National Forests. Portland, OR: Pacific Northwest Region. 105 p.

U.S. Department of Agriculture, Forest Service [USDA FS]. 2006. Okanogan and Wenatchee National Forests recreation program. Okanogan-Wenatchee National Forest. Updated May 2006. Unpublished. On file with: Vladimir Steblina, Okanogan and Wenatchee National Forests, 215 Melody Lane, Wenatchee, WA 98801.

U.S. Department of Agriculture [USDA]; U.S. Department of the Interior [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. [Place of publication unknown]: 74 p. (plus attachment A: standards and guidelines).

U.S. Department of the Interior, Bureau of Land Management. 2000 [USDI BLM]. Land and mineral legacy rehost system 2000–LR2000. Database. http://www.blm.gov/lr2000/index.htm. (April 7, 2008)

Washington Department of Natural Resources [WNDR]. 2006. Washington state data book: timber harvest by owner class and region. http://www.ofm.wa.gov/databook/resources/nt01.asp. (February 21, 2007).

Washington State Employment Security. 2002. Yakima County profile. Labor Market and Economic Analysis Branch. http://www.workforceexplorer.com/admin/uploadedPublications/451_yakima.pdf. 41 p. (February 2007).

Washington State Legislature. 1995. RCW36.70A.040. Who must plan—summary of requirements—development regulations must implement comprehensive plans. http://apps.leg.wa.gov/RCW/default.aspx?cite=36.70A.040. (February 23, 2007).

Yakima County Development Association. 2005. Yakima County profile. http://www.ycda.com. (June 2005).

Appendix A: People Interviewed for This Study

Okanogan-Wenatchee National Forest

Respondent description
District ranger (4)
Natural resource planner (3)
Fisheries program manager
Administrative officer
Vegetation team leader
Forester
Wildlife biologist
Forest manager
Fire management officer
Public affairs specialist
Range and special uses program manager
Timber sale contracting officer

Naches Valley

Respondent description	Additional stakeholder roles	Naches Valley resident
Nonprofit group leader community/forest/ natural resource development		
Elected official—county commissioner	Watershed planning commissioner, former road construction business	X
School district principal		
Nonprofit economic development leader	Director, local land trust; Yakima Co. WA CERT administrator; former president, WA State Economic Development Association; former member Community Trade and Economic Development	
Restaurant business owner	Chamber of Commerce for Naches	2X
Recreation/tourism business owner		2X
Tribal representative	Charter member two provincial advisory committees/two resource advisory committees (Wenatchee and Gifford Pinchot NFs); Yakama tribe member	
Planner/ city administrator		X
Summer-home owners association	Retired county law enforcement	
Recreation camp director		X
Snowmobile club presidents		2X
Environmental interests	Yakima provincial advisory committee charter member	
Timber business		
Washington State Fish and Wildlife manager	Provincial advisory committee member; formerly law enforcement	
Washington Department of Natural Resources manager		
Rancher	Resource advisory committee member	

Cashmere

Respondent description	Additional stakeholder roles	Cashmere resident
County commissioner		X
Rancher	Local landowner	
County conservation district/natural resource specialist	Watershed council representative	
Local mayor	Local economic development committee	X
Fire department chief		X
Local business leader	Local economic development committee; chamber of commerce member, civic club member; former school board member and county planning commission	X
Environmental and recreation interest group member	Provincial advisory committee member; church and service club member	X
Civic club leader (youth, recreation-based)	Recreation user; employed at county public utilities district; former wood products/mill employee	X
School teacher	Outdoor recreation club leader	X
Fruit tree farmer	Agriculture leader; school board member; former Forest Service family member; former employee of Washington Agriculture and Forestry Education; Foundation former employee of Northwest Sustainable Energy for Economic Development	X
Yakama tribal representative	Watershed council member	
Historical society	Former wood products/mill warehouse supplier; recreation user	X
Minority group representative (Latino/Hispanic)	Horticulture educator, including Hispanic horticulture programs; former commercial agriculture consultant; member of Northwest Horticultural Council	X
Wood products company manager	Provincial advisory committee member	
Food bank leader	Social services manager; spouse of former wood products employee	X
Former wood products/mill employee		

Entiat Valley

Respondent description	Additional stakeholder roles	Entiat Valley resident
Agriculturalist	Fire district leader, watershed council representative, city and county planning board, salmon recovery board, public utility district dam relicensing team	X
Mayor	Former member of the County Resource Conservation and Development Council	X
Pack-animal outfitter	Former Forest Service/timber worker, former agriculturalist, civic club member	X
School district leader	Former wood products/mill employee, timber family, member of civic club	X
Economic development leader	Agriculturalist, Chamber of Commerce leader, youth sports coach, former watershed assessment team, former school board member	X
County assessor	Watershed council representative, agriculturalist, former fire commissioner	X
Natural resource conservation organization director		
Historic center leader	Civic club and religious organization member	X
City public works director	School facility committee, watershed council representative, public utilities district dam relicensing team, game department, landowner, former wood products/mill employee, pioneer family	X
Agriculturalist	Watershed council representative, state growers organization member, community volunteer, pioneer family	X
Minority group representative (Latino/Hispanic)	Parent-teacher organization	2X
Forest fire interpretive center leader	Private forestry consultant, former Forest Service employee	X
Watershed council coordinator (since 1999)		
Food bank leader	Low-income representative, civic group member, former wood products/mill family, spouse of pioneer family member	2X
Environmental stakeholder	Irrigation district leaders, landowner, various civic groups	X
Business leader/store owner	Fishing—commercial/recreational, recreational supplies	X
Ranching/grazing	Local landowner, former Forest Service employee	X
Yakama tribal representative	Watershed council member	
Wood products company manager	Provincial advisory committee member	

Twisp

Respondent description	Additional stakeholder roles	Twisp resident
Agriculturalist	Activist, community leader, organic farmer	X
Rancher	Owner of ranch operated by logging company for several generations	X
Mayor		X
Teacher	Active community member	X
Business owner	Owner of logging company operated by family for several generations	X
Natural resource conservation organization director	Community leader	
Business owner	Community leader	X
Nongovernment organization worker	Community activist	X
Business owner	Active community member	X
Agriculturalist	Community leader	X
Fire lookout	Twisp native, story-teller	X
Fisheries biologist	Forest Service employee, long-time Twisp resident, active community member	X
Timber manager	Forest Service employee, long-time Twisp resident, active community member	X
Wildlife biologist	Forest Service employee, long-time Twisp resident, active community member	

Upper Okanogan Valley

Respondent description	Additional stakeholder roles	Upper Okanagan Valley resident
County official	Resource advisory committee member, nonprofit employee	X
Elected official—county commissioner		X
School district superintendent		X
Economic development council leader	University of Washington Okanogan Partnership; Kalispel Gaming Enterprise; Okanogan County Tourism Council; Colville Tribe member	
Business leader	Guest ranch, ranching; resource advisory committee member, Tourism Council; Watchable Wildlife; chamber of commerce	X
Store owner	Nurse	X
Social service provider	Colville Tribe member	
Fire district leader	State wildlife area manager since 1997, Highlands Fire Defense Team local National Fire Plan grant coordinating group, Okanogan Valley Land Trust board member	X
Planner/city administrator	Logging industry, Native American, chamber of commerce, 97 Corridor Project	X
Recreation/tourism	Washington State Snowmobile Association, Okanogan Valley Snowmobile Club, farmer	X
Environmentalist	Resource advisory committee member, Okanogan Community Development Council member, sociologist, local newsletter publisher	X
Timber industry	Provincial advisory committee member, Forest of Okanogan County Symposium steering committee, farmer	X
Timber business owner		X
Loomis State Forest—Department of Natural Resources manager		X
Rancher	Forest Service permittee, Washington state representative to National Public Lands Council, resource advisory committee member	X

Appendix B: Categories of Interviewees

When conducting interviews in the case-study communities, we attempted to select people that represented a cross section of community leaders and stakeholder groups. We used the following categories to guide our selection:

Community leaders:
Elected official
Civic group leader
School district/education leader
Historic preservation/cultural center leader
Economic development council leader
Business leader/store owner
Social service provider
Fire district leader
Health official
Religious leader
Watershed council representative
Large private landowner
Planner

Stakeholder group representatives:
Recreation/tourism
Environment
Timber industry
Special forest products
Fishing—commercial/recreational
County government
Agriculture/ranching
Minerals
Tribes
Low-income/minority groups

It was not possible to interview someone from each of the categories in every community, and many interviewees represented several categories at once.

Pacific Northwest Research Station

Web site	http://www.fs.fed.us/pnw
Telephone	(503) 808-2592
Publication requests	(503) 808-2138
FAX	(503) 808-2130
E-mail	pnw_pnwpubs@fs.fed.us
Mailing address	Publications Distribution Pacific Northwest Research Station P.O. Box 3890 Portland, OR 97208-3890

U.S. Department of Agriculture
Pacific Northwest Research Station
333 SW First Avenue
P.O. Box 3890
Portland, OR 97208-3890