

AN ABSTRACT OF THE THESIS OF

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in Wallowa County

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Forests of the Inland West have been experiencing forest health problems arising from over a hundred years of fire suppression, logging, grazing, and mismanagement. Rural communities, meanwhile, have seen escalating unemployment, an exodus of young families, and a dearth of middle-income jobs. The objectives of this thesis are to: 1) document knowledge and beliefs of forest stakeholders (loggers, industry workers, environmentalists, community developers, government agency workers) regarding forest health; 2) analyze the relationships between the community and the forest; and 3) contextualize rural stakeholders' views of forest health within the Healthy Forests Restoration Act (HR 1904) and other relevant forest health legislation. The forests and communities of this region are inextricably linked. While large-scale external forces, political and industrial, have long influenced these forests and communities, the dynamic nature of both forests and communities may call for some level of self-determination and place-based decision-making.

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People in the Forests: Interactions between Community and Forest Health in
Wallowa County

by
Erin Clover Kelly

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I understand that my thesis will become part of the permanent collection of Oregon State University Libraries. My signature below authorizes release of my thesis to any reader upon request.

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I. INTRODUCTION: People and the Land

Cattle on the land? It's the old tradeoff. Either we need fire or we need cattle. It's the argument that's in the Hells Canyon Recreation Area. Preservationists don't want cattle there, they'd rather have fire. Then cattlemen, they want to keep their grazing permits and raise cattle. Either one benefits the land, but what sort of a scenic view do you want of the land? [Roger, fisheries biologist and Nez Perce tribal member]

The eastern edge of Wallowa County is cut by a massive canyon of quiet magnificence, its steep, rugged walls continually eaten away by the Snake River. The Nez Perce say that Coyote dug the canyon to protect the inhabitants of the west side from the Seven Devils, evil spirits who rise today in the form of a mountain range in Idaho.

The name of this canyon is Hells Canyon, and it has long been touched by the activities of humans. After the Native Americans, Euro-American settlers operated (largely unsuccessful) mining operations from the 1860s to the early 20th century; the miners were followed by homesteaders in search of land to raise their sheep and cattle. The gentler slopes of the canyon have supported some herds, even to this day, but conditions proved too harsh for most settlers, and many had moved on by 1920.

In 1955, Idaho Power received permission to build three hydroelectric dams in the canyon: the Brownlee, Oxbow, and Hells Canyon; the construction of these dams has impeded salmon migration in the river. In 1967, when the Hells Canyon dam was being finished, a local conservation group sued to halt further dam construction. This lawsuit started a feud that has exposed tension between utilitarian values, including power production, grazing, and timber, and inherent ecological and archaeological values of the canyon.

On December 31, 1975, Congress created the 650,000-acre Hells Canyon National Recreation Area (NRA). Controversy over roads (the NRA remains 75% unroaded), timber operations, sheep and cattle grazing, and power boat presence, continues unabated.

One example of recent contention involves grazing. Bighorn sheep had been extirpated from the area by 1945 as a result of competition with domestic livestock, introduced diseases, and hunting. Reintroduction projects began in the 1970s and have had some success, though the Bighorn sheep are still threatened by diseases carried by domestic sheep. According to Marcus, a retired Forest Service worker who'd long lived in Wallowa County:

The decision was made to bring in Bighorns, and the scientists who have studied the problem have determined that domestic sheep carry a bacteria, an organism that they're not sensitive to, but will kill Bighorn sheep, like the smallpox killed the American Indian. The native sheep have no resistance to it at all. I think we need to make a choice then, you can't have both. So I'd like to see some Bighorns in the canyons. And I think my descendants would like to see Bighorn sheep in the canyons. If it discommodates some sheep man, so what.

But etched into the memory of many residents of Wallowa County is the courage and tenacity of the early settlers who braved the harsh temperatures and unforgiving slopes of the canyon. While Marcus was critical of humans' role in the degradation of Hells Canyon, he also voiced his admiration for people who had managed to survive in the area by telling a story of a Basque family in the 1950s:

The story goes that one time, [Helen] was going down to Cherry Creek Ranch, the winter headquarters. A log cabin built in 1911 by Jay Dobbins. That's where they wintered, the people looking after the sheep. She went down there to assist them, and she got off at Dead Horse spring, which is up on top, and it was six or seven miles down a steep trail to the old cabin. She was carrying a child, and all of her things, and a bicycle for one of the older girls. And she had hiked seven miles into the canyon. She said, "My legs were pretty tired when I got there." I could only imagine. They're incredibly tough and hard-working people.

The debates sparked by the management of Hells Canyon illustrate some of the most common arguments about our environment today. What is the role of humans in the landscape? Can we separate pieces of our natural world from economic interests? What is

the role of local communities that depend upon extracting the natural resources found in their back yards? At times, proponents and opponents of commodity production activities in the canyon seem to be speaking of entirely different issues: proponents point to the area's history of management and the benefits of revenues to local communities; opponents underline the uniqueness of the canyon and the need to protect it from the unrestrained hand of man.

Debates over the Hells Canyon National Recreation Area reflect society's unease regarding the role of humans in the landscape. Though some rhetoric surrounding these issues implies a human-nature dichotomy, human beings and the natural world interact constantly in complex, interdependent ways. While the natural world would certainly continue to function without humans, the very fact of our existence makes us an integral part of the environment. The natural world has entered *our* world; its integrity, its functions have become as dependent upon human economic and political factors as they are dependent upon such natural factors as climate.

Forests, like other landscapes, have been irretrievably changed by human influences. Communities which have traditionally relied upon forests are referred to as forest-dependent communities (e.g., Kusel 2001). The desired conditions, functions, and products that exist within a forest are irrevocably bound up with human institutions and values. Recent political dialogue has focused on the notion of a "healthy forest" (e.g., the Healthy Forest Initiative of 2002 and the Healthy Forest Restoration Act of 2003). The assumption that a healthy forest can exist outside the confines of human definitions is probably false; the notion of forest health, in fact, is an example of socially-constructed nature, as described by Greider and Garkovich (1994):

Our understanding of nature and of human relationships with the environment are really cultural expressions used to define who *we* were, who *we* are, and who *we* hope to be at this place and in this space. Landscapes are the reflection of these cultural identities which are about *us* rather than the natural environment (Greider and Garkovich 1994:2).

Forest health has been the focus of public debates concerning forest management since the 1990s. Debates surrounding forest practices and the threat of forest fires resulted in the 2003 Healthy Forest Restoration Act (HFRA 2003), which was written in a city far removed from the communities that it will impact. What forest health means to people in a small, rural, resource-dependent town, where the forest is an integral part of the residents' everyday lives, is an issue of vital concern if policies and laws are to address rural development and local concerns.

The forest health debate has revolved around forest conditions, particularly in inland western forests. At one time in Wallowa County, forests of giant, vanilla-scented ponderosa pine (*Pinus ponderosa*), standing far apart as if in a park, blanketed many of the hills and valleys. Today, most of the large ponderosa pine are gone, and many stands are clogged with insect- and disease-prone fir trees that grow in dense thickets. These landscape-wide changes occurred in the forests of Wallowa County through a combination of cultural, political and economic forces that led to certain management decisions. Decisions were expressed as human activity on the land, which, combined with underlying ecological processes, created the conditions we see today. The forests of Wallowa County are now susceptible to large-scale fires that may threaten human lives and property. The forest health problems of Wallowa County have been recognized for several years, yet remedial measures have been slow in coming.

At the same time, rural communities have steadily declined in well-being since at least the 1970s (Stauber 2001). An exodus of working-class families and educated youth, accompanied by an influx of wealthy retirees and second-home buyers have changed conditions in rural communities; many have lost their identities as resource-dependent communities and have shifted to low-paying service-oriented economies.

This thesis presents a local view of forest health, perceived barriers to managing for forest health, connections between forest health and community health, and opportunities for action in the forest that may contribute to community health. Additionally, I will explore community well-being and ways to retain some aspects of traditional rural identity in a changing world.

A. Methodology

The goals of this thesis are to: 1) evaluate the perceived role of humans in the management of healthy forests from the viewpoints of citizens in a rural, forest-dependent community, and to examine the relationships between the health of a community and that of its forests; and 2) give voice to citizens' viewpoints concerning forest practices and priorities that will impact the community economically, socially, and ecologically. In order to realize these goals, I set out to: 1) document knowledge and beliefs of forest stakeholders (loggers, industry workers, environmentalists, community developers, government agency workers) regarding forest health; 2) analyze the relationships between the community and the forest; and 3) contextualize rural stakeholders' views of forest health within the Healthy Forests Restoration Act (HR 1904) and other relevant forest health legislation.

Preferences for certain forest health treatments have been tested quantitatively, using surveys (Abrams et al. 2005, Shindler and Toman 2003). Social survey research typically begins with a number of assumptions based on previous research and focuses on testing hypotheses and drawing conclusions through statistical analyses. Surveys are an effective tool for determining *how many* or *how much*. This type of research is supported by the rational-analytical paradigm, in which hypotheses are formulated previous to collecting data, because the parameters of the phenomenon are assumed, usually through literature review and previous studies. The rational-analytical paradigm, also referred to as positivism, assumes that the researcher can be completely objective and that relationships between variables can be reduced and explained linearly (Lincoln and Guba 1985).

Forest health is a complex concept that encompasses political, social, and ecological meanings. A researcher who is using qualitative methodology assumes that many questions are not known *a priori* (Barlett 1990). Qualitative research that follows a naturalistic paradigm (as opposed to the rational-analytical paradigm) uses an inductive design: the researcher generates hypotheses as interviews are conducted. In this manner,

the researcher is able to ask *how* and *why* questions, and explore in depth complex linkages and relationships between variables. I used a case study approach; a case study is an investigation of “a particular contemporary phenomenon within its real life context using multiple sources of evidence” (Robson 1993:146). A case can be a “situation, individual, group, [or] organization” (Robson 2002:177). In this research, the case was the relationship between human communities and forests in Wallowa County, particularly the towns of Enterprise and Joseph. It was exploratory in nature, and sought to unearth relations within the communities as well as attitudes, values, and beliefs of individuals.

This research relied on several data collection methods – primarily interviews, along with participant observation and document analysis. Using multiple sources of evidence is a hallmark of the case study (Yin 2003). Data analysis proceeded through analysis of all three forms of data, which allowed me to check the validity of my emerging hypotheses and theories. Interviewees’ views were compared to each other, and to documents, public meetings, and informal conversations with people in the community.

I developed the case by gathering data, and then organizing the gathered information into hypotheses to be further tested. This approach lends itself well to the grounded theory methodology, which follows an adaptive, flexible framework. In grounded theory, questions, hypotheses, and sampling procedures emerge from collected data, and so they reflect empirical reality (Glaser and Strauss 1967). In grounded theory, analysis and data collection overlap: hypotheses are formulated concurrently with data collection and evolved as more data is gathered and analyzed. The study diverged from some grounded theory as described by Glaser (1992) because it began with some preliminary hypotheses garnered through two interviews (during Fall 2003) and a literature review, which aided the formulation of my thesis proposal.

1. Interviews

I contacted Wallowa Resources, a non-profit community forestry group based in Enterprise, in the winter of 2004. Wallowa Resources has operated within the county

since 1996; their staff has extensive knowledge of local conditions. Wallowa Resources is involved in a number of projects within the county, including: noxious weed control; habitat restoration (including aspen restoration); the development of community wildfire protection plans; and a restoration project in the Upper Joseph Watershed. Staff at Wallowa Resources prepared a list of people who are involved in forest issues within the county. Because the initial information was provided by Wallowa Resources, people who were active in collaborative efforts were probably over-represented relative to the general population of Wallowa County. I lived in Wallowa County for two and one half months in the summer of 2004.

I contacted several initial interviewees through the list provided by Wallowa Resources. The initial sampling was purposive: Wallowa Resources drew up a list that included people who were active in forest management and community conditions in the area, and who represented a diversity of opinions. At the end of each interview, interviewees were asked for names of other people who could contribute to the research (especially those who had opposing viewpoints). This sampling technique leads to a large list of potential interviewees. During initial interviews, I was looking for a breadth of opinions; as interviews progressed, analysis proceeded concurrently, and interviews became more focused. This process is known as theoretical sampling (Strauss and Corbin 1990, Robson 2002). As I interviewed and analyzed data, tentative hypotheses were developed and further tested through subsequent interviews and document analysis. In this way, coding (analysis) and sampling were closely linked. People were contacted and interviewed until interviews yielded no new theoretical developments, a condition referred to as theoretical saturation (Glaser and Strauss 1967:61-62).

I interviewed 35 people in the summer of 2004 (Table 1). Thirty four people were interviewed face-to-face: 33 in Wallowa County, one person Union County; additionally, one person was interviewed via email. The interviewees were initially contacted either by phone or in person. Interviews lasted between 45 minutes and five hours. All interviewees signed a consent form that granted confidentiality, and a pseudonym was assigned for each interviewee.

Table 1. Interview List (Listed Alphabetically). Ages are approximate.

Name (pseudonym)	Age (est.)	Job/background	Context of interview(s)
Adam	65	NIPF owner, worked formerly for industry; generational	Driving around his property
Alan	60	Natural resources educator	Office
Andrew	60	Forest manager for industry	Driving around industrial property
Blake	40	Forest manager for the Forest Service	Driving around National Forest lands
Carrie	40	Forest Service employee	Office
Dan	40	Cattleman	Office
Edward	60	Wildlife biologist	Office
Eugene	65	NIPF owner; generational	Driving and walking around his property
Eva	50	Outfitter	2 interviews: one in a park in Enterprise, one in a restaurant
Gustav	60	Landowner, mainly range	Restaurant
Hannah	40	Soil scientist	Her house
Jack	65	Retired forest manager from Forest Service and industry	Office
Joshua	45	Community forestry worker	Restaurant
Julie	60	Worked for industry	Email
Katherine	45	Worked for the Soil and Water Conservation District; generational	Office
Kevin	35	Lawyer for environmental advocacy group	Coffee shop
Kieran	50	Outfitter	Restaurant
Leah	40	Fuels specialist for Forest Service	2 interviews: one in an office, one on National Forest lands
Lyle	55	Real estate agent; generational	Office
Marcus	75	Former Forest Service employee	His house
Matthew	65	Retired teacher and current landowner, mainly range	Office
Melissa	40	Community forestry worker; generational	Office
Michael	60	Independent logger	2 interviews: one in an office, one at a logging site
Mitchell	45	Environmental advocate	Outside, near Wallowa Lake
Ned	60	Independent logger; generational	Office
Neil	45	Forest laborer	His employer's property
Norm	55	Forest Service employee; has worked in both fire and timber operations	Office
Olivia	40	Public services worker for Oregon	Office
Parker	60	Representative from Nez Perce tribe	Restaurant

Table 1. (continued)

Patricia	40	Worked for the employment department; generational	Restaurant
Paul	70	NIPF owner	Walking around his property
Randy	90	NIPF owner	Driving and walking around his property
Rex	40	Forest Service employee	Coffee shop
Roger	60	Fish biologist, member of the Nez Perce tribe	Restaurant
Shea	50	Former doctor in Wallowa County (moved)	Restaurant

Interviews took place in the forest (in trucks or on foot) or indoors, in an office or at a restaurant. I had contact with most interviewees more than once, either at meetings, at community events, or in social situations; three of the interviewees were interviewed twice. Interviews were unstructured and consisted of open-ended questions. In an unstructured interview, the interviewee directs the course of the discussion with prompts from the researcher. The interview would generally start with a question concerning the interviewee's profession. As the study progressed, questions became more focused because I tested hypotheses – that is, I gauged the importance of various topics and I was more likely to ask questions concerning those topics. An example was with wolves – as I looked through newspaper records and spoke with interviewees, I found that the wolf issue seemed particularly salient, and so I asked about wolves and sought out the opinion of a local wildlife biologist in order to test emerging hypotheses about the place of wolves in the county.

All recorded interviews were transcribed word for word. Three interviews were not recorded and I relied on notes. One interview was conducted via email. The transcribed interviews were assigned numbers to conceal the identities of the interviewees.

2. Analysis

Atlas.ti, a qualitative analysis computer program, was used for organizational purposes during the analysis. Analysis involved several steps. The investigator:

- 1) made notes immediately after each interview;
- 2) transcribed and/or read through each interview;
- 3) made memos describing links and contradictions in the interviews, and between interviews and documents or observations;
- 4) assigned thematic and analytical codes to individual phrases, sentences, or stories within each interview (conceptualizing); combined and modified codes in an iterative process (categorizing), and defined the dimensions of the categories (*open coding*);
- 5) defined the context and conditions of the categories and their relationships to each other (*axial coding*);
- 7) created a hierarchical coding system by integrating categories, with one central code that other codes are related to, and with larger codes denoting greater prominence or more organizational capacity (*selective coding*).

Each interview was read at least three times, and some were read as many as ten times during the coding and memoing process. In addition, a colleague coded six of the interviews, and codes were compared and discussed for verification. Three other colleagues coded one of the interviews, and codes were discussed. During this process, codes between colleagues were very similar.

These steps roughly correspond to those outlined by Strauss (1987). One prominent code, "Need to Manage" is illustrated below with some of its nested codes in Figure 1.

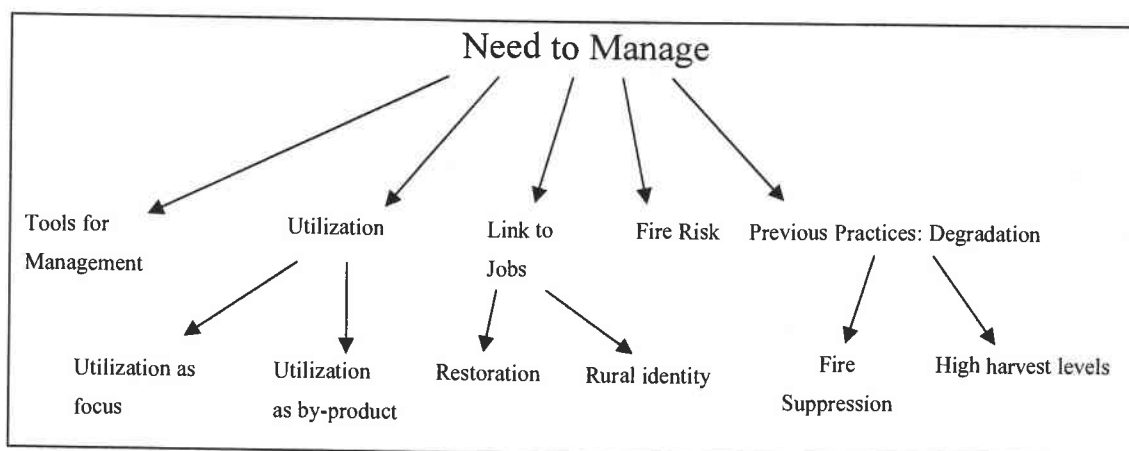


Figure 1. An example of coding labels used during the coding (analytic) process. The highest code, "Need to Manage," has the greatest organizational capacity of the shown codes.

I engaged in constant comparison during the process of coding: first, during the process of interviewing, as concepts (initial labels, or open codes) were assigned and hypotheses emerged, and later, during reviews of technical and non-technical literature. I used document analysis of literature in order to confirm or reject hypotheses and to assure that my findings were consistent with all available evidence. The following types of literature were used during document analysis:

- 1) newspapers: the Wallowa County Chieftain, from 1900 to 2004;
- 2) community-created documents: Wallowa County Court documents, records of meetings, the Wallowa County-Nez Perce Salmon Recovery Plan, the county's Comprehensive Land Use Plan, the Strategic Plan for the Future (created by 150 Wallowa County residents during eight meetings), and summary notes from Action for a Great Wallowa County Economy (a three-day meeting attended by over 70 participants);
- 3) technical literature: academic articles related to Wallowa County or to various themes (silviculture, fire suppression) that emerged;
- 4) historical Wallowa County material: journals and history books.

It should be noted that the questions which precede the chapters in the Results section were developed after the process of coding.

B. Wallowa County: In the midst of controversy, at the periphery of concern

Wallowa County occupies a remote corner of eastern Oregon, at the junction of Washington, Idaho, and Oregon (Figure 2).



Figure 2. Wallowa County and the Blue Mountains. The Wallowa Mountains are a subrange of the Blue Mountains. *Map courtesy of Jesse Abrams.*

Wallowa County was chosen as the study site for several reasons. First, it has a history of forest research; both the Blue Mountain Natural Research Institute and the Interior Columbia Basin Ecosystem Management Project were established to study forest conditions of the region surrounding the county. Therefore, the forest conditions of the county are well documented. Second, Wallowa County citizens have had a history of forest health projects initiated by community leaders. It has extensive documentation of social and economic concerns, particularly from the mid-90s onward. Third, there is considerable local interest and knowledge regarding forest health issues (personal communication, Nils Christofferson, February 2004). The topic appears to be particularly salient in the study area chosen. Fourth, the county has a large proportion of public lands,

so federal policies (such as the Healthy Forests Restoration Act of 2003) have a pronounced effect upon the people and forests within the county. Finally, the people of Wallowa County represent a diverse array of opinions, with many of them intimately connected to and invested in the management of the county's forests.

1. People in the Land: A brief history of early Wallowa County

In examining some of the history of Wallowa County, we may find clues to the character of its inhabitants today, and their relationship to the landscape that they inhabit.

Before Euro-American settlers arrived, the Wallowa Band of the Nez Perce tribe lived in the Wallowa Valley. They were migratory hunters and gatherers, inhabiting the Wallowa Valley during the summer and fall seasons. By the time Euro-American settlers reached the Valley, the Nez Perce had vast numbers of horses, which they grazed in the luxuriant grasses of the hillsides and bottomlands. In the late 19th century, Erskine Wood, then a boy of 14, kept a journal of his stay with Young Chief Joseph's band of Nez Perce in the Wallowa Valley. He recounted days of following deer and catching fish, and riding horses across the vast, open range of the valley while women collected berries (Wood 1970).

In 1855, the United States Government, then just beginning the process of settling the lands of the west, approached the tribes of eastern Oregon and Washington, including the Nez Perce of the Wallowa Valley. Governor Isaac Stevens of Washington made a speech to various tribal leaders explaining the concept of land cessation in exchange for "civilization." Most of the chiefs present rejected the very notion of giving up land; Stickus, the Cayuse Chief, said "[If] some person came and took away your mother and left you alone and sold your mother, how would you feel then? This is our mother, this country, as if we drew our living from her" (Gulick 1994:105). Several others said they saw no evidence of what they were to receive. Peo-peo-mox-mox, of the Walla Walla Tribe, said "Goods and the Earth are not equal; goods are for using on the Earth. I do not know where they have given lands for goods" (Gulick 1994:102).

In response, one of the government's negotiators, General Joel Palmer, said: "Can we bring these sawmills and these gristmills on our backs to show these people? Can we bring these blacksmith shops, these wagons ... can we cause fields of wheat and corn to spring up in a day ... can we build these school houses and these dwellings in a day ... it takes time to do these things. We come first to see you and make a bargain ... but whatever we promise to give you, you will get" (Unknown 1902:86).

Chief Joseph of the Nez Perce tribe would only agree to the 1855 Treaty if his people were allowed to remain in the Wallowa Valley; he was granted this concession. General Palmer's promise to the Native Americans was soon to be broken, however. In 1863, a new treaty was written that granted the Wallowa Valley to the United States government. The new treaty was rejected by Young Chief Joseph, as well as most of the Nez Perce tribe.

In 1864, a survey team of ten men representing the United States headed across northeast Oregon to mark the boundary between Oregon and Washington. Daniel Major led the men, and over the course of that summer, they built stone monuments, with "O" marked on one side and "W" marked on the other. The lands of today's Wallowa County proved particularly difficult, and the team took an arduous route, crossing stream after stream, up and over ridges, following the arbitrary boundary lines decreed by the United States government. Meanwhile, the sons of Chief Joseph built their own markers, copying the designs of the surveyors and following the contours of the land that they claimed as their own. They then told the white men that the land within the markers was their own (Bartlett 1992).

In 1873, after several white settlers had already come to the Valley, Young Chief Joseph grew alarmed at the prospect of being driven out of his promised homeland, and he wrote to the Department of the Interior. The government responded by prohibiting white settlement of the Valley. The settlers were aggrieved at this news, and solicited help from the Governor of Oregon, L.F. Grover, who wrote to the Department of the Interior: "The region of country in Eastern Oregon not now settled, and to which the Wallowa Valley is the key ... if this section of our state, which is now occupied by

enterprising white families, should be rewarded to its aboriginal character, and the families should be removed to make roaming ground for nomadic savages, a very serious check will have been given to the growth of our frontier settlements, and to the spirit of our frontier people in their effort to redeem the wilderness and make it fruitful of civilized life" (Unknown 1902:479).

The Nez Perce, by virtue of their nomadic ways, were not seen as the true inhabitants of the Wallowa Valley. The settlers "occupied" the new lands, but the Native Americans simply "roamed" in them. In addition, their labors were not civilizing the land – it was the plow and the saw that would make the land fruitful. The lands remained wilderness until the settlers applied their labor to them. The Native Americans were seen as noble yet savage, but their presence was soon intolerable, and by the 1870s they were described as "annoyances" and some settlers argued for their removal (Hopkins 1978, Unknown 1902, Barklow 2003).

The United States was busily improving the West and bringing to it the notions of progress and private property. The Homestead Act was used extensively in the early history of Wallowa County, as settlers claimed their 160 acres. In 1874, the DOI backed away from the 1855 treaty and white settlers again started pouring into the Valley. In 1879, Young Chief Joseph spoke to reporters in Washington, DC, where he was pleading for his people's right to the Wallowa Valley. His band of Nez Perce had been chased from their homeland and eventually forced onto a reservation in Kansas. He quoted his father, saying "Always remember that your father never sold his country ... A few years more and white men will be all around you. They have their eyes on this land" (Chief Joseph 1879:11). By 1885, much of the best agricultural land had been claimed by homesteaders (Gildemeister 1989).

After losing exclusive rights to the Wallowa Valley, the Nez Perce continued to visit the area for hunting purposes, and their presence was generally accepted, though "fences constantly became more numerous across their old trails and, at the camping spots, their tepee poles disappeared year after year ... [some settlers] would consider a

pile of these poles, wherever they found them, as 'easy wood' and would haul them home to burn" (Bartlett 1992:57).

Early white settlers displayed incredible courage to come so far from their homelands to this perceived wilderness; this courage has been told again and again in the histories of Wallowa County: "from the world across the sea our forefathers brought their knowledge and their ability ... those who survived engendered a new spirit, independent character, and potential for great accomplishment" (Hopkins 1978:99). Stories of early settlers abound with images of strong-willed, tough people. The early settlers of Wallowa County were self-sufficient, growing most of what they needed and relatively isolated from the rest of the world for many years.

Wallowa County was recognized in 1887, and its citizens chose Enterprise as the county seat in 1888. By 1889, there were three sawmills in the county, and from the early 20th century onward, "the lumber business [has been] a leading industry in Wallowa County" (Hopkins 1978:62). The county's fate has since depended largely on the rise and fall of the timber industry and various other external factors.

2. Maxville and the timber industry: External forces

The timber industry provides an excellent example of the external forces that have helped to shape the forests and communities of Wallowa County. The story of Maxville, a logging boom town, reflects some of the rapid shifts that come about when external forces – national and global markets, distant decision-makers, and technological change – come to bear on isolated, resource-dependent communities.

During the early years of cutting lumber in eastern Oregon, only the biggest and straightest trees were taken, and often only the ponderosa pine: "The older mill men in Eastern Oregon [take] out only pine. But it is certain that in time these species [Douglas-fir and larch] will become more valuable as the pine decreases in quantity ... the wood of the Yellow pine, which is abundant, is exceptionally good in quality. Until the supply of Yellow pine is reduced through consumption, larch and Douglas fir will not come into general use" (Bright 1913:2).

Ponderosa pine became the preferred commercial species, to its detriment. While early foresters may have recognized “the opportunity to bring about the highest and best use for this land and yet conserve, without depletion of these renewable resources” (WCMB 1983:55), their actions belied this philosophy, as the largest ponderosa pine of the region was being steadily depleted (Langston 1995).

In 1908, the railroad reached Joseph, at the end of Wallowa County. Palmer Lumber, based in La Grande, capitalized on the recently-finished railroad lines that stretched to Joseph by extending spur shoots into northern parts of the county around Promise. The Bowman-Hicks Lumber Company, headquartered in Louisiana, purchased the Palmer Lumber operations in the northern country in 1922, along with their mill in the town of Wallowa. Bowman-Hicks built the town of Maxville in 1923 and used it as a base to enlarge their operations greatly, with spur lines radiating into the wooded hills (Highberger 2001, Unknown 1902).

Bowman-Hicks brought many of its own workers up from the south, including a number of black men and their families – probably the first black people in the area. The town was built quickly; in one year, Bishop Meadows, an old homestead, was replaced by a town that had over 40 cabins, a store, two schools, a baseball field, and a doctor’s office. It was described at the time in the newspaper *Wallowa Sun* as a “permanent logging camp.” It had about 400 residents by 1923.

The coming of Bowman-Hicks marked an end to most of the gyppo logging (independent operators) in the area. Bowman-Hicks increased the efficiency of removing timber through increased mechanization – while horses were still used for skidding the logs from where they were cut to the loading area, steam “donkeys” loaded the logs, and extensive railway lines hauled the logs to the mill at Wallowa. With the help of technology and an influx of capital, the removal of the pine became more efficient. Employment patterns changed, as well: prior to the arrival of Bowman-Hicks, most of the logging of the area was done by gyppo loggers (independent contractors), who logged with horses. After its establishment, Bowman-Hicks effectively controlled the lumber market of the area, “from feller to sawyer” (Highberger 2001:17).

The Depression in 1929 brought hard times to most people in America, including the logging industry in Wallowa County. The Eastern Oregon Lumber Company in Enterprise closed down, and Bowman-Hicks suffered financially. Roads started replacing railroad lines for timber operations. Maxville was closed down in 1933, after years of declining employment and population.

The Bowman-Hicks mill in Wallowa was bought by the J. Herbert Bate Company in 1944. In 1963, a bitter, and sometimes violent, strike broke out at the J. Herbert Bate mill in Wallowa. When at last the strike had ended, the mill suddenly announced that it was discontinuing operations and all employees (then about 200) lost their jobs. The reasons were due to "increased competition from lumber imports" and the local newspaper editor responded with encouragement: "perhaps for the first time we are face to face with the realization that we must stir ourselves and make some genuine efforts to control the destiny of this county if progress rather than stagnation is to be the tone of tomorrow" (Coffman 1984:159).

Boise Cascade bought the J. Herbert Bate mill in 1965, and sold its mills and property to an investment group in the summer of 2004. This story illustrates the volatility experienced in forest-dependent communities such as Wallowa County when powerful, distant forces exert control over the community's resources and, by extension, its citizens. The story is also about access: who has access to the land and its resources, and who benefits from that access.

3. Conditions in the forest

In 1847, George Perkins Marsh, a renowned conservationist, delivered an address in which he compared the savage, unrefined land management of Native Americans to the civilized, productive land management of settlers. He spoke at length about perfecting nature through technology and human effort. He said that humans could acquire a "complete mastery over inanimate nature" (Marsh 1847:24). He also advocated the conversion of timberlands to the European system of second growth plantations in order to provide for the nation and for the future.

In the 19th century, the call to improve and tame nature was compelling. The vast, seemingly wild continent of North America was being opened up by the Euro-American pioneers of the United States. The Louisiana Purchase of 1803 expanded the territory of the United States to the Rocky Mountains. In 1805, Lewis and Clark reached the Pacific Ocean. People of the United States were moving steadily westward, settling and domesticating the landscape as they went. The Homestead Act of 1862 granted any person over the age of 21 the right to own, farm, and improve 160 acres. This act eventually led to the settlement of 270 million acres. The Homestead Act was, in essence, a federal attempt to civilize the continent.

Euro-American settlers were often employed to extract the raw materials of the forests and the hills, and the nation depended on these materials to build and run its houses, its schools, and its factories. In many cases, the natural resources that made the United States great were being removed more efficiently, and more quickly, than they could be replenished. Many of the assumptions underlying the taming of the land – increasing productivity and efficiency, utilizing the land primarily for its capacity to provide materials – created changes in the landscape. Certain components of the ecosystem, such as fire, old trees, and wolves, were removed from large areas. New landscape types, particularly single-species agricultural crops and tree farms, were encouraged, and the landscape was generally homogenized.

Forest management practices of the past, including logging, grazing, and fire suppression, have contributed to forest conditions that are vastly different from historical conditions. Though the products of the forest and the land were utilized in order to build a great nation, certain components of the forests began to suffer. Species disappeared and large, stand-replacing fires became more frequent, threatening lives, property, and the forests themselves.

a) Historic Conditions in Wallowa County's Forests

Historically, many stands in Wallowa County fit the classic inland West park-like description: big old trees with a luxuriant understory of grasses and flowers that was

routinely burned away and rejuvenated (Agee 2002). The southern slopes and drier sites of Wallowa County were once dominated by ponderosa pine (*Pinus ponderosa*). Northern slopes and wetter places were often mixed conifer, with ponderosa pine, Douglas-fir (*Tseudotsuga menziesii*), grand fir (*Abies grandis*), western larch (*Larix occidentalis*), and engelmann spruce (*Picea engelmannii*); Douglas-fir and grand fir are later successional stages in this type (Langston 1995). The ponderosa pine, along with some western larch, was often maintained on these sites because of the frequent, low-intensity fires that killed back the fire-intolerant Douglas-fir and grand fir (Arno 1988).

Ponderosa pine is a species with thick bark and a deep taproot, which allows it to survive frequent, low-intensity fires (Arno and Hammerly 1977). Ponderosa pine was favored by historic burns because fires killed back less fire-tolerant species. Historical, low-intensity burns “maintained an open forest structure, reduced forest biomass, decreased the impacts of insects and diseases, and maintained wildlife habitats for many species” (Graham et al. 2004:3).

Frequent, low-intensity fires ran through the ponderosa pine stands at varying intervals and small patches of one or two acres developed; most patches contained mature trees and the landscape was covered with a diverse understory of low shrubs and herbaceous plants. Trees reproduced when fires occurred at longer rotations, giving young trees a chance to become established and possibly survive the next round of fires (Agee 2002). A mosaic of different stand structures was maintained across the landscape because of frequent fires, staggered tree establishment, insects, floods, and windthrow (Weaver 1943, Johnson 1994, Arno et al. 1995, Arno et al. 1997). Frequent disturbances were a “rejuvenating” force in the Blue Mountains, and vegetation was generally adapted to these disturbances (Johnson 1994).

Old growth ponderosa pine forests, defined here as open, park-like stands with large, widely-spaced trees and low levels of coarse woody debris (Youngblood 2001) composed approximately 90 percent of the landscape (Committee on Environmental Issues in Pacific Northwest Forest Management 2000). However, not all old ponderosa

pine were large; in fact, "small old growth" may have had an important ecological role (K. Norm Johnson, personal communication, June 2005).

Native Americans managed fire in the area, setting many of the fires deliberately. These fires encouraged grass regeneration for desired ungulates such as elk and deer, improved hunting and mobility through the forest, and promoted certain vegetative species (Pyne 1982, Robbins and Wolf 1994). The forests of Wallowa County, then, had been shaped by human decision-making long before Euro-American settlers came to the area. The Native American inhabitants of the region co-evolved with the ecological processes and conditions that led to the ponderosa pine forests that Euro-American settlers first came upon. Coevolution, in anthropological terms, is a process of adaptive human behavior (usually accomplished over time and in small steps) which favors certain plant and animal species and ecological processes (Redman 1999).

Park-like ponderosa pine and mixed conifer stands were not the only types of forest in the valleys and hills of Wallowa County. Stands of lodgepole pine (*Pinus contorta*) experienced infrequent, stand-replacing fires (Johnson 1994), and high elevations supported stands of subalpine fir, which also have stand-replacing fires (Arno and Hammerly 1977). However, current discussion involving healthy forests focuses on the more productive, low- to mid-elevation sites that historically supported Ponderosa pine and mixed conifer stands.

b) Current Conditions in Wallowa County's Forests

Wallowa County has a diverse landscape, with elevations ranging from about 1000 feet above sea level in Hells Canyon to 9838 feet at the peak of Sacajawea mountain, in the Eagle Cap Wilderness. It encompasses approximately 3,145 square miles (US Census 2000), with over half of its lands in public ownership (Table 2):

Table 2. Land ownership in Wallowa County. From the Wallowa County Planning Department, Land Use Plan, Appendix 6-2.

Land Use	# of acres	% of land base
Federal (primarily USDA Forest Service)	1,159,334	57.6
Private, Range	421,021	20.9
Private, Forest	309,155	15.4
Private, Cropland	101,696	5.1
Urban	16,271	.8
Water Area	4,067	.2
TOTAL	2,011,544	100.0

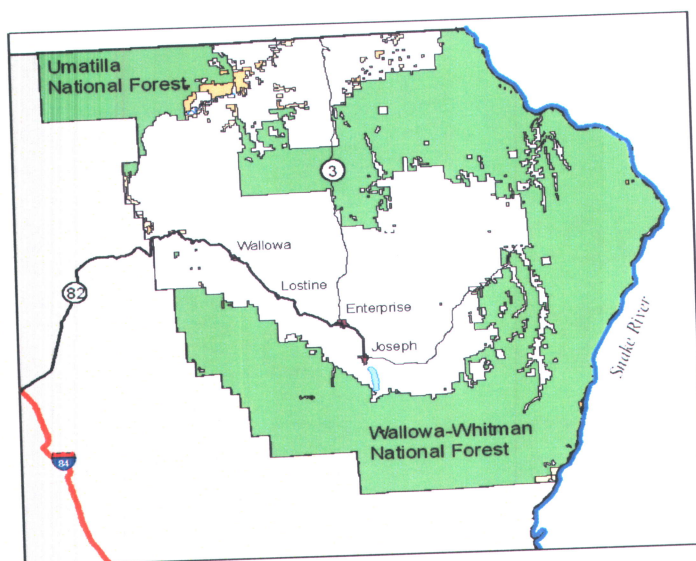


Figure 3. Wallowa County, with its major towns and highways. National forest ownership is shown in green; BLM land is yellow. *Map courtesy of Jesse Abrams.*

Of the total land base, 26% is considered available timberland (land capable of growing at least 20 cubic feet of industrial wood per acre per year and not reserved or withdrawn). Although public lands make up over half of the land base in Wallowa County, their contribution to available timber land is significantly smaller, because many of the public lands are high altitude or otherwise unproductive. Since white settlement,

Wallowa County's forests have changed dramatically. Increased density, or higher basal area and trees per acre, is the most profound change in ponderosa pine-Douglas-fir forests of the 20th century (Arno et al. 1995, Arno et al. 1997). Wallowa County has about 271,000 acres of nonreserved national forest timber land, 127,000 acres of industrial timber land, and 105,000 acres of "miscellaneous private" timber land (Campbell et al. 2004). Of these, 49,000 acres of national forest, 40,000 acres of private industrial, and 45,000 acres of other private timber land are considered overstocked (Oregon Department of Energy (ODE) 2003).

Table 3. Total acres and overstocked acres in Wallowa County. From ODE 2003.

<i>X 1000 acres</i>	National Forest	Private, industrial	Private, miscellaneous
Overstocked	49	40	45
Total acres	271	127	105
% overstocked	18%	31.5%	42.8%

In the Blue Mountains, tree density has increased dramatically and species composition has changed (Skovlin and Thomas 1995). Shade-tolerant species have grown into stands in dense thickets because they're no longer killed back by periodic fire. Most of the largest Ponderosa pine and western larch have been removed – Ponderosa pine old growth stands have decreased in area by at least 90 percent in eastern Oregon (Henjum et al. 1994). Species which are favored by stand-replacing fires, like lodgepole pine, subalpine fir, and grand fir, have been favored.

True firs are less fire-tolerant than ponderosa pine because of their relatively thin bark. Additionally, these species are more likely to create "fuel ladders" because their lower branches don't die out from shading, creating a continuous fuel load from the forest floor to the crowns of trees. Grand fir, commonly called "white fir" in Wallowa County, is particularly prone to diseases and insects and is very shade-tolerant (Arno and Hammerly 1977); this species has become much more common in the Blue Mountains (Quigley et al. 1996). Fires can climb from the forest floor up their branches into the crowns of larger trees, including remnant large ponderosa pine.

Fires in the inland West today burn with a higher intensity because of overall increased fuel loads (on the forest floor, in the understory, and in the crowns), which may result in more stand-replacing episodes (Agee 1993). Fire regimes within the county have changed dramatically, usually from non-lethal to lethal or from non-lethal to mixed (Quigley et al. 1996).

Stands' vulnerability to insects and diseases is multiplied by the extreme density of the stands (Sampson and Adams 1993, Torgerson 2001, Thies 2001). High density intensifies competition for water and nutrients, weakening trees (Mutch et al. 1993, Wickman 1992). As trees succumb to insect and disease outbreaks, additional fuel is added to the forest, worsening the fire problem (Hall 1980).

C. Healthy Forests, Healthy Communities: Politics and Policy

1. Forest Health: A Nationally-recognized Problem

The experts who know something about forests will tell you that the condition, the overgrown and unhealthy condition of a lot of our forestland happened over a century. It's taken a while for this situation to evolve. It may interest you to know that today there's 190 million acres of forests and woodlands around the country which are vulnerable to catastrophic fire because of brush and small trees that have been collecting for literally decades. A problem that has taken a long time to develop is going to take a long time to solve. So what we're going to talk about today is the beginnings of a solution. But we've got to get after it now. We have a problem in Oregon and around our country that we must start solving.
— President George W. Bush, August 21, 2003, speech in Redmond, Oregon

According to many scientists and policy-makers, the forests of the inland United States today are experiencing poor forest health; the forests of the Blue Mountains have been described as "unhealthy" by a number of researchers (e.g., Oester et al. 1992, Johnson 1994, Mutch et al. 1993, Wickman 1992, Quigley 1992, Quigley et al. 1996). There are many definitions of forest health, as the term has been used by scientists,

politicians, environmental and industry groups, and the general public. Forest health has, in fact, become a political term, with contentious and partisan implications.

However, definitions found in the academic literature reveal consistent patterns, describing similar conditions, problems, threats, and solutions that are embodied by the term "forest health." Most definitions of forest health within the contemporary academic and technical literature contain two primary elements: 1) resilience to disturbance, and 2) ability to provide benefits to humans. For example, Rogers et al. (2001) define a healthy forest as one which "displays resilience to disturbance by maintaining a dynamic set of structures, compositions, and functions across the landscape [and which] meet[s] the current and future needs of people in terms of values, products, and services (Rogers et al. 2001:4). At a 1994 symposium on ecosystem management, 50 natural resource professionals developed the following definition: "Forest health is a condition of forest ecosystems that sustains their complexity while providing for human needs" (O'Laughlin 1994).

Generally, forest health, in the context of most current policies and public discussions, refers to inland forests of the western United States. The General Accounting Office, in 1999, said that "the most extensive and serious problem related to the health of national forests in the interior West is the overaccumulation of vegetation, which has caused an increasing number of large, intense, uncontrollable, and catastrophically destructive wildfires" (GAO 1999:3). These forests have experienced profound changes since Euro-American settlement. It is these forests, and the changes in forest conditions described in sections above, that will be discussed in this paper.

There is some scientific consensus regarding forest health. Two conferences, held ten years apart, illustrate this consensus. The first, in September of 1994, was entitled "Forest Health and Fire Danger in Inland Western Forests." A parade of scientists, politicians, and others stood up to agree with each other in describing the forest health problems of the inland west. Robert Mutch of the Intermountain Fire Sciences Laboratory said: "If it hasn't been made clear enough yet, ponderosa pine ecosystems are teetering on the brink of collapse" (Mutch 1994:20). The participants agreed, generally, on the

approach necessary to alleviate forest health problems: a system of thinning and prescribed fire on a large scale.

The second conference, held in November of 2004, was called "USDA Forest Service: The Next 100 Years: A Conference on Fire and Forest Health." At this conference, several of the same speakers stood up and said essentially the same thing: there is a serious problem in inland forests, and the solutions may be within our means. Often, participants agonized over the barriers to forest health: litigation, federal budget and funding woes, a continuing emphasis on fire suppression, houses in the wildland-urban interface, poor policy incentives. The barriers, as well as the opportunities for success, were expressed as human decisions. If there were forest health problems, then, they were the problems of humans. Orville Daniels, retired from the Forest Service (after years as a Forest Supervisor in Montana), said: "I think the problem for the next thirty years is going to be the same problem that we had for the last thirty: we know a lot about what needs to be done, but the issue is whether we have the social, political, and economic infrastructure to get it done" (Daniels 2004:15).

Forest health was also mentioned as an opportunity. It was an opportunity to manage forests that had been, at turns, exploited or neglected over the years. It was an opportunity to build relationships between groups of people who distrusted each other. Elizabeth Arnold, a reporter for National Public Radio, said: "If the Forest Service can demonstrate to the public and to the Hill and to the press that it can be trusted and that these thinning projects are, indeed, thinning projects and aren't something else, that's the opportunity right there, and that's the way to tell the story" (Arnold 2004:21). This was also an opportunity to come to grips with issues that had been simmering for years.

Forest health issues are much older than the term "forest health" itself. In 1943, Harold Weaver published an article in the *Journal of Forestry* in which he described the deleterious effects of certain management activities (especially fire suppression) and said "the present deplorable and increasingly critical conditions in vast areas of the region are proof that foresters have not solved the silvicultural problems of ponderosa pine, and to continue present policies will further aggravate an already serious situation" (Weaver

1943:13). Many observers, however, have pointed out that the foresters of the nation, and the political and economic systems that help dictate management of the national forests, continued to push for traditional management regimes that may have further undermined the health of the forests (Pyne 1982, Langston 1995).

2. Community Health: The Decline of Rural America

Early in its history, America was a rural country. People were dispersed across the landscape on farms and in small communities, and cities served the rural population as transportation hubs. Around the time of the civil war, however, “rural America went from defining America to supplying it” (Stauber 2001:40). This new America used its rural hinterlands to provide the raw materials that propelled it to a world power.

Since that time, urban and suburban America have increased in wealth and amenities, while many rural communities have experienced growing poverty and instability (Rural Sociological Society Task Force (RSST) 1993, Stauber 2001). In the Pacific Northwest, resource-dependent communities are particularly vulnerable (Phillips 1999). While Oregon as a whole saw growth in the high-tech and other industries during the 1990s, resource-dependent communities, particularly isolated communities such as Wallowa County, suffered (Helvoigt et al. 2003). Rural counties in Oregon, generally, have higher unemployment and lower wages than urban counties (Oregon Progress Board (OPB) 2003). This pattern is expected to continue, with future job growth strongest in metropolitan and well-connected regions of the state (Moore 2005). Fourteen percent of Wallowa County’s citizens are under the poverty level, compared to 11.6% for Oregon overall (U.S. Census 2000). Unemployment levels for the county have been consistently high; in 2003, Wallowa County had the 5th highest unemployment rate (OPB 2003). Both household and per capita incomes are much lower than for Oregon overall (Table 4).

Table 4. Per capita and household income for 1999. From: U.S. Census 2000.

	Wallowa Co.	Oregon	United States
Median household income	\$32,129	\$40,916	\$41,994
Per capita money income	\$17,286	\$20,940	\$21,587

In 2001, Wallowa County ranked 33rd out of 36 counties in Oregon on composite economic rankings (including net job growth, per capita income, wages, and unemployment); in 2003, Wallowa County ranked 30th out of 36 counties (OPB 2003:81). In fact, since 1969, the real earnings per job have fallen in Wallowa County, while earnings in Oregon and the United States as a whole have risen (Figure 4):

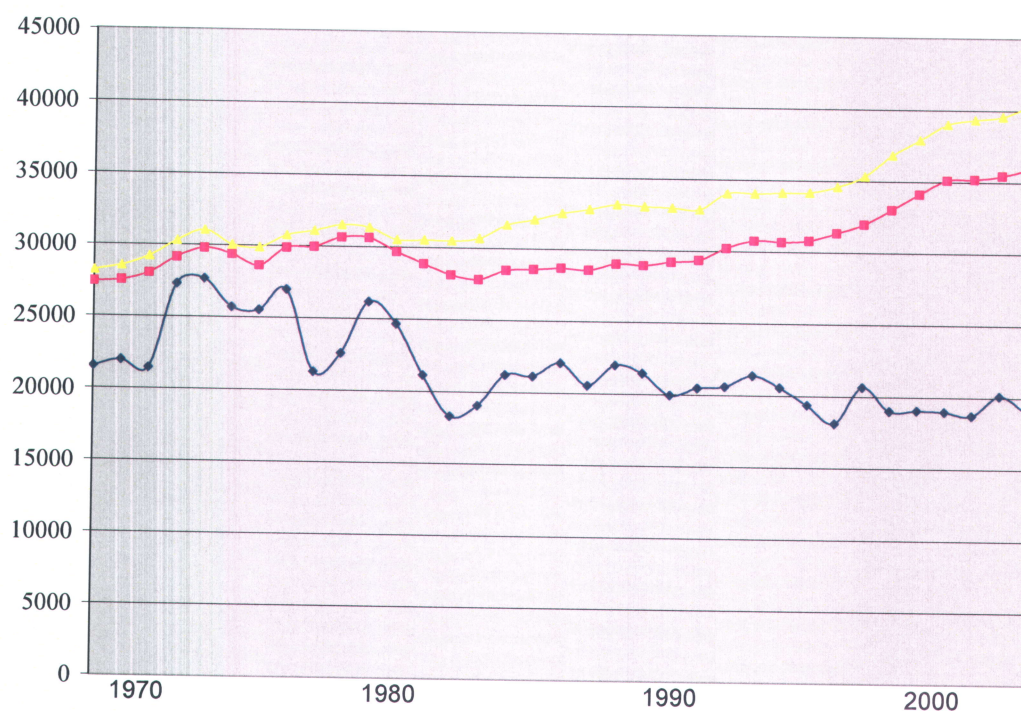


Figure 4. Per capita income in Wallowa County (blue line), Oregon (pink line), and the United States (yellow line) from 1969 to 2003. The Y-axis represents per capita income in year 2000 dollars. From the Washington State University Northwest Income Indicators Project.

In dealing with forest-dependent communities, the United States Forest Service has historically adhered to a model of community stability based on sustained yield; the following quote is from a 1944 law which established sustained-yield units in national forests: "In order to promote the stability of forest industries, of employment, of communities, and of taxable forest wealth, through continuous supplies of timber" (U.S. Code Title 16 Chapter 3 Subchapter IV §583). Proponents of sustained yield assumed that a steady or increasing level of timber supply would keep a forest-dependent community stable; however, even as harvest levels were increasing through the 1970s in northeastern Oregon, timber job numbers were declining (Pekar 1981). The model of sustained yield may be less helpful for communities than one based on community resilience that includes orderly change and the ability to adapt to changing conditions (Kaufman and Kaufman 1946, Beckley and Korber 1994). While sustained yield maintained a stable flow of timber, it could not prevent mechanization, consolidation, globalization, and the exportation of manufacturing jobs overseas, all of which have contributed community instability over the years (Robbins 1988). Other factors, such as local historical events, natural disasters, and both local and large-scale societal changes, also confound the relationship between sustained yield and community stability (Force et al. 1993).

Sustained yield also relied on the assumption that vigorous new crops of trees, replacing the slow-growing old-growth forests, would allow the Forest Service to continue high levels of harvest into the future. The regulation of the forests – cutting the old trees to make way for the new – was a policy of the Forest Service since at least the 1920s (Parry et al. 1987). Political and ecological considerations, however, severely curtailed harvest levels on the national forests beginning in the 1990s (Figure 5), partly in response to the disappearance of the old forests. The call to preserve some old-growth forests became compelling as they disappeared across the landscape.

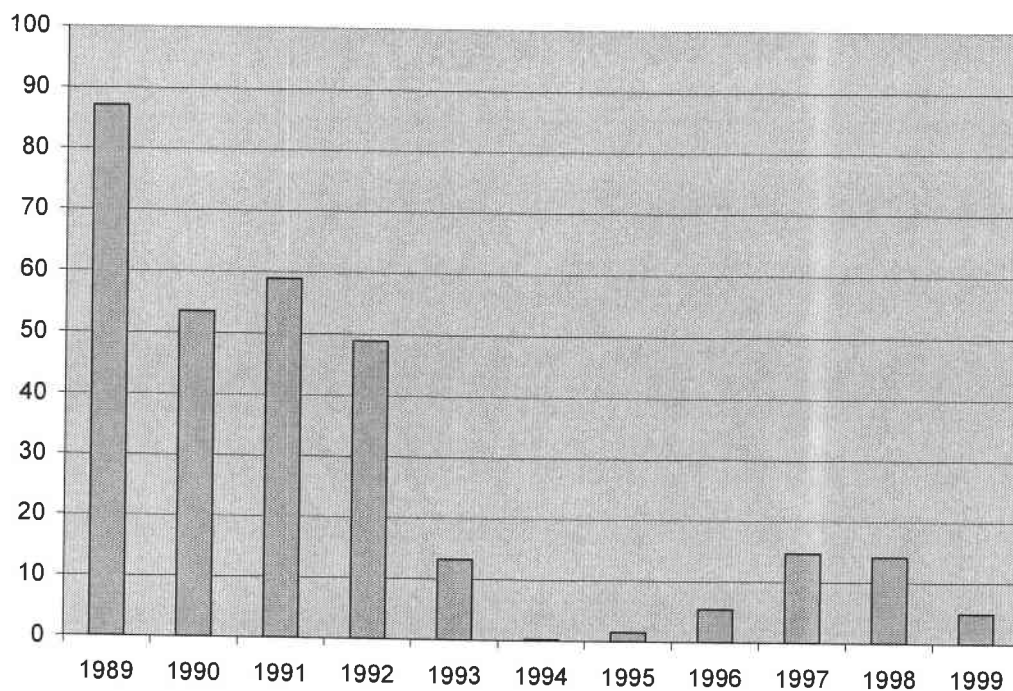


Figure 5. Timber harvest levels in Wallowa County on public lands (Forest Service and BLM), from 1989 to 1999. The Y-axis is in million board-feet (MMBF). From Ehinger and Associates 2001.

Declines in harvests have contributed to a lack of stability in forest communities, including Wallowa County. Communities that were highly dependent upon public timber supplies, such as those in eastern Oregon, have seen mills close and timber jobs decline (Figure 6). The forest industry and timber workers have responded with dismay: "The Society of American Foresters believes that the condition of a substantial portion of federal timberlands could be improved with timber harvesting, and that rural communities and society would benefit from employment opportunities by providing industrial raw material supplies and manufacturing timber into consumer product" (Society of American Foresters 2005:1).

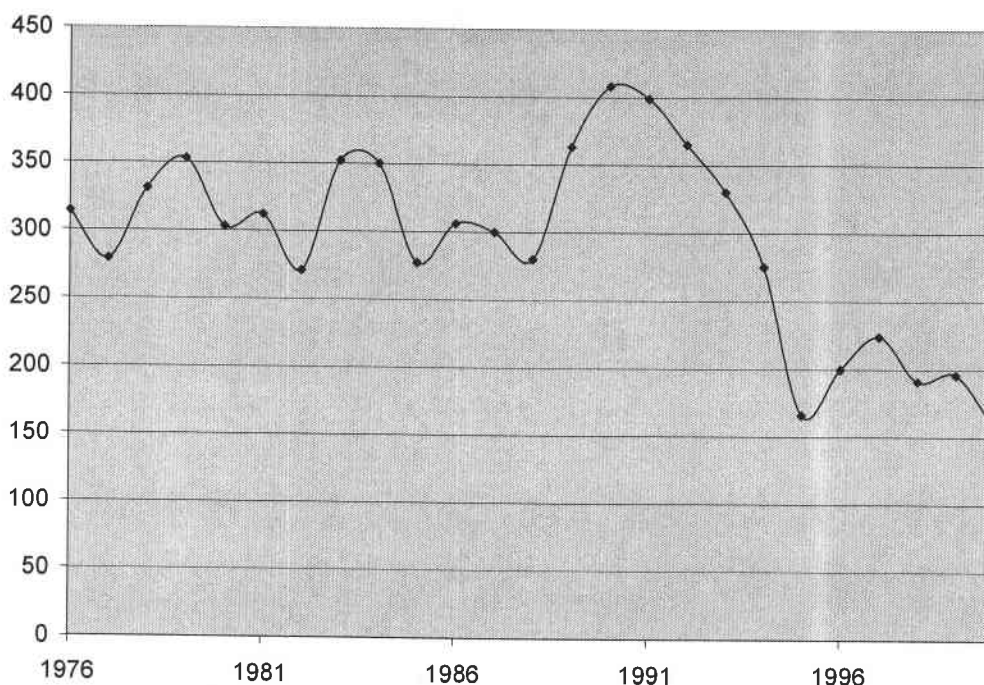


Figure 6. Number of lumber and wood products manufacturing jobs (SIC 24) in Wallowa County from 1976 to 2000. The Y-axis indicates the number of SIC 24 jobs in the county. From the Oregon Employment Department, Oregon Labor Market Information System.

In the aftermath of timber harvest declines on public lands, attempts were made by the federal government to provide displaced rural timber workers with suitable jobs (e.g. Jobs in the Woods); these efforts have largely failed (Carroll et al. 2000). Many federal programs aimed at forest-dependent communities have prepared people for nonexistent restoration jobs. Without adequate funding and policies that addresses both the needs of the land and the needs of forest-dependent community labor forces, rural communities are struggling to maintain their unique histories and connection to the land; they are, in many cases, becoming second-home or retirement communities (Egan and Luloff 2000, Johnson and Beale 1998).

In order to maintain forest-dependent communities, it may be necessary to operate within longer time frames than the current short-term thinking of industry and national politics (Berry 1995). Community *adaptability*, which may include “levels of human capital, the imagination of community leaders, the ability to access information, and the

availability of a flexible, diverse resource base" (Beckley 1995:265) may be a more useful concept than community stability. Stauber (2001) outlines three ways to improve rural conditions through public policy: 1) maintain a viable middle class; 2) reduce poverty; and 3) "sustain and improve the quality of the natural environment" (Stauber 2001:35).

3. Federal Policy Arena: Conflict and Polarization

Wildfires became a part of the public dialogue around 1988, with the well-publicized burns in and around Yellowstone National Park. Wildland fires had been part of the national landscape for many years, but the large-scale fires in Yellowstone affected a place that was sacred to many Americans. It was Yellowstone's importance to humans that made the fires different from many previous fires.

Large-scale fires continued to capture the public's attention throughout the 1990s, particularly since many fires destroyed human lives or property. The fires in Oakland, California, in 1991, burned over 3000 homes. In 1993, wildfires in southern California burned more than 700 homes and killed three people. In 1999, 28 firefighters were killed in wildfires.

In 2000, the Departments of the Interior and Agriculture issued a report entitled *Managing the Impact of Wildfires on Communities and the Environment* (Babbitt and Glickman 2000). This report became the guiding plan for fire management in the United States; it is known as the National Fire Plan (NFP). In 2002, a year in which nearly 7 million acres burned in wildland fires, President George W. Bush created the Healthy Forests Initiative, which aimed to confront threats associated with large-scale wildfires by removing barriers to the implementation of the NFP. These barriers were largely seen as a result of procedural delays; the HFI "intended to accelerate implementation of the fuels reduction and ecosystem restoration goals of the NFP in order to minimize the damage caused by catastrophic wildfires by reducing unnecessary regulatory obstacles that have at times delayed and frustrated active land management activities" (Federal Register

68(235):68,255). Congress responded to the HFI with legislation entitled the Healthy Forests Restoration Act (HFRA 2003), which passed into law in December, 2003.

Federal policies are often adapted within an atmosphere of interest group pluralism, in which "people pursue their interests by joining an interest group that promises to advance an agenda consistent with their values" (Baker and Kusel 2003:95), polarized groups develop with seemingly incompatible goals. Policies develop which cater to one or the other of a dichotomous "side," with compromise as a tug-of-war, rather than collaboration. At a national political level, the notion of a healthy forest is highly polarized and politicized: "All of us desire a healthy forest. However, agreement ... quickly dissipates into disagreements over definitions, desired ends, and means of achieving forest health" (Hall and Bigler-Cole 2001:208).

Public perspectives regarding forest health have been characterized, both within the academic literature and popular media, as dichotomous, with two polar groups representing the pro-environment and pro-industry sides. Broadly defined, these two groups have been described as biocentric/ecosystem and anthropocentric/utilitarian (Ribe and Matteson 2002, Nie 1999, Jenkins 1997, Kolb et al. 1994). The utilitarian viewpoint, which places human resource needs as the central value of forests, has described forest health as the absence of fire, insects, and disease. The resources that humans can derive from forests constitute the forests' primary value. The ecosystem viewpoint, on the other hand, stresses the importance of intact natural processes and a "natural" or "historical" condition. This perspective considers the forest to be inherently valuable, outside of material benefits it might provide to humans.

Policies that result from interest-group pluralism either demonize or reward populations. Forest policies and policy debates have largely assumed a "jobs" versus "the environment" stance, which does not allow for changes in *how* jobs relate to the environment.

Schneider and Ingram's (1993) categories of "advantaged" and "deviant" groups can help clarify the function of policy regarding loggers and harvesting activities. Policies within a democracy are based upon social constructions of policy target

populations (Schneider and Ingram 1993). Policy makers use incentives and disincentives to influence behavior; which tools are used depend upon the policy makers' views of the target population and its expectations, needs, and motives (Schneider and Ingram 1990). In American federal land-use policy, it appears that the logger (as well as the miner and the farmer) were at one time "advantaged" – their services were seen as coinciding with the public interest and they were treated with respect (and financial incentives) by the government. This advantaged status was the result of rural America's "frontier" status, when rural America was seen as the provider of raw materials important to the growth of the United States (Stauber 2001).

The suburbanization of the United States, coupled with globalization and the view that raw materials could be procured from other countries, may have precipitated the decline in status of rural lifestyles (Stauber 2001). Certain environmental policies that focused on punishing traditional rural activities, such as the Endangered Species Act and the Clean Water Act, may have shifted the logger into the category of "deviants." Deviants, under policy assumptions, "can expect to be punished unless they change their behavior or avoid contact with the government" (Schneider and Ingram 1993:342).

Federal forest policies and funding mechanisms, then, may sometimes serve to undermine community efforts, particularly as urban and suburban political voices have become stronger. As political forces push and pull at land-use policies, rural communities are left to deal with the consequences of policy shifts. Land-use policies may be hypothetical and removed to policymakers in Washington, D.C.; in Wallowa County, they are more immediate and nuanced.

4. The Healthy Forests Restoration Act: A Symbol of Conflict

While the academic community may have come to some level of agreement over forest health issues, within the political and public sphere, the issue has remained controversial. The polarized and politicized nature of the healthy forest dialogue was illustrated by the HFRA debates in Congress during 2003. During these debates, the

forest served as a backdrop, while Congresspeople debated the role of *people* within the forest.

Many proponents of HFRA spoke of destruction in the forests and painted dire pictures of burning forests that threatened people and valuable resources: "For millions of Americans, particularly in western States ... the threat of forest conflagrations is not a hypothetical possibility, but a daily reality" (Rep. Cannon R-UT, Congressional Record 5/20/2003). This symbolic imagery, of fires raging through people's homes, was an effective tool in getting HFRA passed; after the California wildfires of October 2003, in which thousands of homes burned and 22 people died, many Congressional opponents to HFRA changed their votes.

Proponents of HFRA claimed that appeals and litigation were the root cause of forest health problems: "Forest fires are a symptom of a land management system that suffers from procedural, managerial, and practical gridlock" (Rep. Goodlatte R-VA, Congressional Record 11/21/2003). The appeals and litigation had led to a lack of management: "what is not in balance is a policy that allows forests to burn at will simply because we deny the right of limited management to reduce fuel loading, to stop bug kill, and to slow the dead and dying trees" (Sen. Crapo R-ID, Congressional Record 10/29/2003). According to sponsors of HFRA, management delays were the result of litigation and appeals from (primarily environmental) interest groups. When a land management project is proposed by the Forest Service or Bureau of Land Management, the project undergoes public scrutiny through processes outlined in the National Environmental Policy Act (NEPA), which allows for appeals and litigation from members of the public. The George W. Bush administration has been supportive of changes to public input processes found in NEPA, as well as to other legislation affecting appeals and litigation, such as the National Forest Management Act and the Endangered Species Act.

Congressional opponents of HFRA usually pointed to flaws in the bill itself, rather than forest health issues. Several pointed out that HFRA reduced many public input opportunities by allowing projects to bypass or streamline NEPA procedures, and

that funding was insufficient for restoration purposes: “the effect of these large wildfires can be catastrophic, as we can all see” but HFRA doesn’t deal with healthy forests, rather it deals with the perceived problem of “too much public participation” (Sen. Bingaman D-NM, Congressional Record 10/29/2003). Senator Bingaman objected particularly to §105 of HFRA, which limits civil action opportunities. In his view, it was not public participation that was creating forest health problems, but inadequate funding for restoration. Bingaman pointed out that Congress had already passed the National Fire Plan, which proposed proactive fuels reduction and prescribed burning, only to then underfund it.

Some opponents of HFRA indicated that there was insufficient trust in the Forest Service and its intentions for public input processes to be streamlined: “We have 58 million acres of roadless areas which are the crown jewels of our national forest, which are pristine, and everyone loves the trees in our roadless areas. The problem is some of them love them vertically and some of them like them horizontally. This bill does not protect our roadless areas from the ones who want to do commercial logging so that they will be horizontal” (Rep. Inslee D-WA, Congressional Record 11/21/2003).

The debates in Congress were less about the status of the forests than they were about what role humans should play in the forests. Two sides crystallized, with one claiming that appeals and litigation had led to a lack of management that had resulted in forest fires, and the other claiming that public participation was the only check to overcutting and economic exploitation of the nation’s forests.

5. HFRA and the state of the forest

HFRA proposed to improve ecological conditions within the forest through a combination of streamlining public appeals and providing incentives for fuels reduction and insect and disease control projects.

1) Streamlining public appeals

Fire policies from 1995 have emphasized restoration of ecological processes such as fire through active management (USDA Forest Service 1995, USDA 2001). Numerous barriers, however, have arisen to block implementation of fire management activities (Stephens and Ruth 2005). One of the perceived barriers was deemed “analysis paralysis” (USDA Forest Service 2002a) and measures to streamline public input and reduce appeals and litigation opportunities were presented by President Bush under the Healthy Forests Initiative. NEPA, which has provided a means for the public to access land management decisions, requires Environmental Assessments (EA) and Environmental Impact Statements (EIS) for projects that may have effects on the land. These EAs and EISs may delay or prevent project implementation.

HFRA §104 reduced the number of alternatives to be considered for a fuels reduction project under NEPA; within 1½ miles of a community, no alternatives need to be considered. HFRA §105(a)(3) established new requirements for eligibility: opponents of a proposed project must submit specific objections to the Secretary (of Agriculture, in the case of the Forest Service) in order to participate in the administrative review process.

HFRA created one new Categorical Exclusion (CE) to NEPA, which allow for a project to proceed without an EA or an EIS. Under §404(d), silvicultural projects that treat 1000 acres or less may be excluded. The HFI created several other Categorical Exclusions. These CEs may expedite small projects.

2) Prioritization and funding for projects

Priority for fuels-reduction projects was given to Condition Class 2 and 3 lands, where fire regimes had been moderately to significantly altered from historical conditions (§101(4) and §101(5)). Priority was given to the removal of small-diameter trees (§102(f)(1)(A)). Finally, priority was given to communities at risk, or those where Community Fire Protection Plans had been created (§103(a)) and 50 percent of funding for HFRA was to be spent in these areas (§103(d)(1)(A)). HFRA called for over \$700 million in allocations annually. The results of this prioritization will likely lead to a

change in management focus toward lands that are near at-risk communities and WUIs, and where forests have been significantly altered from historical conditions.

3) Old growth protection

HFRA provided the first federal policy acknowledgement of forests described as “old growth.” It allowed for individual national forests to use the definitions of old growth found in their forest plans, so long as they had been created within the previous 10 years. HFRA directed projects to “maintain, or contribute toward the restoration of, the structure and composition of old growth stands according to the pre-fire suppression old growth conditions characteristic of the forest type” (§102(e)(2)).

6. *HFRA and local communities*

In the 2003 U.S. Code, one of the stated goals for the Department of Agriculture is to “improve the economic, social, and environmental well-being of rural America” (US Code 2003 Title 7 Chapter 95 §6611). The Department of Agriculture includes the United States Forest Service, which oversees over a million acres in Wallowa County. Federal policies, then, profoundly affect people and land management in Wallowa County.

HFRA deals explicitly with rural communities in three key ways:

1) Community protection:

One of the assumptions of the Healthy Forests Restoration Act is that certain communities are at risk from catastrophic fires – that is, human life and property are threatened. Funding for Wildland-Urban Interface (WUI) areas under HFRA was a very contentious issue while the bill was being debated in Congress, with many environmental groups pushing for more funding in WUIs. WUI areas are prioritized under the HFRA, and at least half the funding allocated to HFRA projects should be spent on WUI treatments (§103(d)(1)(A)).

Several provisions under the HFRA indicate that community protection is a priority. For example, under §104(d), National Environmental Policy Act paperwork is streamlined for projects within 1 ½ miles of a community. These projects require only a proposed action, and alternative actions need not be evaluated.

2) Community cohesion and local planning:

Community Wildfire Protection Plans (CWPPs) can increase community capacity through collaboration. Local people involved in government, fire control, state and federal agencies, and other entities, identify areas at risk and prioritize fuel treatments (§101(3)(B)). CWPPs act as guides for hazardous fuel treatments, and give local people a strong voice in determining where fuels reduction projects are to occur. Communities are rewarded for their initiative in preparing CWPPs, as communities with these plans have priority for federal dollars (§103(a)).

3) Community revitalization:

HFRA §202, Rural Revitalization through Forestry, authorizes funding for the development of biomass and other small-diameter tree utilization technologies. Funding for these technologies may create economic incentives to pursue restoration activities. This section is an amendment to 7 U.S.C. 6601, which directed the Secretary of Agriculture to assist rural communities in developing more successful local natural resource industries.

The first purpose listed for HFRA is to “reduce wildfire risk to communities, municipal water supplies, and other at-risk Federal land through a collaborative process of planning, prioritizing, and implementing hazardous fuel reduction projects” (HFRA§2(1)). It appears that the authors of the Act intended not only to modify conditions in the forest, but to facilitate collaboration in order to effectively implement fuels reduction projects. That is, HFRA is not only about forests, it is about people.

Forest health at the local level, where implementation occurs, may depend ultimately upon the links between forests and people. This paper will expound upon three prevailing themes that emerged from the data collected:

- Forests and people are linked: People's decisions affect forests, and the forests' conditions affect people. These may be obvious linkages, as when a landowner decides to cut some timber, or when a wildfire threatens a person's property. They may also be more complex and distant linkages, as when political decisions affect harvest levels or when stockholders' desires are expressed as changes in forest ownership patterns across the landscape.
- There are problems in inland western forests, and problems in forest-dependent communities: These problems include forests that are experiencing historically unprecedented fire patterns, and rural communities that are experiencing widespread poverty and unemployment. These problems are compounded by a loss of access to the resources surrounding rural residents.
- There may be common solutions to problems in the forests and the communities. These solutions may rely upon place-based, adaptive management that is flexible and dynamic, appropriate to the ever-changing conditions found in the forests and in communities. Ecosystem management, which recognizes the importance of human decisions and social structures of land management, and which stresses adaptive management, collaborative and coordinated action across boundaries and between agencies, and biological and economic sustainability (Phillips 1997), may be an appropriate paradigm for managing for the health of many forests and forest-dependent communities. The Forest Service and other land management agencies appear to be moving toward ecosystem management, which combines "biophysical, social, and economic considerations" (Russell and Harris 2001:22).

Wallowa County is a case study of these issues, particularly the interdependence of forest and community health. But Wallowa County is not alone in the problems and opportunities it faces. The county is experiencing changes that are happening across rural America, as small towns lose their unique cultural identities and as Americans

increasingly look to other countries for commodities (Stauber 2001). Rural places are struggling to retain some connection to the past that may or may not be important to society at large: a connection to the landscapes that surround them.

II. RESULTS

“It’s a tough time to try and change what man has helped create” [Blake, Forest Service employee]

Often, in both academic literature and popular discourse, various perspectives are portrayed as divided between two polarized extremes. In forest management, community development, and other topics pertinent to this study, groups of people are often described in dichotomous terms. These distinctions may be useful for categorizing people, and in Wallowa County, there were residents who could be described as rural, utilitarian “traditionalist” (Brandenburg and Carroll 1995), and there were non-traditionalists whose views corresponded to more stereotypically urban perspectives.

However, I found that boundaries between viewpoints and groups of people were fluid and overlapping. Rather than divide interviewees into distinct or polarized stakeholder groups, I have chosen to represent the relationships between humans, culture, and surrounding landscapes via a model (Appendix 2).

A forest and its management, as depicted in the figure in Appendix 2, is not a list of conditions or criteria – rather, it is a dynamic and complex web of interdependent factors. A number of decision-making drivers contribute to the decision nexus, including political, economic, ecological, and social factors. Here, three decision-making drivers are listed: one which includes the knowledge and belief systems of local residents, one which includes various external forces that influence management, and one which considers local capacity, human capital, and infrastructure. Management action, whether active or passive, follows a decision, and consequences to the forest arise from these actions in conjunction with underlying ecological processes. These ecological processes are termed “mother nature” because this phrase was used frequently by interviewees. Mother nature may be described as the web of relationships between various forest

organisms and abiotic agents such as fire; it is the underlying ecological complexity that interacts with human management to produce the ever-changing forest conditions found on the land at any time (Thomas 1997). Mother nature is a force which acts outside of human interests and desires.

A nexus is defined as a link or a core (American Heritage Dictionary 2000). In the model, it functions as both. The decision nexus serves to hold the model together, binding human decision and action to natural consequences, producing a web of interconnected forces, both human and natural. A nexus is also a core, a central aspect of management which can be examined independently of the rest of the model. But a holistic, integrated view of human management requires that pieces of the picture not be isolated and assumed independent of each other.

The figure in Appendix 2 provides a visual reference, but should not be interpreted literally. In addition, as the category "mother nature" indicates, there are many factors which lead to certain forest conditions that are not dependent on human activity, and cannot be wholly predicted or controlled. While it would be relatively easy to view the model as simply one of decision, followed by action, followed by consequences that inform the next decision, this paradigm is false. The model should be considered a heuristic device, useful for explaining certain phenomena, but not sufficiently complex to accurately portray reality.

A. Wallowa County and its Forests: The Lands and their Management

What are the social, political, and cultural conditions that contributed to the forest conditions of today's Wallowa County? How have people in Wallowa County interacted with their forests and what is the appropriate role of humans in the forest? What are the legitimate uses of a forest and how do they promote or detract from forest health? What is the role of forest management in creating and maintaining forest health?

1. Changing Forests: Changing Management and its Rationale

I think that we need for people not to narrowly be confronted with a situation, reacting to it, but I think that we need for human beings to think about thinking [laughs]. In other words, hey, is this appropriate ... Thinking about thinking isn't always going to complicate things, it might simplify them. [Paul, NIPF owner]

The forests of Wallowa County have never been static – they are constantly changing, whether because of human actions or mother nature. Human interactions with these forests since Euro-American settlement have produced particularly rapid change. This chapter will explore the changes in the forests of Wallowa County, as well as the rationale for many of those changes – the belief systems that have guided management decisions. Human management actions of the past and present are grounded in the thinking of the times. Beliefs about forest ecosystems can strongly influence how those ecosystems are managed (Langston 1995) and the importance placed on various attributes of forests (McDonough 2003). Belief systems shape how we interact with our world. In the words of environmental historian Char Miller, “things perceived as real have very real consequences” (10/21/2004, Starker Lecture at OSU). This thesis will frequently use terms that correspond to aspects of belief systems (values, attitudes, and beliefs); I will begin with a brief explication of these terms.

Belief systems, which include values, attitudes, and beliefs, “[help] individuals define and understand the world and themselves” (Pajares 1992:325). Values, attitudes, and beliefs are closely interrelated and they influence individual determinations of appropriate management decisions (Dougherty et al. 2003). The three components of belief systems (values, attitudes, and beliefs) are arranged below from more general to more specific (and more numerous).

Values are “cultural ideas about what are desirable goals and what are appropriate standards for judging actions” (Tindall 2003:693). They may help people decide between alternatives, because values determine the worth and importance of things. Values transcend situations; they may be regarded as yardsticks for evaluating behavior

(Rokeach 1968). Values are often similar among people who have similar backgrounds, for example, those sharing culture, educational attainment, occupation, class, and religious up-bringing (Rokeach 1968). Values are slow to change and central to beliefs and attitudes; in fact, they may be considered the foundation, or “central component” of belief systems (Vaske and Donnelly 1999:524).

Attitudes involve a normative judgment – something is good or bad; they are situation-dependent, and arise from applying beliefs to a particular context. Pajares (1992) explains that “clusters of beliefs around a particular object or situation form attitudes” (Pajares 1992:319). Attitudes help to organize beliefs (Rokeach 1968). Attitudes are more multitudinous than values, and are strong predictors of behavior (Vaske and Donnelly 1999).

Beliefs are assumptions or convictions that people hold as true. Beliefs are generally inflexible and unchanging: we may even protect our beliefs in the face of contrary evidence (Pajares 1992); different beliefs, however, can be more or less important to an individual’s view of the world, and “the more central the belief changed, the more widespread the repercussions in the rest of the belief system” (Rokeach 1968:3).

People’s belief systems about the forests around them – the appropriate uses of the forests, the role of humans in those forests – have been changing, and with these changes have come different management strategies, fresh conflicts, and some promising areas of agreement. One change has been from a utilitarian (commodity-oriented) view of forests, which values forests primarily for their ability to provide products for humans to an ecosystem view of forests, which values forests for inherent qualities (Kolb et al. 1994).

a) Decadence and Efficiency: Regulating the Forests

Euro-American settlers were living in Wallowa County by the 1870s. Though Native Americans had long used fire to manage the forests and their wildlife populations, settlers didn’t recognize fire as a management tool. They saw only wilderness, which needed to be harnessed to provide for human needs. Professional foresters, trained in

silviculture, advocated the conversion of decadent, old pine, full of insects and disease and seemingly stagnant in its growth, to vigorous young stands of orderly, managed trees (Langston 1995, Weidman 1921). Decadent stands are often defined by large, old trees – another term for these stands is old growth. The definition of an old-growth forest is beyond the scope of this paper, but for eastside forests, “old growth” usually means stands of large, widely-spaced trees with small amounts of woody down material and an abundant herbaceous understory (Youngblood 2001) with limited evidence of human intervention (Richmond 1990). This definition contrasts with the classic Westside Douglas-fir old-growth forest described by Franklin et al. (1981), which includes large volumes of down wood and a complex, multilayered canopy structure. The Eastside ponderosa pine old-growth forests differ in definition because of their reliance on frequent disturbances (Franklin and Van Pelt 2004). In eastern Oregon, over 90 percent of the old-growth forests have been cut (Henjum et al. 1994). Since at least the 1980s, large segments of the public have become involved in forest management decisions because of concern over the loss of old-growth forests and the habitat they provide, affecting the ways that forests are seen and valued (RSST 1993:159-163).

Silviculture is defined by the Society of American Foresters as “the art and science of controlling the establishment, growth, composition, health, and quality of forests and woodlands” (Helms 1998). Silviculture has long guided important forest management decisions, and its influence on forest decision-making continues to be strong (Nyland 1996:preface). Many of the interviewees for this study were trained in silviculture and used silvicultural terms, theories, and models to explain desired forest structure and composition.

Silviculture was brought to the United States from Europe. It was seen as the rational practice of regulating trees, as opposed to the insatiable and unsustainable industrial practices that had previously governed tree harvests, particularly in the East and the Midwest. Beginning in 1847, George Perkins Marsh spoke of sustaining the resources of the forest through management and human-induced improvements. From about 1882, George Bird Grinnell, the editor of *Forest and Stream*, began promoting the

management of trees as a crop. Gifford Pinchot, who was selected as chief of the Division of Forestry in 1898, was one of the most influential early foresters in the United States and a great proponent of silvicultural methods. Pinchot was trained in Europe in silviculture, and his family helped establish the first forestry school in the United States at Yale. He also promoted an ethic of professional forestry. When the United States Forest Service was established in 1905, Pinchot published the "Use Book" for the administration of the national forest reserves. It stated that "the permanence of the resources of the reserves is ... indispensable to continued prosperity, and the policy of this Department for their protection and use will invariably be guided by this fact, always bearing in mind that the *conservative use* of these resources in no way conflicts with their permanent value" (Pinchot 1905:11, emphasis in original).

The application of silvicultural assumptions to the forest stands of Wallowa County reflected thinking that emphasized utilizing resources, maximizing productivity and efficiency for the benefit of mankind, and applying generalized principles to the landscape. In this case, old, insect- and disease-infested trees were seen as wasteful; they occupied timber lands that could be improved to better contribute to society's needs. Their lack of vigor was not tolerable to the Euro-American settlers and professional foresters. The ponderosa pine stands of Wallowa County did not fit the uneven-aged curves of idealized stands because there were too many old trees and too few young, vigorous trees (Weidman 1921). Therefore, the removal of the old trees, through selective cutting or clearcutting, was recommended, in order for the stands to be restocked with more orderly, healthy, young trees (Barrett 1979).

As the pines were harvested, however, orderly stands did not always replace them. The wetter northern slopes of valleys became dominated by "inferior" species, notably grand fir, lodgepole pine, and engelmann spruce (Starker 1915). Attempts to reintroduce ponderosa pine after its removal from mixed conifer stands often failed (Quintus 1952), resulting in higher proportions of other species, such as grand fir. Southern slopes and dry areas often remained predominantly ponderosa pine, but the pine grew very close together, creating stagnant stands of trees that grew very little. In the

absence of fire, new trees across the landscape grew in dense stands competing for scarce nutrients and water. The prevalent thinking about management recommended that the oldest trees be removed in order to make room for tomorrow's crop, which led to stands that were overstocked and stagnant (Weaver 1943).

The changing conditions were not entirely unexpected: "Unquestionably the removal of the matured timber would be followed by a much denser growth" (Langille 1906:8). H.D. Langille was surveying eastern Oregon, and his comment was meant to encourage the removal of the old trees. Unintended consequences that resulted from overly dense second-growth stands were the result of management decisions that were based on sound principles, science, and rational thought. The forests did not respond in the way that the professionals had anticipated; this does not mean that they were making arbitrary choices, unsupported by facts. On the contrary, most decisions were consciously made to conserve the forests. But previous training and expectations didn't allow these foresters to adjust their practices to on-the-ground reality. They fit idealized models of stands to the forests of the Blue Mountains, including Wallowa County (Langston 1995).

Recent remarks regarding the Eastside Screen Amendment to National Forest management plans demonstrate that an emphasis on removing decadence is still prevalent. The Eastside Screen Amendment (Eastside Screen) to the Wallowa-Whitman Forest Management Plan prohibits cutting any tree over 21" on National Forests in eastern Oregon. The Eastside Screen was adopted as an interim amendment in 1993, but it has persisted because an alternative plan to deal with late and old forest structure in eastern Oregon has never been developed. In 2004, a group of Oregon's Republican lawmakers called for an end to the amendment, claiming that it had no silvicultural basis and that it contributed to poor forest health. In their view, the Eastside Screen may lead to poor forest health because it does not allow managers to harvest many trees that are deemed decadent.

Some managers dismissed the importance of old trees; this is probably due to the association between old trees and dead, dying, or less productive trees:

I don't care if the tree's as big around as this table, and it's dying, or it's sick or it's flat-topped and it's not going to grow anymore, it should go to the mill. [Ned, independent logger]

A flat-topped pine is not considered productive; ponderosa pine has a sharp crown in its younger years, indicating vigorous growth. As the tree ages, its crown becomes more and more rounded, until it is flat-topped and it may not be adding much volume as its vertical growth slows. Flat-topped pine, which is old and, generally, very large, may be more susceptible to bark-beetle attacks than younger pines (Keen 1936, Keen 1943).

Today, there is an ideological divide between a desire for old-growth forests and the view that big, old trees are no longer productive and are particularly susceptible to insect and disease infestation. The former view is held by many people who are concerned with a loss of historical processes and habitat. For example, the removal of decadent trees has been advocated partly because those stands have high levels of heart rot, or stem decay. Airborne spores of several types of fungi enter tree stems through wounds, causing heart rot. Heart rot causes decay of the stem, reducing timber value. But living and dead trees that have heart rots provide habitat for many species – primary excavators such as woodpeckers, and secondary cavity nesters. Traditional forest management has prescribed the removal of these trees from eastside forests. Parks and Flanagan (2001) thus suggest that “the absence of, rather than the abundance of, larger trees with heart rot in managed forests at a landscape scale” may be of concern (Parks and Flanagan 2001:35). Marcus, who was retired after years in the Forest Service, said that all snags and large trees were removed from stands while he worked for the Forest Service; he saw a loss from this type of management and said:

We had to harvest timber. It never occurred to us that the bear had to sleep in the winter time, and could crawl into those hollow trees. Squirrels like to use them, and God knows how many different varieties of birds like to use them ... I don't think we need to cut all the big trees. I'd like to have a few big trees left so that my great grandchildren can see it, and not be looking at a picture, and wondering why old grandpa cut those trees.

The belief that decadent trees should be cut, which is held most often by foresters who are concerned with marketable volume and tree growth for harvesting purposes, is a classic silvicultural view. For example, in a 1979 Forest Service document on ponderosa pine management, the author encouraged the conversion of *all* "mature" ponderosa pine stands to "vigorously growing young stands" (Barrett 1979:6). The removal of large, old trees was seen as a common-sense practice by many forest managers. These managers have been trained in a silvicultural practice that underlines the need to remove decadence; if it is not removed, it is wasted. Ned, a logger who described himself as an environmentalist, said that we should remove:

Diseased trees, bug kill. Stuff that's overripe and dying. Just forest management.

Current policies on public lands have countered traditional silvicultural thinking: they generally emphasize preserving old trees. Michael said that current public lands practices were based on a policy of "saving the nursing home and killing the nursery." He said that old trees had "cancer" and should be cut, no matter how large they were. In his view, cutting large trees wasn't poor forestry at all. In fact, leaving the oldest trees was poor forestry, because forest management means removing the "decadent stuff that's diseased."

The tension between a desire for large, old trees and the silvicultural belief that old trees are decadent and should therefore be removed may be a wicked problem. A wicked problem is one which is "extremely controversial, acrimonious, symbolic, intractable, divisive, and expensive" (Nie 2003:307). A wicked problem does not involve a right or wrong answer, nor can it ever really be solved. A wicked problem is a dispute over values. In the case of forest management, some people speak of the need to have productive crops of trees, which do not include old trees that are less vigorous, others speak of habitat and historical conditions that included large numbers of old trees. These two points of view correspond to concepts of utilitarian and ecosystem perspectives – dead trees, from a utilitarian point of view, signify poor forest health because their

utilitarian value to humans is declining; to an ecosystem point of view, old trees represent a vital component of the overall forest ecosystem (Kolb et al. 1994).

Though the problem of whether the term “forest health” includes old trees may be intractable, it need not prevent management. In 1997, Oregon’s Governor Kitzhaber laid out eleven principles for restoring health to eastern Oregon’s forests. Number five was: “Carry out active restoration first in areas and in ways of broadest public consensus, develop a track record of success, and then expand agreement and efforts to other areas” (Kitzhaber 1997). In Wallowa County, consensus exists outside of cutting large and old trees.

Additionally, the beliefs and attitudes of silviculture are not static; silviculture has been adapting to the ideas of ecosystem management and incorporating fields such as conservation biology and landscape ecology (Kaufmann and Regan 1995), where support for retaining old trees may be strong. Ecosystem management may provide a balance between utilitarian and ecosystem views (Butler and Koontz 2002). Ecosystem management “attempts to maintain the complex processes, pathways, and interdependencies of forest ecosystems intact, and functioning well, over long periods of time” (Norris et al. 1993:13). Where degraded lands are displaying “land sickness,” such as the extinction of certain species and the irruption of other species, active management to restore diversity and complexity may be warranted (Callicott 2000). This will be a point I will return to time and again: management of degraded lands seems to be an area of agreement, and managing not only for yield, but for land health. Appendix 1 is a visual representation of how interviewees described the role of humans in the landscape: interviewees are arranged on a continuum according to their ecosystem or utilitarian focus, and the degree of management intensity that they supported.

b) High-Grading: Economics Driving Decisions

As Euro-American settlers and industry accessed Wallowa County, they were tempted by the huge “pumpkin pine” or “yellow pine” (ponderosa pine) that were easily accessible. Aside from silvicultural concerns, many of the largest trees, particularly

Ponderosa pine, were cut at a rapid rate to satisfy economic demands, a practice often derogatively referred to as "high grading." This practice was widely reported by interviewees. Joshua, who worked for a local community forest group, had moved to Wallowa County many years previously. He had become very familiar with forest health issues through his work; he remarked:

I do think that we high graded for years and years and years in this country, cut the best and leave the worst, and I think that's been to the detriment of the resource.

The motives behind high grading were often attributed to ignorance or profit-seeking. Stories of historical high-grading practices often involved a sense of loss and helplessness. Michael, a logger whose family had been in the county for several generations, said:

If you'd seen the logging jobs that I seen when I was a boy ... I hated it. I'd do anything that I could that would've stopped it. And I seen loggers back then, they were getting real rich.

Technology has aided in the process of high grading. In Maxville, as railroads reached farther into the backcountry, previously inaccessible stands were cut. Randy, a non-industrial private forest (NIPF) owner who had been in the county all of his 90 years, said:

I don't know what year, but Bowman Hicks had a logging train, had steel clear out to Maxville, and they loaded those cars and they had a mill in Wallowa and they had a mill in La Grande ... I used to go over there in the lower valley when I was a kid and see this trainload of logs coming in every day. And I guess they figured it'd last forever, but things don't last forever.

Most forest managers said that they always left the best trees in a stand, in contrast to high grading. Of course, the "best trees" will depend upon the owner's

objectives. For cavity-nesting bird habitat, they may be the oldest and most decayed; for timber production purposes, they may be young, vigorous trees without broken tops. But high grading implies a lack of concern for the future; it is based exclusively upon short-term profit motives. Most managers indicated that this was irresponsible management. Responsible management, on the other hand, should lead to improved forest conditions over time:

If we were always thinning with an eye towards saving the best genetic specimens so that we would be improving the stand over time, we should always be culling the herd, basically, we should be thinning the thickets and cutting the worst stuff and leaving the best stuff, so that over time you would simply have a better forest than you started with. [Blake]

The time component of forest management is key: high grading was generally described as a focus on short-term returns; forests were described as long-term investments, and most NIPF owners, particularly, indicated that they hoped to hand down their lands (and management philosophies) to future generations. In this way, utilization was tied to responsible management that *kept people on the land*:

If [industry] had gone through one time and taken the junk, then they could have kind of semi- high graded from then on. It wouldn't hurt anything. But many of these stands, they just left the junk. That's what we're trying to take out. We're taking the leftover junk trees. That's what we work on. [Adam, NIPF owner]

The perception that many stands had been degraded by previous management, particularly management driven exclusively by economics, was very strong. But, as Adam's comment suggests, people in Wallowa County expressed a desire to change conditions and to work consciously toward a forest that met long-term objectives; he said: "You have to look at it in the 100 year cycle, not the next 10 years here." Adam had previously worked for industry and he described several instances where he "ripped" the ground or in some way degraded the land. In his retirement he'd bought his own land,

where he said he intended to “grow old growth.” He described his methods for growing old growth: remove the smaller, suppressed trees and “leave the best.” As Andrew said:

I’ve got a buddy, a good friend who’s a logger, he’s been a logger all his life and he’s 60 years old now, still logging. And he graduated from logging big trees down to do what’s right out here. Doing it right and everything.

c) A History of Fire Suppression

The terrible fires in the west, the 1910, 1912 frightened the forest service so badly that they decided that no such thing would ever happen again and every fire would be trampled on so hard and so quickly that it can’t get to these catastrophic fires. Without realizing what we were doing, we were simply increasing the certainty that catastrophic fires would occur.
[Marcus]

In 1908, Congress approved funding for wildfire suppression on public lands that amounted to a “blank check” – the United States Forest Service (FS) had access to virtually any amount of money to fight fires. Huge conflagrations in 1910, which burned about 3 million acres across Montana and Idaho, furthered the impetus for a coordinated, comprehensive firefighting effort within the FS. In fact, the FS became virtually defined as a fire-fighting agency (Pyne 1982). In 1935, the “10 am policy” was enacted, which directed that all fires should be suppressed by 10 am, the day following their detection. These policy decisions worked toward total fire suppression.

Almost all interviewees spoke of the drastic and undesirable changes in forest conditions due to total fire suppression. The results of fire suppression are complex and vary according to local conditions. Generally, fires had historically thinned stands and removed pockets of dead trees, creating a heterogeneous mosaic pattern across the landscape. The mean fire return interval across the low-severity, high-frequency fire regime areas of the Blue Mountains was approximately ten years (Hall 1980). The removal of fire caused a more structurally homogenized landscape, with trees densely

packed across large areas (Agee 1993). Late-seral species (firs and spruce) grew up between ponderosa pines or where the pines had once stood. Where ponderosa pine did regenerate, it grew in dense stands that became stagnant. Insects could often find a host in any direction for large areas, and density and stress contributed to high mortality rates (Wickman 1992); these factors combined to increase the danger that fires, when they did occur, would wipe out whole forests.

Removing fire was thought to remove a terrible threat to forests and to the forest industry, and, by extension, the United States of America. Fires had been suppressed for logical reasons – fire was seen as a threat to Ponderosa pine because it killed young trees (Foster 1908). In fact, thick stands of regeneration were, at one time, considered desirable (Starker 1916). Langille's early survey of the area noted that "the density and abundance of reproduction by yellow pine is one of the most striking features of the Blue Mountain forests" (Langille 1906:8). The American West had become a great repository of raw materials for the building of the country, and fire was seen as a destructive force. Blake said that:

We protected the timber. Because the timber was important for this country.

The possibility that fire was also a vital component of the forest ecosystems of the Blue Mountains (and of most of the inland West) was not seriously entertained by the forest managers who directed suppression. However, some forest scientists have long recognized the possible dangers of total fire suppression. Weaver, in 1943, described some of the unanticipated consequences of excluding fire's effects and warned of the dangers of continuing suppression without a substitute for fire's role (Weaver 1943). It was not necessarily a lack of knowledge that led to suppression; rather, suppression-oriented federal policies, based on beliefs that fire only destroys a forest, resulted in total fire suppression (Pyne 1982).

A common definition of forest health is the absence of large, stand-replacing fires and insect and disease infestations. This definition is evident from Congressional debates

over the Healthy Forests Restoration Act of 2003. Congresspeople again and again referred to the effects of wildfires and insect and disease infestations in densely-stocked stands. According to Rep. Stenholm of Texas, "the exploding incidence of catastrophic wildfire and disease and insect infestation pose a massive threat to the health, diversity, and sustainability of America's national forests" (Rep. Stenholm D-TX, 11/21/2003, House Record).

Most interviewees acknowledged that fire had a role in the historic forest, but that the forest conditions have changed so much that current fires and insect and disease infestations are destructive or "catastrophic." Though I will use the term "catastrophic" to describe stand-replacing, intense fires, the term is riddled with political implications and is likely to cause disagreement because it is not well-defined or agreed-upon (e.g. Kauffmann 2004). However, it was a term that was frequently used by interviewees, indicating that it has resonance in Wallowa County and it aptly describes certain fires, at least to a substantial segment of the population. The General Accounting Office said that "compared with other forest fires, catastrophic wildfires burn many more acres, destroy much more timber and wildlife habitat, and subject exposed soils to substantial erosion during subsequent rains, damaging water quality" (GAO 1999:32). Fires which many interviewees described as catastrophic fit the intense, stand-replacing fires described by Agee (2002) that have recently become more common in the inland west.

Catastrophic fires were nearly always condemned by interviewees. This is a strong area of agreement: large-scale fires are considered unacceptable. The small, tightly-packed trees of today's stands that have grown in the absence of fire detract from forest health. The risk of catastrophic fire was a huge factor in informants' descriptions of desired forest structure. The adverse effects of catastrophic fire – damage to soils, threats to human lives, high levels of air pollution, and a loss of revenue – were major decision-making drivers for management:

I'm not saying fire's bad, I'm saying this situation is bad ... and instead of arguing about it, we've got to realize what we've done and say, okay, how can we protect that damn dirt? [Andrew, Industrial forest manager]

Without fire, many interviewees said that the forests were not functioning well. Mother nature was not responding to fire suppression in the way people had predicted; that is, no matter how assiduously fires were suppressed, they did not stop. In the absence of large-scale management, stands were continuing to decline in health. Hannah, a soil scientist who had spent a lot of time in different forest stands of the county, said that:

If you walk in this old growth, there's something wrong with this picture, this isn't a functioning piece of ground.

Some remnant old trees may be endangered by excessive competition from overly dense stands. Competition has weakened some old trees to the point that even ground-hugging, low-severity fires can kill the old trees (Arno et al. 1995).

As Blake explained while we were driving around some very dense stands, fire suppression had disrupted human plans for the forest, and led to a fire regime that was destructive:

We have let our crops turn to weeds, and mother nature will take care of it with disease and fire, she will kill everything and start over.

In order to compensate for years of fire suppression, many scientists have suggested thinning combined with prescribed burning (e.g. Mutch et al. 1993) for restoring more historical conditions. This combination may be the "most effective and appropriate" treatment (Graham et al. 2004:26), particularly in forests that have missed several fire cycles and are exceptionally dense. The combination of these treatments may lead to decreased potential fire intensity and severity (Graham et al. 1999).

However, the use of prescribed fire as a management tool is still contentious. Interviewees displayed a wide range of opinions on prescribed fire, from advocacy for large-scale reintroduction of fire to complete dismissal of its value as a management tool.

Many interviewees wanted to restore fire to its historical role in maintaining ecosystem functions. Mitchell, a local environmental advocate who stressed the need to restore more historical conditions, said:

We need to be shepherding back the role of natural fire to the ecosystem ... the goal of addressing fire in our forest practices has to be living with fire, and getting back to where we have small fires that do good things, instead of big fires that do bad things.

The distinction between “large” and “small” fires is really a distinction between stand-replacing fires and low-intensity ground fires that spare many trees. Kieran, an outfitter who took clients on horse tours in the county, was particularly disapproving of unmanaged forests, yet he praised certain elements of controlled fires. The emphasis was on *controlled*, managed fires, not catastrophic fires, which were viewed as destructive and wasteful. He pointed to the benefits of controlled fires when he said:

In the Snake River, the animals like burns, because the grass grows back good and green, and they'll stay there for three years, before the old grass comes back. [Kieran]

There were a number of perceived benefits to restoring fire to the landscape. Leah, a Forest Service employee who worked with prescribed fire, cited “stand health” as a benefit of fire. She said that fires kept the stands more open and reduced fuel loads on the ground. As she noted, fire reduced the number of trees in the stand, which in turn reduced the debris on the forest floor, lowering the risk of catastrophic fire. Fire, then, is a tool for achieving the open spacing and fuels reduction that seems to be important for the forests of Wallowa County.

A number of interviewees said fire helped create more diverse habitat. This is evident in the following quote from Kevin, a man who works for a nearby environmental advocacy group:

[Fire] creates habitat that fire suppression has prevented from happening in a lot of cases ... a lack of heterogeneity was created by the suppression of fire.

However, fire may not be socially or politically acceptable to many people. Whether because of air pollution or a visceral fear of fire, several people indicated that the public was not ready to accept frequent fire in the forest. Prescribed fire may have been curtailed from 1992-1998 because of concerns over conflicts with Air Quality Standards set by the Environmental Protection Agency; the Hells Canyon and Eagle Cap Wildernesses are both classified as Class I areas, which means that only minimal visual impact from air pollution is allowed (USDA Forest Service 1998).

Several interviewees said that the forest was not ready for frequent fire, either:

I think you've got it [the forest] into a position to accept fire. You've got to make heavy entries. [Andrew]

This was a midpoint to the debate: an acceptance of some fire, but only if a great deal of mechanical thinning was to precede it because of fuels buildup in the forests.

Other interviewees dismissed prescribed fire's role entirely, indicating that they preferred cutting or mechanical thinning as a *substitute* for fire reintroduction because of the advances in our knowledge and the predictability of mechanical thinning. Neil, who worked in forests as a laborer, said that we had come up with better ways to manage the forest than with fire. Neil worked with NIPF owners who managed intensively; his job included pruning trees by climbing into their canopies. Adam said that prescribed burning was "caveman forestry":

It would be like people having heart valve implants, and people not liking it, so they go back to bleeding people. We had a huge, big group of people who got legislative power and everything else, that said that bleeding people was the way to do it, so we would stop using the cardiologists, and we would go back and start bleeding people.

Mechanical thinning is more predictable and controllable than prescribed fire, and it may be more conducive to utilization. It is most effective for reducing vertical fuel continuity, such as fuel ladders, because specific trees can be targeted. Studies have suggested that prescribed fire may reduce long-term site productivity (Monleon et al. 1997). Mechanical thinning does not, however, affect surface fuels, except where machinery directly runs over the ground. Simply removing trees will result in a changed crown structure, which may decrease the likelihood of crown fires; however, removing trees will have a neutral or negative effect on surface fire activity because opening the canopy can increase forest floor biomass (Graham et al. 2004, Stephens 1998). Reducing surface fuels may have the greatest effect on fire behavior, including the frequency of crown fires (Graham et al. 2004).

Leah disagreed with the claim that mechanical thinning could entirely replace fire in fuels reduction projects:

You can remove stand density and the number of trees per acre [using mechanical means]. But you also change the microclimate, so your vegetation is eventually going to change. However, you still have your fuels on the ground, you still have your forage and your grass types may not change immediately. You get more of a direct response by applying the fire.

The Forest Service has called for the reintroduction of fire since the 1970s (Stephens and Ruth 2005), though its suppression policies have changed very little: suppression has continued on a broad scale. Fire suppression activities have exceeded \$1 billion a year. The Forest Service still appears to be providing incentives to attack fires after they have begun, rather than proactive reduction of fire risk (DellaSala et al. 2004). This has resulted in a curious situation, where "half the year is spent in widespread talk about the need to reintroduce fire into fire-adapted ecosystems, but the other half of the year is spent suppressing all wildfire at substantial economic cost" (Dombeck et al. 2004). Ironically, when pre-approved suppression budgets are surpassed, restoration and

proactive forest health treatments often lose funding to cover the costs of fire suppression (Stephens and Ruth 2005).

To summarize, people in the county agree that fire suppression has had negative repercussions and that action should be taken to remedy the situation. However, the means may still be contentious, and prescribed fire in particular may need to be applied in a collaborative, inclusive environment so as to encourage learning and gradual acceptance of its role. The view that fire once served a useful role in the forest ecosystem is now widely accepted, and people are coming to terms with ways to address almost one hundred years of total fire suppression.

c) An Ethic of Utilization

Some interviewees said that they rejected prescribed fire because other options offered the possibility of utilizing the wood. Wasting a product – in this case, trees – was inimical to their values, and it was often tied to the idea of “losing” trees after a large-scale fire. Matthew, a retired teacher from the county who also owned some acreage that he managed, said:

We've destroyed a lot of Wallowa County National Forest land because of fire in the last 15 years. A lot of it, we haven't logged. You can go up to Hat Creek, humongous trees that have burned a number of years ago that have laid there and rotted. As long as we're going to continue to waste natural resources, who's going to gain?

Utilization appears to be a fundamental value for many people in Wallowa County. Wallowa County's citizens have historically relied on the land to provide for their livelihoods and ties to the land form an important component to the rural identity of the county. Through long-standing ties to the land and dependence upon its products, people have developed a deeply-held value system that includes utilization as a desirable goal. Society benefits from the products of the forest, and wood products are something that people of Wallowa County are proud to provide for the nation. A strong emphasis on

utilization echoes findings by Bliss in Wisconsin, where NIPF owners often equated management with utilization (Bliss 1992:70); managers ought to have productive lands, and "giv[e] the world trees" (Bliss and Martin 1989:618).

One result of overcrowding, fires, and insect and disease infestations are "dead and dying" trees, an oft-repeated phrase. Many interviewees held dead trees in scorn, in keeping with the traditional emphasis on utilization, as well as the fire risk from dead trees. Though some acknowledged the role of dead trees for providing habitat, as Adam said:

I don't have much interest in raising big dead trees. I'm sure that there's a need for dead trees in the stand ... I wouldn't be interested in spending 60 years of my life growing a forest of dead trees.

It was not only the presence of dead trees, but their frequency and distribution across the landscape, which were major concerns for many interviewees. Examples of trees dying in large areas – often because of insect or disease infestation or drought coupled with increased density, resulting in more competition – were cited to provide evidence of poor forest health. There are ties to both utilization and the need to manage in references to dead and dying trees. Ned talked about removing dead and dying trees as common-sense forest management, and he described the lack of health on public lands, particularly in overcrowded stands that had a large number of dead and dying trees:

Our federal government, something's got to be done. It is devastating, what has happened to our forests out there. I'm leaving in the morning, heading for Walla Walla, there's a job over there in the Umatilla district, for fire cleanup. Half dead and dying, diseased timber.

Several interviewees pointed out that wood is more environmentally friendly than other building materials, and importing wood from countries that have fewer environmental restrictions is not beneficial for the earth. Rex, a botanist who worked for the Forest Service, said:

I love building with wood and I see society is eating up wood like crazy and it grieves me to think that we're just blindly sucking resources from every other continent in the world as opposed to sacrificing our own at the rate we used to. I would rather see us pay our own price for our society's building than suck it out of Asia or Siberia or wherever.

This, then, is another point of agreement: utilization of wood products is important for society and for residents of Wallowa County. However, there are some divisions over whether utilization should be the focus, or a byproduct, of forest management. Mitchell said:

Forests produce so much more than boards, and we have to recognize that when we manage forests simply to take off boards, that we are depleting those other resources.

Thus, while viewpoints regarding utilization may be changing, from a focus on utilization to utilization as a by-product, most interviewees indicated that utilization was a key to forest and community health. If degraded conditions in the forest require management, as I'll discuss below, then utilization of some forest products will likely be necessary in order to make restoration viable and keep people on the land.

d) A Holistic View

"You can't chop off one part of the ecosystem and keep things going"
[Michael]

Ecosystems are incredibly complex; they consist of many parts whose interrelationships are not fully understood by humans. Therefore, in order to confront threats to forest health, management projects should address entire ecosystems (Mutch et al. 1993). Adam, an NIPF owner, had previously worked for industry; when I was asking him questions about how to attain desired conditions on his land, he said:

I'll tell you, if you'd come and asked me these questions 30 years ago, I'd have told you exactly how it was, and how it should be. I've spent a lifetime out here. It's just a whole lot more complex than anyone has any ability to conceive.

This quote implies that, at one time, Adam had all the “answers” about forests – how they should be, and how to get them. This view is analogous to the early settlers’ visions of simply modifying the forests to suit their needs. In order to domesticate and civilize the landscape of Wallowa County, settlers stopped the fires that had run through the forests for thousands of years. They removed predators, particularly wolves. They cleaned up the forest by harvesting trees that had diseases and by removing coarse woody debris. Unintended consequences, however, have arisen from dismissing elements of the ecosystem we have deemed unnecessary. As Aldo Leopold said, “the first rule of intelligent tinkering is to save all the pieces” (Leopold 1949). Today, people are reconsidering the roles of fire and wolves in the ecosystem, and negotiating their return. And they are vigorously battling the spread of noxious weeds, which threaten to diminish the health and diversity of the landscape, both the forests and the rangelands.

i. The Forest: Simplification and Diversity

Historically, many forest land managers in Wallowa County have tended to simplify the landscape through various means (Langston 1995, Quigley et al. 1996), but this tendency toward simplification has been changing. One forest owner, Paul, went so far as to retain pockets of dwarf mistletoe-infected Douglas-fir trees as habitat. Dwarf mistletoes (*Arceuthobium* spp.), plants that parasitize conifers, have traditionally been sanitized out of stands (Parks and Flanagan 2001) because they may decrease tree growth rates and cause abnormal branches. But Paul pointed to a few trees he'd isolated in a corner which had dwarf mistletoe. He explained that he had a great gray owl nesting in one of his trees in a dwarf mistletoe “witch’s broom” (platform) that had fledged 13 young since he'd first noticed it. He said that “everything we do in forest practices should be considering diversity.”

The apparently pervasive emphasis on single-tree or group selection harvesting methods (as opposed to clearcutting), the continued propagation of multiple tree species on most sites (particularly wetter and north-facing slopes), and the call for increased flexibility in local land-use decisions may signal a desire to retain some diversity in the forests of Wallowa County.

Many interviewees spoke of the diversity of the forest in terms of tree species; most forest managers pointed to a diversity of tree species on their lands. Forest Inventory and Analysis evidence supports the idea that there are diverse stands of trees within the county (Table 5).

Table 5. Net volume of live trees in Wallowa County, by species. From Forest Inventory and Analysis Mapmaker, U.S. Forest Service, 2004.

	Douglas-fir	True firs	Ponderosa pine	Western larch	Lodgepole pine	Engelmann spruce
Inventory, Cubic feet	224,101,569	78,847,612	69,290,608	38,128,422	9,970,677	675,039

A number of interviewees stressed the role of species diversity for economic purposes. Mitchell said that it was good to preserve a number of tree species in a stand, as well as different size and age classes:

If you have that diversity, you'll always have the most productive of the species that are still growing, and the less productive, you can take. When you have diversity in a forest, you have options, and opportunities. When you simply strip it off, you have nothing.

Paul referred to this as "hedging" and said that if all the trees of one species developed an insect or disease problem, they could be selectively removed and the remaining trees could be left in the stand.

Diversity in the forest extends beyond the presence or absence of certain species. Structural diversity is a concern – including the presence of woody debris. Though eastside forests historically had low levels of coarse woody debris, their floors were not

bare. Hannah described a German forest to me as one that "didn't have a stick on the ground." She said that wildlife couldn't survive in those conditions.

Adam described changes in his own attitudes toward management, particularly in terms of creating habitat and preserving certain old-growth features in his stands. He said:

People have got to get this garden mentality out of their minds ... I don't like to see [woody debris] either, and I think, I could get a Cat out here, and push it all in a pile, and burn it all up, I'll do all these things. But I keep hammering it in my head ... that's not right.

As we drove around his property, he pointed out areas that were "messy" with debris, and said that the soil, and things that live within the soil and upper layers of duff, benefited from the retention of such debris.

Paul, also, retained coarse woody debris. He drew links between the piles of wood that he had stacked from thinning operations and habitat for small animals such as squirrels, who would then deposit nitrogen-rich manure on the floor of the forest.

While these private forest managers emphasized diversity, some interviewees placed additional responsibilities for diversity upon public forests. Their value was seen not only in terms of economic production, but for providing diversity and habitat that could not be found in other places. Kevin said that on public lands:

There's a higher expectation and responsibility to the public to manage for a diversity of natural values and healthy habitats. The public lands are kind of the last, they are the last common places that Americans can go without trespassing, everybody has an ownership stake, everybody has an interest that should be met through the forests ... they are the last place that wild habitat exists.

There was a common view in Wallowa County that forests, including public forests, were crops to be harvested. This view was not incompatible with diversity; rather, it reflected a particular role for mankind in the forest. The role of man as a caretaker in the forest was often linked to the obligations of stewardship, an obligation to take care of the forest. Blake said:

I'm a believer that we should be taking care of the National Forest like a farmer takes care of a crop.

Overall, a major concern with the forest ecosystem was resilience. No matter the objective of the forest manager, the ability of stands to withstand insect and disease infestations, as well as fires, was underlined again and again. Adam said that he managed so his land:

[W]as pretty resistant to bugs and fire, and it wasn't overstocked and wouldn't just totally fall apart some day from some bug deal.

Diversity was key to this resistance. Paul explained that he thought diversity could create trees that were resistant to various insect and disease problems. He had kept a few Douglas-fir in an area that had been infected with root rot. Usually, all the trees in a root-rot infected area are removed. But Paul pointed to a tree that had escaped the disease and said that, perhaps, some trees were resistant and they could be encouraged. He also said that the presence of different species in a stand could have other benefits. An example was western larch; he explained that the larch loses its needles every year, providing useful organic matter for the forest floor.

Large-scale restoration projects could try to increase diversity, rather than simply managing to reduce fuel loads. Current rhetoric surrounding forest health often focuses on reducing fire risk, to the exclusion of other goals:

The major problem I have is that they have focused the forest health concept on logging for fire risk reduction, and made forest health synonymous with fire risk reduction and even if we do reduce fire risk and get to more thinned forests, the question is, where is the wildlife and where is the fish? [Kevin]

Kevin was a member of an environmental group that had consistently litigated on the Wallowa-Whitman National Forest. But he was not opposed to active management:

There should be active management that improves fish passage, wildlife habitat protection improvements, to road density reduction, aspen and hardwood restoration. [Kevin]

When considering forest health and how to attain it, projects should not only address the risks of fuels buildup, but the health of the ecosystem, a point of agreement among interviewees. This includes forests with functional processes, not just a forest that has a lack of dead and dying trees. Michael said:

[Forestry] doesn't pertain to cutting trees, it's keeping them healthy. If you have healthy trees, you've got wildlife, you've got clean water, you've got grasses, you've got shrubs, you've got the whole ecosystem. You've got ants; ants are very important. So you have to create a habitat for them, so I leave logs out there for them. Because they're predator bugs.

In fact, several forest managers pointed out the roles of various insects in the forests. Their roles were often obscure, but managers seemed to value their roles. Randy pointed out a small weed and said:

This is goat's weed, the common name, and we've got two beetles that come out ... then the beetles get thick enough you don't see much of that goat weed, and they don't eat anything else. And when this comes back, gets thick again, the beetle comes back. Probably, the goat weed has the upper hand right now, but I think the beetle will come back and take care of it.

This cognizance of complex ecosystem relationships points to some of the benefits of adaptive, place-based management. Managers who have watched the conditions on the land change, and made connections between long-term processes and conditions may care for the forest in ways that meet society's demands. As Aldo Leopold said, "conservation is keeping the resource in working order ... [it] is a positive exercise of skill and insight, not merely a negative exercise of abstinence or caution" (Leopold 1939:296).

ii. Wolves: A Place in Wallowa County?

Wolves have been gone from the county for over 50 years and, until recently, were not a concern for local citizens. In 1999, a single gray wolf crossed from Idaho (where wolves are being introduced), into Oregon. It was returned to Idaho. In 2000, there were two confirmed wolf sightings in Oregon: one wolf was shot near Ukiah, in nearby Umatilla County; another was hit by a motorist near Baker City. Controversy and polarization in Oregon over the future of wolves in the state has ensued. The wolf debate in Wallowa County is a fascinating example of the debate between diversity and simplification of ecosystems, and the need to adapt to changing conditions – both in the forest and in society at large. The reintroduction of wolves to Idaho in 1995 and 1996 has been largely successful, leading to their down-listing under the Endangered Species Act from endangered to threatened in February of 2005. The success of the wolves has not impressed the citizens of Wallowa County, however, who appear to oppose their presence in Oregon.

This was illustrated by a meeting on wolf management plans that took place on Jan. 8, 2003, in the county (ODFW 2003). The meeting was one of a series of meetings held by the Oregon Department of Fish and Wildlife in an attempt to get citizens' input regarding the impending arrival of wolves from Idaho. Several interviewees were present at the meeting and described it to me. Over 300 people attended the meeting in Wallowa County, more than any other wolf meeting held in Oregon at the time. Only one person spoke supportively of the idea of wolf management. The other comments, passionately and consistently, condemned the presence of wolves. Wolves were called "killing machines" that threatened human safety, as well as the lives of domesticated and game animals. They were described as inconsistent with agriculture. As one person in the county told me, most people only supported management that consisted of shooting wolves as they crossed the border.

However, I spoke with several people in the county who supported wolf reintroduction. Their reasoning was that wolves served an important role in the

ecosystem. Mitchell cited recent evidence of positive effects associated with wolf reintroduction in Yellowstone National Park (Ripple and Larsen 2000, Beschta 2003). He told me that:

[Killing the wolves] was slaughtering a predator at the top of the food chain. It changed everything. We got used to the change that occurred, but where they put wolves back into the ecosystem, they're finding out that things are improving in a lot of ways. The most profound is the vegetation in Yellowstone. The aspen and cottonwoods are coming back in riparian areas now because the wolves are running the elk. The elk can't dwell in those areas anymore, because the wolves will just run them right out. They have to keep moving. The ecosystem is improving in Yellowstone.

Another pro-wolf argument was from a local hunter, Gustav, who claimed that wolves moved elk herds in ways that made the hunt more engaging. He spoke of a hunting ethic that had been lost in the current era of ATVs and gadgetry and the decline of predators.

However, conditions within the county have changed since wolves last roamed these valleys. The lower elevations are covered in farms and towns, and human presence is felt even in the unroaded wilderness areas, where horses and backpackers now travel. Edward, a wildlife biologist, was concerned about the amount of land available for wolves. He pointed out that most of the protected lands were at high elevations, and that the wolves would inevitably venture into the valleys, where they would run into humans and "get in a lot of trouble." Roger said that Wallowa County simply didn't have enough open land left to support wolf populations.

Humans have become the only major predators of big game in the area. Adam said:

When [white] man wasn't here, it could stand a lot of predation. But now, man is a very effective predator, so if you're going to allow hunting then something has got to give.

Several interviewees said that wolves would run the show if they were to re-enter Wallowa County. The primacy of man and his domesticated animals was often evident in claims that wolves were savage and could “take over.” This illustrated a fear of losing control over a land that had been so carefully tamed. Katherine, a woman who lived in a very isolated region of Wallowa County, said:

Wolves go in packs, it's scary. It scares me more than losing livestock. Human safety and public safety are a big factor. They're pretty animals, and majestic, but they're also killers. We like the wildlife, but that's one wildlife we don't.

Other predators have remained in the county, such as cougar and bear. These species generally seem to have a recognized role in the ecosystem. Randy explained the role of cougar in chasing porcupines out of the tops of trees, where the porcupines sometimes girdle the trees, “porcupine-ing” them. He said:

When a cougar came, he can climb up the trees and knock the porcupine out, and go down rip him open, eat the heart and liver and then cover up the rest.

In this case, the savage predator is seen as beneficial because it protects valued resources – trees.

The complexity of the wolf argument is but one example of the tension between a desire for ecosystem diversity and the realities of a changed world. Ecologically, wolves may not be able to survive in Wallowa County. Politically and socially, they may be unwelcome. While the presence of wolves is a contentious issue, it is further illustration of a common theme throughout the interviews: we cannot go back to arbitrary historical conditions. There are more people in the valleys of Wallowa County now than when wolves last lived there, and conditions have changed markedly. Already scarce wildlife funding may have to be funneled toward wolf management if they start to live in the county again. But the role of wolves in the ecosystem hasn't been replaced, and there are undoubtedly some negative effects associated with their removal.

iii. Weeds

“Weeds are a plague on the planet” [Mitchell]

In the locally-created Salmon Recovery Plan, noxious weed elimination and control was given a high priority for funding and project implementation, particularly because noxious weeds “limit habitat diversity” (Wallowa County – Nez Perce Tribe 1993:28). Several interviewees noted that noxious weeds are a growing problem in Wallowa County. Major efforts have been undertaken within the county to restrict their spread. Noxious weeds reduce biodiversity by displacing native species and, as with the case of spotted knapweed (*Centaurea maculosa*), may actually release toxins that prohibit other plants’ establishment. Noxious weeds may pose economic, as well as ecological problems, to people within the county, as crop and forage plants are diminished. Mitchell said:

Weeds are a plague on the planet that everyone agrees we need to do something about.

He said that noxious weeds were an example of an area that could be tackled through compromise. He indicated support for chemical controls for weeds, though he didn’t normally approve of spraying chemicals because it was a “short-term solution.” But he said that other activities which may exacerbate the noxious weed problem, such as ATV use and livestock grazing, would need to be more closely regulated.

The presence of noxious weeds was cited as evidence of poor management. Parker, a member of the Nez Perce tribe who lived in Idaho but worked frequently in Wallowa County, praised the county’s stance on noxious weeds:

Wallowa County, you see signs all over about noxious weeds, and everybody is really responsible about that. Including the Forest Service. Over in Idaho, we have knapweed that’s growing so bad all over the country.

Rex noted that, despite substantial local efforts, noxious weeds are affecting the landscape of Wallowa County:

I don't know what my prognosis would be, I guess hopeful but not optimistic. My hope is that we can use our integrated techniques to stall or retard the spread of some of these species long enough that some better solution comes along. And that's probably going to come through some biological control or different ways to manage the landscape. Right now, mechanical and chemical means are just a way to protect what habitat we have left, slowing the spread and buying us time to have a better solution.

A weed levy passed in 2002 that charged \$.19 per \$1000 of all assessed property values in the county. This weed levy was an example of self-determination and the county's ability to pull together for a common cause. According to a document by Mark Porter, the weed coordinator of the county:

We cannot wait for someone else to take care of Wallowa County; they might never arrive ... Wallowa County is a dynamic community that makes cooperative efforts to take care of its own economy and its natural resources. We are not yet overrun with weeds because our local community has been aggressive with weeds since the 1920's. We have a history of proactive efforts for weed control and other issues (Porter 2002:1).

This statement reflects a strong value in Wallowa County: people are determined to address the problems within the county, including both economic and ecological problems.

In sum, people in Wallowa County appear to be very concerned about restoring, and maintaining, diversity in the forests and the grazing lands of the county. Overall, there is considerable agreement among interviewees regarding desired conditions in the forest. There is, of course, some disagreement as well. But forest management and forest health have been portrayed federally as polarizing topics; yet, at a local level in Wallowa County, at least, there may be enough agreement to implement acceptable projects.

2. Dynamic Forests: Restoration and Common Ground

If you're constantly looking at it, constantly saying "where do I need to take this?" and watching what you're doing and then going out and constantly looking at it after you've done it. And seeing how it's responding and have an idea in your head of where you want to take it, and then just keep watching it. And if it's going the way you want it to, fine, and if it's not, take it. But you have to manage it. [Andrew]

Humans may need to evaluate management practices on forests because of the complexity of natural and management interactions that produce such dramatic, and often unexpected, consequences. Abstract, blanket prescriptions may be less helpful for the land than place-based human judgment that can adapt to changing conditions, learn from the past, and adjust for the future – in other words, adaptive management. Adaptive management has been defined as "a dynamic approach to forest management in which the effects of treatments and decisions are continually monitored and used, along with research results, to modify management on a continuing basis to ensure that objectives are being met" (Helms 1998:2).

At a national level, within the political sphere, forest health is a very divisive issue. However, at a more local level, such as Wallowa County, there are many similarities between people when they talk about what they want from their forests. Place-based discussions of forest management may bring people together because it allows them to focus on more concrete issues than at federal or regional levels; it also allows for trust-building through small-scale demonstration programs and long-term collaborative discussions (The Aspen Institute 2005). Different forest types and management objectives will require new assessments of what people want from their forests and the types of management that will achieve objectives.

Restoration can help us achieve certain objectives in the forest, but it may also provide jobs. Kevin described noxious weed control as a "job creator." Several interviewees expressed a hope that restoration activities could benefit the community through job creation.

a) Management and Change

But you gotta remember, before we owned it, for years, somebody came up and logged this. You gotta work with what you got. [Andrew]

The changes that have occurred in Wallowa County's forests may preclude the re-attainment of historical forest conditions. Changes due to species conversion, soil compaction, the spread of noxious weeds, and overcutting, cannot be easily overcome. Striving to achieve historical conditions is likely impossible as a goal or endpoint (DellaSala et al 2004). Forests are not static structures; they change with disturbance, both natural and human-caused. Human activities have dramatically changed the forest conditions in Wallowa County; overall, many forest management practices of the past likely contributed to poor forest health today. Ned told me:

They just cut the areas too hard ... When I was 18 years old I was working out in Wallowa, I didn't know at the time but things were being done that should never have been done. Skidding down creek beds, skidding down on a 40% slope.

This degradation has a long history in some places. H.D. Langille reported in 1906 that: "The Grande Ronde Lumber Company had been operating along the Grand Ronde river and the destruction of the forests which has followed this cutting is deplorable indeed. The hillsides have been wiped clean of everything large enough for saw timber of any kind" (Langille 1906:7).

Paul, an NIPF owner who'd been managing one forest in the county for over 40 years, said that some lands had been degraded to the point that their productivity had declined. He pointed to a privately-owned stand that was relatively sparse and bare as we drove to his property and described the cutting that had been done on it in the 1960s. He cited it as evidence that practices in the 1960s had impacted the land so profoundly that the stands hadn't recovered. He said that Forest Service practices, as well, had been detrimental and resulted in lowered productivity:

In 1978, they were cutting heavier, but they had cut the best ... they had to cut smaller, more scattered. The best areas got cut first. [Paul]

An example of the inability to return to historical conditions is offered in Nancy Langston's book on the Blue Mountains (Langston 1995:36). Some large, thick-skinned ponderosa pine have not survived recent light fires. One theory for their demise is that conditions have changed since fire suppression that have affected the morphology, or shape, of the trees. Ponderosa pine have deep taproots to survive frequent fires. The buildup of duff and debris in the absence of fire may have changed the microclimate for many remnant large ponderosa pine. The thick forest floor accumulation holds moisture and retains heat, possibly causing trees' roots to grow closer to the soil surface. When low-intensity fires run through, they kill trees which would have, at one time, survived.

Many interviewees indicated we couldn't return to historical conditions because of changing social expectations, as well. As Rex said, "We've got new roads, new weeds, new desires for the forest." Post-settlement human interactions have affected the lands of Wallowa County in profound ways. Even if it were ecologically possible to mimic historical conditions, societal changes – for example, houses in the wildland-urban interface and clean air regulations – probably prohibit this.

Though historical conditions cannot be mimicked precisely, previous forest conditions can be examined, to serve as reference points for management. A survey distributed to over 900 people in Oregon and Washington revealed that people across the environmental spectrum – from those who identified economic priorities as primary to those who identified environmental priorities as primary – supported active management on stands that were previously degraded, where management could benefit the forest (Abrams et al. 2005). The need to manage, particularly on degraded stands, is a point of agreement between people who may have different ideas about (for example) old trees. Wallowa County's citizens saw a need to rectify current conditions and to manage the forests around them. As Andrew said:

You can't create these unnatural situations, and then say okay, let nature take its course, everything will be fine.

Hannah reiterated this point:

We've been hands-on for so long ... you don't take a kid who's in the midst of growing or a troubled kid and say, oh my God, I've been managing you wrong for all these years, I'm just going to walk away and let you finish it off.

Nearly all interviewees agreed on this point: from biologists to ranchers, the idea of abandoning previously degraded lands was unacceptable. Several interviews took place on lands that were described as previously high-graded or otherwise poorly managed. But prior management that led to degradation was not seen as a reason for abandoning management; rather, it underlined the need for *different* management.

Hannah told me that:

What we're dealing with now is what happened 50 years ago ... if people had managed 50 years ago the way people are managing now, I don't think there'd be any problem. So I just feel like we're the cleanup committee.

It appears that it is not only the presence of active management, but a particular type of active management that is necessary to restore conditions. Marcus told me that the Forest Service should:

Leave out the word logging ... talk about forest management. Then we have a different approach. Management. What could be done to this forest to manage it? It could improve if we thinned it.

The need to manage was tied to healthy forests through responsible management – the forests could be improved through human activities. Acknowledgement of previously irresponsible practices underlined this change in relationship through a different type of management:

I've already lived my life here and I've seen the changes and I didn't like what I seen 40 years ago, because it was rape and pillage. I don't like what I'm seeing now, because it's death and disease. [Michael]

Several interviewees noted that forest management practices have already changed drastically since the days of cutting the largest logs available. Norm, a Forest Service employee who had formerly worked with timber and now works with forest health treatments, told me that:

When I got here, we were harvesting large pine ... and by the time I moved out of that [timber] we were harvesting an average of 8.1 or 7.4 inch trees, so we've gone from a program of overstory removal and clearcuts and those shelterwood cuts ... to thinning from below.

On both public lands and private lands, smaller trees are being harvested than in the past. Melissa, who worked for a non-profit community forestry group, told me:

We haven't sawed any large trees in a very long time here. Very long. Joseph Timber Company, in the last three years we were involved with it, the average size tree it was milling was 7 inches diameter. Average. Over three years. That's small.

Melissa stressed that environmentalists may think that commercial cutting means cutting big "pumpkin" (ponderosa) pines, but that cutting small-diameter trees could be profitable. Here is a link between the forests and communities of Wallowa County: the possibility for restoration to bring jobs to Wallowa County. A point of agreement regarding management would appear to involve the thinning of overstocked, previously degraded stands and utilizing the by-products of management activities:

We want to clean it up, thin it out. There's no lack of trees, as you can tell, but they're too overstocked, too much ladder fuel, and too much risk of losing it all. [Blake]

Unfortunately, most of the material that needs to be removed is unlikely to provide a profit (ODE 2003), at least with today's technology and in today's market. Collaboration has been mentioned as a way to implement projects and get active management on the ground, but collaboration has often led to frustration, particularly with a lack of financial incentives in small-diameter materials. Blake spoke of collaboration as a good start, but said:

The forests benefit from nothing if management doesn't get there.

Without economic value in these materials, there appear to be large hurdles to implementing projects:

Every one of these guys is going to tell you ... if they're going to cut wood, they've got to put some value into it. You can't go out there and cut this [small] diameter wood and make a living at the end of the day, pay for your equipment and your crew. [Michael]

The need to manage is strongly advocated in Wallowa County – not only because of the forest conditions, but because of the ties between residents and the landscape, the desire to keep people on the land, and the need for jobs. Restoration jobs could be valuable in the county, but only if restoration is actually occurring. Currently, there appear to be several barriers to more active restoration across the landscape, particularly on public and industrial lands. These barriers will be discussed further in a later section.

Previous management may have degraded the forests of Wallowa County, but interviewees stressed that recent inactivity on public lands is not the answer to previous poor management decisions. Changes to forest structure and composition – higher numbers of fire-intolerant trees, higher accumulations of biomass, and more canopy layers – have resulted in an altered wildfire pattern (Agee 1993) that threatens the forests and the communities that rely upon them (Mutch et al. 1993). Economically, socially, and ecologically, uncharacteristically severe wildfires, in particular, are probably not

acceptable (Thomas 1997). Active management to deal with these changes is likely necessary.

b) Approaching Historic Conditions: Stocking Levels

Many people in Wallowa County, particularly forest managers and owners, spoke of healthy forests in terms of stocking levels and tree spacing. This is logical in light of the myriad problems that have resulted from denser stands and smaller trees since Euro-American settlement. Increased stand density due to previous practices such as fire suppression, removal of large trees, and a recent lack of active management on public lands, has led to more large-scale disturbances. Most people stressed the need to restore more "historic" conditions, with wider spacing between trees and reduced large shrubs and regeneration in the understory. Though most interviewees pointed to public lands as far more overstocked than private lands, this was not entirely consistent. At least two interviewees cited industrial forests for being overstocked, and one interviewee claimed that small forest owners (NIPF owners) had overstocked stands. As mentioned above (Table 5), most ownership types have significant acres of overstocked stands.

As I mentioned before, interviewees overwhelmingly agreed that the current conditions on the landscape mean that humans cannot simply walk away from the problems that we have helped to create. By homogenizing the landscape with stands of densely-stocked, small-diameter trees, we have created a fire, disease, and insect hazard. Historically, there was more diversity across the landscape; this may be duplicated by human management, as Blake indicated:

You can't do the same treatments everywhere, you've got to make it what mother nature had it. What happens when you do nothing ... mother nature comes through with fire and it becomes all the same. It's not a mosaic.

The goal of management, then, should be to "make it what mother nature had it" – at least regarding a mosaic landscape – in order to decrease the likelihood of a

catastrophic fire and other forest problems. Forest health does not mean that the entire landscape is evenly, widely spaced. Edward, a local wildlife manager, said:

A lot of species depend on those thickets for escape cover, deer will winter in the thicker areas ... there's some benefit to having that habitat type there.

Several hunters and biologists that I spoke with supported the retention of some thickets. Because of the increased road density in the forest, some big game animals may be more vulnerable to hunting pressure. Thickets, though perhaps not historically important to these animals, may have become more important as hiding places from the primary predators currently operating in the county – hunters. Again, the attainment of some arbitrary historical conditions is most likely untenable under the circumstances. Additionally, the retention of some thickets may mimic historical mosaic patterns (K. Norm Johnson, personal communication, June 2005).

Less dense stands were perceived as providing at least two primary benefits. First, most interviewees indicated that the primary way to combat catastrophic fire was through proper spacing:

I like a well-managed stand that's spaced out so if a fire comes in there, just keep it on the ground. But not to kill every tree on hundreds and hundreds of acres ... it's just so overstocked. There's way too many trees.
[Michael]

Second, proper spacing was regarded as key to maintaining productivity and encouraging tree growth, processes that were widely regarded as desirable. Whether to re-attain more historical conditions, which included a higher number of large trees on the landscape, or for timber production purposes, growing trees quickly was seen as desirable. Most people pointed to overcrowded stand conditions as harmful to the productivity of the lands. A well-spaced stand contributed to tree vigor:

If they're evenly spaced, to where there's enough water and nutrients in the soil to support them, they grow, and they grow healthy ... [They] need to be thinned out, if you're going to grow big trees. [Michael]

Trees that are crowded together can become suppressed and stagnant, increasing their susceptibility to insects and diseases, particularly during periods of drought. Some trees will not enter the stem exclusion stage described by Oliver and Larson (1990) (Graham et al. 1999). This stage involves the deaths of individual trees, creating more space and light for remaining trees to grow. Species that do not self-thin become overcrowded and individuals will not establish dominance. Instead, doghair thickets are created that persist with trees "locked together" and growing only very slowly (John Tappeiner, personal communication, May 2005). This is occurring throughout Wallowa County, as Blake told me:

We've got trees that are this big around [small diameter] that are so overstocked that they're not growing.

Most interviewees agreed with thinning stands to decrease competition and encourage more rapid tree growth, particularly when the stands were historically less dense. Although the presence of big, old trees can signal poor forest health for some managers, most interviewees recognized a desire among the public to have these trees present; Michael said:

And that's what I always hear when I go to the national forest, on the tours, they want big trees.

The ability to create stands with large trees may be useful to modern silviculturalists. Many managers and landowners recognized a public desire for large trees; they stressed the role of spacing in the creation or retention of desired old-growth type stands and large trees. It appears that large trees are desirable, or at least acceptable, to most people. While decadence may be antithetical to some people's utilitarian beliefs, trees which grow vigorously and attain a large size are widely accepted.

Active management, again, is likely necessary to restore spacing and realize other objectives, such as the presence of big trees across the landscape. As Paul said:

I think you can have a very natural forest if you take care of your fuel, if you take care of your spacing and all that. I know it's within human perceptions, but I think that human beings can be a good part of it.

c) Species Composition

The composition of tree species within a forest is relevant to many of the factors already discussed – notably fire and insect and disease risk. Particularly fire- and insect-prone trees were often viewed by interviewees as detrimental to forest health. These include lodgepole pine and “white fir” (grand fir). I’ll refer to grand fir as white fir because it is the common name for the species in Wallowa County. Firs can out-compete ponderosa pine in the absence of frequent fire (Arno et al. 1997).

H.D. Foster, in 1908, said that “mature trees are almost invariably affected with rot ... so prevalent is this defect that lumbermen can with difficulty be induced to cut them ... it is but a ‘weed tree’ and as such should be removed as much as possible in all logging operations in order to give way for better species” (Foster 1908:11). However, white fir was not removed in past timber operations because of its low economic value, and it has thrived. Today, managers are continuing to advocate for its removal. But it continues to be left in stands that may not have had it historically:

We’ve got a lot of that land that’s white fir types that we don’t know what to do with, because the rules and regulations now pretty much have our hands tied for that timber type. A lot of those areas, we need to do group select, get rid of the white fir and bring back seral species by planting.
[Blake]

The rule Blake was referring to is the Eastside Screen. Because the Eastside Screen prohibits the cutting of trees over 21”, all firs over that size cannot be cut from stands, even if (historically) they were not present. Other restrictions, such as the lack of large-scale, landscape projects and a lack of active management on public lands, have

also prevented its removal. Removing suppressed and intermediate grand fir from the stand may greatly reduce the risk of catastrophic fire (Graham et al. 1999).

Lodgepole pine grows rapidly into a previously-burned or disturbed area. This is because the species has serotinous cones which open after a fire, and it is able to rapidly colonize an area which has been disturbed (Arno and Hammerly 1977). A few interviews even described it as a “weed” species because it is found in abundance, in homogenized stands (particularly after a stand-replacing fire), yet is relatively low in economic value:

It's kind of like a weed ... if you've got, say, 40 acres here, and you've got lodgepole in the southeast corner, and you come back ten years from now and you'll have lodgepole in the northwest corner. It just spreads. I had a lodgepole thicket out here ... When we logged down here, we took out the lodgepole. [Randy]

Other species have changed in distribution across the landscape, as well. Subalpine fir generally grows at high elevations. Its distribution has changed because of the effects of fire suppression. Leah said:

A good example is over in Imnaha, we have western larch, Doug-fir, and ponderosa pine on some of the ridges over there, so we're slowly getting some of the Subalpine fir coming in because of what's happened with the stands getting so dense that it's cool enough, [so] it's supporting Subalpine fir as well.

Interviewees generally agreed that a mix of species was desirable across the landscape, with certain species particularly encouraged. These species included ponderosa pine, Douglas-fir, and western larch. Cutting out species that were historically less abundant appears to be another point of agreement among informants.

d) Adaptive Management

This is money, but this is also how this stand wants to grow, that's the kicker. This is what this piece of land wants to do. [Andrew]

Rather than following static silvicultural prescriptions, Andrew said that he did “what the land wants to do” and didn’t have a strict textbook label for every prescription; in fact, he said that labels applied to his management actions were not very accurate. He said he had to come up with labels for what he did on the land so that people could understand it, but that classic silvicultural descriptions of prescriptions didn’t fit his practices.

This place-based knowledge, adaptive to conditions on the ground, is an important component of forest health; in order to reduce large-scale forest fires in the United States, adaptive management (monitoring, evaluating, and making appropriate changes) is “essential” (Stephens and Ruth 2005, Graham et al. 2004, Dombeck et al. 2004). Adaptive management requires that people are present in an area long enough to learn from their mistakes. Several interviewees emphasized that previous practices led to poor management because people didn’t take the time to learn from mistakes or live with the results of their actions. As Andrew said, we ran before we could walk with many management practices. Most managers stressed the need to be adaptive and responsive to the needs of the land:

That’s one thing I really like about managing private timber is you don’t write one prescription for the whole shot. It’s each little individual stand and having flexibility to do what needs to be done. [Michael]

Forest managers were very proud of their professionalism and expertise, and their ability to read a stand and apply their knowledge to its particular conditions. Alan, who worked with foresters and community members as a natural resource educator, said:

The only place adaptive management can happen is on the ground. If it happens anywhere above there, they’re whistling Dixie ‘cause it’s the local people. How can you run that cycle, doing the monitoring, looking at the monitoring, then making changes other than on the ground? You don’t do adaptive management in Washington DC, you don’t do it in Portland, you don’t do it in Baker, the ground is here.

Eugene, an NIPF owner, talked about his management philosophy on his lands, which he'd been logging for over 30 years. His approach to management was very intensive and hands-on: he kept a record of every tree over a certain diameter on his property, and he selectively harvested small volumes of timber every year. I asked him if his management could be applied elsewhere, and he said:

No two trees are alike, no two people are alike, no two sites are alike.
[Eugene]

The idea that management actions should be performed in response to the land's needs was a common sentiment among interviewees. Speaking about prescribed burning, Roger, a member of the Nez Perce tribe and a fisheries biologist, said:

You have to understand it, live with it, understand the weather patterns of the area, you have to understand the forests as your backyard. Like the palm of your hand, you know what it's about. Then you can apply prescribed burning. You can feel comfortable about it, you can take a risk. When you bring people from outside, or people who've been there five years – it's still not long enough.

Unfortunately, the people who have long worked on the ground in Wallowa County are aging as a group, and their experience is being lost. As expertise is lost and people who know how to work the ground are forced out because of declining revenues and employment, few young people are taking their place. Keeping people on the land means keeping expertise on the land: people who can watch the forest changing, adapt their practices to its changes, and meet objectives defined by the general public and the communities that depend on the forests. Forest systems are dynamic, and may require adaptive management in order to respond to changing conditions; forest-dependent communities are also dynamic. This raises a few questions: how will the changes in Wallowa County's communities affect forest health? What are the implications of losing people who know how to work on the land? These are points we will return to in later sections.

B. Communities in Wallowa County: Change and Resilience

How has the economic and social health of the community fluctuated over the years? How is the community tied to the forest? How do changes within the community affect the health of the forest, and how do changes in the forest affect the community?

An assumption underlying many Forest Service policies regarding forest-dependent communities of the west is that disturbance could be removed from the forest system, or at least controlled, providing a continuous supply of raw materials, uninterrupted by costly catastrophic events (McCool 2003). Likewise, the model of sustained yield assumes that a stable supply of timber would result in a stable community, discounting the effects of external and internal disturbances (Hibbard and Elias 1993, Schallau 1987, Kaufman and Kaufman 1946). As sociologist Robert Lee has asserted, community stability assumes an isolated state, a community frozen in time (Lee 1987). However, stability has not necessarily arisen from federal policies. The boom and bust cycles of timber markets, political and regulatory influences, and recent environmental litigation have all conspired to bring some level of instability to rural, natural resource-dependent communities. It is change, rather than stability, which has defined forest-dependent communities.

As an example, the communities of Wallowa County have long been affected by demographic shifts that resulted from both environmental circumstances and political factors. In the early days of Euro-American settlement, people distributed themselves across Wallowa County in a dispersed fashion, claiming their 160 acres under the Homestead Act. Schools were scattered across the landscape, reflecting general settlement patterns; there have been over 90 school districts in the county, and most have disappeared over the years along with the towns they had served (Barklow 1992). The lands of Wallowa County proved harsh, and families drifted into the towns of the Wallowa Valley, seeking employment, particularly in the timber and agricultural

industries. Left behind today are empty, crumbling houses that dot the dry countryside in the northern parts of the county, stark witnesses to changing settlement patterns. These individual homesteads were consolidated by large timber companies or by farmers (Barklow 1992).

Employment has long been unreliable and fluctuating in the county. Randy told me that "there were never enough jobs" in the county; he told me a story about when he was a young child, and his father, a local cattleman and shepherd, had to hire help:

It was time to hay, and dad used to run a sled and haul the hay in and he got a group together and he told them 'I don't have any money until I sell the lambs this fall. And if you fellers want to work until then without pay, we can start tomorrow.' And they were there, ready to go.

More recently, declines in federal timber harvests, closing mills, and an influx of retirees have again shifted the face of the county; while the county's population has remained at a relatively stable level (Figure 7), the makeup of its people has changed. A loss of young workers may have resulted in a loss of capacity to work in the forest.

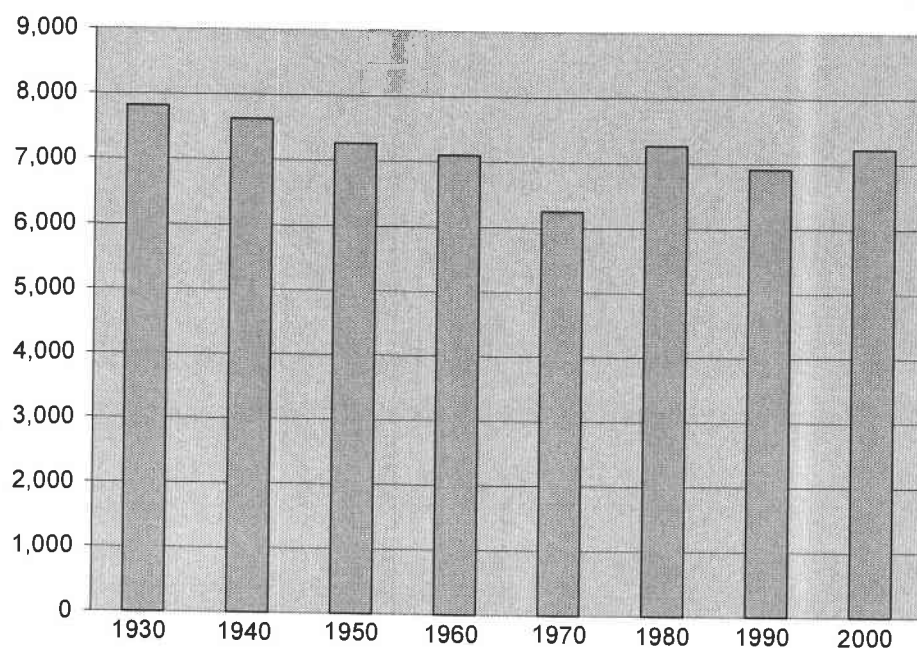


Figure 7. Population of Wallowa County, 1930 to 2000. The Y-axis indicates the number of people. From the U.S. Census.

1. Changes in Human Capital

What we really need is something to take care of the young people when they're old enough for a job. [Randy]

Human capital may be defined as "the time, experience, knowledge and abilities ... which can be used in the production process" (Husz 1998:9). In the realm of forest management, knowledge of the land may be linked not only to economic gain, but to rural and cultural identity. While land management knowledge can be applied to economic purposes in the forest, it is likely also perpetuated because of cultural links between people and the land. In the context of the forest, human capital describes formal education, as well as a capacity to work the land and the knowledge necessary to manage it; it "provides the means by which people not only respond and adapt to the natural environment but also modify it for their own purposes" (Prugh et al. 1995:53). Although human capital is generally described as an individual trait, at the community level, the

aggregate skills, knowledge, and experience of the workforce can illustrate a community's human capital.

Wallowa County has lost significant numbers of wood products workers in recent years (Figure 6). According to a recent study, "Wallowa County lost more than 270 timber industry jobs over the past decade – 12% of county-wide employment" (Barney and Worth, Inc. 2001:59). About 170 of those jobs were from mill closures; three mills have closed during that time (Ehinger and Associates 2001); one mill in Wallowa is still operating. These job losses have contributed to an exodus of young people from the county, and a loss of capacity for managing the forests within the county.

The loss of timber industry jobs has resulted in fewer capable workers in the county; alternatively, some people have stayed after losing jobs, but haven't been able to find suitable work. Patricia, who worked for an employment office, said that one of the hardest things to bear was watching unemployed loggers picking up cans along the highway. She continued:

How come we don't have skilled workers here, on a resume here, you get an employment gap for the last ten years ... And businesses come in and there aren't enough qualified people. A lot of people had to leave.

Human capital has declined because of out-migration; at a meeting, one woman described kids as the county's greatest export. As Melissa explained, children are encouraged to get an education in order to get out of the county, rather than getting an education in order to stay. This is largely due to an inability to find jobs and apply education and experience. Demographic evidence supports the claim that many younger, able-bodied workers, along with their families, are leaving the county. Figure 8 shows the proportion of people by age group for Wallowa County compared to Oregon as a whole.

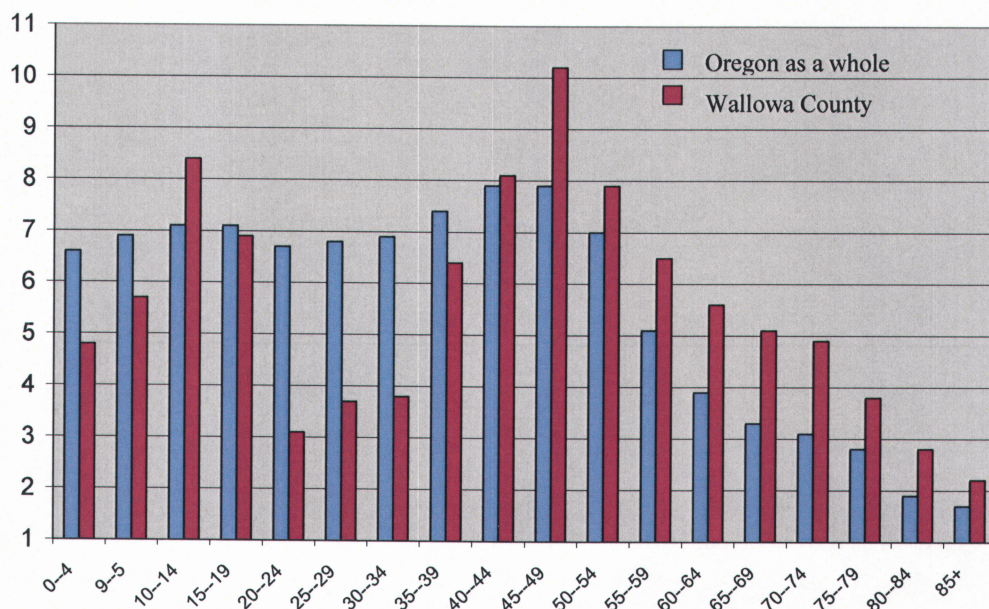


Figure 8. Proportion of residents by age group in Oregon (blue) and Wallowa County (purple). The Y-axis represents the percent of residents out of the total population. The X-axis depicts the individual age groups. From the U.S. Census 2000.

Wallowa County appears to have a slightly lower proportion of children than Oregon. But the proportion of people in the 20-24 age group in Wallowa County is strikingly lower than for Oregon. Nearly 7 percent of Oregon's population is between 20-24; only 3 percent of Wallowa County's population is in that age range. The trend continues until the 40-44 age range. These data reflect that young people are leaving Wallowa County after high school.

Schools in the county have recently lost students, further illustrating the general trend for young families to leave the county (Figure 9). Overall the three school districts of the county have fallen from 1257 students in the 1999-2000 school year to 947

students in the 2004-2005 school year, almost a 25% decrease.

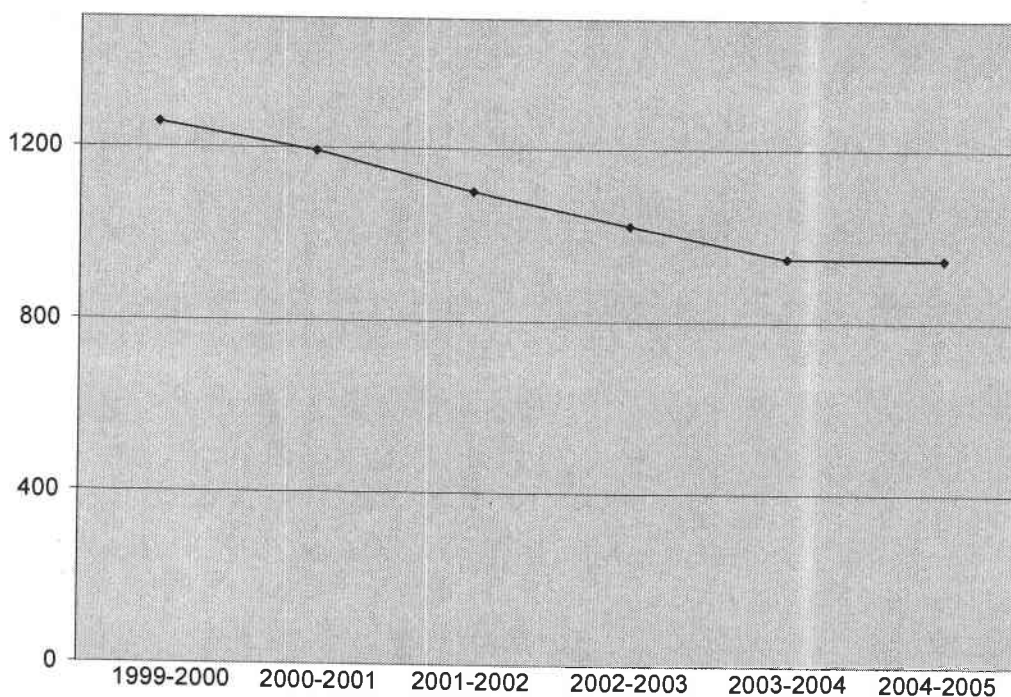


Figure 9. Number of students in Wallowa County's schools (including all school districts) from 1999 to 2005. The Y-axis indicates the number of students. From the Oregon Department of Education.

This has negative effects on the schools of the county, since state funding for schools in Oregon is directly tied to the number of students enrolled in a school. The loss of funding has been compounded because of declining harvests on public lands: schools and other county services receive 25% of the receipts from timber sales on National Forests.

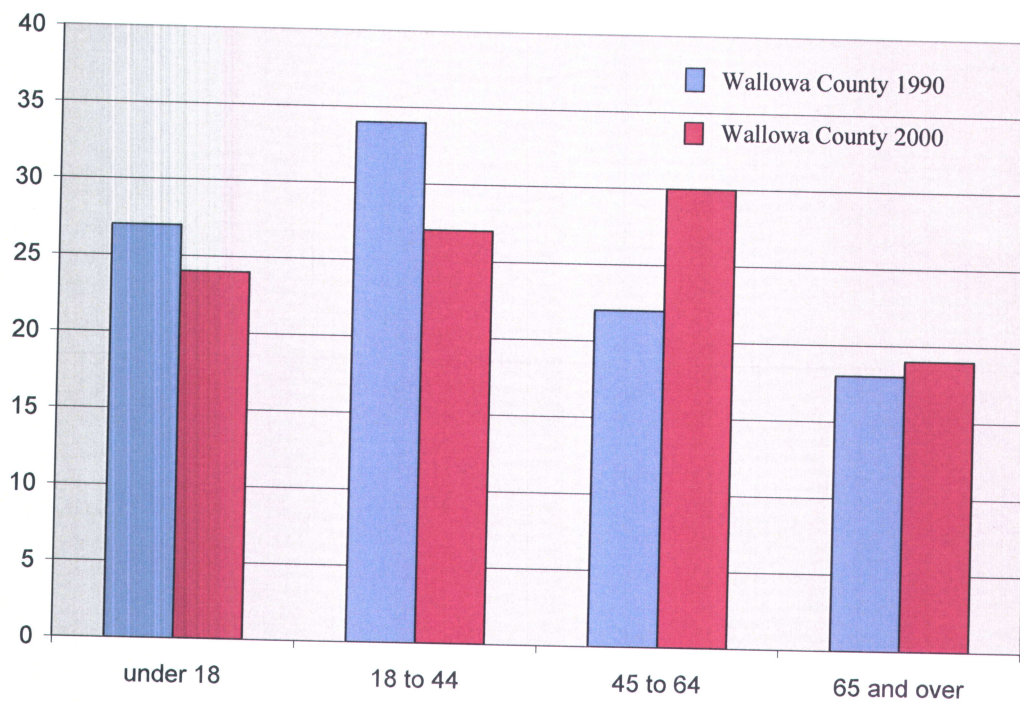


Figure 10. Proportion of residents by age group in Wallowa County in 1990 (blue) and 2000 (purple). The Y-axis represents the percent of residents out of the total population. The X-axis depicts the individual age groups. From the U.S. Census, 1990 and 2000.

On the other end of the scale, people over 65 make up about 18.9% of the county's population, compared to 12.8% for the state (U.S. Census 2000). Wallowa County had a median age of 44.4, and Oregon's median age was 36.3 years in 2000 (U.S. Census 2000). The age distribution of the county reveals an older population, when compared to the state as a whole. Comparing the 1990 to 2000 census figures, Wallowa County appears to be aging (Figure 10). Over 25% of in-migrants to northeastern Oregon during the 1990s came in order to retire (Miller and Slater 1999); the trend has continued, with many retirees building second homes in the county (Yohannan 2001).

With the growing numbers of retirees and second-home buyers, the jobs available in the region for Wallowa County (northeastern Oregon) have increasingly been in the service and health care sectors while timber and forestry jobs have declined; this trend is expected to continue in the future (Yohannan 2004). There is also projected to be a growing gap between the rich and poor, as more jobs are added in the low-paying service

sector. Wallowa County has been described as a “playground” by the Oregon Labor Market Information System – a playground is an area where more than 10% of the housing is purchased for seasonal or recreational purposes (Yohannan 2001). One outcome of playground areas is a loss of the working middle class, an increase in wealthy newcomers, and a growth of low-income service sector residents who serve the wealthy (Stauber 2001). Marcouiller and Green (2000) describe this phenomenon as a “hollowing out” of the middle class. Almost half of the predicted job openings in the region over the next eight years will require no college degree or post-secondary training, and only short-term on-the-job training:

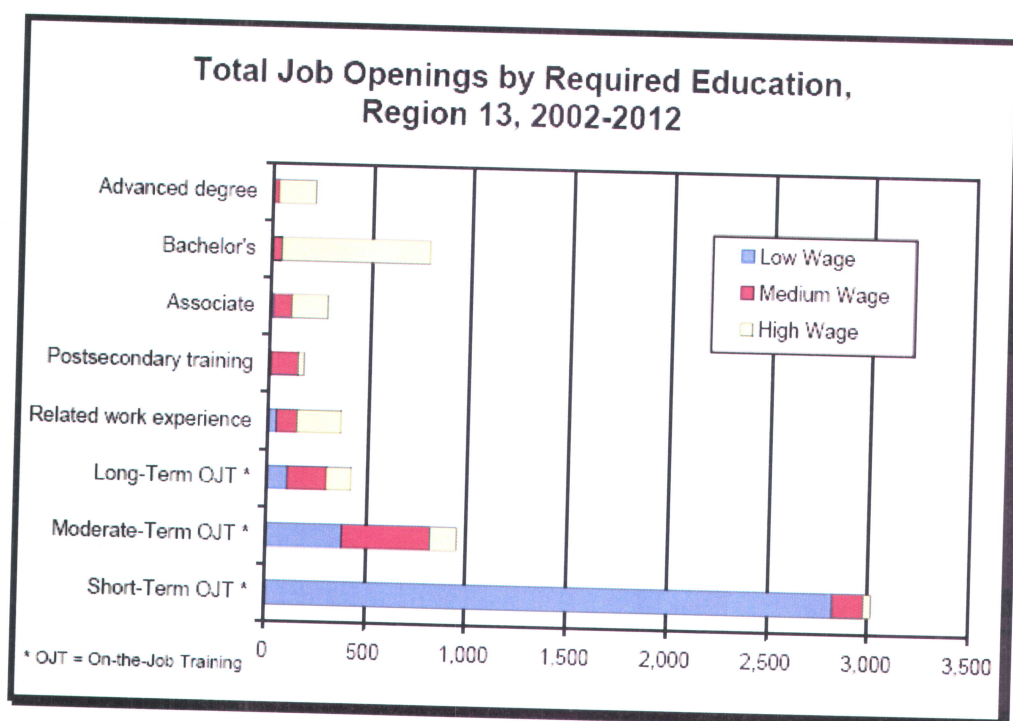


Figure 11. Job openings for northeastern Oregon by Required Education. From Yohannan 2004, Oregon Employment Department, Oregon Labor Market Information System.

The decline of family-wage jobs in the county was a primary concern for many residents, according to a survey administered in the county (VanderZanden and Wallace 2001). In a separate survey, respondents in Wallowa County indicated that “not enough

good jobs,” “out-migration of young people/families,” and “substitution of service jobs for wood and lumber products jobs” were three of the most serious local concerns (Steel et al. 2004). When I asked Olivia, who worked for a state public services office that assists families, to describe family-wage jobs, she said that they were jobs that supported a whole family. Logging and mill work were often described as family-wage jobs, while service industry jobs were not regarded as family wage. This distinction may be illustrated by comparing the average weekly wages of the two industries in 2000 (Oregon Employment Department 2000). For the lumber and wood production industry, the average weekly wage was about \$545, for forestry it was \$457. In contrast, the average weekly wage for someone in retail trade was only \$260, and for those who worked in hotels, it was \$156. In Oregon, service sector jobs are generally “low-wage” (under \$10 an hour), while logging and forestry jobs are “average-wage” (\$10-\$29.99 an hour) (Moore 2005b). Many wood products workers in Oregon who lost jobs became employed in the service industry, with a loss of wages and benefits (Helvoigt et al. 2003).

The loss of logging and milling capacity in the county has not only been tragic because of the loss of jobs, but because of the forest industry’s historical and cultural importance. Lyle, a real estate agent whose family had long lived in the county, said:

I grew up in a sawmill family. Most of the kids in my classes, grade school to high school, we were one way or another tied to the timber industry. Our dads worked in the sawmills or were out logging industry or logging truck drivers or tree fellers, some way or another, we were tied to that timber industry. And with those kind of demographics come families. ‘Cause they’re wage-earners. They can have families. And that closed, and the wage-earning jobs disappeared.

This quote illustrates one of the primary arguments about human capital theory: whether it is individual choices or structural causes that lead to unemployment (RSST 1993). In the case of Wallowa County, educational scores are extremely high – despite losing students, and funding, the dropout rate is among the lowest in the state (Bunn 2001). Over a four-year period (ending in 2001) in Wallowa County, about one percent of high school students dropped out, a lower rate than nearly every other county in Oregon; for

example, neighboring Union (11%) and Baker (8%) counties (Bunn 2001). Wallowa County has remarkably high test scores in reading and math (1st or 2nd place in Oregon for third and eighth graders over a three-year period from 2000-2003) (Oregon Progress Board 2003). However, it may be “a problem of not enough good jobs, rather than not enough skilled or motivated people” (RSST 1993:44). While the demographic shifts illustrated above have led to a decline in human capital, many residents indicated that young people want to stay in the county, but they cannot find work. Thus, a labor pool may be available, assuming that jobs can be made available.

Persistent poverty in resource-dependent communities has been documented elsewhere (RSST 1993) and timber-dependent communities have long suffered from instability and poverty (Cook 1995, Robbins 1988). In the 1960s and 70s, Wallowa County's per capita and family incomes were well below the state average (Pekar 1981) and the county's per capita income has remained stagnant or fallen since at least 1969, compared with growth in Oregon and the U.S. as a whole (Figure 4). The Wallowa County Museum Board (WCMB 1983) noted that employment in the timber industry has long had rather dramatic peaks and valleys. If employment and income in the county have been instable for some time, why are people particularly concerned today?

It may be a loss of the jobs that have long defined the community as a distinct place. Working in the forest, along with agricultural work, is a foundation of Wallowa County's rural identity. Andrew said:

[Forest management] is what I do. It's what I am ... it's what makes us different. A love for the land. Realizing the bounty that's here and you can live off it.

People in Wallowa County seemed to see an end to a culture where people depended on the land and managed the forests for their livelihoods. With the end of dependence on the lands, there may be a concurrent drop in the health of the lands because the community is losing the knowledge to manage the land. Blake said that:

We're losing the people who have the way of knowing what needs to be done on the ground and who have the ability to perform.

Working on the land created a culture that supports knowledge of forest management and the ability to work in forests. This knowledge and experience with forest management has been negatively impacted because of demographic changes. This theme was recurrent, with many individuals in both private industry and the Forest Service expressing concern over who would manage forests in the future. According to Andrew:

Almost everybody I know in the profession, the dirt foresters and loggers are 50 and over and we're losing those folks. We're losing that experience, we're losing that knowledge. We're losing. It's not something we can get out of a textbook. You're losing what this land will do.

What the land will do includes providing jobs. It is not only resource extraction or restoration, but a way of providing livelihoods to local residents. These livelihoods are tied to utilization of the resources present. One alternative to resource extraction is tourism; but strictly catering to tourism was seen as an abandonment of many of the qualities that make Wallowa County unique. Joshua recognized the importance of jobs which are connected to the land and to the identity of the county's residents:

I'd much rather see Wallowa County deriving the bulk of its income to occupations that are connected to the place we live in ... I think everyone agrees that tourism has a place here, but most people would not like to see it become Sun Valley or Jackson Hole or something.

Most interviewees were adamantly opposed to becoming purely tourist-oriented; Jackson Hole, Lake Tahoe, and other popular resort areas were listed as models to *not* follow; according to Mitchell:

We have to protect the character of the community ... I don't want to see this turned into a tourist trap ... I would much rather live in a little cow town than Aspen. I don't want this place to be lost.

All of these quotes indicate that Wallowa County residents want to avoid the fate of becoming yet another western town that caters to second home buyers and vacationers. When Mitchell said that he didn't want "this place to be lost," he was speaking about more than the physical characteristics of the county. He was talking about the character of Wallowa County, its culture. An integral part of that culture is a connection to the land. According to Patricia, with the decline in timber industry jobs in Wallowa County:

You saw the breakdown of the core of what Wallowa Co was about, which is really hard-working people that got up early in the morning and worked really hard and had a life because of it.

Newcomers were not expected to have the same respect for the working landscape. I was speaking with Joshua and Eva at a local restaurant with stunning views of the Wallowa Mountains and Joshua remarked that:

People usually move here for the landscape ... but there's the beauty of the land and there's the living on the land ... and I just want my five acres and then I don't want it to change. Then, the next person comes in and it slowly changes, and people often get here and they want to fight to preserve the beauty part without a total understanding of living on it.

Eva, who worked as a local outfitter, added:

The function of the land underneath that beauty, you know.

Newcomers and old-timers may have equally sincere connections to a place; these connections, though, may be based on fundamentally different components of that place (Beckley 2003). While newcomers can bring new visions of appropriate relationships between the land and humans, almost everyone I spoke with wanted to maintain a

traditional, cultural relationship between the land and the people of Wallowa County. Maintaining human capital – particularly people who know the forest – is tied to the maintenance of this connection between locals and the land. As young people flee, older people are left to try and keep a community, and its forests, healthy. This exodus of viable, young workers may decrease the local communities' ability to cope with changing economic and ecological conditions.

2. Changes in Economic Capital

In 1994, no timber volume came off of public land. In 94 or 95, all three sawmills shut down sequentially. The level of fear and polarization in the community was scary, you could feel it on the street. Uncertainty and fear.
[Melissa]

The economic capital of Wallowa County has historically been somewhat limited because of its isolation (Christofferson et al. 2004). Isolation may “hinder economic development by limiting market exchange” and more isolated communities are generally poorer, with fewer job opportunities (Blank 2004:3). Wallowa County's economic capital includes human-created and natural capital. Forests themselves may be regarded as natural capital in the county, while infrastructure, including mills and roads, are human-created capital. This distinction is mentioned because it underlines the interrelationships between natural and human-created capital: natural capital, while often overlooked, is the background for all human activities; “all economic production is actually consumption of natural resources” (Prugh et al. 1995). The interactions between natural capital and human-created capital in forest-dependent communities are complex, particularly because human-created capital may be designed to utilize natural capital. The natural capital in the county may have declined, as many of the largest and most valuable trees have been removed and systems have been homogenized. This section, however, will focus on the decline in human-created capital, in particular the mills of the county.

The infrastructure of Wallowa County is declining in terms of timber harvesting capacity; Kieran, a local outfitter, said: “We're struggling because the mills went down.”

As mentioned before, public timber harvests have declined recently; while private timber harvests have risen slightly in the same time (Figure 12), they have not risen enough to offset the loss of raw material.

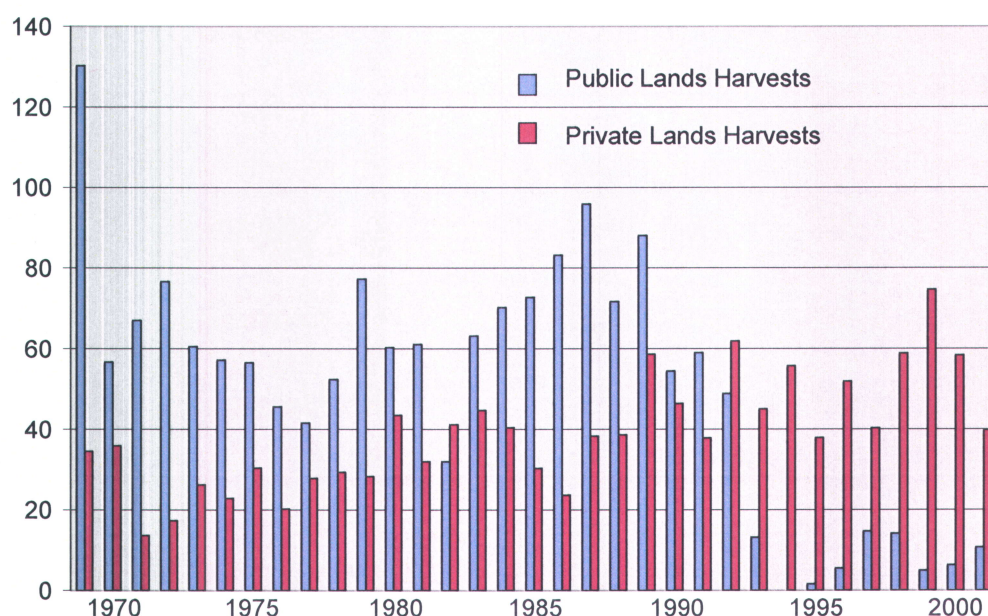


Figure 12. Number of board-feet of harvest per year on public lands (blue) and private lands (purple). The Y-axis is in million board-feet (MMBF). From the Oregon Employment Department.

The effects of losing this infrastructure may have negative consequences on the health of the forest because of a growing inability to market small logs in nearby mills; for example, longer transportation costs may discourage the removal of less-profitable, small trees. It is these trees, which form the increasingly-dense, fire-prone stands of today's inland forests that may need to be removed to improve forest health. According to Ned, who was talking about pre-commercial thinning:

It's cost prohibitive for me to go into an area with a bunch of stuff on the ground, especially little stuff. It's too far to the mills, trucks cost too much. I kind of stay away from that kind of projects ... There's a lot of ground in this country that needs work but I don't think we'll ever get it.

Though there is some level of agreement over what needs to be done in order to restore lands in Wallowa County, there is a question of funding restoration activities:

There's still plenty of work to be done out there, but small trees aren't worth very much money, so you've got to pay us to find a use for it. We're working hard to find some kind of use for small timber so we can get a little money out of it, but it's not going to equal big trees. [Rex]

In order to maintain some economic benefit while promoting restoration activities (such as the removal of small-diameter timber), a local non-profit organization, Wallowa Resources, partnered with an investor to retool a local mill to handle small diameter material. That mill was unsuccessful and closed down; Wallowa Resources has persevered, however, and is currently operating a post-and-pole mill in the town of Wallowa. That mill has been marketing value-added products. Joshua, who worked with the small-diameter mill, said that:

The mill in Wallowa is trying to create a better return for small-diameter thinning, which would otherwise be burned in a slash pile ... There are other ideas, about a biomass plant, or maybe a fluorine plant, molding. Things that can be made out of small-diameter wood. But there are economic problems with doing this small-diameter timber, your handling cost is the same, basically, for a much smaller volume of wood. It's much harder to be profitable, dealing with small-diameter pieces of wood than with large-diameter pieces of wood. But that's what we're trying to do.

Several other interviewees, including loggers, expressed a hope that small-diameter materials could provide incomes, though most had reservations. Speaking of utilizing biomass for energy production, Michael said:

It's only going to make sense for a real short distance, because you've got to truck [material] in. And the deal is, there's so much of this stuff, but [biomass facilities] will use like 180 tons a day, 365 days a year. It's phenomenal. Create jobs, create electricity ... But it's not cost-effective.

These statements illustrate the struggle to make a living from removing the small-diameter materials that constitute fuels reduction projects. If there is no profit in removing these small trees, then they will likely not be removed. But many local residents saw jobs in the densely-packed forests of the surrounding lands, both on private and public ownerships. Fuels-reduction policies such as HFRA have indicated that the federal government values wildfire risk reduction and forest restoration. But how can the work be done, without value in the products that are removed? Kevin said:

I think there's a lot of work that can be done in places with an abundance of small and medium-diameter trees ... Some of those trees may not have commercial value, especially if your management purpose is fire prevention ... The government is going to have to step up and invest in the forest, invest in local communities, and invest in forest health. The timber years and the timber wars and the high cut years, to me represented an extraction-focused approach, now they're talking about a restoration approach and I think the government has to revisit its policies and appropriations for funding policies. Say, well, this is how we did it in the past, and we did produce a lot of timber, now we could create a lot of jobs, probably more jobs in a lot of cases, but we have to make an investment of federal dollars.

Another option is to remove larger-diameter timber to offset the costs of removing small-diameter timber. Adam said that it was "stupid" to put a diameter limit on trees, when so many were dying and could provide income. However, this raises the difficult question of whether to cut old trees. In the absence of agreement over that issue, especially when so many people indicated that their primary goal was the restoration of large trees across the landscape, there may need to be new ways to make money from small-diameter timber.

As the mills in the county disappear, and it becomes more and more difficult to make a profit off of timber lands, those lands may lose their function as "working lands." It may become more profitable to sell lands for development (residential or recreational) than to hold onto them for forest management. This process has been described as "aspenization," whereby "a fragile cultural ecosystem is disrupted by tourism and

growth" (Naimark 2004:1). Our society is becoming increasingly dependent on imported raw materials (Stauber 2001) and commodities have lost value relative to amenities (Freudenberg 1992), leading to more and more working lands converting to residential areas – a change to those lands which usually involves a high level of human activity, fragmentation, possibilities for noxious weed introduction, and road building. While we were walking around his employer's NIPF property, Neil said that:

People portray forestry as a dirty industry and tourism as a clean industry – there's nothing dirtier than tourism: totally consumptive and doesn't produce anything. There's nothing greener than [this type of] forestry – you get wood for buildings, it's more environmental than steel ... timber land is suited to growing timber and it's good for morel [mushrooms], wildlife. [Neil]

Appeals and litigation against the Forest Service were a response to unsustainable harvesting levels, abusive logging practices, and the disappearance of old-growth forests. However, with the loss of public lands forests and subsequent closures of mills in eastern Oregon, restoration may have been adversely affected, and people may have a more difficult time remaining on the land – which could lead to unforeseen consequences in the forest with the loss of connections between people and the land.

3. Retaining Culture in Wallowa County

Are we going to become a community that somebody in the city ... has to work for and there's three of us here that don't have a job, that are not working, that they have to support? Is that what we're going to do? Stick our hand out and say you support us ... we don't want that. We want to work. [Michael]

As Michael's quote illustrates, interviewees were generally opposed to government aid – they voiced a strong desire to work. This was part of the culture of Wallowa County: people prided themselves on their work ethic and their reputations for working hard:

People in Wallowa County work hard, we have to work hard. My first job outside of here, my boss gave me my wages and said do you all work like that out there? [Patricia]

In addition, people in Wallowa County consistently stated that they wanted *family-waged* jobs in their community. The distinction between low-paying, unstable jobs and jobs which provide some degree of stability and a living wage is important: high-quality, middle-income jobs may bring families and people who have time to volunteer, people who stay in a place and develop deep connections to others and a sense of commitment to the community at large:

We're crying for volunteers all the time, and people who will give their time to kids. If you're part of a community and your heart is in a part of that community, then you want to give back ... to make it a better place for everyone who lives there. [Carrie, Forest Service employee]

According to several interviewees, volunteers for activities such as 4-H and youth groups had become scarce with the decline in middle-income jobs and young families. The tight social bonds that seem to have defined so much of rural America (W.K. Kellogg Foundation 2001) may be weakened by the demographic shifts currently underway. During the Depression of the 1930s, as many Americans lost their jobs, volunteerism, civic group membership, and other measures of social solidarity declined (Putman 2000).

While demographic shifts may signal a decline in certain social attributes, rural residents generally seem to work toward a "perpetuation of that [traditional] lifestyle with its network of social relationships ... [they] seek to maintain a quality of life rooted in enduring social relationships and attachments to particular places" (Lee 1987:41). Wallowa County's residents seem to be particularly driven to retain some of their cultural heritage, including aspects of their rural identity and the quality of life in the county.

a) Rural Identity

“Your values influence how you see things” [Rex]

Interviewees expressed a desire to maintain their rural identity, even in the face of changing regional, national, and global conditions. Holding onto aspects of the identity of the county is not unlike preserving remaining old-growth forests, for there is a connection to the past, diversity, and distinctiveness. The rural identity of Wallowa County is not homogeneous, but certain themes are recurrent. Rural identity, as the term is used in this paper, can be described as the folklore, or myths, regarding rural residents, their culture and values, and their relationship with the land (Fitchen 1991). Working the land has been referred to as the “stewardship myth” and is associated with a traditional rural lifestyle (Peterson and Horton 1995). A “myth” in this case is not necessarily untrue, but a story that is perpetuated through language and symbols and through “a dynamic set of shared cultural values about right and proper behavior” (RSST 1993:158).

i. Connection to the Land

“Cowboys don’t want subdivisions” [Gustav]

Rural communities are deeply connected to their lands in a symbiotic relationship: “when rural development destroys or seriously degrades the natural environment, it destroys the core basis for ‘ruralness’” (Stauber 2001:37). This connection is far deeper than an appreciation for its beauty – it is a tradition of working with the land and earning a living from it, and in return treating it with respect. Several interviewees remarked on the perceived distance between urbanites or suburbanites and the natural world. Stories about people interfering in “what they don’t understand” were common. Joshua said that there was a profound disconnect between most people in America and their environment. People of Wallowa County, however, often described themselves as embedded in the landscape. According to Olivia, who works for a local social services agency:

It goes back to the ranchers and the farmers and the people that we know that were in the industry of being out in the forest, and being part of it. I see huge connection to the land here ... it's about understanding the value of it and the commitment to be careful with it, and preserve it.

This connection is particularly strong because it is not only care for the land for its own sake, but for the sake of residents and their families' well-being. Katherine, who works for the local Soil and Water Conservation District, said:

The landowners are making it work. There are bad apples in every bunch, but all in all, landowners want to do a good job with their land, because they live off their land. If they do wrong management practices, then they have hurt themselves because that land doesn't sustain their operations.

Many loggers and land managers expressed a deep concern and care for the land. Their concern for the land may extend to a sense of pride in their professionalism. According to Ned: "I've got a good reputation, I don't destroy nothing, I don't tear it up, overcut." Loggers and foresters value the way their work allows them to live. Andrew told me that loggers of his generation had gone into the business to be in the woods with their dogs. This motivation was repeated by a rancher who migrated with his herd over thousands of acres of grazing lands in an annual cattle drive to market. Though other methods (such as trucking the cattle) may be more cost-effective, he retained this tradition. He said that it allowed him to watch the land; for example, he has actively tracked the spread of noxious weeds in the county. As Melissa said:

People who traditionally work in the woods work there because they want to work there. They love the smell of the trees, they love the freedom, they love being outside, they love the seasonality of the work. You can't take those people and put them under fluorescent lights.

There was strong resentment of the perceived implication that lands have not been properly cared for in the past, or that rural residents cannot properly care for the lands now – this implication is borne out in federal land-use laws that place restrictions on

local land managers such as the Clean Water Act and the Endangered Species Act. By mandating and prohibiting behaviors that may be locally considered acceptable, the federal government (and, by extension, the environmentalists who have pushed for change) may be displaying a degree of disdain for some rural management practices. Gustav said that urban environmentalists had marginalized rural environmentalists; he described this as a cultural divide between “kids with nose rings in Portland” and “rednecks who eat meat.” Olivia spoke for many people when she said:

There's a real disappointment here among everybody, ranchers, farmers ... It's just somebody else coming in and telling somebody how to manage something that they felt they were doing a pretty good job with to begin with. It doesn't set very well.

Concepts of coevolution can help to explain some of the interactions between rural residents and their environments. There is a push and pull relationship between human actions and environmental responses as both continually interact, “thus the state or identity of each system [human and environmental] at any given time reflects the historical influence of the others (Prugh et al. 1995:21). In Wallowa County, coevolution did not end with the Native Americans; human actions continued to shape the environment, and humans, in turn, have been shaped by the environment. Connections to the land have developed through careful observation and the process of living on (and living off of) the land. This brings us to place-based, adaptive management: “The coevolutionary paradigm ... strongly implies the critical importance of adaptability” (Prugh et al. 1995:24). Living in the land, connected to it, is not only an attribute of rural identity, but a recognition of the need to adapt practices to changing conditions and the unique attributes of the land.

ii. Self-Determination

“You can be part of it or take what's imposed” [Alan]

The 1996 Strategic Plan for the Future (SPF) was created by 150 Wallowa County residents during eight meetings held around the county. The SPF documented existing economic conditions and economic goals that participants had for the county. The SPF opens with this line: "The people of Wallowa County publish this Strategic Plan for the Future in dedication to their **self-determination**" (Wallowa County 1996:4, emphasis mine).

For example, generally, people in Wallowa County did not support going on government assistance, and interviewees underlined the need to pull through hard times on their own, rather than rely on outside help. Olivia said that:

A lot of people won't access the services that are available to them. You get situations like that. And that's a norm here, even if you're not able to feed your family, it's better to just keep figuring out ways to do that than to get on a system.

The importance placed on self-determination extended to the forests and other working lands of Wallowa County, where managers stressed the need to control their own destinies. Interviewees emphasized the value of independence and self-reliance when making decisions about their own land. Randy told me about taking a master woodland manager course, after which he was to go to neighbors' houses and help them with management questions. He said that:

We were supposed to help people, but the fourth person I was supposed to contact, he said 'I don't need you telling me how to grow timber.' And that's the way it is.

While people within the county often rely on each other, private property management is an intensely individual activity, and people respect each others' right to manage as they saw fit. This rationale extends to federal legislation, and many federal laws were described as intrusive. Referring to the process of writing the Salmon Recovery Plan, Alan, who has remained involved with the process, said:

If you think you're going to come to Wallowa County and ... change the loggers' way of doing stuff, think again ... the regulations, the restrictions are coming. We want to be part of it.

Alan continued, claiming that the process of land management in Wallowa County was like a train, and everyone was a passenger on the train, nobody the conductor. He stressed that he didn't want local control, but local access and a role for locals in land management decision-making. Alan was particularly proud of success stories: ranchers and forest owners who had managed their lands well, and so had proven critics wrong.

Since many local people value their connection to the land, the perceived loss of self-determination in land-use decisions has been particularly hard. Many people described the loss of access to public lands as a blow to community-wide self-determination. In Wallowa County, many residents still value the ability to control the fates of their communities. This self-determination appears to include the ability to work in the forests of the county, including the public forest lands:

Some of us are working to try and keep this a viable place. Because another element is a viable economy. Not relying on people outside the county, relying on tourism solely. You have a land-based economy, that would be wonderful. [Joshua]

b) Quality of Life

"You can go out for three weeks and not lock your house" [Eva]

The hardships that have accompanied a decline in timber and employment have not necessarily resulted in a lower quality of life in Wallowa County. The county was consistently described as a wonderful place to live, despite the worrying economic picture. While wages and the standard of living may be lower in Wallowa County than in most of urban Oregon, "quality of life is nonmaterial" (Fitchen 1991:249):

Most of us have paid a pretty good price to be here, and we've paid for that quality of life through lost income, for example, living a more modest lifestyle. [Joshua]

The county is abundant in certain positive aspects of rural life that are often identified as classically rural; these include close-knit family and social structures, friendliness, and knowing your neighbors (W.K. Kellogg Foundation 2001). Wallowa County has strong informal networks, family-centeredness and "folk life and folk culture," or *Gemeinschaft*, (Tonnies 1957). These attributes have to be carefully cultivated and maintained in a world which values frantic growth and production over such intangible and subjective qualities as happiness and interpersonal communication (Milbraith 1993). Wallowa County may be a place that is holding onto its past:

It's a pretty unique environment, it's almost to me like going back in time.
[Olivia]

People in the county identified this quality of life as something they wanted to preserve. Joshua said:

How do you quantify quality of life? You can leave your bicycle outside the door of your office all day long and never worry about somebody ripping it off ... you can be drinking wine on the front steps of the Wallowa City Hall and an attorney drives up and joins you. Those are just as real as statistics in an economics textbook or a sociology textbook and that is part of the quality of life.

Wallowa County ranked 2nd out of the 36 counties in Oregon on a public safety index; it ranked 7th on a composite measure of child well-being (Oregon Progress Board 2003). It was consistently described as a great place to live, and a great place to raise children. During the formation of Wallowa Resources, Melissa explained that they discussed quality of life issues and that:

The organization itself is values based, rather than interest based ... The things that people value are quality education, safety for our children, abundant wildlife, healthy ecosystems, a healthy economy, diverse opportunities in the economy, the open space, the natural resource-based businesses.

She explained that the underlying values were where people found common ground, and where discussions about natural resources and their management could proceed.

C. The Community and the Forest in Context: External Forces

What are the external forces that affect Wallowa County's communities and forests? How do these forces affect community and forest health?

Most of the perceived barriers to achieving forest and community health appear to be external forces, often political or economic. These external forces have affected Wallowa County, often, through its natural resources, including its forests. Political forces include interest groups, particularly environmental advocates, and mandates from Washington, D.C. The most prevalent economic forces are industrial, and are linked with national and global economic trends. In this paper, the forces which I have labeled "external" were sometimes mentioned together, but were more often discussed by different people at different times, in different contexts. Taken together, however, they illustrate the effects of decisions that are made far from the county, geographically and culturally. Rural communities, particularly those that are natural resource-dependent, are often at the mercy of volatile external forces (Force et al. 2000, Freudenberg 1992). In addition, adaptive, place-based management of forests may be hindered by the influence of external forces.

Wallowa County, like most rural areas, has been affected by core-periphery relationships. The core, or urban areas, utilize the natural resources and labor of the periphery, or rural areas. The core is the beneficiary of profits made in the periphery; the periphery is likely to be regulated and politically and economically dominated by the core

(RSST 1993). During the 20th century, as Americans moved from the countryside to the city, they stopped producing their own goods, and materials had to be sent long distances, from the periphery (the rural communities that provide the raw materials) to the core (where economic and political power is centered). The core, where stockholders, executives, and politicians generally reside, often makes decisions for the periphery.

The role of external forces can be viewed through the lens of political ecology, which "examine[s] resource access and utilization within an overarching world-system framework" (Biersack 1999:10). Political ecology may often focus on capitalistic forces, though it can also explore large-scale culture and "complex linkages" (Kottak 1999). Force et al. (2000) found that external economic, political, and social forces, labeled "societal trends," were the "strongest *single* explanation for community social change" in resource-dependent communities of the Pacific Northwest (Force et al. 2000:419).

Many interviewees indicated that they were losing (or had lost) access to the lands within their own county. Access is defined by Ribot and Peluso (2003) as "the ability to derive benefits from things" (Ribot and Peluso 2003:153). Theories of access involve groups and individuals controlling and maintaining access through various means, for example, by influencing governmental agencies, media outlets, markets, and natural resource bureaucracies. As an illustration, there was a well-documented historical relationship between the Forest Service and the timber industry during the period following World War II and prior to recent shifts in public land management priorities in the 1990s (Clary 1986, Hirt 1994, Satterfield 2002). The Forest Service benefited because its budget was supplemented by industry's purchase of federal timber. The timber industry gained access to a huge amount of virgin forest land that had not previously been cut and so had retained many large, valuable trees. The federal government supported this arrangement because of the income it derived and because there was strong public demand for timber. Thus, the timber industry gained access to public lands, and to public lands management decisions.

External forces may lack a connection to the land and to the community. For example, several interviewees pointed to the perceived damaging effects of absentee

owners who had little or no connection to the land other than through ownership.

Adam, claimed that:

What happens to places in absentee ownership, 95% of the time they're not taken care of very well. It's a money thing, they're taking advantage of the resources here.

This lack of connection may have adverse effects on the health of the forest, as well as the health of the community.

1. Environmental Advocates

There was this one lady, and I think she was from New York. We went on the tour and I was talking to her, and I told her, I says, there's places in there with about 3000 trees per acre, this big around [indicates small diameter], real short. That's way too many, they need to be thinned out. If you're going to grow big trees, like everybody likes to see. So, and she couldn't understand it, so I explained to her, it's just like planting radishes. You plant them, they come up too thick, you pull part of them out. And then you get nice little radishes. Blank – she didn't understand what I was talking about. She said she lived 26 stories up, solid concrete, the only plant she had was plastic. So I asked her, how long have you been in Wallowa County. Well, two days. What do you like? She loved it, this is just beautiful. And I said, you know, we've been doing what we're doing here for 100 years. Come and visit any time you want but let us make the rules ... because our environmental rules are killing our forests right now. [Michael]

Many residents of Wallowa County identified urban environmentalists as “outsiders” who were adversely affecting the forests and communities of the county. The connection between urban and environmentalist may or may not be accurate, but the term “somebody from New York City” was almost shorthand for an environmentalist. One prominent environmental group, Hells Canyon Preservation Council, was located in La Grande, Oregon, near Wallowa County, and one of its founders had long lived in Wallowa County, yet they were still often identified as outsiders. I'll use the term environmentalist for this group of external forces.

People in Wallowa County often describe themselves as connected to the land and to its proper management, therefore, the interference of environmentalists may be seen as intrusive and counterproductive. Mill closures in the county were largely blamed on environmental groups. Michael said that:

It seems like [environmentalists] will do anything in the world to try and keep a tree from going to the mill. There's a hate, they literally hate the mill.

Many of the interviewees expressed a strong distrust in environmentalists and their influence on resource extraction activities; they were often described as "preservationists" or "extremists." Environmentalists from this perspective are ignorant of the land and its needs, and only know how to stop locals from managing the land appropriately (Carroll 1995). Many interviewees stressed that they are the "true" environmentalists, and that urban environmentalists mainly succeed only in obstructing common-sense management and interfering in local issues that they don't understand. Environmentalist outsiders were often described as ignorant by residents of Wallowa County, and this perceived ignorance stems directly from their "urbanness" or their lack of connection to the land. Most environmentalists were not described as malicious, but ignorant of their effects on the land. Referring to litigious environmental groups, Michael said:

There's a lot of people that believe that they're doing the right thing, by donating money to these things [environmental groups]. When something's appealed, it comes back to them and they say, yeah I donated money and they succeeded in appealing this.

Environmental groups' actions, which often rely on stopping management through appeals or litigation, can demonize the traditional rural lifestyles that many people in Wallowa County still hold dear. Appeals and litigation have, by and large, decreased harvesting and grazing activities. These activities have traditionally been the core of rural communities' economies – and identities. Environmental groups gained

access to the natural resource decision-making process through appeals and litigation, most famously during the spotted owl wars of the early 1990s, when federal judge William Dwyer temporarily halted logging on national forests in spotted owl habitat of the Pacific Northwest. Although environmental groups have won many court cases, filing appeals and litigating the Forest Service leaves few alternatives to simply *stopping* project implementation. Since management appears to be an integral component of forest health to residents of Wallowa County, the actions of some environmental groups may have contributed to poor forest health. Environmentalists may have disenfranchised many local residents by dismissing local knowledge and practices on the land (Peterson and Horton 1995). The influence of environmental groups on the decision-making process has likely contributed to locals' feelings of being denied access to the land – one person (say, from New York City) can often appeal or litigate a public lands project. However, many environmental groups are acknowledging the role of management in eastside forests, particularly those that have been previously degraded through fire suppression and logging (Tim Lillebo, Oregon Natural Resources Council, personal communication, July 2005).

Because of the vast domain of federal landholdings, particularly in the western U.S., control of public land management agencies has been a primary objective in recent conflicts between environmental interests and timber interests. These groups have attempted to influence land management through lawsuits and lobbying. The effects of these political and legal maneuverings have been felt in Wallowa County. The drop in National Forest harvests has contributed to the closure of mills and loss of jobs in Wallowa County.

2. Rules and Regulations

“There’s so many rules and stipulations in there, they can’t go out and practice good forestry” [Michael]

The most frequently-identified constraints to management decisions involved rules, regulations, appeals, and litigation (hereafter referred to as “rules”). Whether particular rules were seen as beneficial or (more commonly) arbitrary and unnecessarily complex, they are a significant factor in both public and private forest management decisions. Almost every interviewee spoke about frustrations involved in dealing with some facet of rules, or pointed to others’ inability to manage and resultant lack of forest health, particularly on public lands. Rules and regulations may inspire people to conform to a minimum and are based on generalizations, rather than place-based knowledge; they are rigid and prescriptive, “embrac[ing] formal, standardized policies and procedures ... [and] decision processes that are adversarial” (Ellefson 2000:19). Effects on the Forest Service have been the most profound – the bureaucratic processes required by current rules and regulations can lead to an immense amount of work, further reducing already-diminished Forest Service capacity. With fewer and fewer employees, several interviewees said that the Forest Service has had to resort to keeping many employees inside, rather than in the field, in order to deal with the increasingly large Environmental Assessments and other documents; Blake said:

We’re not given less work just because we do less on the ground, there’s still just as much work, and even more, because we are now in the process of having to go over and over and explain ourselves of why we do something before we can do it.

In the federal arena, public input processes have been blamed for procedural delays and burdensome rules. In 2002, the Forest Service released two reports, the *Process Predicament* and *Factors Affecting Timely Fuel Reduction Decisions*. The reports claimed that environmental appeals had endangered the health of public forests because they had prevented or delayed beneficial management (USDA Forest Service 2002a, USDA Forest Service 2002b). These reports were released just prior to policy changes that streamlined the appeals process. They have been criticized by environmental groups such as Forest Trust and the Wilderness Society for being inaccurate and possibly politically motivated, and subsequent reports (Cortner et al. 2003, Vaughn 2003) have

questioned their findings. Whether they were accurate or not, recent administrative changes to the National Forest Management Act Regulations, the National Environmental Policy Act, and the Endangered Species Act have all affected how the public can access the decision-making process on public lands. Overall, they have made it more difficult to appeal a decision, and have placed more authority in the hands of local managers. There is a perception, not only in Wallowa County, but nationally, that public input processes have hindered management.

In addition to the rules themselves, the fear of appeals and litigation may create an environment of excessive caution within the Forest Service. One possible effect of this has been to stymie risk-taking and creativity, creating an atmosphere that encourages having "no effect" on the land. Several people within the Forest Service in Wallowa County indicated that this was the case, as well as many outside of it. Blake said:

We've gotten to where we can't manage anything on the National Forest.

This reliance upon the precautionary principle has been noted as a failure under the Northwest Forest Plan (Thomas 2003), and it appears to be afflicting much of the agency.

Several interviewees noted that access to the many acres of federal lands was limited to the local communities because of the rules imposed through political processes and public input. Urban and suburban people currently have more economic and political power than rural people, and they have leveraged this power to gain access to decision-making on public lands. Ruralites, who have seen their own power decrease over the years (Stauber 2001), may often have a very small voice on what happens to the lands in their back yards. A common perception in Wallowa County was that rules and litigation served to "lock out" the public on public lands. Access, in this case, may be defined as the ability to utilize resources such as timber and grazing rights. Matthew, an NIPF owner, said that:

[Environmentalists] don't want to use the forests for anything but to look at or to walk in, backpack in, something like that.

The rules themselves may lead to a lack of forest health on public lands because they may prohibit forest management decisions from being made by experienced forest managers (or biologists, hydrologists, and other scientists), reduce the ability to manage adaptively, and constrain decision-making within pre-defined boundaries, often established by politicians. Rules deemed arbitrary and inflexible by interviewees included the Eastside Screen. Blanket prescriptive rules such as the Eastside Screen may ignore "significant variability in the type and physical condition of forests" (Ellefson et al. 1997:202). According to Andrew:

The Forest Service has a rule, don't cut any trees over 21 inches. That doesn't make sense. It's not biologically sound, it's politically sound ... you can't manage a stand of timber by diameter, that's the reason the timber is the way it is now. Because they did diameter cuts – they cut all the big ones.

Another rule, the "20% rule", which was often described derisively, dealt with compaction: if an area is 20% compacted over 20% of the area, management activities are curtailed. Andrew said that the rule was an excuse to stop management activities. He claimed that compaction was not a good thing, but was "overrated" in terms of its potential harm to the land.

However, many of the rules that were described to me as arbitrary or unnecessary were deemed essential by others. Managers seemed to largely oppose the twenty percent rule. Hannah, a soil scientist, refuted this claim, saying that the rule should be strictly adhered to "as a minimum" and that the soils of the area had been adversely affected by certain activities. She supported active management, but not on already-compacted soils, which she claimed were prevalent in the county because of previous management practices. This is likely an area of disagreement.

Public lands rules and decision-making processes were often criticized because project implementation can be slowed and sometimes prevented. However, even those most opposed to rules on public lands indicated that having no rules was not an option.

One logger, who spoke at length of the negative effects of arbitrary rules, told me a story about hunting in Canada. One year he went there and saw a huge clearcut "five miles square." The only rule was leaving a few trees in a line around a lake, and when he returned to hunt the following year, all the leave trees had blown down, leaving bare ground in the entire area. He concluded by saying:

That's no restrictions. So we've got to have restrictions. [Michael]

Several interviewees pointed to positive aspects of rules and litigation, because they curb certain practices that otherwise would have continued:

I think that environmentalists have done a great deal to help improve practices and a lot of what's accepted as gospel now were at one time considered outlandish, radical ideas. [Joshua]

Most forest managers and many other community members were critical of the restrictive rules on public lands. Private lands have not been affected as profoundly as public lands; the Oregon Forest Practices Act regulates private harvesting activities, but managers indicated that it didn't prohibit most of their desired management goals:

Most of the restrictions that we have on the private forest, private landowners, are for the better of the forest. But, there's a huge difference between public lands and the private lands ... Sometimes there's a few little things that a private landowner can't do that he'd like to do on his own land. You know, when it gets close to the water ... But everything, we've worked around it and 99% of the time, we achieve the goals that the private landowner wants. [Michael]

However, several people, including some forest managers, claimed that current rules on private lands were *too* lenient. Private lands are regulated by the Oregon Forest Practices Act:

There's a lot of this area on through here that was not in violation of the Forest Practices Act, but I know it wasn't left in any condition to even be highly productive for what even-aged mgmt could be in this area ... I'm very concerned about what is left. [Paul]

Rules appear to be a necessary component of management, but most interviewees said that the current level of documentation needed on public lands was counterproductive. The rules shifted access from local managers to a more distant public, and politicians that are beholden to their urban and suburban constituents.

3. Politics

"It's coming down from Washington, DC" [Carrie]

The health of the forest was deemed to suffer when the short-viewed, volatile forces of the political world stepped in to dictate management or arbitrarily change policies. Norm, who had previously worked in timber management, and had moved into fire suppression and management, indicated that foresters and scientists have long-term views because of the nature of their work, but politicians don't, because their careers are tied to an election cycle.

Political decisions have often led to arbitrary timber targets that had little to do with the conditions of the forest:

When I first moved here we put out 54 million [board feet] a year ... we were moving trees that we shouldn't be removing. Because it was all about targets. Congress gave you a number that you had to meet every year, and you met it, no matter what. [Blake]

National forest cutting levels are an example of political forces dictating management, regardless of conditions on the ground. For example, concurrent with growing harvest demands on the National Forests of the United States following World War II, the Forest Service was promoting research which encouraged even-aged management (removal of all trees) and selective thinning of large, old trees (Johnson 1994). Historically, timber

harvest levels within the county have not been set based on the needs of the land, but on political or economic pressure. Marcus, who had worked for the Forest Service for many years, said:

The decision to increase the cut several times was the result of increased pressure by congress to get out the cut. And don't make any mistakes about that, the feeling here was that you had to get the wood cut. If you didn't, you were gone.

Even the Wallowa-Whitman Forest Management Plan of 1990 seemed to reflect larger national and regional concerns about timber supply. The creators of the plan acknowledged that the ponderosa pine harvesting levels called for in the plan were unsustainable and based on economic considerations (USDA Forest Service 1990). While maintaining harvest levels could have benefited Wallowa County, the Forest Service seemed to have opened itself up to litigation by setting the levels higher than what was sustainable. The result was that, rather than slow, predictable change in harvest levels, the harvest levels plummeted dramatically in the early 1990s.

Also, the Resource Management Plan primarily recommended clearcut and shelterwood regeneration methods and did not address density problems or other forest health issues (Richmond 1990:4-5). Despite degenerating forest health conditions in eastside forests, the Forest Service was not responding or adapting to these conditions.

After extensive litigation and public concerns over harvest levels and techniques, the Forest Service has modified its focus:

That's the direction we're headed is, everything we're doing on the land in terms of vegetation manipulation needs to be geared towards improving condition class, whether it's removal of merchantable volume, treating non- merchantable volume, or putting fire, precommercial thinning, all those activities that we do to manipulate veg that are supposed to be improving condition class. [Norm]

But the change to fire risk reduction does not necessarily indicate an ability to adapt; rather, it may be yet another "kneejerk reaction" [Hannah] to public disapproval.

As Hannah explained, the Forest Service was constantly reacting to various groups' demands, which made the Forest Service awkward and rigid, while:

[Rules] have to be flexible so we can manage the land the way it's supposed to be managed.

Shifting politics and policies may lead to drastic changes in management focus. Six interviewees used the metaphor of a pendulum to describe the shifting political winds that affected forest management on public lands:

Personally, that's what I feel, 40 years ago there wasn't any restrictions on federal land and that's the reason the restrictions are what they are now. And now, I think the pendulum is swinging back. [Michael]

The effects of politics were felt most strongly in the federal agencies that operated within the county, notably the U.S. Forest Service. Some of this may be attributed to inherent rigidity within the system, particularly rules (discussed above) and inadequate budgeting for restoration activities. The Forest Service is often seen as more of a bottleneck in the process of forest management than as an active partner. When I asked about the Forest Service, Hannah said starkly:

They aren't getting anything done ... I mean, caring for the land, serving the people. You're not caring for the land if you don't have people who can manage it.

The Forest Service in 1990 was the largest single employer in Wallowa County, with almost 300 employees – about as many as the entire wood products industry. It now has about 40 employees (Morrison 2005) and there has been no attendant reduction in the amount of land base that must be managed. Many interviewees decried the state of public forests and the perceived lack of forest health on public lands, but they also acknowledged that the Forest Service was increasingly *unable* to manage the land because of a loss of capacity. Roger noted that:

We've got such a skeleton crew in the national forest system that they can't be managed.

Regardless of the number of rules and appeals, without the personnel to carry out work, the Forest Service may have been effectively hobbled.

Norm, who worked in fuels reduction, described some frustration over implementing projects because of budget issues that affect the Forest Service:

Because of our budgetary restrictions, we're still trying to do treatments on the land for the same price we were doing it for ten years ago. It doesn't fit. The other thing that's been real frustrating is we've been downsizing for over 10 years, losing a lot of skill ... Our experience base has just gone away really fast.

These activities are still funded with mechanisms that don't match "needs and outcomes" [Melissa]. For example, by tying restoration to traditional timber-based funding, many restoration activities may be undermined. The Knutson-Vandenberg (K-V) Act of 1930 allows forests to retain a portion of timber receipts. However, with the decline of timber harvests on federal lands, the K-V funds have decreased significantly. Linking timber sales to restoration activities was criticized by several interviewees who were knowledgeable of federal budgeting.

Another faulty funding mechanism is year-by-year budgeting, which doesn't allow long-term planning. One Forest Service employee said that the budget was coming in particularly late in 2004, the year I was in Wallowa County, because of the pending election. Reliance on a budgeting system that is held back by political wrangling and shifting political winds does not provide a stable base for long-term ecosystem planning. According to Paul, a forest manager who has worked his own land for several decades, the Forest Service's budgeting and policies "results in short-term sequential abuse and neglect." The land, in his view, suffered from management that was at the mercy of external political forces.

In light of the forest health problems on public lands in Wallowa County, many interviewees said that new funding mechanisms focused on restoration should be implemented in the Forest Service. Forest health issues have been recognized by the scientific community for at least 10 years (Mutch et al. 1993), yet large-scale management to change this situation has been halted by budget woes and a loss of institutional capacity within the Forest Service.

Despite the mandates imposed by politicians upon the Forest Service, the agency's budget has, in recent years, remained stagnant or fallen (USDA Forest Service 2005, USDA Forest Service 2004, USDA Forest Service 2003). For example, the enacted appropriation for 2005 was \$5,546,200,000; the President's budget request for 2006 was \$4,876,620,000 (USDA 2005). Funds earmarked for the National Fire Plan were reduced by \$415 million dollars (USDA 2005).

Additionally, fire suppression efforts by the Forest Service have siphoned money away from other projects, and "transferring funds for wildfire suppression resulted in canceled and delayed projects, strained relationships with state and local agency partners, and difficulties in managing programs" (GAO 2004:preface). Fuels reduction programs have been among those slighted by the transferal of funds, at least in part because partnerships have failed: "funding transfers ... strained agency relationships with other federal and state agencies, nonprofit organizations, and communities because Forest Service and Interior officials were unable to fulfill commitments, such as awarding grants to communities for fuels reduction projects" (GAO 2004:4). About \$2.2 billion has been transferred by the Forest Service to cover fire suppression costs; from 1999 to 2003, about \$81 million was transferred from "wildland fire management" funds to fire suppression and only \$61 million of this was reimbursed by Congress (GAO 2004:11). Therefore, wildland fire management (including fuels reduction) lost \$20 million to fire suppression.

Uncertainty because of budgeting problems has made the Forest Service unreliable in many partnerships. Roger said that the government (particularly the Forest Service) was "holding up" restoration efforts. Rex said:

I just don't see us having the will or the ability to manage our budgeting cycle, our planning cycle, or our political cycles, to actually be able to play the game the way the rules say ... it makes it difficult to do partnerships because they have different funding.

Mitchell, whose group had litigated the Wallowa-Whitman National Forest numerous times over the years, offered advice for implementing more projects:

The Forest Service needs to refashion its bureaucracy, and get away from commodity-based forestry and into restoration forestry. Prescribed burning is one small piece of that puzzle. We have to see overall national programs. Not just a burn program here or there. We need to see sweeping reform in that agency so that it can fashion its budget around restoration. That doesn't mean that it will no longer be producing timber. Because from restoration will come boards.

Recent hiring priorities may have added to the Forest Service's dilemma. President Bush has promoted competitive sourcing for federal agencies (OMB 2002). Competitive sourcing, which often results in outsourcing projects to private companies, may harm federal agencies such as the Forest Service, which relies on knowledge of local conditions (Abrams 2003). For example, the Forest Service, which uses computer programs for purposes of modeling and management decisions, recently created a centralized computer-help system. Rather than employing computer help people at local offices, the Forest Service now directs employees to call a central office for computer help. This office does not know about local concerns, purposes for using particular programs or the proper application of the programs to the land. Blake pointed out:

You have to go through a special program that started last year that's somewhere back in the South ... it can be days before you get somebody to tell you what to do. And most of them, a lot of times, they don't have a clue because they're not in touch with why we're doing what we're doing.

Appropriate forest management is unlikely to occur without collaboration that includes a working relationship between the Forest Service and local communities. The FS is increasingly contracting with outside companies and reducing its own hiring as a result of competitive sourcing. However, competitive contracting often results in hiring people outside the county (Abrams 2003), and people who live outside the county will take their knowledge with them as they leave the county. Rather than keeping people who develop a relationship with the land, contracting work to outsiders may mean that knowledge of the land from surveys and other work will leave the county as they return to their homes. According to Diane Snyder, of Wallowa Resources, only 21% of restoration jobs are contracted to locals (Diane Snyder, Starker Lecture, Oregon State University, 11/03/2005). These practices are unlikely to overcome the distrust that currently plagues many Forest Service interactions. Most interviewees spoke of the Forest Service as though it were an entirely "outsider" entity, even though Forest Service employees lived locally. The Forest Service may be seen as an unwelcome intervener in local issues; abandoning local economic ties is unlikely to reduce this reputation.

4. Industry

"[They] effectively colonized this community" [Melissa]

Single-industry dependence in Wallowa County has been notably strong, as reflected in Melissa's claim that Boise Cascade, a timber company, had "effectively colonized this community." Dependence upon outside industry is long established in Wallowa County. The Eastern Oregon Lumber Company (based in Kansas City, Missouri) had a sawmill in Enterprise which burned down in 1919. The "sudden loss of the only industry in town highlighted how much the local economy had become dependent upon its operation" (Coffman 1984). The company went bankrupt in 1926, which dealt a severe blow to the local economy. The core-periphery relationship, wherein an urban-based industry utilizes the resources of a distant, rural location, is evident here. The effects of industry can be dramatic for local communities and their landscapes,

particularly as large-scale corporate changes or market effects may lead to drastically different management strategies locally.

Freudenberg (1992) has described the economies of communities which become dependent upon extractive industries as “addictive” – they invest more and more capital in operations to get less and less return, leading to a cost-price squeeze that eventually makes the industry unprofitable. For isolated rural communities who may have few options to diversify, their economies, this leads to economic decline. This effect has become pronounced in an era of global raw material extraction and increasingly efficient technology.

Interestingly, most residents of Wallowa County identified urban environmentalists, rather than industry, as root causes of economic or ecological problems in the county. This may be a distinction between an easily-identifiable, detached enemy (environmental community) versus a more diffuse entity that has long operated within the midst of the community (industry). Stone (1989) claims that there is a “realm of fate” and a “realm of human agency” and it appears that industrial forces, globalization, and other hugely complex entities that affect life in Wallowa County may be perceived within the “realm of fate” – that is, they are akin to forces of nature, outside the control of humans. Joshua, when speaking about the sale of Boise Cascade, said:

The numbers are so huge that we stop thinking about them because they're meaningless. What's 23 billion, you ever seen 23 billion of anything, or whatever number they happen to be throwing around, and that's the size of the organizations that we live under the thumbs of, really.

Industry within northeastern Oregon became highly dependent upon public lands harvests beginning in the early 1960s, after industrial lands had been cut over (Pekar 1981, Brodie et al. 1978). As early as the 1970s, academics predicted that sustaining the high harvest levels of the time would require more timber to come off of public lands and non-industrial private lands (Beuter et al. 1976). Thus, the many political forces operating on public lands in Wallowa County also affect industry and its ability to employ people in the county. However, while environmental groups and drops in public harvests

contributed to decreases in timber-related employment, large-scale economic forces have certainly played a role. A report prepared by the Bonneville Power Administration (U.S. Department of Energy) in 1979 predicted timber and milling employment decline in Wallowa County, beginning in 1990 and continuing through 2000 (BPA 1979). That prediction was made well before the drastic drops in national forest harvests. Drops in timber industry jobs in the northwest began before drops in public lands harvests because of global market forces and industry restructuring – consolidation and mechanization (Cook 1995).

While industry provides many high-quality, family-wage jobs, its presence has been faltering, and it may be unstable into the foreseeable future. Eastern Oregon's industrial harvest is expected to decrease further in the future, resulting in further loss of milling capacity unless public lands harvests can compensate (Adams and Latta 2004). Matthew said:

They've logged all of the private land. It kept them going for a while, but now there's not much private lumber left.

Industry's relationship with the land may impact forest health negatively, as when industrial economics becomes a primary decision-making driver. Adaptive management may be curtailed because of rigid policies, based not on rules, but on economic priorities. Michael said:

One of the main ways that Boise manages different from me is they probably got several bean counters that tell them how to do or what to cut.

Profit for distant shareholders was seen by most interviewees as the primary decision-making driver for industrial lands. Adam described the lack of local input when making decisions on industrial land:

There was a lot of high grading, we did a lot of logging, and I logged for them. What they told me, how they wanted the stand cut, and I cut it.

Many interviewees said that industry high graded. High grading may not be entirely a practice of the past; when I asked Randy when high grading stopped, he said "I think they still do it." Randy said that high grading was simply "cutting too much" and he indicated that the management on some land adjacent to his was not being managed logically. He pointed to some very dense areas and said they were a fire hazard. These areas illustrated an interesting contradiction: although public lands were often criticized for being too dense because of lack of management, it appeared that industrial lands could also be overstocked, though not from lack of management. In this case, it was management that was primarily focused on short-term economic gain that was endangering the stands.

There is some support for the notion that industry in eastern Oregon is overcutting; Adams and Latta (2005) point to several studies that have shown a marked decrease in industrial inventory. They summarize a recent study by Azuma et al. (2002): "industrial inventory has been declining in eastern Oregon for at least the past 20 years ... in the most recent inventory cycle (1988-1999), gross growth averaged 54 million cubic feet (MMCF) per year, mortality 11 MMCF per year, and removals 74 MMCF per year for a net annual inventory reduction of some 31 MMCF per year" (Adams and Latta 2005:8). In 1999, ponderosa pine, Douglas-fir, and grand fir growing stock and sawtimber were being removed at a rate faster than gross annual growth in Wallowa County (Azuma et al. 2002).

The recent sale of all Boise lands led some interviewees to remark that industry was still a volatile, rather than stabilizing, force within the community:

I think it was all corporate-driven, based on spreadsheets that some guy was working on far away from here. [Joshua]

External forces, be they political, economic, or governmental, affect the forests and people of Wallowa County in many ways. Their decisions influence harvest levels and management decisions, which in turn affect economic and ecological conditions

within the county. Decisions emanating from powerful urban centers often do not take into account the well-being of the local communities that are affected. Decision-making by distant groups may also impede adaptive, place-based management, because it is based not on local conditions, but on generalized policies.

D. Building Capacity

“Blending the needs of the land and community” [Melissa]

Despite recent losses in infrastructure and human capital through out-migration, and a lack of access to the lands around them, the people of Wallowa County have applied their work ethic and desire for self-determination to projects intended to improve the capacity of the community. The people of Wallowa County have worked to increase community capacity, defined by Kusel (1996) as “the collective ability of residents in a community to respond to external and internal stresses; to create and take advantage of opportunities” (Kusel 1996:369). One result of community capacity is the enhanced ability to effect change and influence decision-making at higher levels of government and the economy (Chaskin et al. 2001). Community capacity comes from the residents themselves, and it is explicitly tied to action (Smith et al. 2001). Strengthening community capacity is, importantly, the mechanism by which communities can have some self-determination; it involves “the process of enabling communities to exert greater control over their physical, social, economic, and cultural environments” (Smith et al. 2001:33).

Social capital has been defined as “connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them” (Putnam 2000:19). Social capital includes expectations of reciprocity and the exchange of information among individuals in a community (Castle 2002). Solidarity and collective action are facilitated by social capital, resulting in better conditions – economic or otherwise – for the community at large. Citizens of Wallowa County often spoke of social capital in terms of getting people to “come to the table” and speak together.

Wallowa County has had a remarkable history of building community capacity, often through increasing social capital, in order to confront adversity. In the early 1990's, people in Wallowa County watched the spotted owl wars of the Westside warily. As federal forest management came under attack from environmental groups, those who had relied on the commodity outputs of federal forests worried about their businesses, their jobs, and their communities. Wallowa County faced these threats when the Snake River Chinook salmon (*Oncorhynchus tshawytscha*) was listed as threatened under the Endangered Species Act in 1992. The listing of a species under the Endangered Species Act may curtail timber harvesting, particularly on public lands, because of possible adverse effects to the species through habitat modification.

In 1994, within an atmosphere of tension and distrust, as people lost jobs and polarization increased, two local environmental activists were hung in effigy in the streets of Joseph. Patricia described the event, saying that some local people had joined the wise-use (property rights) movement and reacted out of frustration to perceived loss of control and independence.

But many community members came together during this time of divisiveness, to tackle employment problems and to build relationships that could keep the community together. The county attempted to confront impending federal regulations with their proposed Salmon Recovery Plan (SRP), mentioned above. This Plan was a jointly-led effort between the Wallowa County Court and the Nez Perce Tribe, and it was written by people from federal and state agencies, as well as environmentalists, tribal members, and scientists. It relies on improved practices from "ridgetop to ridgetop," according to Roger, including riparian and upland areas, with an emphasis on voluntary action. One of the plan's goals is to have "grassroots involvement, ownership, and commitment" to natural resources among local residents. The SRP was adopted into the county's Comprehensive Land Use Plan, making it a guiding natural resource policy within the county. Alan, who had helped to create the plan and had helped other counties to come up with similar plans, said:

Our goal is to bring county citizens and leaders together to engage federal and state agencies to local communities, on a joint and equal basis, for conversations relating to issues regarding the county's custom, culture, and economy, and the environment ... we're talking about county involvement.

Importantly, the Plan has remained a vital process, with revisions in 1999 and 2002.

The SRP was initiated by residents in a bid for self-determination. Though delays in implementation have caused some frustration, its very creation indicates the drive within the county to keep some decision-making autonomy and self-reliance.

Another example of initiative and relationship-building in the face of adversity is told in the formation of a local non-profit community forestry group. It began with a group of people meeting in the back room of a bakery every month. Melissa described them as:

[The] 80 percent in the middle that really wanted to find resolution and find a new way of doing natural resource management.

These meetings eventually led to the establishment of a local non-profit organization called Wallowa Resources (WR) that has been instrumental in the forging of community bonds and the creation of new natural resource jobs. WR has set up a small-diameter mill and various restoration projects for aspen establishment and noxious weed control. These efforts represent citizen-based problem-solving and empowerment, fundamental components of capacity building (Bandeh et al. 1997). Their work exemplifies a recent effort to create jobs while promoting forest health through beneficial management activities.

The new approach to natural resource management was made clear by several interviewees: restoration could provide jobs on the landscape; Melissa said:

It is not a question of timber – no timber. It's a question of is there consistent work on the landscape? ... I see restoration work as a service contract, where you're looking at protecting the environment while providing this opportunity in moving the landscape to future desired

conditions, whatever the decision for that is. And choosing the workforce that's going to do the best job for whatever the desired future condition is.

There is an explicit connection between the need for jobs and opportunities for restoration on the forests of Wallowa County. Olivia was describing an economic visioning meeting when she explained that local people saw this connection:

Connect local resources, personnel, and equipment to natural resource opportunities. That was a recommendation by citizens. They said you could do bidding, we could do contracts with somebody that's outside the area, we're the ones that need the jobs. Contract us ... connect economic developers with those planning for local training and educational opportunities.

The formation of Wallowa Resources was motivated primarily by two factors: 1) a need for jobs, and 2) a desire to retain the elements of rural identity within the county, especially traditional ties to the land. The types of jobs created are very important for people within Wallowa County, not only the presence of jobs. Jobs that reflect the values of people within the county, and which fit in with people's rural identity, are often tied to natural resources, including the forests.

Most interviewees had very positive feelings about WR and its work. This may have been the result of my sampling procedures, since I initially relied upon WR for contact information. Regardless, most people seemed to recognize that WR had not only increased local opportunities, but had facilitated the development of a more unified, collaborative natural resource decision-making process in the county. According to Joshua:

You get people who are willing to say, there's another way to do this ... people who have the right vision who will take the right steps to bring people to the table.

A third example of collective action in Wallowa County was the creation of the Natural Resource Advisory Committee (NRAC), a diverse group of local scientists,

businesspeople, tribal representatives, and land managers. The Wallowa County Court created NRAC in 1996 to advise the county commissioners and assist the implementation of the SRP. Alan, a member of NRAC, said that:

We have a Salmon Plan that guides where we're going. It's watershed improvement or maintenance, for economic stability of the community. All ties back together.

NRAC has been involved in numerous projects, including the Upper Joseph Watershed Plan, which is a land management project intended to implement restoration activities on both public and private lands through collaborative efforts. NRAC is a focused, long-term effort to help the county gain access to natural resource decisions.

These efforts represent a middle ground, a collaborative approach that differs dramatically from the polarized nature of many natural resource debates. Rather than wilt in the face of the rules and political obstacles that that may impede management, these groups have mobilized for action. Alan said that:

We try to take the [federal] rules that are present and find a way to implement [projects] and make it work in Wallowa County.

People in Wallowa County appear to be willing to go to great lengths to remain in the county and to keep it vital. They have laid the groundwork for collaborative relationships with federal and state agencies, and they have come together to display high levels of community capacity. Additionally, many people identified the need to move forward and to adapt to changes; to build resiliency in the face of uncertainty. Speaking of restoration jobs and a certain hesitancy on the part of some community members to let go of previous employment patterns, Patricia said:

I can't tell you how many times I've heard the word "back" at these county commissioner meetings. They're wanting to go back. You can't go back. We're not going to get out of where we're at now by going back, we have to go forward. There needs to be a new set of rules, a new structure. I

think we need to give people opportunity. We have the people to do the work.

In order to stem the flow of youth exodus from the county, and retain young working families, the forests could provide “family-waged” jobs – perhaps not in the mold of traditional forest-dependent communities, where rapid extraction fueled boom-and-bust cycles and instability. But new models may take shape, based on impetus from the residents themselves, which could create a job market based on restoration and working in the forest.

III. CONCLUSION: National Treasure

I want the rural communities to be seen as the stewards of the public lands that surround them. I don't want us to be seen as loggers, rapers, pillagers, grazers, you know, cow shitters. Whatever it is that we're perceived to be now. Because I believe we have the knowledge and the ability, if we're allowed, to stay on the landscape, to steward those lands in a way that the public will be proud of for generations to come and I know that's the motivation. [Melissa]

According to Wendell Berry, a threatened forest is one without a “local forest culture and a local forest economy” (Berry 1995:25). A forest may be in peril when it no longer has a community that cares for it. In the face of instability posed by external forces – be they political, economic, or social – people in Wallowa County have shown remarkable resolve and a desire to manage the lands that surround them. Place-based, adaptive management may be an appropriate paradigm for forest management. With a long-standing connection to the forest and forest work, local community members have more than just knowledge of the forests – they have love for them. It is not only the scientists, providing data and analysis, nor the politicians, providing rhetoric and impetus, but the local communities, providing labor and place-based expertise, that will restore these forests. This may present a solution to a number of the problems now facing our forests and our rural communities, as the public and private inland forests have been, and

in many cases continue to be, degraded, and rural communities witness an exodus of their youngest and brightest.

From the results section, the following observations may be gleaned from this work:

- County leaders agree that management is vital for the health of the county's forests because of previous management practices and current human needs and desires;
- narrowly-defined labels (such as "environmentalist" and "utilitarian") often do not describe the beliefs, attitudes, and values of individuals regarding the role of humans in the forest;
- adaptive management occurs when people observe and respond to the consequences of their management, and so local expertise and capacity are vital for responsible forest health management;
- external forces dramatically affect forest management at a local level.

In this chapter, I will begin with a discussion of possible ways to restore forest and community health. I will then examine recent legislation such as HFRA in the context of Wallowa County. I will follow this with suggestions for future research.

A. The Larger View: What Can Be Done?

Many of the barriers facing forest management in Wallowa County involve a lack of access because of external forces: namely, people far removed from the land, making decisions about the land and its resources. Both public and industrial private lands suffer from this lack of local access. This lack of self-determination is a common problem among rural communities across the United States, where lack of access is affected by powerful core forces that are currently centered in urban and suburban areas (Stauber 2001). Communities may be able to draw lessons from Wallowa County, its bid for self-determination and its attempts to gain control of its own destiny. Community forestry groups have been forming across the country, and Wallowa Resources has been held up as an example of a successful (if nascent) effort by national groups such as Red Lodge

Clearinghouse, The Aspen Institute, and the Ecosystem Management Initiative. In this section, I will expound upon opportunities for communities such as Wallowa County, particularly by discussing ways to gain access to local lands.

By using the concept of forest health as a direction, not an endpoint, groups of citizens may be able to create long-term partnerships to work in the forests. Restoration will need to be seen as a long-term process that requires investment. Projects will be more effective if efforts are coordinated in areas of agreement. Successful projects will spawn more collaborative efforts, building trust and allowing management to proceed on the ground. Using traditional silvicultural practices (e.g. cutting trees) in new ways may be a very effective and acceptable way to restore forests (Kauffmann and Regan 1995, Abrams et al. 2005). But areas of agreement and disagreement may need to be discussed locally, and discussions should incorporate local knowledge and customs. In Wallowa County, where the population density is incredibly low (less than .01 people per acre), real, intensive public involvement may be possible. It is in places where people have some common interests, where they are bound by a sense of place and connectedness, that participation is most effective (Kemmis 1990).

1. Place-based management: Local collaboration and access

Some recent government policy has indicated that public participation is an impediment to management. However, it could be a boon to management, assuming people are actively engaged in the process of decision-making. Environmental advocates will need to abandon tactics that further conflict and polarization, and local managers will need to listen carefully to the concerns of the larger public. Since we live in a democracy, it is inevitable that political forces will represent national interests, but the polarized nature of national debates may be harmful for forests and their local communities, particularly when active management appears to be beneficial. Local coalitions, which may transcend the polarized debate, often emphasize inclusiveness, volunteerism, flexibility, and direct communication (Kemmis 2001). Place-based management, undertaken by those who "know the land most intimately" (Kemmis 2001:193) may be

the greatest benefit to both the land and the communities which rely on it. Local coalitions can bring members of litigious groups into the decision-making process before decisions are made. Wallowa Resources and other groups have organized tours of Wallowa County's forests, inviting members of traditionally litigious groups to participate. Extending invitations to the planning process to groups which have previously been slighted may be one way to redefine participation – from filing appeals to *stop* management to actively engaging in the management decision-making process.

The 2001 document *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment* (USDA 2001) indicated that many decisions should be made locally, with collaboration from a bottom-up approach. This document acknowledged that communities should have a voice in fuels reduction projects and it delineated three levels for collaboration: local, regional, and national. At the local level, established groups such as watershed councils and natural resource advisory boards are expected to collaborate with federal agencies to prioritize projects and allocate resources to planned projects. This tiered system is one way that local communities can have their voices heard in larger resource management decisions.

In having their voices heard, communities may find support from federal policies, which may be able to address forest health issues by providing funding, local infrastructure and informational support, and incentives for restoration. A bill introduced in the senate in 2002, S. 2672, called the Community-Based Forest and Public Lands Restoration Act (Act), provides an example of legislation that could benefit communities. The Act was introduced by Senator Jeff Bingaman (D-NM) and sponsored by a bi-partisan group of western senators, including four Democrats and three Republicans. One of the purposes of the bill was “to enable the Secretaries to assist small, rural, communities to increase their capacity to restore and maintain the ecological integrity of surrounding National Forest System and public lands, and to use the by-products of such restoration in value-added processing” (S. 2672 §6(c)(3)). The Act emphasized collaboration with local NGOs and other community organizations, small and micro-business facilitation, local hiring, multi-party monitoring, and management that was

sensitive to unique local conditions. Importantly, it focused not only on the uniqueness of local forests and watersheds, but the uniqueness of local communities. Contracts would be awarded based on benefits to the local community, such as “the potential for benefit to local small and micro-enterprises” (S. 2672 §6(c)(3)) and “the commitment of the contractor to hiring highly qualified workers and local resident” (S. 2672 §6(c)(6)). The Act mandated the creation of local Restoration and Value-Added Centers (Centers) to provide technical expertise and facilitate collaboration. These Centers would provide support for restoration activities, as well as information regarding marketing and small business development. The Act never made it to the floor of the House of Representatives, but its contents reflect a strong push toward place-based forestry that benefits local communities.

During debates over the Healthy Forests Restoration Act in 2003, a title called Rural Community Forestry Enterprise Program (Title VII) was introduced in the Senate. This title was similar to S. 2672: it emphasized small business development, collaboration, the promotion of infrastructure, and the development of centers (called Forest Enterprise Centers) to help implement projects. This title never made it to the final bill.

Despite legislative emphasis on collaboration and a seeming emphasis on collaboration as a cure-all, collaborative projects are not easy. Many interviewees were frustrated with the slow pace of implementing projects, particularly on public lands. Despite years of collaboration, many projects have stalled. But where agreement occurs, management should proceed. In fact, since the Bush administration has estimated that 190 million acres of forest land across the land are in poor health, management decisions should prioritize action on lands where consensus exists.

This frustration with implementing projects on public lands was nearly ubiquitous. In 1994, in fact, a majority of Wallowa County’s voters approved a measure to end federal ownership of public lands in the county. Could public lands be managed by county or state authorities more effectively? This is a possibility, as distrust and polarization at the federal level appear to continue unabated. Counties in Oregon can own

and manage their own timber lands – Hood River County has over 30,000 acres of County Forest, and it owns nearly 20,000 acres in Grant and Umatilla Counties. The County Forest system in Wisconsin is extensive: over 2.3 million acres are owned by various counties, and they're actively managed (under the County Forest Law of 1963) under ten-year plans that are developed by each county. Today, the County Forests bring over \$21 million of revenue annually from forest products (Wisconsin DNR 2005).

Finally, ownership patterns on private lands can be a fundamental problem for counties that are trying to deal with the effects of years of forest dependency and poor forest management choices. Boise's sale of its lands in the county has illustrated the tenuousness of large industrial ownership. One possible alternative to large industrial ownership would be for the county or a coalition of local interests to buy private industrial lands as they are sold off, in order to keep them as working lands, allow management decisions to be made locally, and keep profits local.

2. Funding options

Beyond optimistic visions of collaboration and restoration, though, there remain fundamental questions of how, without adequate funding, restoration can occur and how people can remain on the landscape. Senate Bill 2672, mentioned above, would only have allocated \$6 million annually. Politicians and others who have recently advocated the sale of materials removed from the forest to fund restoration activities are not likely to see results – most fuels-reduction materials that need to be removed will not be profitable (ODE 2003, GAO 1999). Currently, trees under 9" diameter at breast height (termed "hazard material") are unlikely to bring in revenue (Adams and Latta 2004). A particularly contentious issue is the cutting of large, old trees, and since large trees are most likely to bring revenue, projects which remove these trees to provide revenue for restoration will likely continue to be thwarted through legal and other measures. Are there ways to move forward with treatments that do not depend on traditional sources of revenue, particularly timber receipts? Alternative funding mechanisms may need to be developed in order to deal with a forest health problem in which "we now must pay for

the billions of board feet of cheap pine logged early in the 20th century. We will pay and pay and probably see little or no return on our investments in our lifetimes” (Wickman 1992:6). Assuming that fuels reduction projects can pay for themselves is probably a fallacy (Stephens and Ruth 2005), yet proactive forest health management can still be considered an investment because of future savings in suppression costs (Dombeck et al. 2004). According to Kevin:

If we put a fraction of fire suppression money ... into restoration work, I think that would have huge benefits for forest health and real jobs.

Compounding the funding problems, large-scale, long-term fuel treatment projects are likely necessary because of the magnitude of the problem (Mutch et al. 1993, Kauffmann 2004, Johnson 1994, Graham et al. 2004). If the Forest Service reaches its *goal* in terms of acres treated this year, it will take 69 years to treat all of the affected acres one time (Stephens and Ruth 2005). Meanwhile, the GAO estimated that “the window of opportunity for taking corrective action is estimated to be only about 10 to 25 years before widespread, unstoppable wildfires with severe immediate and long-term consequences occur on an unprecedented scale” (GAO 1999:22).

With the shift in focus from commodity production to ecosystem management on national forest lands, many rural communities have witnessed a severe decline in the level of harvest on public lands. Rather than turning toward restoration, however, this transition has so far translated into a *lack* of management. But federal policies could fund ecosystem management; rather than relying on income from harvests, the federal government could provide payments for stewarding the public’s resources. If healthy forests are a national priority, then investing in local communities to implement management can bridge the gap between rhetoric and reality. Hiring local contractors to implement ecosystem management illustrates a possible role for restoration in the local economy.

People in Wallowa County seem averse to governmental aid; yet most of the work which needs to be done in the forests of the county will not yield profits on its own.

Projects which are entirely dependent on government aid or grants can lead to dependency (Eade 1997). Even assuming that some funding that is currently directed to fire suppression could be redirected toward restoration, the county would be dependent on periodic federal inputs for its workforce.

One possible remedy is to create value-added products locally, rather than raw commodities. Commodities have been declining in value with technology and a global labor force and supply (Freudenberg 1992). Processing locally may provide some additional revenue for the county.

Another idea, which is perhaps radical in its implications, is to charge prices for raw materials (such as wood) that reflect not only economic values, but other values, often called externalities. Most prices for raw materials are based on economic assumptions such as supply and demand – we pay prices that the market will bear, but not what will support other functions, such as a healthy environment (Prugh et al. 1995). For example, prices that reflect the costs of keeping people on the landscape, of preserving threatened and endangered species, of keeping waterways healthy – all of these costs are currently absorbed by private landowners or through taxes. Branding timber because it supports local communities or is grown in a responsible manner – “Decommodification,” as Melissa described it – could give elevated status to certain goods. This tactic has been employed in Oregon to sell beef (Oregon Country Beef), and it may be an effective way to sell timber products. Rural communities are losing their workforces, farms and forest lands are consolidating and relying more and more on technological advances, and (paradoxically) working lands are being fragmented and developed because of the value of real estate; none of these factors seems to be considered by people willing only to pay the lowest prices for commodities. If we value rural communities and the surrounding lands, then perhaps we can make them healthier through our spending habits.

B. Legislation and Its Effects

HFRA and other legislative tools that focus on restoration may improve the conditions of the forests; they may also serve to provide jobs and increase capacity in the

rural communities that rely on them. The Healthy Forests Initiative had a subtitle: "An Initiative for Wildfire Prevention and Stronger Communities" (Bush 2002). Has recent federal forest legislation worked toward these dual goals? That is, are we moving toward healthier forests and healthier communities? Certain aspects of recent legislation, including the Healthy Forests Initiative and the Healthy Forests Restoration Act, may prove useful for rural, resource-dependent communities. These include:

- An emphasis on stewardship contracting (see Public Law 108-7 Section 323, 16 U.S.C. 2104 note, granting stewardship contracting authority to USFS and BLM). Stewardship contracting is a method of combining timber sales with restoration and maintenance work: the contractor offsets costs with timber removed from the project; if services exceed the value of the timber, the agency can pay cash compensation. Stewardship contracting can allow for timber removal while emphasizing fuels reduction work, which may not be profitable on its own. Also, cash payments from the Forest Service can be substituted for timber. Stewardship contracts are evaluated by on-the-ground results, rather than volume of timber removed; land management goals are primary. Stewardship contracting is intended to benefit local communities because materials will flow to local communities, and collaboration is considered an integral part of stewardship contracting. These contracts are generally long-term (up to ten years), and so allow for infrastructure development and may ensure a reliable source of raw materials. Land managers in Wallowa County have indicated that a long-term relationship with the land would lead to better management.
- A streamlined decision-making process under NEPA. Both the Healthy Forests Initiative and the HFRA contain Categorical Exclusions and other mechanisms to expedite or streamline the appeals process. Other legislative changes to the Endangered Species Act, National Forest Management Act, and National Environmental Policy Act, have focused on streamlining public input, as well. Appeals and litigation may be responsible for holding up project implementation, and many community members in Wallowa County identified procedural delays

as impediments to healthier forest conditions. For example, objections to Forest Plan changes have been changed to allow only those who participated in the planning process (36 CFR Part 219, NFMA rules 2002, §219.13). This could reduce the number of last-minute, blanket, or surprise appeals from distant forces.

- An emphasis on collaboration and trust-building. Both the HFRA and the HFI underline the need for collaboration. Potentially trust-building clauses such as the old-growth clause of HFRA (HR 1904 §102(e)) may increase much-needed trust between environmental and other groups in order to facilitate collaborative efforts. The old-growth clause of HFRA may provide assurance that the purpose of projects is fuels reduction and not traditional timber removal, as the language specifies that “in carrying out a covered project, the Secretary shall fully maintain, or contribute toward the restoration of, the structure and composition of old growth stands according to the pre-fire suppression old growth conditions characteristic of the forest type” (HR 1904 §102(e)(2)). Collaborative activities can benefit communities not only through projects, but through increased community capacity. As people meet to discuss ways to implement projects and areas of agreement and disagreement, ties are formed that can facilitate communication and a sense of unity of purpose.
- Reauthorized funding for Public Law 106-393: Secure Rural Schools and Community Self-Determination Act in 2000. In 1908, the National Forest Revenue Act was passed which directed 25% of the funds from National Forests (primarily from timber revenues) to be returned to the local counties in order to offset revenue losses from property taxes. When timber harvests declined in the 1990s, rural communities suffered; in 2000, Public Law 106-393 passed, allowing counties to choose between the traditional 25% revenue, or to receive a stable payment for 6 years, based on the three highest years’ revenue generated between 1986 and 1999. Most counties have opted for the latter, which has kept at least some flow of funds from the public lands to local schools and county governments.

However, there have been several aspects of recent federal forest policies that have undermined efforts to improve forest health or to make rural communities stronger. These include:

- An end to local hiring preferences. Under the National Fire Plan, contractors who hired local workers were given preference. This was a temporary authority, however, which has been dropped. According to Mark Rey, the Undersecretary of Agriculture for the United States Department of Agriculture, local communities shouldn't be given priority for local projects because there are a large number of under-qualified people in these communities, and larger towns can provide a better employee pool (personal communication, March 2005). Most restoration contracts within the county are awarded to nonresidents (Christofferson et al. 2004). This begs the question: why aren't we trying to create, not to mention maintain, the working forces of rural America? The practice of hiring more distant urban firms to work in rural areas that are suffering from high levels of unemployment is to perpetuate a pattern of poverty. It is also a missed opportunity for the federal government to attract human capital to rural areas. Finally, hiring local community members to work on local projects ensures a certain level of accountability. The workers are living in, and connected to, the place. They face their friends and neighbors after the completion of a project, and they are more likely to have knowledge of the place and its peculiarities. After a project is completed, they remain in the county with their knowledge, rather than taking it with them at the project's completion. The loss of human capital from Wallowa County is more than a loss of people with formal education; it is a loss of people with place-based, experiential knowledge of the land and its processes. According to President George W. Bush, during a speech in Redmond, Oregon in August 2003, "Our approach relies on the experience and judgment and hard work of local people." In order to utilize local people's expertise, policies should encourage the retention and development of local human capital; currently,

however, many rural communities are exporting their human capital as young people cannot find suitable work.

The loss of local hiring preferences, combined with an increased emphasis on competitive contracting (see OMB 2002), has favored large, urban-based companies that are often located far from rural, forest-dependent communities such as Wallowa County.

- An overall loss of institutional capacity within federal land management agencies, particularly the US Forest Service. With a diminishing budget and employee losses, the USFS has been unable to implement many projects. This loss of institutional capacity affects collaborative efforts, such as when local groups plan a project and delays on the Forest Service side, whether procedural or otherwise, do not allow for implementation.
- A loss of trust because of the current focus on streamlining public appeals and litigation. As noted above, streamlining may expedite some projects, but demonizing the public input process may lead to a lack of trust from groups who have traditionally used the appeals and litigation processes. Many environmental advocacy groups are outspokenly opposed to reducing opportunities for appeal; the rhetoric of "analysis paralysis" and "process predicament" will not lead to a more trusting relationship with groups who view appeals as valid citizen involvement.
- An emphasis on Wildland-Urban Interface areas. At least 50% of HFRA appropriations should be spent in WUI areas. These allocations benefit places that have significant WUIs; very remote areas, such as Wallowa County, do not have large areas of WUIs. More remote counties, which are likely to have less WUI, are likely *more* dependent upon federal projects and federal land access land places with larger populations.

C. Future Research

Future research should address issues of local control versus local access: while the distinction was often made rhetorically by interviewees, I could not find a clear distinction between the two, nor is there sufficient description of how policy could grant access without control. The national public will be involved in decision-making on National Forests, as well they should be. In cross-boundary, place-based efforts, the role of the community should be clarified, as well as the role of the general public.

Additionally, studies that compare communities' visions of forest health may clarify a breadth of differences between definitions of forest health. Particularly, contrasting communities with different backgrounds from Wallowa County may help to illustrate forest health within place-based terms. While Wallowa County can serve as a template for other communities wishing to pursue a more active role in restoration efforts, it is certainly extraordinary in its ability to mobilize residents and effect change within its borders.

If rural places are in need of capital from the federal government, then studies could focus on whether people are willing to support rural communities through taxes: are healthy forests and healthy communities worth people's investments? Alternatively, are there means to fund these programs privately? Can products be generated which have market value, to offset the costs of restoration? Can restoration actually fund itself?

Quantitative studies addressing the acceptability of various forest health treatments (thinning, prescribed burns, spraying) have been undertaken (Abrams et al. 2005, Shindler and Toman 2003). There is a need, however, to address the long-term effects of such treatments, financially and socially. How do these treatments affect residents' sense of place? People who support mechanized thinning (vs. prescribed burning) are more likely to work in a timber-related field (Shindler and Toman 2003): Can prescribed burns that benefit local communities financially change their acceptability?

Finally, studies that focus on demographic changes, such as newcomers versus old-timers, may prove useful to policy-makers, as the face of the West changes. While

newcomers may voice support for rural lifestyles, many old-timers may be apprehensive of possible changes to their communities as populations change. The arrival of newcomers does not have to be viewed negatively – what are the positive effects of immigration to rural areas of the West? What are these newcomers contributing, and can their contributions actually reinforce ties to the land? How is economic diversification (growth of art industries, tourism) affecting the relationships between people and the land; how are these growing industries affecting communities?

Applying the ideas of dynamic ecosystems and the need to be adaptive can likely contribute to better management and can help in efforts to restore forest and community health. Forest systems are dynamic, and management must adapt to the conditions as they are today; management must also adapt to conditions as they exist in particular places. Despite the knowledge and (potentially) the capacity to manage for forest health, the forests of the inland United States have continued to deteriorate. The reasons for their decline involve a number of societal and political factors that influence land management decisions every day, including the influences of external forces that wield an inordinate amount of power over land management. Communities, as well, are dynamic: the ability to respond to overarching societal changes may be more beneficial for local communities than an arbitrary state of stability. While we tend to look to scientific knowledge to give us the answers to complex problems, science cannot implement management projects. It cannot allocate funding or resolve issues of trust. Building upon local incentives to work in the forest and maintain cultural and economic ties to the resource base may provide one means for addressing forest health effectively.

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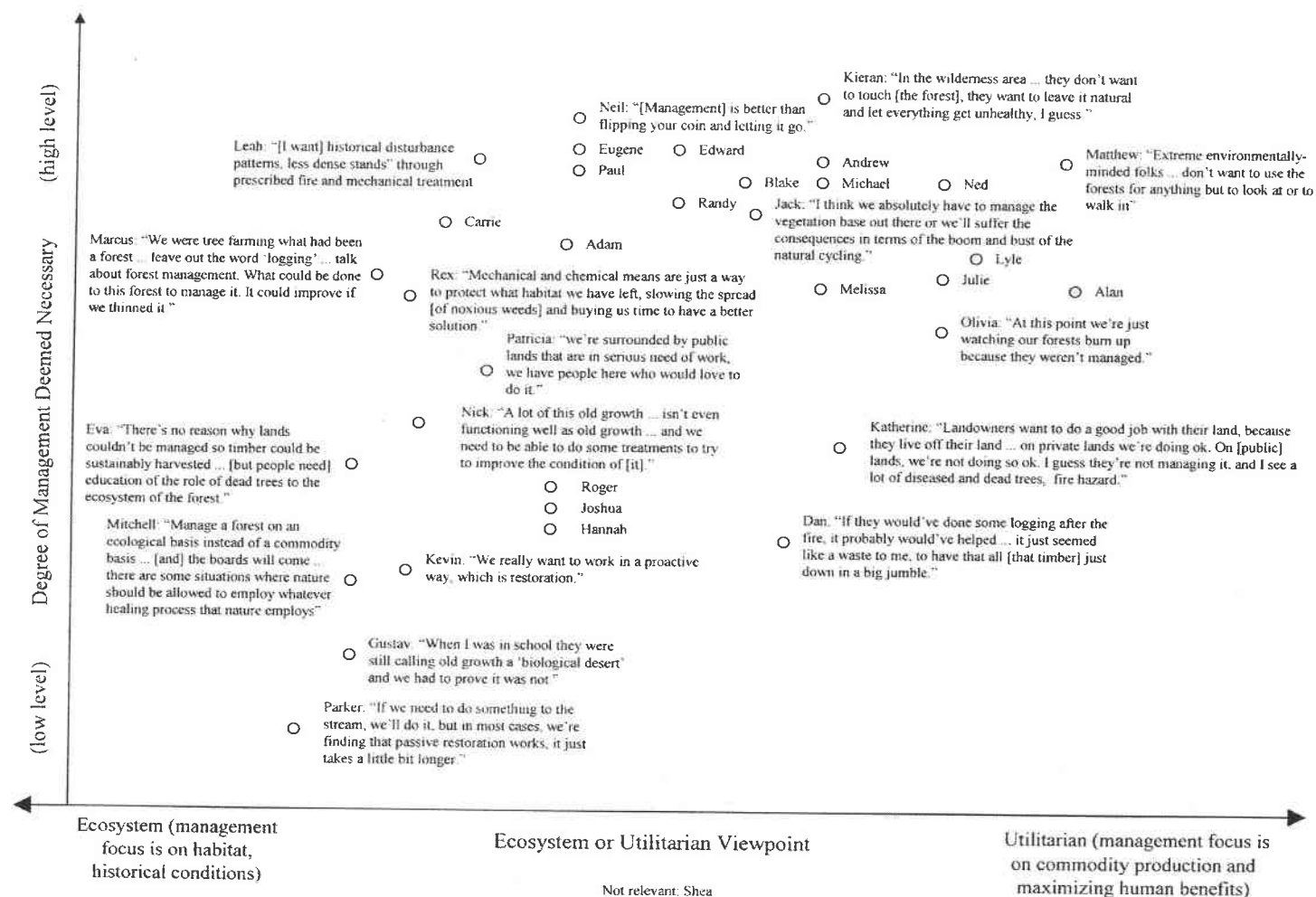
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APPENDICES

Appendix 1. A representation of the attitudes of interviewees regarding the role of humans in the forest.



Appendix 2. A model of the interactions between humans, human social systems, and the forest.

