Chapter VII

Social Assessment of the Options

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Social Assessment of the Options

...to put it bluntly, we have a mess on our hands... (Hubert Humphrey 1973, in introducing legislation to create the Resource Planning Act)

...to get the practice of forestry out of the courts and back to the forests...(Hubert Humphrey, 1976, speaking in favor of amendments that helped frame the National Forest Management Act)

...a remarkable series of violations of the federal laws, repeated, systematic, deliberate, and political in nature...(Judge Dwyer 1991, in his ruling on the failure of the Forest Service to prepare an Environmental Impact Statement for the Interagency Scientific Committee report)

...I don't want this situation to go back to posturing, to positioning, to the politics of division that has characterized this difficult issue in the past...(President Clinton 1993, in his closing remarks at the Forest Conference in Portland, Oregon)

Executive Summary

Not all is well in the forests and communities of the Pacific Northwest.

There is an image of the northwestern states, conveyed on calendars and coffee table books, of a land of beauty and bounty. It is an image of towering forests,

fertile valleys, scenic mountains, abundant fish and wildlife, and a wealth of recreational opportunities. It is also an image of a productive people, drawn to the region by both its beauty and as a place to make a living and raise a family.

Although this image holds true, within its shadows is a story of potential impoverishment of both culture and biology.

In many forest-dependent rural communities in the region today, unemployment is high, hope is low, and despair has captured many people, as they see their communities, long dependent on the forests where they are located, reeling under changes that have swept across them. As Robert Lee explained to the President at the Forest Conference:

We're
moving
into
a
process
which
looks
an
awful
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like
what
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to
the
inner
city.
We're
seeing
the

collapse of families, disintegration of families, disintegration of communities, loss of morale, homelessness, stranded elderly people, people whose lives are in disarray because of substance abuse; it's a very difficult situation.

The disintegration of the social fabric in timber dependent, rural communities has its counterpart in many of the region's forest ecological communities. The once vast forests have been reduced in both extent and complexity by years of overharvesting and human development, impoverishing the rich biological

community and bringing many species to the brink of extinction. As Chuck Meslow, speaking to President Clinton, said:

> *At the time of settlement ... the northwest was blanketed with forests ... perhaps 60 to 70 percent was old growth ... over 200 years old. Those stands are mostly gone now. Essentially all*

old forest has been cut on the private lands. ... on National Forest or [Bureau of Land Management] lands [only] 10 to perhaps ... 50 percent [remains and] ... what remains has been highly fragmented.

The past decade has been difficult for many rural communities in the Pacific Northwest. In the early

1980's many lumber mills were consolidated and labor forces were reduced to gain efficiency and productivity to be competitive in the international timber market. Mills were not only closed, but dismantled and the pieces trucked away. An era of relative rural wealth in the timber regions of the Pacific Northwest was passing -- mill capacity became more centralized and woods workers became independent contractors not employees. Community studies in the early 1980's found the realization that the old pattern of bust followed by boom would not return led to a malaise among those left behind and to fearfulness among workers and communities yet to be affected.

As the recession of the early 1980's ended, federal timber harvest rose again reaching 5.6 billion board feet by 1987. Apprehension declined in many communities that saw federal timber supply as their future security. Then in 1990, the federal district court put an injunction on timber sales in old-growth forests when the northern spotted owl was listed as an endangered species and old growth forests designated as critical habitat. Efforts to implement a conservation plan adequate to ensure the survival of the owl floundered; new species were listed covering an even broader geographic area; potential listings of threatened fish stocks brought the streams and riparian areas into consideration as critical habitat. Since 1990, land management solutions to ensuring the viability of threatened and endangered species have been ruled inadequate by the district court. As a result, some estimate that by the end of the summer of 1993, most of the timber under contract will be cut.

Again malaise has spread across the Pacific Northwest. This time, however, it is accompanied not only by concerns about the inability of forests to

support historical timber harvests and dependent forest communities, but also by the inability of the forests to sustain the complex ecological community. Clearly, all is not well in the forests and communities of the Pacific Northwest. These two themes -- timber dependent communities and forest ecology -- together define the political issues and values at stake.

It is the clash of values, institutions, organizations, and policy commitments that define this complex policy issue. To break the gridlock of inaction will require moving beyond the politics of division. One wonders how, in a country with our wealth, ingenuity, resources, and capacity, could this have happened?

President Clinton Sets the Stage

On April 2, 1993, President Clinton convened a Forest Conference in Portland, Oregon. The Conference provided a forum for discussions about management of Pacific Northwest forests, from which might come a process to break the gridlock that has gripped forest management in the region.

The Conference is only the most recent chapter in a continuing series of contentious debates about our forests. Popularly characterized as an "owls versus jobs" question, the debate embraces fundamental aspects of our lives: national versus local values, public versus private ownership, short-term versus long-term considerations, individual versus collective rights, and others. It is "more complex than spotted owls and timber supply --it always has been" Thomas et al. (1990, p. 5).

In his closing comments, the President challenged participants "to break the paralysis that presently

controls the situation, to move and act." More specifically, he instructed his Cabinet and Administration to craft a balanced, comprehensive, and long-term policy that would, in fact, break the paralysis. This challenge was framed within the context of five key principles:

1. We must never forget the human and economic dimensions of these problems.

2. We need to protect the long-term health of our forests, wildlife, and waterways.

3. Our efforts must be scientifically sound, ecologically credible, and legally responsible.

4. The plan should produce a predictable and sustainable level of timber sales and nontimber resources that will not degrade or destroy the forest environment.

5. We must make the federal government work together and for society.

Underlying his remarks, the President also called for a process based on collaboration, rather than confrontation, one characterized by continuing dialogue and a search for common ground.

Much is at stake here. In the past 5 years, four major scientific task forces have attempted to resolve issues of old-growth forests and endangered species protection. Yet, despite unprecedented levels of expertise and effort brought to bear on these issues, their resolution seems as far away as ever. Moreover, despite the profound consequences these issues hold for people, both in the region and elsewhere, only

limited attention has been given to their human aspects, at least in any explicit and systematic fashion. This social assessment affords both an enormous opportunity and an awesome obligation, to remedy this shortcoming.

Purpose and Scope of the Social Assessment

The purpose of the social assessment is to provide policy makers with an understanding of how potential policy options might affect constituents and stakeholders and an analysis of potential effects on important social values and activities. A social assessment must provide accurate and reliable information for the policy making process. In addition, it should clearly state the limits and weaknesses of existing data and discuss what research efforts need to be undertaken to improve it.

A social assessment is, however, a part of the policy process and as such takes as its starting point the problems and issues as defined for the policy analysis. The letter of instruction directed the Forest Ecosystem Management Assessment Team to consider public uses and values, social effects on local communities, social policies associated with the protection and use of forest resources that might aid in the transitions of the industries and communities of the region, and social benefits from the ecological services provided by the alternatives developed. In addition, we were directed, that when locating reserves or developing management guidelines, we should consider the benefits to the whole array of forest values and the potential cost to rural communities. We were further directed to use this information to develop the reserves

and guidelines when possible without impairing the conservation plan. In addition, we were directed to identify and assess the benefits and costs of possible additional reserves that are sensitive to scientific, recreational, or cultural values.

The social assessment focuses on these elements: the values and activities at stake and the distribution of social costs and benefits associated with the options under analysis. Our instructions directed that both economic and social consequences, costs and benefits be assessed, and thus this chapter must be considered together with Chapter 7 Economic Evaluation of Options . In addition to analyzing the consequences of changes in federal forest policy across the options, we suggest strategies for dealing with expected consequences as well as unanticipated ones. We also identify opportunities for collaboration among resource management agencies and citizens, and opportunities for rural citizens to participate in self-assessments leading to effective new strategies for sustaining rural forest communities. As part of our evaluation, we examine the limits of current research and education and suggest ways to enhance both. In sum, our social assessment covers a wide range of the elements related to the questions and concerns associated with the development of policy options sufficient to address the requirement to develop options for a conservation and management plan for the federal lands in the Pacific Northwest within the range of the northern spotted owl.

Specifically, our objectives follow:

1. Describe the nature and distribution of the social values and uses found in the range of the northern spotted owl.

2. Describe how these values and uses would be affected by the management options.

3. Identify how different constituents are affected by the changes stemming from the options.

4. Identify opportunities or strategies for dealing with the consequences for people.

Within the framework these objectives provide, we seek to understand the nature of the values and uses at stake and the distribution of costs and benefits associated with the options. We suggest strategies for dealing with the consequences and identify opportunities for innovative collaboration among resource management agencies and citizens. We identify areas where limited knowledge constrains informed policymaking and suggest ways in which these constraints might be overcome, through improved institutional structures, increased monitoring and evaluation, research, and utilization of knowledge held by interested citizens.

The assessment must be judged in two important ways. First, **it is to facilitate a policy analysis and is not a research project.** We strive to provide policymakers with an improved understanding of how the proposed options will affect the values and activities of people, including those within rural communities that are dependent on federal timber harvests. Our assessment relies on existing knowledge (in the literature, held by management agencies, and provided by experts). Although it does not test research hypotheses, the assessment does identify key research questions and attempts to alert policymakers as to which priority issues require additional information before informed and effective policy decisions can be made.

Second, **our analysis has been guided by the philosophy of distinguishing between what we *should do* and what we *could do*,** given the constraints imposed on us. The President called for completion of the assessment in 60 days. The geographic area considered is limited to the range of the northern spotted owl on federal lands in northern California, western Oregon and western Washington. State lands, Native American tribal lands, and private lands are not included as directed by the Administration. Consultation with the three states, private sector, Native Americans, and community leaders was also limited. Because forest ecosystems do not recognize ownership boundaries, these limitations necessarily constrain the potential utility of both findings and recommendations. However, all assessments -- biological, technical, economic, or social -- take place in the face of less than perfect knowledge. While acknowledging the limits imposed by the above constraints, we also want to assert that this social assessment represents one of the most significant efforts ever undertaken to examine the social consequences of federal forest management. It complements and supplements traditional measures of economic and technical effects, revealing the profound social dimensions of the forest management debate (Burch and DeLuca 1984).

The following discussion rests on several basic assumptions:

1. The present debate over forest management in the Pacific Northwest is inescapably a social problem that involves conflicting public values, institutions, and power relationships. Because the issue is fundamentally social, its solution must embrace people.

2. The issue is part of a larger set of problems confronting society's decisions and choices.

3. The issue is part of a global, long-term problem; both its causes and its consequences transcend the region and this time.

4. Because the problem is of significant spatial and temporal scale, any solution lies in the formulation of inclusive, on-going processes that transcend administrative, political, and disciplinary boundaries. **Problems that have taken years to take form will not be solved easily or quickly.**

In retrospect, each phase of the social analysis opened new questions. The context of this policy analysis process necessarily focused our attention on some aspects of rural forest communities to the exclusion of others. Naturally, the discussions among participants in the workshops provided a rich description of the social context of the communities, new ways of thinking about rural resource dependent communities, and a thoughtful array of short- and long-term strategies for enhancing rural community life that go beyond the scope of this analysis. These new questions can now provide the basis for continued assessment. In addition, we gathered a wide variety of materials and data across a diverse array of social values and relationships with forests.

The Social Assessment: What Did We Do?

A variety of projects were conducted to complete the social assessment. To the extent possible, each project

was intended to supplement and complement the others. Because of the problematic nature of many of the social effects associated with the options, we adopted a triangulation approach whenever possible; we strove to include as many different perspectives as possible. Such an approach seemed particularly important, given the relatively low level and poor quality of existing data, the high level of uncertainty surrounding many key questions, and the multiple, often competing, conceptions of key issues (e.g., community risk). Specific examples of triangulation include the understanding provided through published literature, expert judgments, and review of findings and judgments by independent observers. When results from these various perspectives differed, an effort to discern the cause was made. For example we asked: Were different assumptions being made? Were different time or spatial scales involved?

The following discussion provides a brief summary of projects that were conducted. A detailed description of these various activities, including methodology and findings, is found in specific sections of the social assessment.

Analysis of Public Comments

Many of the issues the social assessment addressed have been identified in the public involvement efforts of the Bureau of Land Management and Forest Service in land planning efforts over the past decade. We examined these records for selected Bureau of Land Management and Forest Service administrative units for key concerns and issues. In addition, a content summary of the proceedings of the Forest Conference was prepared (see Appendix 7-A). We also prepared a content summary of input received in response to an invitation from the Administration following the

Forest Conference as a means of supplementing the discussions that occurred there (see Appendix 7-B).

Assessment of Rural Communities

A major concern for the social assessment team was the effect of the options on rural communities throughout the northern spotted owl region. A multi-phase effort was undertaken to help determine the nature and extent of these impacts, their regional patterns, and the opportunities for mitigation.

First, a survey was sent to county extension agents throughout the region. Agents were asked to provide an overall rating of the adaptability of the communities in the face of change and several other types of information about communities in their area of responsibility (e.g., population changes, in-migration.)

Second, two workshops were convened, with participants drawn from a variety of government units to analyze the relative ability of the communities to deal with changes imposed by the options, as well as other factors leading to changes in the region. The workshops provided community-specific levels of analysis, which were summarized in tables and maps.

Assessment of Native American Values

A preliminary review of the particular relation between the management options and Native American lands, rights, and uses was undertaken. Although this analysis was limited by an inability to work directly with the various tribes, it helped identify the critical need to examine these relationships in more detail, given the significant legal obligations

embodied in Treaties and Executive Orders related to Native American rights.

Regionwide Assessment of Recreation, Scenic, and Subsistence Values

Outdoor recreation, scenery, wildlife, and related amenity values have long been a focus of public concern. Also interest is growing in forests as a source for a variety of products: firewood, mushrooms, and floral materials. These materials are gathered for personal use and commercial enterprises. A two-phase effort was conducted to understand the range, distribution, and nature of these values within the owl region, and the potential impacts the options may have on them.

First, all Bureau of Land Management Districts and National Forests in the region were contacted and asked to specify the types of information about social values that were available and the form in which it was stored (geographic information system, hard copy maps, and others). This exercise provided a broad picture of data availability.

Forests and Districts were also asked to provide acreage figures for current land-use allocations for a recreation opportunity spectrum and visual quality objectives. The information was used to develop a profile of the current situation, from which it is possible to assess changes resulting from the various management options.

A second project was a workshop for agency representatives from selected case study areas. Participants from the Bureau of Land Management and Forest Service came to Portland for 2 days to help map the location and extent of various social values

(such as recreation sites and areas of public concern) and to help the social assessment team evaluate how the management options would affect the current situation. This provided an in-depth supplement to the regionwide descriptive data collected in phase one.

At the close of the workshop, a nominal group exercise was conducted to define barriers and impediments to integrated interagency resource management and to identify opportunities for overcoming them.

Commissioned Papers

A number of specialized papers were commissioned by the social assessment team to provide detailed expert opinion and analysis in key areas. Information contained in these papers is largely incorporated in the text of this report.

Major Findings and Conclusions

This assessment, although restricted in time and scope, produced a rich array of findings. Here we summarize the principle results and conclusions.

Overall findings include:

- The problems facing citizens of the Pacific Northwest are not new, they have no technical solution, and current institutional arrangements sustain them.
- Strong evidence exists that public concern with environmental management in general, and forest management in particular,

is significant
and enduring; this concern reflects a willingness and capacity to act.

- The social values that forest managers are least able to define and
measure is most poorly developed are those that appear to be increasingly important in our society.

- Interdependent social uses and values confound policy formulation when
the ecological and social boundaries of an issue transcend political,
administrative, and ownership jurisdictions.

Findings for particular portions of the social
assessment follow:

Communities

- Communities are not monolithic or uniform in their form or function; a multi-dimensional notion is required.

- Rural forest-based communities are faced with impacts of national and global changes, both political and economic, in addition to those stemming from federal forest policies in the region.

- Variation in allowable sale quantities among the options will differ only slightly in their effects on communities.

- Most negative community effects will be concentrated in rural areas, but some urban areas also will be affected, notably those with substantial forest products employment. Communities dependent upon recreation, amenity, or other environmental quality resources may be positively affected by the proposed changes in federal forest management.

- Communities that are small, isolated, lack economic

diversity, are dependent upon public harvests, and have low leadership capacity are more likely to be "most at risk" than others.

- Both the pattern and severity of consequences associated with changes in federal forest policy differ by states and within states.

- For communities in the three states, there is little difference in the consequences that result from Options 1 and 3, but there is more difference between Options 3 and 7.

- Groups within communities are affected differently by the Options; some groups are better equipped to deal with the changes brought about by the options than others.

- Although poverty in rural forest dependent communities has increased over the past decade for numerous reasons, the current and lengthy gridlock is adding to poverty levels. The increase appears related to a variety of factors that vary by state; in Washington, it appears more directly linked to changes in federal forest management than in California.

- Capacity is an important factor in how communities respond to shifts in federal forest policy or changing state or local funding.

- The desire for stability, predictability, and certainty are key community concerns; attempts on the part of communities to cope with change are greatly constrained by the recent high levels of uncertainty.

Native Americans

- Indian tribes and groups are governments and communities that are potentially affected by the options; impacts on cultural and religious values require special attention by decisionmakers.

- Standards and guides -- the specific rules that govern management in the Reserves and Matrix -- have a potential to either constrain or facilitate many of the practices and activities undertaken by Native Americans.

- Tribal members have come to depend on public lands and resources for employment, subsistence, and cultural identity.

Recreation, Scenic, and Amenity Values

- Recreation, scenic, and amenity values have been, and continue to be, key public concerns; however, inadequate knowledge of the nature, distribution, and relation of these values to forest policy changes greatly constrains effective decisionmaking.

- Uncertainty as to how, and what, specific management actions are permitted in the Matrix and Reserve make it difficult to estimate the impacts of the options on recreation values.

- For both recreation and scenic values, the options present opportunities to meet important public concerns and interests.

- Given the conservation objectives and species viability concerns associated with Reserves, it is likely their overlap with dispersed recreation settings will result in additional protection, as well as an opportunity to provide a desired and demanded recreational setting.

- The provision of primitive, nonmotorized recreational opportunities and creation of more naturally appearing landscapes are consistent in many ways with conservation objectives associated with Reserves.

Agency Relationships with Constituents

- Public judgments of the social acceptability of management

activities are influenced by beliefs about ecological processes, agency motives, the importance of aesthetics, and the perceived feasibility of achieving alternative forest conditions.

- Although an array of legislative requirements require public involvement in resource management and planning, well-established programs and policies that integrate public input into decisionmaking remain elusive.

- There are a variety of examples of successful collaboration between management agencies and citizens, successes that hold important promise and lessons for improved relationships.

- Ironically, it often seems that agency public involvement programs exacerbate the problem.

- There seems wide concurrence that federal agencies are not working together, at least not as they might or should.

Key Recommendations

Short-term and critical responses to the current gridlock should include the following:

- **Systematic and comprehensive collaboration among all stakeholders is necessary to achieve ecosystem management.**

- **Fundamental changes are needed in the federal land management planning processes that will provide leadership for effective inter-jurisdictional collaboration and problem solving.**

- **A comprehensive, regionwide assessment is needed to analyze the effects of any selected option for federal forest management on**

communities, tribal rights and values, recreational opportunities, and amenity values.

- **Because of the immediate impacts on communities resulting from changes in federal forest policy, there is a need to formulate short-term policies and strategies.**

Where to Next?

A long-term response to the gridlock should include the following:

- The forest management issue needs to be recognized as in part a moral question.
- The range of options for responding to the many demands on our resources needs to be recognized as increasingly limited.
- Responsive administrative decision-making structures need to be developed, with participative management and shared decisionmaking being key elements.
- Natural resource professionals from multiple jurisdictions must take the lead collectively in interacting with the public to address complex problems.
- Research institutions need to focus on the key questions confronting society and determine how to make the resulting knowledge available to a

wide range of constituents.

- Educational institutions need to refocus and become responsive to
changing public perceptions and values of forests.

The roots of today's debate over proper management of forests run deep throughout our nation's history. In the next section, we trace a century's worth of evolution in the legal and policy framework on which forest management traditions and current practices rest, a story that makes the situation we face today entirely predictable.

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Where Are We and How Did We Get Here: A Historical Overview

Note: this section is based on material provided by Robert Wolf, former Director, Natural Resources and Environment Division, Congressional Research Service, Library of Congress, Washington, D.C.

The lesson of the past 100 years is clear: a tyranny of incremental decisions has led us to the current gridlock. We have yet to find the right way to deal with either our forests or the people who depend on them.

A pessimist might observe that neither government nor industry are capable of understanding or managing complex relations between forests and the diverse demands society places on them. The optimist might suggest that at least we keep typing.

In 1993, we try again, and the clock keeps ticking.

The Present Day Forest Crisis Has Long Historical Roots

The nineteenth century "cut out and get out" era of migratory forest harvesting in the United States spawned a political reaction that culminated in a reform movement --conservation. After the Civil War, the ravages of war, railroads, and commerce on the forests were extensive enough to become of political

concern to many, including the newly forming scientific community. Western lands were suffering from increasing levels of timber harvest as well as substantial grazing. In the mid-1800's George Perkins Marsh and Charles Darwin focused the attention of scientists, politician, and citizens on the environmental consequences of human use.

On the public domain lands, concerns rose that illegal lumbering was consuming vast acreages of valuable timber rendering the land worthless for sale to bona fide settlers and businesses. To stop these practices, in 1891, Congress authorized the President to "set aside and reserve" lands to be designated as forest reserves. To the dismay of some, the forest reserves were reserved from uses other than local needs of settlers. As long as the reserves were few and existing uses and land claims unaffected, nothing came of the discontent.

In 1897, President Cleveland added 21 million acres to the Forest Reserves. These areas included lands where Anaconda and Homestake Mining companies had major operations. Placing these areas in Reserves prohibited mining as well as timber cutting for the mines. These actions led to the 1897 Organic Act, as part of the General Appropriations Act of June 4, 1897 (Chapter 2, 30 Stat. 34). The 1897 act declared that:

no
public
forest
reservation
shall
be
established,
except
to

improve and protect the forest within the reservation, or for the purpose of securing favorable conditions of water flows, and to furnish a continuous supply of timber for the use and necessities of citizens of the United States;

but it is not the purpose or intent of these provisions, or of the Act providing for such reservations, to authorize the inclusion therein of lands more valuable for the mineral wealth therein, or for agricultural purposes, than

for
forest
purposes.

The Early Fashioning of a Forest Conservation Policy

Between 1876 and 1910, much of what became "forest conservation policy" was fashioned by activists of the era, many of whom were scientists. This conservation movement was galvanized by the effects of logging activities on forests in the Appalachian Mountains and mill closures on towns as well as across the South and Great Lakes states. Central themes of the conservation policy, as compiled by Gifford Pinchot (1910), were:

- The lumber industry should develop roots, not cut out and get out.
- Selective cutting should prevail, leaving much of the forest for future harvest.
- The forest should be protected from railroad engine fires, as well as natural and human-caused fires.
- Practicing forestry would protect watersheds and soils.

During this time, concerns with revenue from public lands continued. Officials in the Department of the Interior, responsible for administering the Reserves, worked with Pinchot and the Bureau of Forestry to develop plans that would allow for orderly and predictable harvest of public forests. Nevertheless, the revenues were small, partly because of the lack of markets and partly because the Organic Act stipulated

that timber sold must be used within the state and not be exported. As fraud and theft became greater problems, as population increased near Forest Reserves, concern with how to regulate use and enforce boundaries grew. The vastness of the area and the small size of the budget and administrative staff precluded any effective administration or enforcement. In this climate, the concept of forestry as a method of managing and paying for the management of the Forest Reserves grew ever more attractive.

Supported by a 1905 national convention on forest conservation, Pinchot, in a second try, secured transfer of the Reserves to his Bureau of Forestry in the Department of Agriculture. He promised that, if provided an appropriation of $1,000,000 a year and receipts, he would cover all costs by 1910. Pinchot's central argument for transfer of the Reserves to Agriculture from Interior was that he would make the Reserves profitable; something Interior had not done. The premise of his forest conservation policy was that a small amount of immediate profit might be lost in practicing forestry, but there would be perpetual profits, more livable towns, stable logging operations, and gains to society (e.g., fire protection, protection of water flows, protection of the productivity of the land).

Lumbering continued its march across the country, until in 1910 lumber production peaked at 44 billion board feet. At this point, the Pacific Coast states together accounted for 17 percent -- 7.5 billion board feet -- of this total. However, the National Forests contributed only 1.1 percent of the national lumber supply (484 million board feet). Nevertheless, 104 million board feet (21.5 percent) came from National Forests in the three Pacific States. Indeed, as is commonly recited, public timber was only a minor

part of the U.S. timber supply through the 1950's. In 1950, the National Forest contribution to timber supply in the Pacific states was 1.6 billion board feet, or a bare 8 percent of the total 3 state harvest of 20 billion board feet. The rapid sweep of lumbering across the country accompanied the transformation of society from a rural agrarian collection of small communities to an urbanized and industrialized society. Wood fueled and built this industrializing economy. Slowly, fossil fuels replaced steam and home heating turned to coal, oil, and gas. Electricity soon powered lights and then industry. Nevertheless, the land use issues created by rapid harvesting of forests across the country continued to shape natural resources and land policy over the next decades.

The debate over private land practices extended into areas regarding wildlife, fisheries, livestock grazing, and mineral leasing policy. Since the turn of the century, policies for these natural resources have included setting aside land reserves for migratory wildlife, developing exploration and leasing programs for minerals in the sub-surface public domain, and regulating use of public domain for livestock grazing. The large proportion of the public domain lands were never specifically reserved for special purposes, however, and these lands were put under the jurisdiction of the Bureau of Land Management when it was created in the Department of Interior in 1946. Prior to creation of the Bureau of Land Management, the Taylor Grazing Service in U.S. Department of the Interior regulated grazing allotments on the public domain and the General Land Office disposed of land to settlers, miners, and other claimants. These two functions were combined to create the Bureau of Land Management. Although the policy of disposing of the public domain did not change until 1976 in the Federal Land Policy and Management Act, little land was

transferred after 1946. Further, the grazing service moved toward professionalization after 1946, and university degrees in agriculture science and range conservation became more commonly the prerequisites for hiring (Gregg 1979). Generally speaking, the federal natural resources agencies moved toward hiring university educated specialists, and away from local people with knowledge of particular places and experience in resource-based activities such as ranching, logging, or mining.

Even in states with significant portions of federal lands, much of the federal domain is characterized by complex patterns of intermingled land ownership. As the principles of forest conservation policy took root on federal lands through various laws and policies, actions by other landowners, seen as inconsistent with them, were defined as in need of correction. Three basic ways were open to secure correction: education, subsidies, and regulation. Education was applied through the information system already in use in agriculture. Indeed, demonstrations had been subsidized on private lands since 1899, when Pinchot took over the Bureau of Forestry. Regulation of private land practices was, and remains, a volatile policy debate.

Achieving Security and Stability in Timber Supply

During this period, in response to the central themes of security and stability, two other demonstration strategies were developed. First, from 1910 to 1950, over 50 long-term National Forest "development" sales of timber were made. Development sales were based on the technology of railroad logging and could

encompass a whole watershed. The theory was that the company would begin construction of the railroad at the bottom of the watershed and cut timber as railroad construction moved upstream. Logically, by the time the upper reaches of the watershed were accessible for harvest, maybe 50 years later, the areas initially harvested would be nearly ready to cut again. Typically, these were at least 20-year contracts (often longer), with fixed prices for the first 5 years and subsequent prices geared to the lumber market. Based on the "working circle" concept, these sales created an operating area for the bid winner that became a little monopoly. The Forest Service often encouraged companies, especially those with intermingled land holdings, to apply for these long-term contracts on the theory that the availability of federal timber would produce more permanent and stable operations.

Second, David T. Mason (Loehr 1952), a consulting forester in Oregon, advocated a grand plan that pooled land held by large companies with federal land under 99-year, "sustained yield" agreements. Faced with fluctuating markets and prices, Mason argued for a sustained production interpretation of "stability." Such federal-private agreements would lead, he believed, to a stable supply, firm prices, and adequate timber. However, this forestry practice also meant that long-term investments of time and money would have to be made by both the company and the government. It is useful to note that this concept of sustainable production is in contrast to the Forest Service vision of sustained supply.

Sustained production combined with sustained supply were ideas of their time. Modern corporations were evolving as vertically integrated and managed systems of predictable inputs aimed at producing predictable levels of outputs. The economy was

viewed as a collection of economic actors (individuals and firms) making self-interested choices. To secure the desired goals, one only had to pull the right levers, and response would follow as rational actors made rational choices. To proponents of sustained production and sustained yield, the problem was to get the system right -- right behavior would follow. Scientific management seemed the logical means to securing economic, technical, and administrative rationality.

The concentration of power in a few corporations and houses of finance concerned populists, and the latter decades of the 19th century saw the emergence of federal regulation as an alternative to public ownership of utilities, railroads, and transportation. In this political context, however, the forest reserves were already in public ownership and proponents of public management found a ready opportunity to try out ideas of scientific public administration.

Nonetheless, although scientific management could secure the sustainability of federally owned timber, what could secure the nation's supply of timber? This concern with supply, combined with the fact that the vast percentage of forest land was privately owned, spawned a movement for federal regulation of private timberlands. Proponents of regulation believed simply that the correct incentives, like stable prices in return for stable production, would produce the desired outcome -- sustained-yield forestry.

Federal regulation was hotly debated for 50 years, but proponents saw an opportunity to indirectly regulate private lands through sustained-yield agreements with federal lands. The "carrot" of secure access to public timber could indirectly promote the virtues of stable timber supplies, stable communities, good land

management, and reasonable supplies. *"More and more individuals, companies, and communities were becoming actively interested in sustained yield. Some communities suddenly woke up to the realization that their existence depended upon the sustained yield of the forests"* (Loehr 1952, p. 195). Nevertheless, many timber companies did not heartily embrace this concept. Actual sales on federal lands remained small and few, and during the 1930's, depression fell to practically nothing.

In 1937, a new opportunity emerged for promoting the sustained yield concept based on allocating federal lands to companies, with the enactment of the Oregon and California railroad land grant. David Mason testified before Congress and was successful in inserting the germ of this idea into the Sustained Yield Act of 1937 (50 Stat. 874), which charted the course for 2 million acres of land administered by the Bureau of Land Management in western Oregon. These lands are the residual of a revested railroad land grant, and thus are in a checkerboard pattern. Mason's idea was to divide these lands into marketing areas and to allocate some 90 percent of the timber to 30 firms with intermingled timberland. However, when the first serious effort was made to create such a unit in 1948, with the now defunct Fisher Lumber Company located in Marcola, Lane County, Oregon, it created a firestorm of opposition from non-timber firms and labor organizations. Despite the existence of the law, there were no company sustained yield units carried out on O&C lands under the 1937 Act (Williams 1993a, p. 5).

Support for the concept of sustained yield within the Forest Service remained high. During testimony on the 1937 Act, Forest Service Chief F.A. Silcox described the boom and bust timber communities common in the

Great Lakes region. He recalled many communities that were *"dependent on forest resources and later abandoned when those resources were exhausted. Whole communities had been wiped out when timber had been treated as a mining resource, rather than as a reproductive resource"* (Loehr 1952, p. 195).

As early as 1935, the Willamette National Forest in Oregon, in conjunction with the U.S. Resettlement Administration, proposed to declare the communities of Westfir and Oakridge eligible for rehabilitation as forest-dependent communities (Williams 1993a, p. 5). Ten years before, these same towns were part of an unofficial sustained yield area in the drainage of the North Fork Willamette River. In 1935, they were being studied to determine the best way to *"eliminate direct relief, elevate living standards, and fortify the community against sub-normal economic conditions* [brought on by the Depression]" (USDA Forest Service 1935, p. 1). For 3 years, these communities were studied (USDA Forest Service 1935), but no federal help arrived (Williams 1993b, p. 5).

David Mason persisted in his effort to make sustained yield a national policy. His persistence paid off when, in 1944, Congress passed the Sustained Yield Unit Management Act. This Act provided broad authority to use federal land to secure long-term agreements by private timberland owners to manage their lands under sustained yield provisions. One was created between the Forest Service and Simpson Timber Company, under a 99-year agreement. In addition, the Forest Service created five "community units" -- no private land committed. One was at Grays Harbor, Washington, near the Simpson unit. However, this area failed to supply enough timber to maintain the mill capacity then in Grays Harbor.

Other "community" units were created in the West: one in Lakeview, Oregon; two very small ones in Big Valley, California and Vallecitos, New Mexico; one near Flagstaff, Arizona on the Coconino National Forest (now abolished). For the most part, these units were islands of timber physically separated from other sources. No units were created where the cross-currents of competition swirled. Indeed, attempts to do so were thwarted at the time by the alert opposition of organizations representing mills that did not own timberland and labor unions. However, the **idea that federal timber could stabilize production, stabilize prices, assure sustained yield cutting on industrial lands, and maintain employment were powerful expressions of the principles of stability and security.** Nevertheless, these principles were directly contradictory to the dynamics of a market economy, especially after World War II.

Up to the 1950's, the Forest Service generally practiced long-rotation forestry with a typical rotation of 120 years or more. The "timber primacy" of this era is in a context of normative values of what kind of forests there "should be" in different regions of the country. The reigning view was that the "pre-European settlement" forests should be restored. In many parts of the country, most notably from a policy perspective the Monongehela National Forest in West Virginia, the centuries of use had transformed the pre-European settlement forest totally. Thus, restoring this normative image of the ideal forest could easily ignore the existing uses and values of local people and the American public.

Public forestry, as promoted by the Forest Service, continued on its multi-pronged approach of education, subsidies, and regulation from 1920 through 1950. After public statements by the Chief of

the Forest Service that the agency would no longer advocate regulation of private forest lands, the other two elements remained. Both education and subsidies drew from basic utilitarian concepts of the forest that embodied the idea of multiple dominant uses (Wolf 1990, p.32). The increases in demand for wood, forage, recreation, and water led to various attempts to change Forest Service direction and authority from 1948 onward.

Multiple Dominant Uses or Integrated Multiple Uses?

Many argue that what won World War II was outproducing the enemies in war materials; indeed, after the first year of American involvement, United States' war material production was greater than all the allies combined. This feat exhausted the timber supply on many private industrial lands, and for the first time, timber harvests on the federal forests began to rise. Foresters, trained to see their mission as producing the lumber needed by society, took up this challenge in the Forest Service.

In pursuit of increased per-acre yields, the Forest Service dropped its pursuit of "pre-European settlement" forests. In response to alleged timber shortages, foresters sought to increase yields through the "allowable-cut effect." In essence, the concept meant that younger, faster growing trees on every acre of commercial forest land would produce greater yields than the larger, slower growing trees already there. Thus, the agency moved to "liquidate the old growth" as rapidly as possible. During the 1950's and early 1960's, this shift in timber management philosophy lead to the agency shrinking the areas

administratively designated as wilderness, wild or primitive in order to gain access to the timber. Nevertheless, the Forest Service could not produce as much timber as its proportional land base might suggest because of the low biological potential to grow timber on most of the lands (Waddell et al. 1987).

World War II brought unexpected affluence to working people in America. Personal incomes began a steady rise and reached the highest level in the history of the world in the late 1960's. In addition to purchasing refrigerators, washing machines, cars, and houses, working people gained leisure time, and on the new highways being built across the country, flooded into the forests and parks.

Americans valued wood for houses and also valued forests for leisure and recreation. Since the 1920's Forest Service administrative policy recognized both the wood products and the wilderness values of the forests. But foresters continued to place higher priority on the wood products values, and were willing to trade away the wilderness values to gain greater timber outputs. Recognizing this opportunity to increase the size of the National Park system, the Park Service set out to have lands designated as valuable for recreation and transferred to it from the National Forests. Their successes in this effort lead the Forest Service to try to protect the National Forest System from becoming only "timber lands." Thus, the Forest Service conceived of the Multiple Use, Sustained Yield Act of 1960 to give it specific legislative authority for "outdoor recreation" (the "outdoor" put it at the front of the alphabetical list of multiple uses). While this Act slowed the transfer of lands to the Park Service, the foresters view of multiple use was frequently ridiculed as "many ways to use timber."

While the wilderness battles expanded the size and scope of both the Sierra Club and the Wilderness Society, broader social concerns with nuclear fallout, water pollution, air pollution, endangered species, along with toxic pollutants of all kinds galvanized a broad social movement -- environmentalism. The proliferation of local, regional and national environmental groups politicized federal forest management by greatly expanding the stakeholders and organized constituency groups managers had to work with. The story of federal forest management from 1960 to now is sadly one of denial that forest land and resource allocation decisions are fundamentally political choices amongst values (Cortner and Richards 1983). The scientific model of forest management hid this political reality.

In the midst of the contentious battles of the 1960's, Behan (1966) criticized professional foresters for seeking to determine the purposes of forest management based on their view of "what's good for the land." Calling it the "myth of the omnipotent forester," he argued that:

> *As foresters we can supply the technological means to these sociological ends, and*

not confuse the one with the other (Behan 1966, p. 400).

The debates of the 1950's and 1960's centered around the increasing diversity of social values versus the strong commitment of the Forest Service to intensive timber management. The lack of agency respect for the "multiple uses of the forests" led to the use of federal legislation directed toward specific "multiple uses" ranging from trails to scenic rivers to wild horses and burros. By the late 1960's, this battle over values culminated in the acrimonious legal challenge of the Forest Service's interpretation of "multiple use." Around the country -- from Alaska, to Oregon, to Texas -- lawsuits contended that the agency violated the letter and spirit of the Multiple Use Sustained Yield Act with its narrow interpretation of "multiple use" as many ways to use timber. The motivation for the lawsuits was public dislike of clearcutting, but most of the suits based their reasoning on how clearcutting violated multiple use. Expectedly, given the standards of judicial review of administrative decisions, courts found each time that interpretation of broad statutory mandates are "committed to agency discretion."

The environmental movement grew exponentially at the close of the 1960's; April 22, 1970 was celebrated across the country as the first Earth Day. The idea of

Earth Day was conceived by Gaylord Nelson, principal architect of the National Environmental Policy Act of 1969. On November 18, 1970, the "Bolle Report" on timber practices on the Bitterroot National Forest in Montana was delivered to Senator Metcalf. The Report, "A University View of the Forest Service" (Senate Document 91-115, December 1, 1970), found that the timber bias of the agency led to "timber mining" not sustained yield. This report enraged many foresters in the agency, but led Congress to reconsider how to make federal forest management accountable to both the local people who depended on the resources and the national public trusting in agency stewardship. From this dissension came the call for increased rationality and for a longer time frame in the making and implementing of forest management. Thus, **the response to the obvious politicization of public forest management was more scientific management --rationality would be achieved when all of the values were placed in the same decision framework.**

The theory of the 1974 Renewable Land and Rangelands Resources Planning Act (16 U.S.C. 1600-1614, August 17, 1974) is central to this history. Consistent with 175 years of national policy regarding public lands, **the Resources Planning Act required the development of national thinking and national planning on the federal lands.** This national perspective necessarily included all of the nation's lands and renewable resources. The first requirement of the Resources Planning Act was for the Forest Service to develop an Assessment of the Renewable Resources of the country. The Assessment, consistent with costs and other uses which federal lands can best provide, was to cover all lands, all renewable resources, all current and expected public demands for resources and forest products of all kinds, and

especially to consider "emerging resources". Thus, the Assessment fit the traditional role of the federal government to provide information for the development of public policy. Based upon the Assessment but consonant with the limitations of federalism and private property, the Forest Service was then directed with providing a national plan for the national forests subject to meeting the federal share of the resource supply requirements as well as with complementing surrounding land uses. The intent was to develop a national program for the national forests that placed them in ecological, social, and economic context. **This entire process was expected to lead to a more rational, stable, and secure program of Forest Service management, budgets, and personnel.** The Resources Planning Act was formulated while the agency was in court over the interpretations of multiple use. One purpose for the Resources Planning Act was to get the agency out of court. To date the agency had prevailed in each challenge to its interpretation of multiple use. However, the West Virginia Division of the Izaak Walton League contended that the silvicultural practices of the agency violated the 1897 law specifying the conditions under which timber could be harvested:

> *For the purpose of preserving the living and growing timber and*

promoting the younger growth on national forests, the Secretary of Agriculture, ... may cause to be designated and appraised so much of the dead, matured or large growth of trees found upon such national forests as may be

compatible with the utilization of the forests thereon, and may sell the same.... Such timber, before being sold, shall be marked and designated, and shall be cut and removed under the supervision of some person appointed for that

purpose by the Secretary of Agriculture....(16 U.S.C. 476)

The Forest Service, having prevailed in Alaska on March 21, 1971 (Sierra Club v. Hardin, 325 F.Supp. 99) when the District Court agreed with the agency that "presale markings of individual trees would be so onerous that only isolated sales on small tracts could be made," was confident it could continue to win on the basis of seventy years of de facto silviculture. Congress was writing the Resources Planning Act at this time and Senator Talmadge offered to insert language in the bill changing the statutory language for timber management. Confident of winning in court, neither the agency nor the industry wanted the language to appear in the bill. When the West Virginia Division of the United States District Court ruled in favor of the plaintiffs, both returned to Congress to get the language reinstated. To the dismay of the agency, the Fourth Circuit United States Court of Appeals agreed with the District Court and ruled the timber management practice of clearcutting illegal (West Virginia Division of the Izaak Walton League of America, Inc. et.al. v. Butz, U.S. Court of Appeals, 4th Cir., Aug. 21, 1975). This "crisis of authority" was the impetus for new legislation.

The National Forest Management Act is an accidental amendment to the Resources Planning Act. With the necessity for new legislation to change the statutory authority for timber management, a House committee staff lawyer suggested it be added to the Resources

Planning Act that had just been passed the year before. To ensure that the National Forest Management Act fit with agency policy and would provide the kind of authority deemed necessary, the Chief of the Forest Service was part of much of the deliberations over construction. In this role, the Chief of the Forest Service, John McGuire, testified continuously that the requirements of the National Forest Management Act were achievable and in most cases consistent with agency policy.

In one sense, the overall vision of the National Forest Management Act continues the belief in scientific management and emphases rationality as a product of comprehensive assessments and planning. In contrast to previous legislation, the Act prescribes acceptable management practices, restricts the application of clearcutting, requires analysis of suitability of land for timber harvest and the designation of lands unsuitable, and requires that integrated national forest plans be prepared and serve as the governing documents for forest management. Consistent with nearly all federal legislation then and since, the Act was based on responsiveness to the full range of public values in forests, including emerging values. In these and other ways, the Act was strikingly different than existing agency policy and management direction. In part the intent was to get federal forest management out of the courts and back in the forests. To accomplish this, the agency needed an "early warning system," in the words of Senator Henry Jackson, and with the "facts" in hand be able to continuously evaluate the appropriateness of actions and then change management direction and projects as warranted.

At the same time that Congress was crafting the Resources Planning Act and National Forest Management Act, it was working on giving clear

management authority to the Bureau of Land Management in the Federal Land Policy and Management Act (43 U.S.C. 1701 et seq., October 21, 1976). The Act also adopted a comprehensive planning and problem-solving approach to federal land and resource management. The express intent was to increase the rationality of management by increasing the accountability of management decisions to public values, science, and ecological reality. **This forward-looking approach was intended to enhance national thinking on public lands, and to ensure consideration and responsiveness to the full range of social values when making land management decisions.**

Responsive Planning Flounders on the Shoals of Politics

The Forest Service now confronts a political resource-allocation task in addition to the traditional scientific land management task

to which it is accustomed. The decision-making process, however, remains one based on technical expertise. It provides no means for resolving the disputes that inevitably arise. It cloaks political problems in technical analysis (Wondolleck 1988, p. 153)

Wondolleck found the same problem social scientists have been consistently documenting since passage of Resources Planning Act/National Forest Management Act (Cortner and Schweitzer 1981, 1983, 1993; Cortner and Richards 1983; Shannon 1990). Adding more rows to the linear program models did not lead to politically responsive decisions.

The planning and management processes called for by these Acts ran into the same problem as the Multiple Use Sustained Yield Act -- power concentrated in the timber management division and maintained by annual budgets. Of particular interest here in the Pacific Northwest, the ideal forest as fully regulated stands of very valuable sawlogs persisted as the governing value of the forest. The national forest plans of the 1980's posed the image of the fully regulated forest as the goal of federal forest management.

Associated with this image, the specter of waste through mortality and nonuse dominated professional forestry discussions for decades. The silviculture staff argued that it was essential to cut trees to reduce mortality from age, insects, or fire. Obviously, such mortality is spread throughout the forest and across the age classes of trees. When, however, clearcuts are laid out to sell the most valuable trees based on accessibility, from a silvicultural standpoint this approach does not effectively address the problems of mortality. Silviculture, thus, remained separated both from the timber management staff and from ecological reality. Nevertheless, the timber sale levels remained high with fluctuations in harvest levels caused by the market -- not shifting agency policy. And, although timber management rests on the gathering and evaluation of relevant facts at the district and forest level, the timber program is funded based upon policy

developed by the Forest Service, the Department of Agriculture, the Office of Management and Budget, and the Congress. Thus, the ultimate control of timber harvest schedules was, and is, a closely held source of power in the upper echelons of the agency.

What are viewed by many as "promises to the communities" might be more accurately seen as rhetoric used to shield agency preoccupation with alleged timber shortages from critics. Whether in the debates over Wilderness designation or forest plan analysis of suitable lands, the rhetoric of "dependent communities" served the purpose of justifying harvest levels in excess of local growing stock. Theories of "one supply" for public and private lands encouraged private owners to liquidate their timber inventory in the expectation of drawing upon public timber while theirs grew back. The costs of holding federal timber under contract are low, and thus it was rational for companies to buy more sales than they expected to cut in a year. As a result, the timber under contract remained high, reaching four times the annual harvest by 1981 (approximately 11 billion board feet were under contract).

From the late 1970's, timber under contract averaged 11 billion board feet (Bbc). In 1987, while the timber under contract was still 11 Bbc, 5.3 Bbc was offered that year for sale, 5.3 Bbc sold that year, and 5.6 Bbc actually harvested. In 1988, timber under contract dropped to 10 Bbc, in 1989 to 7 Bbc, in 1990 it was 8 Bbc, in 1991 it dropped to 5 Bbc. Nevertheless, the cut vacillated between 4 and 5 Bbc until 1990 when it dropped to 3.9 Bbc and then to 3.1 Bbc in 1991. More telling is that while 5 Bbc was offered for sale in 1990 and 4 Bbc purchased, only 1 Bbc was offered in 1991 and 2.1 sold (the extra 1 Bbc is the holdover from 1990). This sharp decline is not due to changed policy

commitments by the agency, or to new silvicultural knowledge, or to reduced power in timber management staffs, or even to the new ecosystem management direction. It is due to a court injunction requiring the agency to justify the harvest of remaining old-growth forests that provide habitat for several species and are highly valued by society for a whole range of uses and purposes.

The crisis of today is caused by not allowing forest planning to be an "early warning system" as Senator Jackson envisioned. It is caused by not practicing multiple use management wherein all of the resources are valued and managed on a sustained-yield basis. It is caused by not providing adequate rationale for liquidation of old-growth trees when the "allowable cut effect" was discredited as silviculturally impossible. It is caused by not embracing a vision of the federal forests as repositories of diverse resource values but rather holding a narrow definition of the value of forests as commercial timber lands. It is caused by ignoring the comments of people around the country on forest plans, wilderness designations, wild and scenic river designations, and even on Resources Planning Act programs. At every opportunity, the American public states that the Forest Service is the steward of conservation on the federal forests, and should provide for the diverse range of values and resources found on federal forests -- and often found no where else in the country.

Rhetoric today still pits isolated rural communities against the urban leisure users or rare wildlife species. However, in every instance of a successful challenge to the rapidity and extensiveness of timber harvest on public lands, it was a local community who raised the concern. On the Monongehela, it was the

turkey hunters worried that the clearcutting of the forest would eliminate the turkeys which were culturally important to them. On the Bitterroot, local environmentalists as well as local loggers who worried that the rapid cutting of the trees would end their jobs soon joined in raising the concerns with the rate of clearcutting. On the Bitterroot, the issue of timber mining versus sustained yield when the costs of regeneration greatly exceeded the value of the timber harvested was pointedly analyzed. From that time forward, the issue of "below cost" timber sales has remained a contentious one (Cortner and Schweitzer 1993; Wolf 1990).

Why have the Forest Service and Bureau of Land Management failed to adequately incorporate the diversity of values recognized on the public lands? One has to ask this question in reverse to seek an answer: why have the agencies remained focused on the production of timber to the exclusion and even degradation of the other resources and values within their mandates? The institutional commitment of organizations to programs is a frequent topic in academic research. In this instance, the convergence of training, career paths, reward structures, incentives for meeting timber targets, the need to maintain markets in order to meet timber harvest targets, the professional society and its value commitments, the organization and power of functional program staffs, and the annual appropriations from Congress that provides specific funding for timber sales and road building all maintain the policy commitments of the agencies.

The challenges of land management, however, are not in the production of sawlogs or fiber. Rather, the challenges of land management are in the rural-urban interface where people are moving into the forest

lands and living right next to national forests or resource districts. The continuing diversification of the face of America is bringing new demands for forest products like mushrooms, beargrass, decorative greens for floral arrangements. New technologies are developing new products used for medicinal purposes from forest products like yew trees. Issues of ethnicity regarding resource use patterns, of cultural diversity in the exploration of new forms of leisure, of workforce diversity in the shifts of residential use are likely to be the challenges of federal resource management in the 21st century.

Conserving rural communities from a national policy perspective may require new visions of the relationship of federal resources to commercial users. The simple relationship of harvest level and community stability was, in fact, never simple and never ensured. Past efforts to constrain commercial enterprise in the interest of stability have seldom gained much support from business. Today the demise of timber-dependent communities follows the pattern of the last centuries. However, the stability of communities is not a timber supply problem; it is a social and economic policy problem. To adequately address the relationship between federal land management and communities whose primary employer is a timber company fully dependent upon federal timber requires innovative social, labor, and economic policies.

Ecological Problems Are Social Problems

The current debate surrounding forest management in the Pacific Northwest is often framed in polar terms: owls versus jobs, economy versus environment. Unfortunately, such a conception obscures the multi-

faceted nature of the problem, pits neighbor against neighbor, and acts to discourage the search for common ground.

This is Neither a New, Nor a Regional Problem

These difficult issues that command our attention today took root over a century ago; today's headlines are merely the most recent manifestation of our continuing struggle to make decisions about those things that matter most to us. From the Wilderness Act to the Roadless Area Review and Evaluation, to the spotted owl controversy, **the central debate revolves around unroaded old-growth forests.** Today's dispute represents only the latest act in a century old play. Moreover, the debate about appropriate forest management is not confined to the Pacific Northwest. The fundamental issues that underlie disputes about jobs, old growth, and endangered species can be found throughout the nation, as well as around the world. Consequences of decisions that eventuate in the region and of the processes through which they are reached, will reverberate across the country and beyond.

This is Not a Scientific Problem

Many factors contribute to the intransigence of this conflict, but a key reason is the failure of the natural resource management profession (as well as society in general) to acknowledge its fundamentally socio-political and value-based character. Natural resources are human constructs; it is through the perception of value and utility that features of the natural environment come to be defined as resources. As these social conceptions of value change, so do the

definitions of a resource and our conceptions of what constitutes appropriate management; witness how the discovery of the Pacific Yew as a source of the cancer-treatment drug, Taxol, has led to the species changing from a weed to a valued forest resource.

If these problems are not new, local, or scientific, what are they? To answer this, we must first acknowledge that **forest management is inherently a political undertaking.** It is so, not in the partisan sense of "being political," but in the sense that it involves the production and distribution of values, whether commodity, amenity, spiritual, or scientific -- in society to meet the needs of people. In this framework, **science is a means to an end; it is a mechanism through which we obtain information about possibilities and consequences.** Science will yield few, if any, "answers"; answers are found in the choices made in the policy arena. Good science is necessary but not sufficient condition for sound policy.

What then is required for sufficiency in a policy context? The answer is embraced in the notion of informed governance. Yankelovich (1991) has observed that *a major barrier to making effective and informed choices in the complex world in which we live is the lack of forums in which the process of "working through" can occur.* That is, our society lacks places in which people can learn, question, debate, and come to an informed judgment of what choices are best. When the options involve complex, problematic, and ambiguous choices (features that characterize many environmental issues), when experts disagree (Schwarz and Thompson 1990), how can citizens come to informed judgments? How can they act in a responsible fashion to govern?

There are no easy answers to such questions. Indeed, **it is the lack of appropriate institutional structures to facilitate such a process that explains our inability to resolve forest management conflicts.** A key starting point is recognition that these problems are not a function of insufficient scientific understanding, and are not amenable (with sufficient time, money, and skills) to scientific solution. Rather, they are inescapably social problems that demand social solutions which address fundamental questions about the values that we seek to satisfy. Science can and should inform these difficult value choices, but it cannot make them.

The inability to respond adequately to changing socio-economic conditions has placed the forest management agencies under intense public scrutiny. Several features characterize the current situation:

1. An intensified political context for decisionmaking about forestry issues.

2. Diminished trust in forest management agencies and a perception that forest management does not represent the broad public interest.

3. Dissatisfaction with forest management programs and the processes that established those programs.

4. Fragmented administrative, organizational, and disciplinary structures and institutions that diminish the capacity of forestry agencies to be responsive.

5. Concern with the spatial and temporal dimensions of programs, as well as the linkages between different components of the ecosystem.

6. Concern with the lack of agency responsiveness to emerging understanding of ecosystems across space and time, and consequent agency inability to provide people with understanding of the long-term consequences of policy and management decisions.

With this review of history and the nature of the current forest management controversy as background, we now focus on the many values that forests hold for society.

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Defining and Measuring the Values of Forests to People

The public debate about forests in the Pacific Northwest is only part of a wider debate that is occurring at the national and global level. Increasing public concerns with a host of forest values -- commodity, amenity, spiritual -- have elevated this issue on the political agenda, not only in the Pacific Northwest, but at the international level. Headlines in newspapers, such as *The Oregonian, The Wall Street Journal, and The International Tribune,* reflect the growing public concern with forestry and environmental issues.

This growing concern with the environment, from the international to local levels, appears linked to some fundamental structural changes taking place in industrialized societies. Shifts in educational levels, population distribution, and composition and make-up of the labor force all combine to bring increased concern with issues related to the quality of life and other types of personal attitudes, including natural resources and the environment. The development of environmental consciousness and the environmental movement has challenged many traditional political and economic institutions (Steger et al. 1989; Van Liere and Dunlap 1980). More profoundly, these changing value orientations within society have led to changing expectations concerning the management of public lands.

Values About the Environment are Changing Globally

Not only have value changes occurred in the industrialized nations of the west, but increasingly we find evidence of their occurrence around the world. Increased scientific knowledge concerning the ecological consequences of human activities, worldwide communication networks, and the growth of the mass media all contribute to this phenomenon. As Caldwell (1992, p. 64) notes:

> *worldwide communication made possible the spread of information on all issues of universal concern, and threats to the human environment are prominent among them.*

For example, responses from selected nations to a 1992 Gallup International poll ("The Health of the Planet Survey") reflect a high level of citizen awareness of environmental deterioration and support for environmental protection throughout the 22 nations surveyed (table 7-1). Those nations where environmental problems are likely to be seen as serious include both the rich (e.g., the United States, Germany) and the poor (e.g., Mexico, Hungary). Generally, respondents are more likely to rate their nation's environment as worse than that of their local community. Most striking, perhaps, is the clear perception on the part of most respondents that the world environment is in bad condition. With the exception of respondents in India, Turkey, and The Philippines, between 65 to 90 percent rated the world environment as fairly bad or very bad.

There is also specific concern with loss of species and rain forests at the international level. Respondents in most nations reported that such losses were a very serious concern (table 7-2). In all but two nations (Japan and Korea), 45 percent or more of respondents rated the loss of species as very serious. A majority of respondents in 20 of the 22 countries surveyed described the loss of rain forests similarly. Obviously, concern for the environment in general and the loss of species and rain forests specifically is not unique to the ongoing debate regarding forest management in the Pacific Northwest. Moreover, the presence of such global concern suggests that the future of the Pacific Northwest forests is an issue whose resolution is under scrutiny, not only within the region,

but also around the world.

Environmental Attitudes Across America are Changing

In a recent review of trends in American public opinion toward the environment, Dunlap (1991) concludes the following:

- Public environmental concern grew dramatically in the late 1960's, coinciding with other new social movements.

Table 7-1. Rating of environmental quality in local community, nation and the world.

Table 7-2. International concern over loss of animal and plant species and rain forests and jungles.

- After a decline in environmental concern in the 1970's, there has been a significant and steady increase in both public awareness of environmental problems and support for environmental protection efforts.

- By Earth Day 1990, public concern for the environment reached unprecedented levels in the United States.

Support for environmental issues is strong across the country. A 1989 Gallup survey reported that 75 percent of Americans described themselves as environmentalists, 85 percent reported they worry about the loss of natural habitat, and that nearly half (49 percent) had contributed money to an environmental, conservation, or wildlife preservation group (Gallup Report 1989). Although one can argue as to what is meant when people refer to themselves environmentalists or what specific knowledge they possess regarding habitat loss, such figures nonetheless are impressive measures of the status of the environment on the political agenda and are certainly indicative of why resource management agencies find their every step under close scrutiny.

Public attitudes about resource management vary, but not greatly. A recent general population survey of 800 Oregon residents and 1,100 people nationally found no majority support for any commodity-based policies (Steel et al. 1993) Even in a region of mill closures and threats to the timber work force, less than 30 percent of the Oregon sample (25 percent of the national sample) felt *"federal forest management should emphasize timber and lumber products."* There was a consistent pattern of support for environmentally-oriented policies and a similar pattern in the lack of majority support for commodity-based policies (table 7-3). For example, over 75 percent of the national sample called for greater efforts to protect the remaining old growth in the region while slightly more than 50 percent of the Oregon sample concurred.

However, it is also obvious, especially in the Oregon sample, that a diversity of opinion on these issues exists. For example, opinion is evenly divided on the statement, *"the economic vitality of local communities should be given the highest priority when making federal forest decisions."* Support for protecting the environment is torn by the concern with protecting people and while these survey results suggest a fairly strong environmental disposition, in both Oregon and Washington, there also seems to be evidence that policies which propagate an "owls versus jobs" mentality are seen as inappropriate.

A recurring theme in local timber communities is the concern that their future is being decided by an extra-regional majority. The data in this table 7-3 indicates support for this idea; the national sample results consistently support a more pro-environment approach than does the Oregon sample, although the differences are relatively small on some items. When asked to consider trade-offs between economic considerations and environmental conditions (table 7-4), most respondents (both national and Oregon) support a balanced policy position. A priority for economic considerations received little support in either sample.

Table 7-3. National and Oregon support for commodity-based management.

Table 7-4. Economic versus environmental trade-offs: National and Oregon samples compared.

Urban and Rural Residents Differ in Environmental Values

Another aspect of local concerns is that people in the urban areas of the region have little awareness or sensitivity to local concerns and are imposing their values on local residents. As a part of the Steel et al. survey (1993), attitudes of urban residents of Portland, Oregon, and Vancouver, Washington, were contrasted with those from a sample of rural Washington residents (see table 7-5). In general, rural residents are more likely to support commodity-based management of federal forests while those in the urban areas are more likely to support ecosystem-based management. However, a majority of all groups lent support to providing greater protection to fish

such as salmon.

The data in table 7-5 also reveal the diversity of values held, within urban as well as rural areas. Simply put, people in communities -- large or small -- are not all the same. There is a diversity of opinion reflecting a range of values, whether one is examining a metropolitan area or a rural, timber-dependent community. For example, nearly 30 percent of the rural population disagreed with setting aside endangered species laws to preserve timber jobs; conversely, nearly 30 percent of the urban residents agreed with opening some existing wilderness areas for logging. It is particularly interesting that, among rural residents, there is equal support for, and opposition to, greater efforts being made to protect old-growth forests.

Table 7-5. Local community policy preference for federal forest lands.

What Do We Make of These Results?

Interpreting results of public opinion surveys is a problematic, even risky business. Results can swing wildly from one time frame to another, and from one survey to another. For instance, in a telephone survey of people in Oregon, Washington, and northern California (Bennett, Petts & Associates 1993), 60 percent of those surveyed opposed a halt to logging old growth, nearly 50 percent indicated they would be willing to lose no jobs to protect the spotted owl, and about 60 percent indicated they favored changing the Endangered Species Act to require a consideration of economic and social consequences in protecting species.

One can argue about the shortcomings of surveys at length, about the problem of "putting words in people's mouths," about sample selection, question wording, and other methodological shortcomings. These are key issues and need to be examined before data gathered from such surveys are used, particularly in the policymaking process. Such problems make the interpretation of public opinion surveys problematic; as Yankelovich (1991, p. xi) comments in the Preface to his book, *Coming to Public Judgment, "what impresses me most in these years of studying people's feelings is how difficult it is to understand public opinion in all of its shadings and complexity."* In light of this, it is tempting to reject public opinion in policy considerations, dismissing it on the grounds that it is always subject to such variable interpretation that it holds little value. Yet, the world is full of ex-politicians who dismissed public opinion only to regret it later at the polls.

The weight of evidence supports the view that public concern with environmental management in general, and forest management in particular, is significant, it is enduring, and it reflects a willingness and capacity to act. In short, the public is concerned about environmental deterioration and wants to see something done about it (Dunlap 1991). The public opinion reported here reflects one measure of the various voices that seek attention in the policy arena (we will shortly look at some of the other voices which also command attention). Much of this opinion has crystallized around the old-growth forests and endangered species debate in the Pacific Northwest; survey results suggest a strong regional and national commitment to protect what are seen as key values.

There Are Many Kinds of Forest Values

All forest values represent social valuations of the worth and importance of aspects of the forest. Many kinds of values are found in forests. The exchange value of some forest products gives commodity value to them. The use value of places, products, and experiences locates them in human experience. The existence value of places and qualities of the forest invests cultural meanings in forests of a different kind than either use or exchange values. Such spiritual or sacred values are usually central to important cultural institutions and may be viewed as impediments to utilitarian uses.

In a society that values rationality and empirical science, only values that can be empirically measured are most often counted as "real." The paradox is that **those social values for which our ability to define and measure is poorest, are the very ones that appear to be of increasing importance in our society.** For example, the value of old growth as a source of timber can be established in the marketplace; the high quality, clear grade lumber it provides commands premium monetary returns. When we account for the existence values of old growth as the repository of scientific knowledge about forest ecosystems or for the spiritual rejuvenation it brings us, we move beyond the market place and easy ways to express, much less measure, these important social values.

Resolving these conflicts among social values is a political problem and cannot be corrected by simply counting better. It is not a measurement problem. Different kinds of social values relate to fundamental differences in world view. Thus, different institutions in society become the

repository of different world views, associated value orientations, and ethical stances. For this reason, the clash of values plays out in the political arena. Politics is the forum for choosing among values and promoting some values over others. This social assessment begins from these premises and addresses the full range of social values and places them within their institutional, organizational, and social context.

The following typology helps frame and segment the various forms of social values that forests provide:

- **Commodity values** - timber, range, minerals.
- **Amenity values** - life style, scenery, wildlife.
- **Environmental quality values** - air and water quality.
- **Ecological values** - habitat conservation, biodiversity, threatened and endangered species.
- **Public use values** - gathering, subsistence, recreation, tourism.
- **Spiritual values** - sacred places.
- **Health** - medicines.
- **Security** - sense of social continuity and heritage.

These values -- their specific expressions, the processes used to maintain or enhance them, and the constituencies that desire them -- lie at the center of the forest management debate in the Pacific Northwest today. **As these values play out in a world of change -- changing conceptions of resources and importance, changing constituencies, changing distributions of those who pay and those who benefit, and changing institutions -- the conflict escalates, the decisionmaking space shrinks, and risks to people and resources grow.**

Our discussion of forest history clearly reveals that commodity values (timber, forage) have dominated management attention. Today, however, growing public concerns for a host of other values such as clean air and water, biodiversity, wilderness, recreation, and so forth, have led to a fundamental shift to what Hays (1988) has described as "the new environmental forest." In this view, commodities still play an important role, but their relative importance has declined.

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The Options May Lead to Many Consequences for People in Rural Communities

Before presenting results from the community workshops, we first turn to a discussion of the community concept. We also discuss some major global and national forces that hold important implications for the future of rural communities.

The Concept of Community

The relation between communities and forests has long been a concern in forest management. The concept of community stability, for example, has been a central, if not well-defined, focus of public forest policy. Schallau (1990, p. 70) writes *"the specter of more destitute communities -- like those stranded in the Great Lakes states as the lumber barons moved to the South and West -- gave rise to afundarnental tenet of public forest management in the West; namely, the need to achieve community stability.*

Despite the difficulty encountered in defining the notion of community stability, the concept of community remains central to discussions about forest management in general, and specifically with regard to the potential impacts associated with the options under consideration in this report

An unresolved issue in the literature is the lack of consensus on the meaning of the term "community,

particularly as it applies to rural society. According to Fitchen (1991, p. 245) ...(It) *has become less clear what rural really means and what the rural community is* especially to the people of these communities who feel the cumulative effects of many societal changes.

Community in the sociological literature can be organized into three broad categories: community as geographic area, community as local social system, and community as a type of relationship (Society of American Foresters 1989). Three different conceptions of community might seem to present formidable analytical problems, but further examination suggests that each category is useful in its own way for understanding community dynamics and problems found in communities.

Community as Geographic Area

This is the common sense view of community that extends back to Galpin (1918) who delineated community boundaries on the basis of the prevailing direction of ruts created by wagon wheels turning from the door yards of individual residences in the direction of one settlement or another. The geographic dimension of community is important from an economic standpoint, particularly in the case of relatively isolated settlements whose economic fortunes are linked to their physical locations:

> *People in a given locality share a common fate because they reside in a place having unique advantages and disadvantages as sites for capital investment* (Humphrey et al. 1993, p. 152).

Most economic analyses of communities, particularly

those which examine the impacts of resource allocation, plant closing, and economic development activities are geography specific. The limitation of this view is that it only refers to physical or political boundaries and not to the relationships among people who reside within such boundaries.

Community as a Local Social System

This view, similar to that taken by ecologists who study plant and animal communities, *focuses on* the *nature of the* interrelationships and interdependencies *among people* and social institutions. Such interdependencies tend to be more informal, visible, personal, and self conscious among people in small community rural settings than in larger urban centers (Gold 1985). Interrelationships often extend beyond the boundaries of individual towns or settlements, where one community must rely on another to supplement what the other lacks and vice versa. Communities that consider each other when planning for goals and implementing programs can be viewed as a "micro-region. This type of interdependency and cooperation is becoming more important in promoting rural development than the more familiar macro-region. The deliberate fostering of institutional cooperation and interdependence among rural communities can be a key in achieving economic and social stability. Communities possessing such interrelationships also are more likely to develop relations with other micro- regions thereby gaining strength and vitality (Baker 1990). As noted in a recent report by The Wilderness Society (1992, p. 17)

> *individual communities are not well equipped to address the multiple obstacles to economic development and divers~7 cation. Conversely, when small*

communities... begin to work together... important benefits accrue.

Community as a Type of Relationship

This definition is derived from a long standing theme in literature that emphasizes the decline of community in United States society. Wirth (1938) documented that the kinds of close, multi-faceted, and usually lifelong relationships that characterized life in the small towns of the agrarian United States were disappearing with the rise of the industrial age and urbanization. However, Bender (1978) later challenged the community breakdown thesis, arguing that just because communal social relationships were no longer located exclusively or even primarily in small town settings, it did not imply that they were not found in society.

Community as a kind of social relationship that is understood, in part, by studying patterns of social networks is useful because it allows one to further understand the relationship of rural people to each other and to the landscape in which they live.

Forest-Dependence Means Many Things

Forest-dependent communities are defined as immediately adjacent to forests or with a high economic dependence on forest-based industries, such as timber, or tourism-related jobs and services. This definition of forest communities, which recognizes economic relationships of communities to forests, but goes beyond them, is helpful for three reasons.

First, the term "forest-dependence, in the narrow economic sense, suggests that a community's primary relation is to a biological forest, and, as it is commonly

used, the relation is to wood products. Although it is true that forest-dependent communities rely on the biological forest resource, a community's dependence is also a function of its economic and social structure. Within the forest products industry, a community's ability to prosper economically is a function, not only of the biological condition of the forest, but also (1) the extent to which those who control the supply permit commercial timber harvesting, (2) the extent to which those who control wood products jobs create them in or near the community, and (3) the terms for which these jobs become available.

Second, communities can be economically dependent on the forest without any forest- based commodity production (Machlis and Force 1988). There are many communities whose *raison d'etre* is forest tourism or as a retirement locale, and their numbers are increasing.

Third, forest dependence can occur with little or no direct economic relationship to the forest resource. Dependence can be defined in terms of quality of life attributes, such as an unpolluted environment, and as repositories of social meaning, including the provision of opportunities for escape and spiritual rejuvenation. Noneconomic attributes lead to a relation of the community to the forest that is a different type than commonly envisioned in conventional economic terms, but arguably one no less important. The forest, and the clean air, water, and escape it provides, is a vital locational attribute that attracts people to forest communities. In this manner, forests take on symbolic and locality-based importance (Burch nd.; Hester 1985).

External Changes Will Affect Forest-Based Communities

The current dilemma facing forest-based communities is only a subset of the difficult economic, social, and political difficulties facing rural communities across the nation in an era of rapid change. Among such difficulties are those related to the economic implications of the rise of the information age and the globalization of the world economy. Drucker (1986) outlines two aspects of recent global economic change that have important consequences for forest-based communities. Moreover, the specific impacts of these changes will probably vary, given the different conceptions of forest community just discussed.

Economic Uncoupling: Primary Products

The first aspect is termed as the "uncoupling of the primary products economy from the industrial economy. Throughout the industrial era, there has been a theoretically predicted and empirically observed linkage between the production of primary products and outputs in the manufacturing sector. Periods of high (and low) production in manufacturing tended to coincide with similar trends in raw material outputs. In recent years, however, this relation has not prevailed. Prolonged drops in raw material prices no longer reliably predict recession in the manufacturing sector, and periods of economic recovery in the manufacturing sector (largely in urban areas) have not been accompanied by similar recovery in primary production activities (which generally occur in rural areas). This asymmetric phenomenon helps explain the existence of "The Two Faces of Washington (Smith and Barron 1990) and "The Two Oregons (Miller 1990).

Economic Uncoupling: Employment

Another relevant aspect of economic change is the uncoupling of production in the industrial economy

from industrial employment. This is largely a function of industrial mechanization and the growing relative importance of information-based technology in manufacturing to physical and skilled manual labor:

> *Increased manufacturing production in developed countries has actually come to mean decreasing blue-collar employment... Thus it is not the American economy that is becoming deindustrialized'. It is the American Labor force* (Drucker 1986, p. *775-776).*

> This trend is notable in saw mills as mechanization has resulted in fewer employees per unit of output. **Drucker** (1986) suggests that debate on industrial policy that focuses on production versus employment is likely to be a contentious political issue for the balance of the century. Echoes of this issue are clearly heard as debate rages over the future of the Northwest's forests and their role in the rural economy.

Economic Complexity

In addition to Drucker's two concerns, a third aspect of global economic change related to those outlined above is that economic relation and interdependencies are becoming increasingly complex and difficult to understand and manipulate:

> *Resources and commodities extracted by small communities around the gZohe have become increasingly entangled in*

> *international linkages, leading to changes in prices and technologies that may be outside the control of even the most powe Jul of corporations and insightful of communities (Gramling and Freudenburg* 1990, p. 555).

A practical manifestation of this is that it is increasingly difficult to gauge specific economic or employment benefits particularly for a specific local area of harvesting a particular stand of trees, or to separate the economic role of the local timber worker from other actors in the economic chain of events involved in producing a "2-x-4."

Implications of Economic Changes

Although these economic trends are complex and multi-faceted, their practical implications for resource-based rural communities are evident:

> *The rural economic crisis of the 1980's sharpened public awareness of the turn in fortunes of rural America. Conditions have turned seriously worse in rural America. Rural Americans now have lower incomes, fewer job opportunities, higher unemployment rates, and are more apt to live in poverty. And things are getting worse* (Wade and Pulver 1991)**.**

Although the rural areas that were historically founded on extraction and primary production of natural resource commodities play a vital role in the life support system for an increasingly urbanized-suburbanized consuming society, their place in the larger economy has become more uncertain and

marginalized in recent years.

Green Politics and Forest-Based Communities

A related set of developments center around the reasons for, and consequences of, the rise of environmentalism as a global political force (Buttel et al. 1990; Buttel 1992; Buttel and Taylor 1992). The argument is that environmentalism has arisen in the western countries not simply because of increased public concern about the environment, but more fundamentally because of changes in political coalitions resulting from the decline of labor as a political force. The decline of labor in response to mechanization has led to a political vacuum filled by new social movements such as the peace movement, the

women's movement, and the environmental movement. Although environmentalism and other movements have, in one sense, replaced the labor movement, their composition is different than that of the old labor coalition and they are frequently at odds with labor. This has been particularly true in the case of rural labor.

Buttel (1992) applauds the rise of environmentalism as a political force in the nation and the world. However, he also expresses concerns about the current lack of a strong social justice element in the "green agenda" and the tendency to frame environmental issues in a technocratic manner, pushing aside such questions as, "Which groups (and indeed, nations) pay disproportionate costs of environmental protection?"

Buttel also expresses concern about a potential impact of environmentalism that he terms the "environmental symbolization" of rural spaces. The author poses some

related questions that are central to the present chapter:

> *What, then, will be the future of rural America if it becomes defined in strong symbolic terms as forest sites or prospective forest acreage needed to curb the greenhouse effect, as pristine ecosystems to ensure clean water for urban use, and as more desirable to the degree that fewer people are there to pollute, disrupt natural habitats and the like? Will we, in other words, witness a further erosion of commitment to improving the livelihoods of the rural poor and to rural development? Can we think meaningfully of "sustainable development" in nonmetropolitan contexts of the advanced countries (Buttel 1992, p. 23)?*

The spotted owl and ancient forest controversy frequently is portrayed as a "people versus the environment" question. There is a need to get beyond this dichotomy and to craft a solution that addresses both environmental protection and social justice. The welfare of forest based communities is clearly an important element of this equation.

Clearly, rural forest based communities are faced with major political and economic change at the national and global level. Communities in the owl region will be faced with these impacts even in the absence of the current crisis. The juxtaposition of these larger forces of change with the current crisis present a particularly challenging set of circumstances for many forest communities.

The Growth and Diversification of Rural Forest Based Communities

The services and development that result from having to deal with in migration of new people into rural regions (e.g., retirees, inhabitants of bedroom communities, tourist services) generally are seen as advantageous for communities. Geographically remote communities tend to be less able to cope with rapid immigration because they lack access to many urban services. However, research indicates that many long-term rural residents (including those who espouse environmentally conscious and low energy .use lifestyles) see themselves as apart from the dominant urban culture of their societies (Brandenburg and Carroll work in process; Bell 1992). Indeed, it is the very lack of infrastructure and the ability to attract outsiders that often contribute to the sense of place and perceived quality of life such communities provide. The lack of diversity (industrial as well as cultural), especially for traditional rural residents, contributes to the social cohesion found in many isolated rural communities (Gold, 1985). Although such conditions may not contribute to adaptability as defined by economic development specialists, they are valued by many rural people.

The Composition of Forest Communities

Although the need for economic growth, diversification of industry, and financial viability seem obvious for many communities, less is said about the importance of sociocultural distinction and cultural continuity. Not all groups within communities either welcome or can readily cope with rapid economic and social changes that some policy commentators view as necessary "adaptation" by forest-based communities. This section attempts to summarize research results from the region that document the existence of, and circumstances faced by, community groups and individuals within communities that might be missed if one focuses exclusively on the community level.

Research conducted on the social impact of timber harvest reductions in Washington State (Lee et al. 1991) attempted to reveal how decisions to reduce timber-harvest levels would affect the lives of residents in selected communities in the spotted owl region of Washington. The following paragraphs summarize the results.

Loggers

Impacts of the crisis on loggers was reasonably well anticipated because of prior research on this group (Hayner 1945; Carroll 1984, 1989; Carroll and Lee 1990). Prior work suggested that loggers in the Pacific coast region constitute an occupational community characterized by a strongly felt occupational identity and a generally high degree of commitment to the occupation.

The interviews revealed patterns of occupational community dynamics among loggers strikingly parallel to those identified in previous research. The following comment by a logger captures a common sentiment:

> *Most all my friends are loggers. I have a lot of respect for other loggers because I know what they do. It comes out of really knowing the hard work and the danger that they face. Besides, a logger is someone you can really count on anytime, for anything.*

Field interviews revealed a heightened self conscious identification with the occupation in response to the crisis. Accompanying this, interviews revealed a ground swell of anger at those whom loggers view as threatening their way of life. One observer noted that most loggers had, until recently, spent their lives believing that if they worked hard, their families would be provided for. Now it seemed that the rules had changed with little notice and disastrous consequences. Another interviewee echoed the same theme:

> *I worry about my kids. What are they learning from this? I have always taught them to work hard and be honest, yet now they see me suffering despite the fact that I have worked hard my*

whole life. It has to make
them cynical to watch
what is happening to me.

Sawmill Workers

Unlike logging, the work carried out by most sawmill employees tends to be repetitive and routinized. The ability to complete a specified task consistently and efficiently is valued over independence and creativity. The work environment tends to be closely controlled. Due, in part, to these circumstances, there is a stronger tradition of unionization in the sawmills and more worker-management conflict than found in other sectors of the forest products industry in the region.

Interviews suggest that occupational identities of the sawmill workers, and the importance placed on the occupation as a life interest, tend to be different than is the case for loggers. Sawmill workers are as likely to identify with organized labor as with sawmill occupations *per se*. Still, many express concern and resentment at the possibility of being forced from their occupation with few viable options, although they would be happy enough to take equivalent employment if such was available in their community. Most expressed serious reservations about the disruptive consequences for themselves and their families if they are forced to relocate to an urban area. In addition, most expressed a strong attachment to small town life, citing its advantages for raising children and its personalized atmosphere.

Shake and Shingle Workers

Another relevant stakeholder group is comprised of people in the shake and shingle industry. These typically are workers employed in independent, often

family run mills. Those interviewed for the impact study tended to express less commitment to their occupation than did loggers, but revealed strong attachment to their homes and family-friendship networks. Many stated that moving would be the last thing they would do if they lost their jobs, because at such a stressful time, their support network would be critical.

Women

The interviews revealed that women play a complex variety of roles in the communities. The roles vary from head sawyer in a sawmill, shingle worker, and small business owner to logger's spouse. Most women interviewed had jobs outside the home and primary responsibility for housekeeping, household financial management, and child care. Most cited financial need as the primary reason for working outside the home.

The complex situation with respect to women in forest communities prompted additional data collection and analysis (Warren 1992). This revealed a perception on the part of women that they absorb a lion's share of the stress resulting from proposed harvest reductions, stress that is centered around possible job losses and on the resulting emotional and economic strain on families. Specific reasons for their perceptions range from tension resulting from changes in long routinized activities, to the stress of moving away from extended families, to fears concerning their husband's ability to adapt to other kinds of work. Women also expressed concerns related to their own ability to hold up in the face of family financial crises and demands for emotional support from husbands and children.

Ethnic Groups

The diversity of voices among rural communities also can be described by the variety of ethnic groups that live in communities near forests or that migrate into the area at the time of harvest dependent on particular forest products. Although the Native American voice is being listened to more recently, Latinos, African Americans, and Asian Americans represent an often unrecognized rural population. When various minority experiences are represented and listened to, we will have at least the tools to begin to construct an account of the world sensitive to the realities of race and gender as well as class. Unfortunately, we possess only a limited understanding of ethnic populations in rural areas and how the management options might affect their lives and cultures.

Others in the Community

People in this category are, for the most part, proprietors or employees of small independent businesses such as grocery, drug and hardware stores, restaurants, and service stations. They tend to be committed to small-town life and often work hard to promote the image and well-being of the "town" as the center of the local lifestyle. Local business people tend to comprise the political leadership of communities and are usually at the core of any locally based economic diversification efforts. Such people often have invested their life savings in local enterprises and their fortunes have tended to rise and fall with those of the timber industry in the immediate area. It should be noted, however, that the interests of local business people can be different than those of timber workers. Business people tend to value an environment of economic stability for their enterprises and thus are often at odds with forest products people over the issue of economic diversification. An example is the following comment:

As a community member, and especially as a business person, I am under a tremendous amount of pressure to 'take sides; [in the Spotted Owl controversy] to commiserate for people here constantly about the situation. Don't get me wrong, I am concerned for them and for the community, but I think 1 am personally going to make it. My future is bright here in town regardless of downturns in the timber industry.

In many rural communities, recent immigrants who bring recreational and environmental values and lifestyles, are distinctively different--in their dress, behavior, and attitudes-- from **traditional** residents. In addition, many rural communities have a **back-to-the-land** population: immigrants of the 1970's and those who seek out lowenergy lifestyles. These residents tend to espouse environmentally conscious lifestyle choices and counter-culture values. Still they appear to be more accepted by the traditional rural residents than recent, ex-urban **new-comers**, in part because the back to the landers tend to express respect for the traditionally rural ways of life.

The **back-to-the-landers** often make all or part of their living from the land in roles that range from organic orchardist to tree planter. They tend to be conservative in energy use and typically do not

demand increased government services and amenities. In contrast, the newer rural immigrants, who bring an urban lifestyle with them, tend to place less value on traditional ways. They might make a living through a direct link to urban sources, by means of computer modems and fax machines. They tend to use more consumer goods and energy, and believe more strongly than the back-to-the-landers that traditional practices are destructive to the environment. This view appears to be a result of why the newcomers are moving to rural areas: not to get back to the land, but rather to get away from what they perceive as the poor environments of the urban suburban areas. One "ex-urb" now living in rural southwest Washington stated:

> *I moved here just last year to get away from the suffocating environment of the city. Living in an awful suburb would make anyone want to save the little pieces of healthy environment that we have left. It just makes me so mad when I see the rivers and forests around here wing converted into industrial landscapes Enough is enough!*

Preliminary research in rural communities in northwest Oregon and southwest Washington indicate that accelerated social change has broadened the traditional value base and symbolic meaning that residents apply to their social community and their relation to the ecological communities around them. However, the findings indicate there is an important difference between general attitudes concerning the

forest (use, preservation, etc) that are often created by political dynamics and adherence to occupational and social community norms, and those expressed when a person or group has an attachment to a particular place. As one respondent stated:

> *I don't like what I am seeing and feeling (when I think of the future). We once were seen as good workers, of stewards of the land, and in a few years our town has lost just about everything that I have cared about People talk about adaptation but there are some tough times coming on. We have an unemployment rate like the inner city, and there are no new jobs coming in.*

In the on-going sociological debate over rural-urban differences, rural social conflict over natural resources is often attributed to environmental attitudes of new residents from urban areas. An alternative hypothesis is that in some instances, new residents should provide not new attitudes, but a new voice for attitudes already held by many local residents (Fortman and Kusel, 1990). However, when outside political pressure threatens the livelihood of working class people in communities, and when the dominant urban culture shows little respect or tolerance for the rural cultural heritage, there is often clear community resistance to social change, including that relating to the expression of environmental values. The perception of a community being under attack seems to limit the

prospects for community development, economic diversification, landuse planning and the like. Under such circumstances, actions that are intended to ward off outside influence or make the community unattractive to outsiders are often apparent.

A related pattern is that job loss attributable to political decisions "from above" (e.g., resulting environmental restrictions, endangered species rulings, timber sale appeals) tends to generate angry individual and group responses, and often contributes to a sense of political alienation. There appears to be two primary reasons for this: (1) a sense that, unlike economic fluctuations that are seen as uncontrollable, such decisions are viewed as choice based and preventable; and (2) that local interests have little voice in such decisions.

Interviews indicated that resistance to this social change by certain groups influences the creation of, and adherence to, traditions and the subsequent development of social groups and the acceptance or disapproval of other groups. Therefore, **the once singular rural community seems now more than ever to contain a plethora of communities often within the same geographic locality.** Awareness of this is important in understanding the impacts of the current political log jam and specifically the way the local social fabric has been torn by natural resource disputes in the Spotted Owl region.

Summary: Rural Communities are Complex

One clear message emerges from the preceding discussion: any attempt to characterize rural timber or

forest communities on the basis of one or two sociological dimensions ignores much of the richness, complexity, and-- under the present circumstances-- human suffering found in such places. Any one rating of the impact of forest management scenarios on a community can mask the different impacts on groups and individuals within the community.

If one focuses on those groups and individuals most directly affected negatively by the issue, it is apparent that even in communities near urban centers, some occupational groups and their families have felt profound impacts. Economic dislocation is not made easier by the fact that one's neighbors are prospering. In some locales, social service providers are overloaded as the number of displaced workers has increased dramatically. There are increasing reports of social service providers experiencing overwhelming stress and burn-out. These problems will likely increase as timber supplies decline (whether federal, state, or private).

The ability of occupational and cultural groups to cope with dramatic change is complicated by a number of factors. Among these are occupational and cultural identities, attachment to rural life, attachment to place, age, formal education levels, and absence of available jobs similar in skills required, location, and compensation rates.

It is difficult to overstate the potential long-term effects of this conflict and its eventual resolution on civic relation in the region, and, in particular, on rural community governance. It seems essential that any decision take into account the interests and desires of all stakeholder groups, not the least of which are those who stand to pay the highest immediate personal costs. The long-term ability of people in this region to

successfully work together to solve problems depends in part on the outcome of this dispute.

There is concern that consequences of the management options will fall particularly heavy on rural communities in the owl region. Such concern underlies the first principle identified by the President at the Forest Conference as a guide for future efforts: we must never forget the human and economic dimensions of these problems. Some argue there is a reciprocal relationship between communities and forests as well. Testimony at the Forest Conference by Professor Robert Lee from the University of Washington reflects this:

> *...the security that people have in their community, in their families, in the tenure relationships they have, and that their children feel about their futures are key to healthy forests.*

Problems of Transition in Rural Communities

> *It isn't the changes that do you in, it's the transitions. Change is not the same as transition. Change is situational. the new site, the new boss, the new team roles, the new policy. Transition is the psychological process*

> *people go through to come to terms with the new situation. Change is external, transition is internal. (Bridges 1991, p. 3)*

Rural communities can experience considerable difficulty in adapting to altered socioeconomic conditions, particularly when they involve a fundamental transition in the direction or rate of change (Little and Krannich 1989). For example, social disruptions have been documented in rural communities suddenly confronted by extremely high rates of economic and demographic expansion resulting from large-scale industrial development associated with natural resource extraction or processing (Greider et al. 1991; Krannich and Cramer 1993). Similarly, periods of transition involving sharp economic and demographic decline, such as occurred in many United States agricultural communities during the mid-1980's, have been shown to substantially affect the well-being of rural residents and have important ramifications for broader community social structures (Bultena et al. 1986; Fitchen 1991).

One reason for the difficulties encountered by rural communities confronting major socioeconomic shifts involves their relatively limited structural diversity (Wilkinson 1991). In most rural places, the array of both formal and informal social structures is limited, because of low population numbers and increased tendencies for residents to secure services outside the local community (Wilkinson 1991; Little and Krannich 1989). Local infrastructure, including the number and capacity of local government offices or other formal organizational structures, is fairly limited. As a result, local residents suffer from constrained

access to facilities and services that might help them cope with changes.

These conditions are especially problematic in rural communities affected by economic or demographic fluctuation and instability. The cumulative effects of sustained instability and associated cycles of socioeconomic transition limit the capability of the local community to even react to problems associated with either growth or decline, let alone to act in any organized, proactive manner (Krannich and Luloff 1991; Tilley 1973). This occurs for several reasons. First, residents accustomed to a long-term pattern of cyclical expansion and decline may see little use in mobilizing local efforts to address economic or demographic changes, because past experience suggests that such changes are likely transitory (Carroll 1984). Such experiences can cause rural residents to deny the possibility that things won't get any better, thereby impeding both individual and collective adaptation.

Second, rural residents are often aware of their vulnerability to economic and political forces over which they exert little control. This awareness contributes to a sense of powerlessness that discourages involvement in community development efforts and restricts local capacities.

Third, periods of in-migration or out migration can contribute to the emergence of a "rootless" population, with limited attachments or commitments to the local community. Under such circumstances, residents find it difficult to think seriously about, or commit efforts to the community's future.

Fourth, the draining of human capital during periods of out-migration can reduce the number of locals

capable of addressing the problems of community change and transition. Out-migration has left many rural communities with a scarcity of those capable and willing to devote an effort to effectively organize local development and selfhelp efforts. Such deficiencies in human capital are also exacerbated by a process of overadaptation to resource-based economies. For example, there is a tendency for residents to deemphasize the value and importance of education in the face of high-wage employment opportunities in some extractive industries (Freudenburg 1992).

Periods of transition do not always result in severe social disruption, and in many instances, the disruptive consequences of instability and rapid change are temporary (Krannich and Cramer 1993). The magnitude of socio-economic change and the extent to which changes are permanent or of short duration appear important in accounting for community outcomes. Research suggests that in cases where a period of sharp growth or decline is followed by a return to relatively "normal" baseline conditions, social problems and indicators of disruption are attenuated (Krannich and Cramer 1993). In cases where a transition to modified social and economic conditions is sustained but gradual, some communities have demonstrated considerable resilience, in part because such conditions allow more time for both individual adaptation and the emergence of collective response capabilities.

Transition in the Context of Timber-Dependent Communities

In many ways, the transitions that have confronted timber-dependent communities over the past decades

mirror those outlined above. Cyclical episodes of stability and decline have been commonplace, although increasingly have occurred within the context of sustained economic and demographic decline that is associated with reduced labor force requirements which result from changes in technologies.

However, the circumstances associated with possible changes in management of oldgrowth forests substantially alter the nature and pace of transitions confronting some rural communities of the Northwest. A decision to eliminate or sharply reduce timber harvest from federal lands would not only cause a sharp downturn in some communities, but would cause a permanent rather than transitory shift in the social and economic context.

Broad Effects of The Forest Issue

Effects of the issue extend beyond those whose jobs and financial well being are at stake. The manner and the prolonged time over which the issue has played out has served to create and exacerbate internal and external community conflict. In many timber. communities, there is a sense that the urban majority is making decisions which will destroy the rural way of life. Describing sentiments encountered in his social impact work, Carroll (1992) wrote:

> *Perhaps the most important general observation... is the fact that the Spotted Owl controversy is widely perceived in the communities... as fundamentally a clash of*

> *urban and traditional rural cultures in which the latter are being overwhelmed and devalued by the former. The Owl is seen as a stalking horse furthering the interests of environmental groups at the expense of people whose lives and livelihoods depend on harvesting and processing trees. This has led, for many, to a profound sense of anger and betrayal...*

This clash of values and cultures is typical when urban migrants move into rural communities. Rural sociology has its roots in studies of farming communities during the 1960's (Field and Burch 1988). Brown, reporting on a study in southern Oregon, found:

> *Several of my interview subjects complained about the comments popular among the newcomers... Casual jokes about how backward and reactionary the locals are can be heard in any crowd of non-locals. I heard a typical one just the other day when a friend said she just didn't want to go to a meeting*

where she had to "hear the yokels yammering away about jobs" (1991, p. 13).

Clearly the conflict has torn the fabric of governance and civility in the owl region and diverted energy that might have been spent solving other problems. If there is one conclusion on which virtually all sides in the controversy agree, it is that the **current gridlock and conflict is far too costly in both environmental and human terms to be allowed to continue.**

Objectives for Community Assessment

Previous task force reports (e.g., Thomas et al. 1990; Johnson et al. 1991) provide some discussion about community effects, but generally only at an abstract, nongeographically specific level. As a result, it is difficult to distinguish patterns and differences in community effects and to fashion appropriately responsive public policies in light of these patterns and differences.

One major task of the social assessment is to provide a more geographically specific linkage between option consequences and these communities. It is recognized at the outset that these consequences may be either positive, negative, or a mixture. Even where the consequences are positive, certain groups within the community may be disadvantaged. It is our belief that we need a more discriminating examination of community consequences so that more useful and responsive public policy can be formulated. We also need to discriminate between changes induced by federal forest policy and those stemming from broader society-wide level effects; again, this knowledge

should enable more informed policyrnaking.

Specific objectives of the community assessment are as follows:

1. To develop a rich understanding of the region's forest-based communities with a particular emphasis on their capacity to successfully cope (or not cope) with shifts in forest management and other externally based change.

2. To assess the likely community impacts of a range of possible forest management options.

3. To discuss appropriate policy considerations and responses in light of the likely community impacts.

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What We Learned about Rural Communities

This section summarizes findings from two workshops held to examine the effects of the options on rural communities. Because time limitations constrained our analysis, these results should be considered as interim conclusions or propositions. These findings are a foundation upon which management implications and further assessments can be devised, and provide policy-makers and others with an understanding of the range of effects the options have on rural, forest-dependent communities in the region.

Key Conclusions

This community assessment differs from past impact assessment efforts. First, the definition of community and of community-forest linkages is based on social theory and economics. Previous efforts have focused more on the latter. This approach requires that we rely on a broad set of data.

Second, this assessment moves beyond the county to focus on communities. Communities are an appropriate level to examine the effects of changes in forest management policy because they are social units rather than statistical categories or administrative units. More importantly, their features and functioning have strong influence on the kinds of consequences felt by community members.

Third, this assessment strives to recognize that all social systems are human inventions with some important subtleties. Rather than focus on one data set, one definition of impact or risk, or one level of analysis, this assessment has employed several of each. Such an approach helps provide a rich foundation for policy formulation.

The assessment does not provide an evaluation of alt communities in the owl region, nor is it designed to provide state or subregional characterizations of conditions. The selection and total number of communities assessed was constrained both by time limitations and the site-specific knowledge of panelists. The assessment does provide a framework for estimating the range of impacts and for implementing a more comprehensive assessment.

A sudden drop in harvest levels creates more than an economic shock or the sudden loss of jobs. It creates a social shock that can reduce the ability of a community to respond to economic change. Persistent poverty, increased commuting, emigration of community members, the breaking up of family and community support networks, changes in leadership, low morale, uncertainty, heightened conflict among groups within communities, deep cuts in school budgets are all factors that result from shifts in forest policies if community needs are not addressed.

Panelists felt that community capacity (that is, the ability to adapt to internal and external forces) was a critical factor in determining how a community would be affected by changes in harvest levels. Conversely, they also felt that changes in forest management can directly affect the capacity of a community.

The interaction of capacity and consequences (the outcomes of management decisions) is critical to understanding communities and their relative ability to adapt to forest management options. Capacity and consequence ratings can be used to develop characterizations of community types based on the relationship of capacity, consequences, and sensitivity to differences among the options. This relationship offers an approach that

allows analysts to identify communities that are both negatively affected by a range of shifts in management and less able to respond to these shifts. In turn, this multidimensional approach can be used to identify communities "most at risk." For example, of the communities assessed, about one-third would be "most at risk" if Option 1 were selected.

The kinds of technical, economic, and social policies that accompany ecosystem management will be critical factors in determining the consequences for communities. Management programs that include provisions to increase skilled work in the forests, provide capital for diversification, reformulate the tax basis for school budgets, foster locally owned businesses, and provide technical assistance for community improvement efforts can act to bolster the capacity of communities.

The role of capacity in mediating the consequences to communities is a key finding because it points to where policy can be most effective. Polices that improve capacity not only help communities meet their present needs in the face of declining timber yields, but also promote the community's ability to pursue development that is appropriate to their locale and culture..

The Workshops

About 300 rural communities in the owl region are affected in some way by the forest management issues in the Pacific Northwest. To better understand the effects and possibilities the options might have on or offer these communities, we conducted a survey of state extension agents familiar with individual forest communities and conducted two workshops with panelists familiar with local communities and conditions.

More than 50 people participated in the two workshops, each session lasting for one and one-half days. Both workshops were held in Portland, Oregon, and all panelists were employed by or funded through public bodies; state or local government, school districts, etc.

Workshop one was designed to measure the ability of rural communities to adapt in their response to changes in forest management. It also led to discussion and rating of community success--a measure of the ability of communities to meet the needs of its residents and achieve goals. Information from this workshop allowed us to fashion a preliminary understanding of the state and regional patterns and how they would be affected by changes in forest management. At the time of workshop one, sufficient detail about the options was not available, so we used three scenarios to represent a range of timber harvest levels: a "no harvest" scenario, a "current harvest" scenario, and the 1985-87 harvest level (this period was picked as representing a "mid-point" in recent years). Workshop one helped identify key questions about possible community effects and possible mitigation measures.

The second workshop was similar to the first. The primary goal was to estimate consequences (positive, negative, and a mixture of both) from the options that might affect communities and to assess their capacity to adapt in response to these consequences. Panelists were asked to identify factors that predisposed communities to lower capacity and more negative consequences, as well as higher capacity and positive consequences. This allowed us to assess how and why certain communities might respond to changes in federal forest management. Additional information on the options was available at the time of the second workshop; however, due to time limitations and the complexity of the options, we asked panelists to evaluate only Options 1, 3, and 7 as well as a 1985-87 management scenario.

Workshop panelists were provided with census information, the results from the state extension survey, and, for the second workshop, the results from workshop one for their respective states.

The evaluations provided by the panelists were confined to the individual states; that is, they did not participate in any exercise designed to

provide cross-state comparisons. Differences in the backgrounds of participants representing the three states and differing assumptions made by participants during the course of the workshops require that any inter-state comparisons be made with caution.

The workshops were the primary means by which we arrive at conclusions tied specifically to the region and its communities. Data on which these conclusions are based include both quantitative information (for example, ratings for capacity or consequences, census, or other secondary information about subjects such as public assistance) and qualitative information gleaned from discussion with panelists. We also base our evaluation on relevant information and concepts contained in the literature and derived from extensive discussions with several community sociologists.

As described above, workshop one focused on the concepts of adaptability and success; communities were rated on a seven-point scale (from very high to very low) on these dimensions. In examining the relationship among these measures and those of capacity and consequences, obtained in workshop two, we found very similar results. Because of this similarity, and to streamline the discussion of community effects, the following discussion of community effects focuses on the results from workshop two. Results of workshop one regarding success and adaptability, are presented in Appendix VII-C.

The Concepts

Community Consequences

The concept of "consequences" is used as a measure of community outcomes from federal forest management. Panelists were asked to rate the likely consequences of the options within one to three years with a single measure ranging from very positive to very negative (one, very low; seven, very high). Because of infrequent use of "very low" and "very high" the seven point scale was collapsed in subsequent analyses to a fivepoint scale with the extremes being termed "low" and "high". The consequence measure often contains a mix of positive and negative effects. For example, a community considered to have moderately positive consequences from an option is likely to have some negative consequences as well (and the converse, a community with moderately negative consequences would likely have some positive consequences). An "even" rating contains a balance of positive and negative consequences.

Consequences considered by the panelists included the degree to which forest management influenced the ability of local residents to have their needs and expectations satisfied by community conditions and opportunities; how well basic income and sustenance needs were addressed; the relative adequacy of facilities, services, and infrastructure (both public and private sector); the needs for association, affiliation, and social integration (for example, array of organizations and institutions for expression of interests, provision of emotional support, and so forth) and whether employment and income generation opportunities were adequate. Throughout the rating process, panelists discussed a number of other consequences which enriched overall understanding of the effects of the options on communities.

Community Capacity

Community capacity involves the ability of residents, and community institutions, organizations, and leadership--formal and informal--to meet local needs and expectations. Processes and structures are important components of community capacity; they assist or restrict residents' abilities to respond to changing conditions and internal or external limiting factors. Community capacity involves a wide variety of factors that can be divided into three broad areas: (1) physical and financial infrastructure, (2) human capital, and (3) civic responsiveness.

Physical infrastructure includes water and sewer systems, business and industrial parks, roads and proximity to larger urban areas, transportation corridors and financial capital. Economic size and diversity of businesses are also associated with physical infrastructure. Related to economic size and diversity is access to public and private timber, the ability to process it locally, and the presence or absence of local wood remanufacturing capabilities. Community capacity is related to structural and spatial characteristics, and varies in reasonably predictable patterns. For example, communities with the best access to transportation, markets, raw materials, and that have the greatest economic diversification tend, on balance, to have the greatest capacity.

Human capital includes skills, experience, and educational levels of individuals in a community. It includes the occupational skills in which community members will be economically competitive. Understanding human capital offers policy-makers insight into those areas where community members might be politically effective.

Civic responsiveness involves the reciprocal and interdependent relationship between individuals and their community. Communities are composed of and sustained by individuals, and individuals are shaped by their communities. Implicit in civic responsiveness is the idea that a collective good is worth pursuing. The capacity of individuals to develop may differ from actions directed toward community development and collective response to external or internal change. Civic responsiveness encompasses actions that include responsibility to relationships in a community. Leadership, formal and informal, and institutional infrastructure are included in this category insofar as they are directed toward community and not solely toward individual benefit. The presence of energetic, active, inclusive leadership, well-connected with community assistance agencies, leads to higher capacity. Such leadership varies widely across communities and suffers in communities with divisive politics.

Communities with lower capacity have reduced ability to maintain community relationships and improve well-being. These same communities are less resilient, and have reduced ability to contend with changes of any sort. A community's capacity is only as high as its physical infrastructure, human capital, and most importantly the manner in which residents and groups devote energy to community issues.

This assessment is based generally on the community capacity approach discussed by Kusel and Fortmann (1991) in their study of forest communities in California and also links to the human ecological work of Wilkinson (1991). The factors of physical and financial infrastructure, human capital, and civic responsiveness parallel those discussed by Flora and Flora (1993) who stress that they are vital components of rural communities, and that they are used to assess the ability of local people to grapple with problems they face in the short and long term. This approach is similar to a needs assessment that, as Mueller and Burdge (1993, p. 1 and p. 12) point out, is undertaken to evaluate "*changes in the society and how society provides for the needs of its citizens" and to "provide a framework for a new way of looking at rural social issues*."

Community capacity assists in understanding the implications of federal timber harvest policy.

Assessing community capacity involves evaluating community processes and structures, including: local response to internal and external stresses or problems; how individuals and the community are able to take advantage of existing opportunities and create new ones; the ability of residents and community leadership to retain a variety of social groups and processes; how well issues of concern to majority and minority groups are addressed and balanced; local conflict resolution skills; local access to capital; and local control over resources and local influence over resource management.

Panelists were asked to rate community capacity on a seven-point scale (very low, low, moderately low, medium, moderately high, high, and very high). Similar to the measure of consequences, because of infrequent use of very low and very high (for example, California panelists did not use them at all), the seven-point scale was collapsed to a fivepoint scale ranging from low to high.

Community capacity is one focus for this social assessment because it is closely related to the ability of a community to respond to changing forest management. Forest management decisions made by the federal government and others (local and absentee) affect the well-being of residents in forest dependent communities. The capacity of a community can be reduced by forest management decisions that do not take into account local needs nor involve local residents.

This relationship between forest management and community capacity is also affected by a variety of intervening variables (for example, different land ownership, local production facilities and their degree of modernization). It is also important to note that improving the ability of a community to respond to and influence decisions made beyond community boundaries is another way to improve capacity and well-being of forest communities

Overall Findings

The environments, economies, and cultural traditions of rural communities in America are extraordinarily diverse. They nevertheless share some characteristics, notably their isolation, size, and strong ties to natural resources. Although tradition and homogeneity have often been associated with rural life, change and diversity have also long been part of the rural experience, particularly as new federal policies and global market forces emerge. Panelists at our workshops spoke of these factors and their consequences in rural communities in the northern spotted owl region of the Pacific Northwest.

The panelists discussed the erosion of autonomy, identity, and pride that, for some communities and occupational groups, have depended on forest management. They listed examples of economic difficulty: business closures, worker dislocation, underemployment, and new poverty. They were troubled by some of the land management practices reported in recent years, including panic cutting, cut and run corporations, and inadequate reforestation. They also cited concern with what they saw as arbitrary and excessively restrictive environmental controls.

Although community conflict and social disruption were common themes, there was also talk of communities that had "turned the corner" and were making various transitions into new futures. These perceptions--both the pessimistically bleak and the optimistically hopeful--are entirely consistent with our general understanding of rural communities and the complex and varied ways they respond to changes in the world around them.

Although the management of forest resources affect communities and individuals in a variety of ways, the most significant economic ties to forest resources in the region are through the timber industry and the harvest and processing of timber. The three states differ in the size of the timber industry as a proportion of the economy, the structure and distribution of tax receipts to county and local government, and the distribution of federal and private timberland ownership. As an example, we find that in the early 1970's, employment in the timber industry in the owl region in Washington was about six percent of total employment, while in Oregon it was nearly 12 percent and in California, 31 percent. By the 1985-1989 period, its relative importance had declined in all three regions by virtually 50 percent (three, seven, and 15 percent, respectively). California panelists indicated that regional decline in forest employment has been accompanied by significant restructuring in the forest products industry, away from older large log mills to more capital intensive small log mills. Such variability contributes to differing consequences associated with the options among the states and sub-regions.

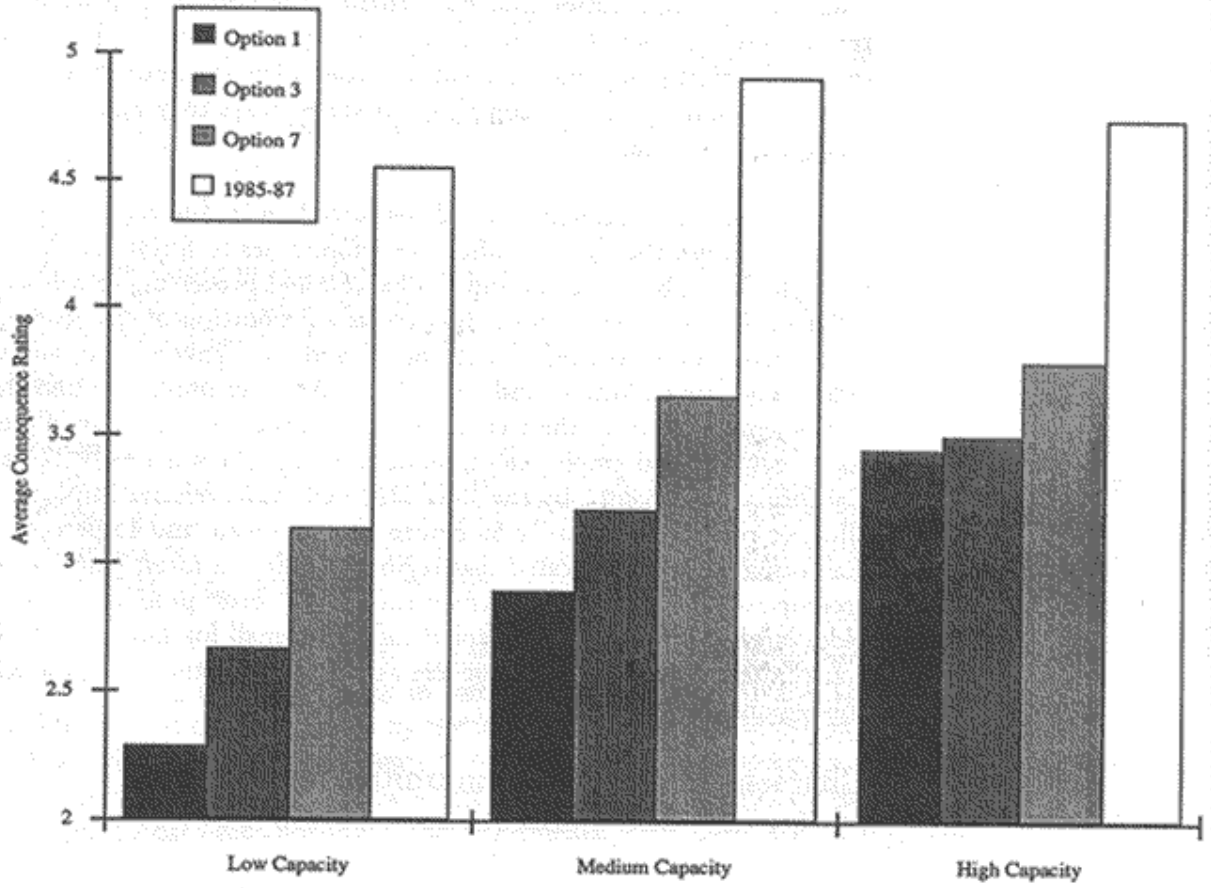
Characterization of Communities by Patterns of Capacity and Consequence

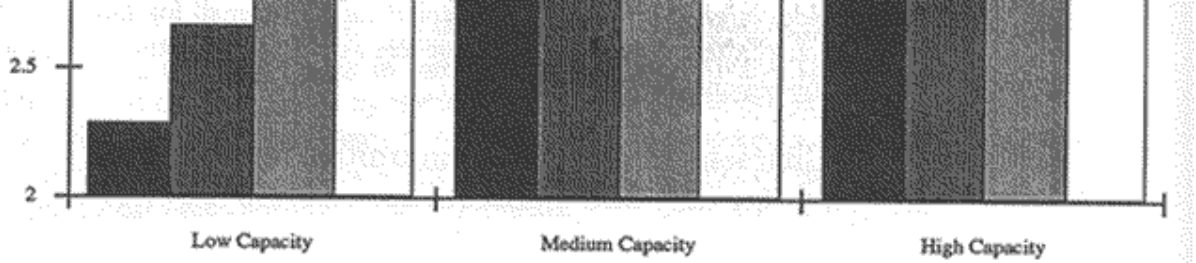
Consequence ratings for the options for high capacity communities tend to be close to the midpoint of the scale (even mix of effects) and ratings for each option are close to one another, while ratings for low capacity communities tend to be concentrated more toward the negative end of the consequence scale (See fig. 7-1). Consequence ratings for low capacity communities for the options also vary more from one another, reinforcing the notion of these communities' greater reliance on federal timber. Using Option 1 as an example, 82 percent of communities with medium low and low capacities have moderately negative to negative consequences; only 46 percent of communities with medium high or high capacities have moderately negative consequences or worse.

The Capacity-Consequence Relationship

Capacity as a measure of a community's ability to, respond and adapt to change can be used with measures of consequences to characterize communities both by effects of the options and the communities relative ability to respond to the option. The relationship of capacity and consequences for the assessed communities is shown in table 7-6 for each option and the 1985-87 scenario.' The individual table for each option can be divided into quadrants representing communities with: (1) low capacity and positive consequences; (2) high capacity and positive consequences; (3) high capacity and negative consequences; and (4) low capacity and negative consequences.

Figure VII-1. Consequence ratings by option by capacity category.



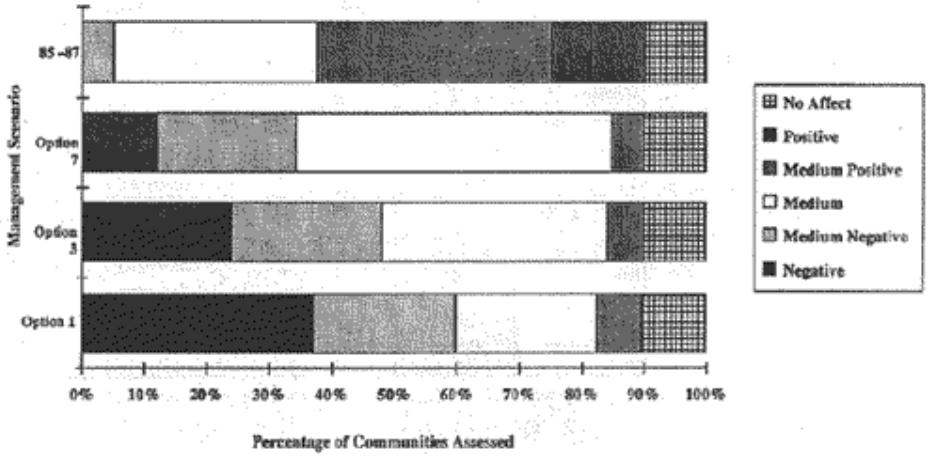


As shown in the table, communities generally cluster between low capacity and negative consequences in the upper left corner to high capacity, and moderately positive consequences in the lower right corner in each option. As a result, communities are concentrated on a left to right sloping line that tends to shift to the right as Options 1 to 3 and 7 and the 1985-87 scenario are considered. This indicates that as Option 7 and the 1985-87 scenario are considered, and specifically as harvest levels from federal lands increase, a greater number of communities have more positive consequence ratings. The capacity-consequence relation offers a perspective of communities that allows analysts to identify communities that are first negatively affected by shifts because of management and secondly, those less able to respond to those shifts.

Sensitivity to Harvest Changes

By examining the variation in consequence ratings for individual communities among options (that is the change in consequences as options with higher harvest levels are considered) we can begin to understand the relative sensitivity of communities to shifts in federal timber availability. For example, some of this variation in sensitivity to changes in options is apparent even in the aggregate state ratings. The difference between average consequence ratings for Options 1 and 7 are nearly twice as high--and between Options 1 and 3 are over 3 times as high--for California as compared to the other two states. Although these state-level differences may be caused by a variety of factors (see discussion below on variation in capacity and consequences) they do indicate an underlying variation in responsiveness to management changes and, specifically, to harvest level changes.

Figure VII-2. Predicted consequences of four federal land management scenarios on communities in Northern California, Oregon, and Washington.



In some of the heavily timber dependent communities, consequence ratings increase several points (that is, become more positive) moving from Option 1 to the 1985-87 scenario. Ratings for other communities are unchanged across the options, indicating either a balance of positive and

negative affects, or communities less affected by federal forest policy. Still other communities have ratings that are negatively related to increases in timber harvest levels. As seen in Figures 7-2 movement is from negative to more positive consequences moving from Option 1 through Options 3 and 7 to the 1985-87 Scenario.

Table VII-6. Relationship between community capacity and consequences

Option 1	Consequences to Communities (%)				
Capacity	*Negative*	*Moderately Negative*	*Even*	*Moderately Positive*	*Positive*
Low	12	3	0	1	0
Medium Low	13	5	3	2	1
Medium	8	8	7	1	0
Medium High	7	4	4	3	0
High	2	4	9	4	0

Option 3	Consequences to Communities (%)				
Capacity	*Negative*	*Moderately Negative*	*Even*	*Moderately Positive*	*Positive*
Low	7	5	1	1	0
Medium Low	9	6	6	2	0
Medium	4	10	10	1	0
Medium High	6	3	9	1	0
High	1	3	12	3	0

Option 7	Consequences to Communities (%)				
Capacity	*Negative*	*Moderately Negative*	*Even*	*Moderately Positive*	*Positive*
Low	4	6	3	1	0
Medium Low	6	6	10	1	0
Medium	2	6	15	2	0
Medium High	1	5	11	1	0
High	1	2	16	1	0

1985-87 Scenario	Consequences to Communities (%)				
Capacity	*Negative*	*Moderately Negative*	*Even*	*Moderately Positive*	*Positive*
Low	0	2	6	4	4
Medium Low	0	1	12	9	2
Medium	0	0	8	10	6
Medium High	0	1	4	10	3
High	0	2	4	11	2

Community Typology

Capacity and consequence ratings can be used to develop characterizations of community types based the relationship of capacity and consequences and sensitivity to federal harvest changes. Preliminary cluster analysis of the rating data was used to develop a community typology based on general capacity, consequences to options, and differences (both in strength and direction) in the relationship of management options to consequence ratings. Because of the focus on general patterns, rather than individual ratings, these characterizations extend across communities in all three states. Six different community types are described here.

1. **Communities with very low to medium capacity with negative consequence ratings under all three management options, but where consequences to federal land management appear to be positively and strongly affected by increased federal timber harvest levels.** This group of communities is clearly timber dependent. They lack local leadership, diversity, or other aspects of capacity that would facilitate transition from a timber-based economy. With both low capacity and negative consequences under all options their continued existence appears threatened regardless of the options, although a 1985-87 management scenario would lead to more positive consequences.

2. **Communities with low capacity that received negative consequence ratings under all three of the options under consideration, but where increased federal timber-harvest levels appear to have only a very minor, slightly positive effect on consequences to options.** This group of communities, although timber dependent, appear to lack the capacity to respond to the different options, perhaps because they have already lost the skills or processing capability necessary to capitalize on increased log flows from federal lands. In the consideration of risk definitions in the next section, communities falling within this category or the one previous might be termed "most at risk."

3. **Communities with low to medium capacity and with negative consequences under options 1 and 3 but even to moderately positive consequences under Option 7.** Consequences from the options in these communities appear to be positively and generally strongly related to increased federal timber harvest level (to the extent that panelists perceived harvest levels to be sustainable). Most of these communities are only marginally threatened by potential decreases in federal harvest levels as they appear to be capable of responding positively to certain options.

4. **Communities with generally medium capacity and with generally even consequence ratings under all three options considered.** Consequences of federal land management in these communities appear to be unaffected by timber harvest levels. These communities are not strongly dependent on resources from federal forest lands.

5. **Communities with medium to moderately high capacity that received negative consequence ratings under Options 1 and 3 but moderately positive consequences ratings under Option 7.** Consequences to the options in these communities appear to be positively affected by alternatives with higher timber harvest levels. These communities are economically tied to timber. Similar to the type 3 communities above, these communities may be negatively affected by the options with lower timber flows. Unlike the type 3 communities, they appear to have the capacity to adapt, at least to some extent, to these negative changes.

6. **Communities with high capacity that received generally even consequence ratings under all three options**. The relationship of timber harvest levels to consequences in this group is mixed. Some communities appear unaffected by federal harvest levels, others have a slight positive relationship, and others have a slight negative relationship. The high capacities of these communities will allow them to adapt to a variety of federal land management scenarios. Because of their economic and social diversity, positive and negative consequences of changes in harvest levels are likely to balance out in these communities. This is not to say that all

groups will be affected equally in these communities. Some might have forest product related sectors that will benefit from increased harvest levels. Others might have tourist-related sectors that benefit from decreased harvest level. All, however, in the aggregate have the combination of human resources, civic involvement, and economic diversity needed to adapt to a variety of situations.

Some communities will not fit into these general profiles. For example, one small tourism-based community located on a main thoroughfare in a heavily forested area was rated with moderately low capacity and with increasingly negative consequences ratings for options with increased timber harvest levels. Panelists felt that increased log truck traffic would adversely affect the community's tourist economy.

Table VII-7. Predicted level of consequences of four management scenarios expressed as a percentage of communities by consequence level.

Combined for Northern California, Oregon, and Washington						
Management Scenario	Negative	Medium Negative	Medium	Medium Positive	Positive	No Affect
OPTION 1	36%	22%	22%	7%	0%	10%
OPTION 2	24%	24%	36%	6%	0%	10%
OPTION 7	12%	22%	36%	5%	0%	10%
85 - 87	0%	5%	33%	38%	15%	10%

Table VII-8. Summary of consequences of three management options and the 1985-87 scenario on communities in California (expressed as a percentage of communities assessed).

California	%						
	Negative to Very Negative	Moderately Negative	Even	Moderately Positive	Positive Very Positive	No Affect	# Cases
Option 1	27	43	17	13	0	0	30
Option 3	3	13	73	10	0	0	30
Option 7	0	7	63	30	0	0	30
1985-87	0	13	30	47	10	0	30

Table VII-9. Summary of consequences of three management options and the 1985-87 scenario on communities in Oregon (expressed as a percentage of communities assessed).

Oregon	%						
	Negative to Very Negative	*Moderately Negative*	*Even*	*Moderately Positive*	*Positive Very Positive*	*No Affect*	*# Cases*
Option 1	32	28	26	14	0	0	81
Option 3	17	38	40	5	0	0	81
Option 7	4	27	68	1	0	0	81
1985-87	0	1	30	42	27	0	81

Southwest Oregon Region	%						
	Negative to Very Negative	*Moderately Negative*	*Even*	*Moderately Positive*	*Positive Very Positive*	*No Affect*	*# Cases*
Option 1	34	38	16	13	0	0	32
Option 3	13	50	31	6	0	0	32
Option 7	3	41	53	3	0	0	32
1985-87	0	0	28	41	31	0	32

West Central Oregon Region	%						
	Negative to Very Negative	*Moderately Negative*	*Even*	*Moderately Positive*	*Positive Very Positive*	*No Affect*	*# Cases*
Option 1	40	30	20	10	0	0	30
Option 3	23	43	30	3	0	0	30
Option 7	7	20	73	0	0	0	30
1985-87	0	3	17	57	23	0	30

Central Oregon Region	%						
	Negative to Very Negative	*Moderately Negative*	*Even*	*Moderately Positive*	*Positive Very Positive*	*No Affect*	*# Cases*
Option 1	33	0	33	33	0	0	3
Option 3	33	0	67	0	0	0	3
Option 7	0	33	67	0	0	0	3
1985-87	0	0	33	33	33	0	3

Northwest Oregon Region	%						
	Negative to Very Negative	*Moderately Negative*	*Even*	*Moderately Positive*	*Positive Very Positive*	*No Affect*	*# Cases*
Option 1	13	13	56	19	0	0	16
Option 3	13	13	69	6	0	0	16
Option 7	0	13	88	0	0	0	16
1985-87	0	0	56	19	25	0	16

Northwest Oregon Region	%						
	Negative to Very Negative	Moderately Negative	Even	Moderately Positive	Positive Very Positive	No Affect	# Cases
Option 1	13	13	56	19	0	0	16
Option 3	13	13	69	6	0	0	16
Option 7	0	13	88	0	0	0	16
1985-87	0	0	56	19	25	0	16

Table VII-10. Summary of consequences of three management options and the 1985-87 scenario on communities in Washington (expressed as a percentage of communities assessed).

Washington	%						
	Negative to Very Negative	Moderately Negative	Even	Moderately Positive	Positive Very Positive	No Affect	# Cases
Option 1	43	10	21	5	1	20	108
Option 3	36	16	22	6	0	20	108
Option 7	23	22	32	2	0	20	108
1985-87	0	5	36	32	6	20	108

Lower Columbia Region	%						
	Negative to Very Negative	Moderately Negative	Even	Moderately Positive	Positive Very Positive	No Affect	# Cases
Option 1	67	7	0	0	0	27	15
Option 3	40	33	0	0	0	27	15
Option 7	13	53	7	0	0	27	15
1985-87	0	0	27	47	0	27	15

Central Washington Region	%						
	Negative to Very Negative	Moderately Negative	Even	Moderately Positive	Positive Very Positive	No Affect	# Cases
Option 1	44	11	6	22	0	17	18
Option 3	39	17	6	22	0	17	18
Option 7	28	22	28	6	0	17	18
1985-87	0	11	39	17	17	17	18

Puget Sound Region	%						
	Negative to Very Negative	Moderately Negative	Even	Moderately Positive	Positive Very Positive	No Affect	# Cases
Option 1	21	3	55	0	0	21	38
Option 3	21	3	55	0	0	21	38
Option 7	11	8	61	0	0	21	38
1985-87	0	5	32	37	5	21	38

Olympic Peninsula Region	%						
	Negative to	Moderately		Moderately	Positive	No	#

	Very Negative	Negative	Even	Positive	Very Positive	Affect	Cases
Option 1	21	3	55	0	0	21	38
Option 3	21	3	55	0	0	21	38
Option 7	11	8	61	0	0	21	38
1985-87	0	5	32	37	5	21	38

Olympic Peninsula Region	%						
	Negative to Very Negative	Moderately Negative	Even	Moderately Positive	Positive Very Positive	No Affect	# Cases
Option 1	54	19	3	3	3	19	37
Option 3	49	22	5	5	0	19	37
Option 7	38	24	16	3	0	19	37
1985-87	0	3	43	30	5	19	37

Table VII-11. Community capacity: percent (%) of communities assessed by state.

STATE	Low to Very Low	Moderately Low	Moderate	Moderately High	High to Very High	TOTAL%	CASES
California	20	20	27	23	10	100	60
Oregon	26	26	23	24	1[illegible]	100	82
Washington	7	21	25	12	30	100	84
TOTAL%	15	23	24	19	19	100	
CASES	29	45	48	37	37		196

Understanding Variation in Capacity and Consequence Ratings

Although there appear to be significant differences in the summary statistics among the three states and among subregions (tables 7-7-10 and figs. 7-3-5), it is not possible to determine if the consequences of new management options will be more severe for communities in one state or subregion than in another. This is because experts did not explicitly make cross-state evaluations, because assumptions, interpretation of options and expertise varied among panels, and because communities were not selected to represent any geographic subregion. The three panels did, however, describe strikingly similar patterns of consequences occurring in communities with similar types of capacity and intervening variables. Thus, although subregional variations can effect consequences, the main processes determining how communities are affected by changes in federal forest polices is similar throughout the region.

There is considerable variation in community capacity and consequences among communities. This is apparent in the state and sub-regional aggregations presented in tables 7-7-11 and figures 7-3-6. Although ratings for community capacity appear to be distributed similarly across the three-state region (fig. 7-6 & table 7-II), capacity ratings vary considerably among subregions (table 7-8-10). A differential pattern of consequence ratings is also apparent, both across the three states, and among sub regions within the states (tables 7-7-10 and figs. 7-3-5). Descriptions of some of the factors that affect variation follow.

Community Structure and Spatial Factors

Communities with moderately high or high capacity tend to be larger communities. Based on limited population data for about two thirds of the communities and comments from panelists, high capacity communities have almost twice the population of medium capacity communities and three to four times the population of low capacity communities.

Although examples exist of small communities with relatively high capacity, smaller communities tend to have limited infrastructure, lower levels of economic diversity, less active leadership, more dependence on nearby communities, and weaker linkages to centers of political and economic influence that contributed to lower capacity ratings. These communities also are likely to have less control over resources and capital. As a result, small communities are more vulnerable to external change, such as shifts in forest management and their secondary effects.

Although arbitrary regional constructs such as the state subregions tend to show highly variable community ratings, some regional patterns do emerge directly from the data. The ratings define a region of lower capacity-negative consequences in the isolated interior Coast Range of Oregon and along the west slope of the Cascades. Two other groupings of low capacity-negative consequences lie in the central Olympic Peninsula and along the North Cascade range.

Several spatial factors appear to be significant in determining community capacity and consequence ratings, including transportation corridors, coastal access, and isolation. Washington communities with lower capacity are likely to be smaller, highly dependent on the timber industry, and, like Oregon, beyond primary transportation corridors. Preliminary analysis of the community ratings in all three states indicates that only about 20 percent of low capacity communities lie within 10 miles of interstate highways, compared to nearly 60 percent of high capacity communities.

Coastal communities in all three states tend to have higher capacities and more positive consequences, due in large part to more developed tourist industries and more diversified economies. Panelists indicated that communities surrounded by federal lands (typically smaller and in isolated mountainous areas) are likely to have low capacity and more negative consequences regardless of the options. Preliminary analysis of communities rated in all three states indicates a negative relationship between capacity and the closeness and density of surrounding federal forest land.

Figure VII-3. Consequences of options 1,3,7, and the 1985-87 scenario for the State of California.

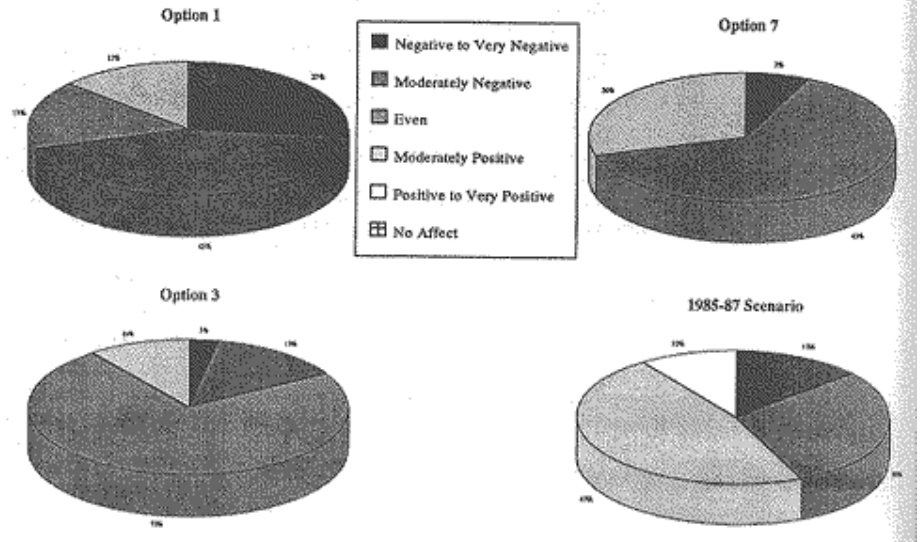


Figure VII-4. Consequences of options 1,3,7, and the 1985-87 scenario for the State of Oregon.

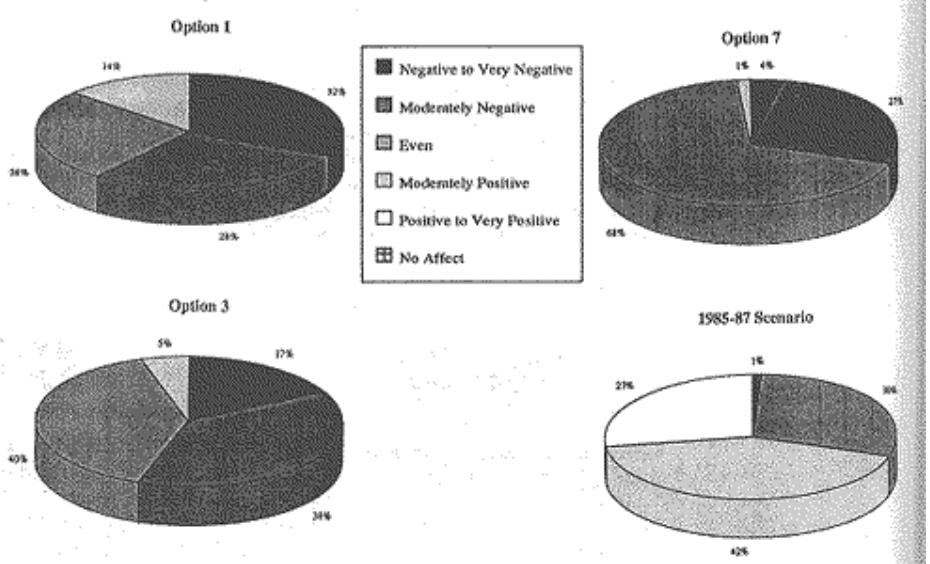


Figure VII-5. Consequences of options 1,3,7, and the 1985-87 scenario for the State of Washington.

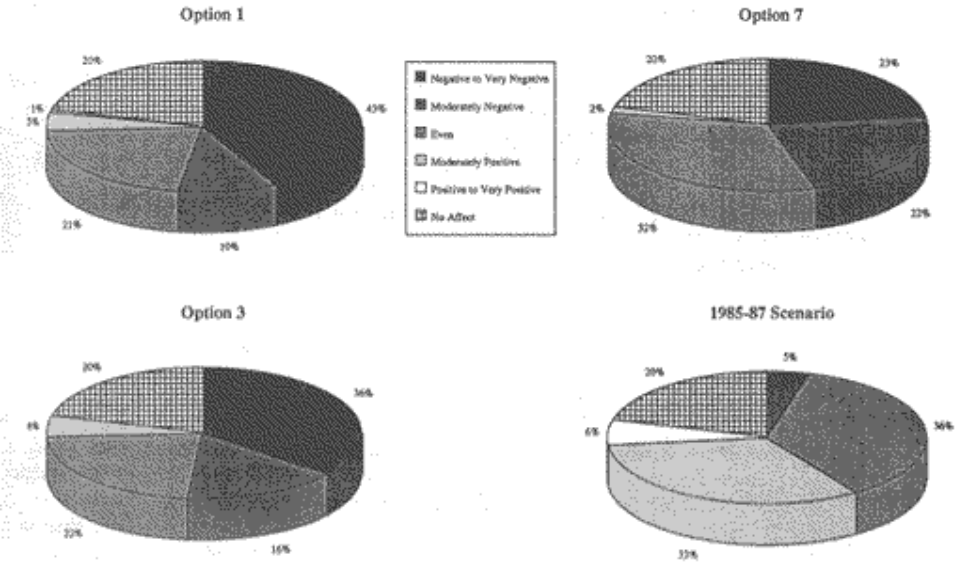
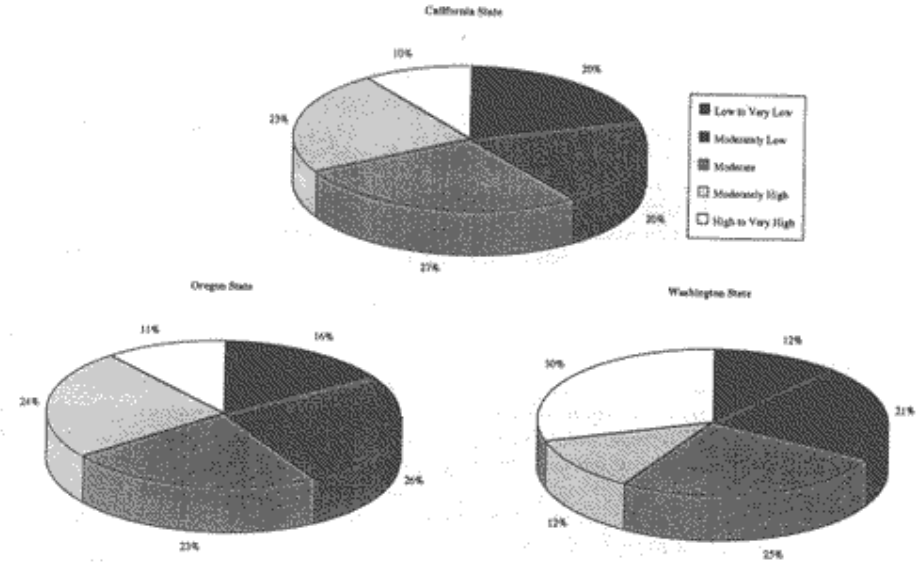


Figure VII-6. Community capacity in the States of California, Oregon, and Washington.



Panelist Variation Factors

Discussion among the panelists identified a variety of factors that affect perceptions of community capacity and consequences to external policy changes. These factors also explain some of the variation in ratings and verify the limitations of direct cross-state comparisons.

Panelists in the three state groups considered many attributes in common when rating community capacity. The factor most commonly mentioned by panelists was economic diversity, including the degree of timber dependence based on employment and availability of private timber resource. Local leadership and location were also cited as critical components of capacity. Other factors include a history of community-based improvement efforts, community cohesion and conflict, civic involvement, local control of resources, community attitude, cultural identity, population size, and income levels.

Other factors affecting capacity differed among the state panels. For example, in California, emphasis was placed on intra-community conflict over forest issues, control of key resources by outsiders, and positive effects of in-migration to forest communities. In Oregon, community size, planning capacity, county-community relations, outside versus local control, and access to outside resources appear to be significant factors. In Washington, discussions of capacity focused on the percentage of timber dependence (as derived from employment statistics) and the negative effects of in-immigration (mostly retirees) and the poor.

Panelists also emphasized both similar and different factors when assessing consequences. Specific consequences estimated under Options 1, 3, and 7 generally depended on participants understanding of age-class distribution of forests across Matrix lands, assumptions regarding distances bidders are willing to haul logs in a rapidly changing market, and assumptions about availability of timber on state and private lands as well as federal lands outside the region.

Workshop panelists differed in their interpretations of what options meant for consequences to their state's communities. California panelists considered present conditions to be similar to Option 3, whereas Oregon panelists equated Option 7 to current conditions. In Oregon, Options 1 and 3 were considered to improve fisheries and, hence, consequences in coastal and fishing communities. Washington panelists, however, felt that three years was not adequate to improve fisheries.

California panelists viewed the 1985-87 scenario differently than other state panels. Tending to see it as an option, they rated its consequences more negatively because they felt it included a harvest level that was not sustainable. In other states, panelists regarded the 1985-87 scenario more as a base or historic reference point against which to judge change. As an example, in about one-quarter of the California communities the panelists saw positive consequences associated with Option 7 compared to Option 3, but saw generally negative consequences for communities facing a shift from Option 7 to the harvest levels of 1985-87. This pattern of rating occurred in less than three percent of the communities in the other two states.

Panelists in Washington elected to apply a "no effect" rating for a number of communities (about 20 percent) that they felt would not experience any effects of federal forest management. The California and Oregon groups did not use this label; they felt all communities would be affected in some manner and tended to give "even" ratings to communities lacking direct timber-dependency.

The panelists who rated northern California communities considered a larger set of complex interactions affecting communities as a result of federal forest management than did panelists in the other two states. The California group--rating one-third of the number of communities as the Oregon and Washington panels--may simply have had more time for detailed discussion and evaluation.

Regardless of these factors, our conclusions represent the general relationships between the management options and rural communities. Because the panelists at the workshops focused on issues of "risk" and "transition," and because those concepts have been an important part of the discussion in the federal forest controversy, the next sections examine these areas in more detail.

Communities at Risk

The concept of risk attracts-much attention in a technological society such as ours. As a result, much attention is given to systems of risk analysis and risk assessment (e.g., Krimsky and Plough 1988; Environmental Protection Agency 1992; Krimsky and Golding 1992). In general, risk is defined as the possibility that an undesirable state of reality may occur as a result of natural events or human activities (Renn 1992). At the core of risk analysis and risk assessment systems is a concern with estimating both the probability or likelihood that some event will occur and the severity or seriousness associated with that occurrence. Risk assessment is a risky business, in part, because many of the consequences that we are ultimately concerned with are not only unanticipated; they are unanticipable (Schwarz and Thompson 1990).

There are many forms of risk as well as recipients on whom the risks fall. In the case of the forest management issue in the Pacific Northwest, rural residents who depend upon the forests for employment and other values are major stakeholders and are potentially "at risk." But there are other people to consider; people who are concerned with the fate of old-growth forests and endangered species also feel a sense of risk because the values they hold concerning the forest are threatened by proposals that favor development or timber harvesting.

In this effort, we have attempted to provide a basis for estimating the consequences of the options on people, especially those who reside in the region's rural communities. People in these communities have faced, and will continue to face, direct effects upon their jobs, lives, and lifestyle as a result of federal forest management policy. Panelists predicted that Options 1, 3, and 7 likely would lead to additional mill closures and reduced employment in the forests and that the economic and social infrastructure in these communities would suffer.

The risk to rural communities has been examined in the literature (Carroll and Lee 1990; Lee et al. 1991; Machlis and Force 1988), in various state and federal undertakings (USDA Forest Service 1987; U.S. Department of the Interior, Fish and Wildlife Service 1992; Oregon EDD 1991; Washington State Timber Team 1991), and in various unpublished reports (for example, Lee 1990a; Sturtevant 1993). These studies have focused on different sets of variables or thresholds to define risk. For example, the State of Washington (1991) identified the relative economic risk of 100 communities affected by federal timber harvest reductions. Those communities defined as "high risk" were those in which more than 20 percent of the population was employed in the wood products industries and where significant portions of the local wood products industries were dependent upon national forest timber. Twenty-eight communities were so ranked.

In Oregon, the Economic Development Department's Timber Response Program (1991) carried out a similar analysis. A community was judged to be severely affected if:

- It had a four-percent decline in employment in the timber and wood products industries since 1989 compared to the total 1990 workforce.
- Its annual average unemployment rate exceeded the state's annual average by more than 50 percent.
- The director of the Oregon Economic Development Department determined that the community had suffered, or was likely to suffer, a severe economic decline.

Over 90 Oregon communities were judged to be severely affected by reductions in federal harvest levels, In the Oregon and Washington studies, the definition of risk rests largely on statistics or economic consequences. This focuses on a fairly narrow definition of the factors that might underlie risk, and leads to an overly narrow view of the ways communities might depend on federal lands. The variables used to assess community impacts will also affect policy responses. If the assessment rests on the basis of economic structure, then the policy response is likely to key on those variables as well. As we have previously noted, communities are more than just bedrooms for wood products workers.

People who live near and work in forests value their relationships with the lands in ways that extend beyond their jobs. In addition, events that emanate from beyond federal lands may either mitigate or exacerbate the effects of harvest changes on forestdependent communities.

For this assessment, we have defined "risk" as a function of the relationship between community capacity and the consequences associated with alternative forest management options. Communities with combinations of low to high capacity and negative to positive consequences illustrate the interaction of capacity and consequences. From a social and policy perspective, this relationship can be used to depict communities likely to be most negatively affected by changes in forest management, and least able to adapt.

To illustrate this, as well as to how differing conceptions of both capacity and consequences can alter the resultant notion of risk (and the communities so defined), table 7-12 shows communities "most at risk" in the shaded areas in the upper left corner of each individual table. These communities "most at risk" are defined as those that are rated with either low or medium-low capacity and that also have negative or moderately negative consequences associated with each option.

Based on this definition of risk; as the illustration shows, Option 1 would result in about one-third of the 167 surveyed communities in the "most at risk" category. The reductions in the number of "most at risk" communities using Options 3 and 7 are relatively small. In all three options, however, the number of communities in the "most at risk" category are large compared to that for the 1985-87 scenario, where only three percent of the communities are so ranked.

As an alternative, "most at risk" communities can be defined as those with medium to very low capacity and even to very negative consequences. With this definition the proportion of communities defined as "most at risk" increases dramatically (note the dotted line on table 7-12). One could also define risk using only capacity or only consequences. These three alternative approaches, however, have serious limitations. Expanding the definition of risk to include medium capacity communities and those with an even balance of consequences pulls in communities that either are not negatively affected or already have the same internal capacity to adapt to negative affects. Moreover, inflating the "most at risk" pool in this manner dilutes the importance of the "most at risk" category and those communities most in need. Likewise, single measure definitions of risk neglect either the internal strength and capacity of communities to respond to management changes or the notion that some communities will be more or less affected by external change than others. However, even in communities that are not defined at risk, there might be groups within these communities who are.

The decision as to how to define the level of acceptable risk is ultimately a political matter. Commonly, debates about risk and, more importantly, what constitutes "acceptable risk" have been dominated by technical and scientific discussions. However, the scientific community is neither qualified nor politically legitimated to impose risks or risk management policies on a population (Renn 1992). Differing concepts of how to define risk held by different stakeholders will lead to different conclusions. Unfortunately, because of the technical nature of much of the risk discussion, the impacts of most concern to those affected by a decision often are not considered at all.

Because risk has variable meanings and different constituents are involved; any judgment as to what will be considered as "acceptable risk" must

involve political negotiations among all relevant stakeholders, with scientists and technical specialists playing the role of advisors. Good risk management requires both democratic processes and competent technical input (Otway 1992; Whipple 1992). The information provided in table 7-12 can help policy-makers, scientists, and citizens understand the scope and distribution of the risk issue and how it varies with different management options.

When communities defined as "most at risk" in the above example for Option 1 were compared to other studies (USDA Forest Service 1987, USDI Fish and Wildlife Service 1992, Oregon 1991a, Oregon 1991b, Washington 1991) capacity emerges as an important factor. Of the sample of communities rated in this study and evaluated by other studies (133 communities), 44 (33 percent) were rated "most at risk" in this analysis and at least one of the other three studies. Of the 65 communities rated "most at risk" by at least one of the other studies, but not by the capacity-consequence measure, more than half (53 percent) were not considered at risk solely because of their high capacity rating.

Table VII-12. Relationship among community capacity, consequences of options and risk to local communities (expressed as a percentage of communities assessed).

Option 1	Consequences to Communities (%)				
Capacity	*Negative*	*Moderately Negative*	*Even*	*Moderately Positive*	*Positive*
Low	12	3	0	1	0
Medium Low	13 (33%)	5	3	2	1
Medium	8	8	7 (59%)	1	0
Medium High	7	4	4	3	0
High	2	4	9	4	0

Option 3	Consequences to Communities (%)				
Capacity	*Negative*	*Moderately Negative*	*Even*	*Moderately Positive*	*Positive*
Low	7	5	1	1	0
Medium Low	9 (27%)	6	6	2	0
Medium	4	10	10 (58%)	1	0
Medium High	6	3	9	1	0
High	1	3	12	3	0

Option 7	Consequences to Communities (%)				
Capacity	*Negative*	*Moderately Negative*	*Even*	*Moderately Positive*	*Positive*
Low	4	6	3	1	0
Medium Low	6 (22%)	6	10	1	0
Medium	2	6	15 (58%)	2	0
Medium High	1	5	11	1	0
High	1	2	16	1	0

1985-87 Scenario	Consequences to Communities (%)				
		Moderately		*Moderately*	

Low	4	6	5	1	0
Medium Low	6	6	10	1	0
Medium	2	6	15	2	0
Medium High	1	5	11	1	0
High	1	2	16	1	0

22% 58%

1985-87 Scenario	Consequences to Communities (%)				
Capacity	*Negative*	*Moderately Negative*	*Even*	*Moderately Positive*	*Positive*
Low	0	2	6	4	4
Medium Low	0	1	12	9	2
Medium	0	0	8	10	6
Medium High	0	1	4	10	3
High	0	2	4	11	2

3% 29%

"Most at risk communities differ from others in significant ways. These communities tend to be small; they averaged about 3,000 people, compared to the mean of nearly 6,500. They are located in counties with low population density; the average population density in these counties is about half that for those higher capacity communities (37 as opposed to 73). However, low population and low population density arc likely more related to capacity than risk. Workshop panelists judged that isolated communities were more likely to experience negative consequences with Options 1, 3, and to a lesser degree 7, because they have few options available locally or in nearby communities and because of limited access to capital and other resources.

Communities that are small, isolated, lack economic diversity, and have low leadership capacity are also more likely to be classified as "most at risk than others. Residents of these communities may find it difficult to mobilize and respond to changing conditions. They are likely to suffer unemployment, increased poverty, and social disruption in the absence of assistance. A total of 18 communities were defined as having "poor leadership, and 56 percent of these were rated as having moderately low or lower

communities with high economic diversity and strong leadership qualities often show a greater ability to respond. For example, of the 30 communities identified during workshop discussions has having "good leadership," 70 percent were rated as having medium or higher capacity and less than one-quarter were defined "most at risk" under Option 1.

In many communities classified as "most at risk", there appears to be a somewhat higher proportion of income from public assistance. This is particularly the case in California where five percent of income was so derived, compared to an average of 2.5 percent in other "most at risk" communities and 1.9 percent in all subregions.

Risk labels can be a double-edged sword. Among the many problems associated with determining risk is the question of how to predict social and individual resilience. The presence of risk in a community may lead to increased survival strategies of individuals. For example, woods workers as an occupational group have shown themselves to be resilient and innovative, capable of subsistence and survival strategies during economic downturns. But at some point, persistent stress will overcome personal, cultural, and social reserves. Labeling communities "most at risk" can also paralyze and demoralize community members, increase social disruption, and, from the labeling itself, create indirect impacts on communities (for example red-lining of communities by banks). It is for these latter reasons and because of the need to involve locals in a self assessment process that we chose not to report individual community ratings. Further assessment must involve community leaders as appropriate to facilitate self-assessments of individual communities.

Because factors other than federal forest management policies can place communities at risk, policy responses crafted to assist "most at

risk" communities should focus on much more than timber and jobs. Policies must also address limited structural diversity, lack of infrastructure, and other factors contributing to low capacity and negative consequences.

Communities in Transition

Some Negative Consequences can be Explained by Economic Shifts Already Underway

Globalization of the economy and replacement of labor by technology profoundly affect the economic well being of many rural communities (Fitchen 1991). Economic uncouplings, described previously, have been partially responsible for unemployment and other economic and social difficulties in many mill towns (Hibbard 1992). These trends are particularly noticeable since the recession of the early 1980's and the subsequent restructuring of the forest products industry.

It is difficult to clearly separate effects of shifts in technology and markets from those of harvest restrictions. This is not to minimize the effects of either; both are happening and are significant. Many arguments, however, have focused on one trend or the other and as a result have often been unproductive.

Uncertainty about Federal Timber Harvest Levels Exacerbates Negative Social Consequences on Communities

Uncertainty over federal forest management has been a recurring concern to many rural residents. Although timber harvests from federal lands have never been guaranteed, residents of communities are currently experiencing a period of extreme uncertainty. This has led to feelings among some residents of intense frustration and helplessness. Prolonged periods of helplessness can negatively affect important aspects of individual well-being and lead to personal and social problems.

Uncertainty has also led to increased social conflict. Local residents' time and energy that might be more usefully devoted to preparing for the future are instead spent on confrontation. There is an important distinction to be made between productive disagreement, that which may improve community cohesiveness, and protracted and divisive conflict as a result of uncertainty, which does not.

The past twenty years have witnessed an ever rising level of discontent and conflict over the management of federal forests. There is evidence that the promulgation of processoriented legislation and associated planning procedures requiring increased public input and documentation about potential environmental impacts of timber harvest have exacerbated, rather than resolved this discontent (Behan 1990b; Wondolleck 1988). These developments have increased uncertainty about whether and when timber will actually be put up for sale and harvested. Many panelists indicated that any federal forest policy decision--even if it spells bad news--will be an improvement over the current situation as it will provide communities with a level of certainty on which to base their efforts.

Communities Undergoing Positive Economic and Social Transitions May Only Have Limited Options

For communities facing the transition from a commodity-based economy, issues related to economic diversity and isolation will remain. Any area not having a diverse economy, and where demand for local goods and services is set in the larger economy, will face fluctuations beyond local control.

Workshop results indicate a number of forest communities have begun to make a transition from traditional timber dependence, and are on their way to alternative economic futures. These futures run the gamut from recreation-tourism, to secondary wood products, to reliance on government-funded facilities such as prisons. Some communities in the region have capitalized on their location near forest or coastal amenities by shifting to a tourist economy. There are thriving tourist communities with high capacity in the region. Although these alternative futures are not problem-free, they do avoid the highly cyclic nature of the wood products industry.

Many of these communities are more diversified (one has a college, another a scientific institution). The presence of institutions such as a community college or even a prison, can have positive effects; in the 18 communities classified as benefiting from the presence of such an institution, two-thirds had capacity ratings of medium or better. For these communities, uncertainly over federal harvest levels is less of a consideration than it once was.

Tourism and in-migration are related, either because tourists discover areas and move there, or because economic opportunities in tourism attract migrants. Therefore, tourist communities may see continued growth through in-migration. However, although tourist related entrepreneurs (hotel, restaurant and gift shop owners, recreational guides) may be successful, tourism jobs are not equivalent to logging or mill jobs. Average wages tend to be lower, jobs tend to be seasonal and part-time, and may offer little in the way of the cultural identity commonly associated with timber related jobs. A community economy based on tourism is also vulnerable to fluctuations in the outside economy. Tourism, by itself, may not add diversity to the local economy.

"Main Street" revitalization plans, attention-grabbing tourist attractions, and other efforts to "dress up" a town to attract outsiders may enhance community image, restoring pride and hope in the future. Such efforts may improve the attitudinal component of community capacity, but also carry the risk of catering more to the needs of visitors than residents.

Growth in the retail sector also faces constraints. Although retail jobs are increasing in many transitional communities, they are likely to have a wage structure similar to tourism. Recently the Pacific Northwest has witnessed a number of new retail operators--especially discount chains--and the accompanying development of additional shopping malls, even in smaller communities. Independent retailers in small communities find it hard to compete. As timber jobs decline, small local shops can be expected to feel the impact of lower spending to a larger degree than large discount retailers.

Retirement homes and health care facilities are becoming major employers in some areas as rural economies reflect the shifting demographics of their populations. Jobs in these businesses, other than those requiring higher levels of education and training, are much like those in tourism and sales, but are less likely to fluctuate seasonally.

Other growing economic sectors include food processing plants and retail agricultural products. Low-wage levels, seasonal fluctuations, and poor working. conditions in these industries make them less attractive to many wood workers.

Some communities have explored the possibility of locating both light manufacturing and industry. Del Norte County California bid aggressively for a state prison that has become a major employer in that formerly timber dependent area. Such projects may provide jobs, but also carry liabilities that can diminish the quality of rural life.

Any one sector--be it tourism, health care, agriculture, or light industry--is not a panacea for timber-based communities. No single alternative necessarily will provide a lasting economic base. Isolation and dependence on a limited number of employment opportunities will

continue to limit economic growth and wage levels for workers in many timber-dependent rural communities.

Because many factors are more important to community capacity than lack of education and job skills, economic development must consist of more than job training. Constraints are not all economic--but many can be addressed by state and federal policy policies. For example, credit, grant, and rebate programs that put capital in the hands of local communities may address two of the most important factors that reduce community capacity according to the panelists: lack of diversification and outside control of resources.

Community Ties to Outside Organizations Affect Their Capacity in Different ways

Although small communities are noted for internal ties--social, economic, and political--among community members, they are increasingly linked in significant ways to outside organizations and interests. As social theorists note, the trend for rural communities in America has been to shift their focus of "systemic integration and equilibrium" from the community's horizontal (local) axis onto its vertical (extra-local) axis (Warren, 1978). Parts of rural communities are tied more strongly to extra-local community systems than to one another.

Examples of vertical linkages in rural communities are local schools consolidated into a larger school district, churches linked to denominational centers, and branch plants controlled by their central offices. Other linkages include mass media, mall shopping centers, and chain discount stores.

In the Pacific Northwest, a significant linkage for community capacity and consequences are the federal land management agencies, state fiscal and institutional support services, and private industry headquartered outside the community. Workshop panels from all three states indicated that the community capacity of some isolated, small communities is enhanced by a Forest Service or Bureau of Land Management District office in their community. Removal of these offices might devastate some of these "dependent" communities.

The influx of professional staff linked to outside institutions in a community can raise average levels of education and income and add to community leadership. Although these institutions may add to local human capital, however, communities only benefit if this resource is invested in civic responsiveness. Agency downsizing in response to declining timber harvest levels and budgets has demoralized personnel on similar ways to their private sector counterparts; this can compound problems in some communities.

Outside institutions can also have negative effects. The objectives of external agents that control or manage local land, businesses or other resources, may not adequately take into account local interests and lead to negative local effects. An example of this is a mill owner choosing not to reinvest in a local mill which eventually leads to its closing. Lack of reinvestment in rural communities throughout the owl region has led to what some have characterized as deindustrialization in rural areas, which, in turn, has led to lowered community capacities.

Organizations and institutions can provide a range of employment opportunities for individuals in communities from office work to tree nursery stock raising. In some cases, however, the exact skills and experience required by employers do not exist locally. Communities cannot benefit from these opportunities unless institutions make local investments in human capital rather than relying solely on the importation of more skilled outsiders.

Employment opportunities provided by larger institutions can also result in dual economies and local conflict and frustration. Many low skilled jobs (for example, reforestation and forest improvement work) often have substandard pay scales. These jobs offer insufficient benefits and future options. In many cases, locals refuse to take these jobs because of their low pay and low status. Instead, these jobs may be filled by migrant or

transient workers who often are not connected locally and initially offer little to local communities.

Panelists from California and Oregon identified ,a nascent trend in the forest industry, of the hiring of workers, at lower wages not only in the, "lower end" jobs but also in jobs in the woods and the mills. These jobs are increasingly, being filled by recent immigrants and undocumented aliens, The dual economies created under these situations can result in increasing local resentment,that is often heightened by the transfer of local jobs to individuals who are culturally different.

Increasing Poverty in Rural Communities

Poverty in rural areas has been growing nationwide (Deavers and Hoppe 1992; Rural Sociological Society Task Force on Rural Poverty 1993). Poverty rates in rural forest dependent communities in the northern spotted owl region are no exception. The recession of the late 1970's and the early 1980's, which was prolonged in rural areas and more severe than in metropolitan areas (Bluestone and Hession 1986), hit forest communities particularly hard (Brunelle 1990). For the 125 communities for which we have both 1979 and 1989 poverty data, the average poverty rates increased from 12.9 to 16.1 percent.

Numerous panelists reported that poverty in forest communities in the region was increasing, with a large proportion of it occurring in female-headed households. Poverty increases through two primary pathways: impoverization "in place" and the "importation of poverty" (Fitchen 1991). Sources of impoverization in place include: industry restructuring leading to job loss (Brunelle 1990; Cook 1992); wages that have not kept pace with inflation (Deavers and Hoppe 1992; Rural Sociological Society Task Force on Rural Poverty 1993); increasing low-wage, often service-sector employment (Gorham 1992) and, more recently, job loss because of declines in federal harvesting.

The "importation of poverty" involves the poor, many from urban areas, moving to forest communities. Economic decline leading to lowered housing costs has been cited as one reason for the importation of poverty (Fitchen 1991; Kusel 1991; Lee et al. 1991.)

Though the workshop was not geared to addressing poverty, nor the complexity surrounding its origins, it is clear that poverty in forest communities is real and a growing phenomena. Many panelists expressed concern about the effects of increasing poverty on already impoverished communities chat lack resources. They also pointed out that the effects of poverty in the communities extends beyond those who are poor.

Several panelists indicated that individuals in communities struggling with severe economic declines and local impoverishment have devised creative ways to survive. They recognize, however, that this capacity: to survive, although important for individuals, does not necessarily, lead to community well-being. This suggests that external support to high-poverty communities directed through community self-development and long-term community improvement programs, may be far more complex than generally conceived.

Groups Within Communities Vary in Ability and Willingness to Respond to Economic Shifts

Attempts to characterize rural forest communities on the basis of one or two sociological dimensions ignore the richness, complexity, and, human dynamics that characterize communities. Similarly, any one rating of the impact of forest management scenarios on a community can mask the differential impact on groups and individuals within the community.

If one focuses on those groups and individuals most negatively affected, it is apparent that, even in communities near urban centers, some

occupational groups and their families have felt profound effects.

Social group dynamics and culture shape individual identities and world views; these in turn influence adaptation strategies available and acceptable to group members. Thus what might seem like rational adaptation from one perspective, may be "out of the question" for others. For example, family ties and established personal networks often provide individuals with far stronger links to rural communities than local jobs.

It is important to look within the community to understand social effects of changes in forest management and possible effects of mitigation strategies. Although a community might appear to be doing well on the surface, particular individuals or groups may actually be falling behind. Social mitigation strategies may backfire if not sensitive to cultural differences among community groups, and may even exacerbate conflicts and frustrations on the part of groups left behind. Additionally, mitigation strategies that do not reflect the fundamental changes in context within which they must operate will prove useless.

Demographic Changes can Lead to Conflicting Values Within (and between) Communities

Many forest-dependent rural communities have undergone profound demographic changes in the past decade. Both high and low income immigrants have been attracted to forest communities for their low-cost housing, clean and beautiful settings, and safe, friendly, rural lifestyle. These immigrants bring both problems and opportunities; for example, their presence can increase economic activity and add new and vital leadership, but also lead to changes in traditional community culture.

Both long-term and recent declines in the timber industry and greater societal changes have promoted demographic shifts that affect community capacity. Some social organization components--leadership, community identity, and cohesion--remain in transition. Leadership traditionally has been less an issue when a community is able to rely on one or two major employers for both economic and social stability. This is not the present situation in the Pacific Northwest. When mills and forest land are bought by outside interests and local owners leave, community capacity often suffers.

Demographic changes exacerbate inter-group conflict both within communities and between local and extra-local groups. These conflicts pose serious questions relative to the ability of groups in: the region to work together to solve common problems. Community capacity will also be threatened by social and cultural dislocation of particular groups. Pressure on social service agencies is critical at a time when public revenue sources are decreasing (for example, as a result of Oregon's Measure 5, reductions in Oregon and California counties tax receipts, or the fiscal crisis in California).

Conclusions From the Community Assessment

Not all communities will be affected in the same way or at the same level of magnitude. However, there are some discernible patterns: most negative effects will be concentrated in rural areas, but some urban areas are also likely to be affected, notably those with substantial forest products employment. Communities dependent upon recreation, amenity, or other environmental resources, on the other hand, may experience positive effects as a result of the proposed changes in federal forest management.

Social assessment at the community level is critical. Variation among communities is lost at county or other aggregates, and measures at other levels, such as the county, lack meaning for people (Ferry 1986). In addition, social indicators alone, consisting of aggregated individual data are not only difficult to obtain for unincorporated communities, but also ignore structural conditions at the county and state level and institutional

arrangements that influence community well-being (Kennedy and Mehra 1985; Kim 1973).

We recommend that further region-wide assessment should include a community self-assessment component. Self-assessment is a logical part of any mitigation measure as it will reflect the values of people living in the communities; provide a vehicle for integrating local knowledge in policy decisions; and contribute to a sense of community-level ownership in the resulting recommendations.

Community assessment can be a time consuming and costly process when involving panelists throughout a region. Involving communities themselves in a self-assessment does not avoid these time and monetary costs, but still may prove cost-effective. This is, in part, because it will reflect the values of people living in the communities. It also represents a way in which local knowledge can be more effectively integrated into decisions and can contribute to a sense of ownership in the resulting recommendations. Finally, self-assessment may prove beneficial by stimulating dialogue about local conditions among locals that can lead to community self-development. A role for social scientists in such efforts would be to work in collaboration with communities to help devise approaches for self-assessment.

Understanding the effects of federal timber harvest policy requires knowledge about details of the local situation, both in terms of the community and forest conditions on public and private lands. A challenge in social impact assessment is how to distinguish between those effects that stem from general or society-wide forces and those that are situation-specific. For example, panelists generally agreed that industry-wide changes in technology, the globalization of markets, and the dynamics of international trade produced impacts upon rural communities that transcend any shifts in federal forest policy. However, they also expressed frustration when estimating impacts of forest management options without knowing details such as age-class and spatial distribution of forests in Matrix lands, or the capacity or age of local mills. Similarly, details such as changes in quality of local leadership and local land ownership patterns are often crucial. Thus, it is possible for two apparently similar communities to be affected differently by outside influences. Sorting out the relative effects of these respective influences confounds our efforts to define consequences associated specifically with the options.

Panelists tended to rate the difference in consequences from. Option 7 to the 1985-87 scenario considerably higher than the difference between Option 1 and 7. As reported in the chapter Economic Assessment of the Options, major reductions have already occurred in timber harvest levels in the owl region (from a peak of about 4.5 billion board feet per year between 1980 and 1989 to 2.4 billion board feet per year from 1990 to 1992). Because the amount of timber in the options offered for harvest is yet another major reduction in harvest levels and the harvest-level difference between the options is relatively small (with the exception of Options 1 arid 7) the variation in consequences between options appears relatively small as well. On the other hand, discussions among Washington panelists suggested likely negative consequences, both economic and psychological, from timber harvest reductions that exceed community expectations and lead to a sense of betrayal and the loss of hope.

Option 9 was not developed in time for thorough analysis. It is our judgment based on available information that, although it will result in an allowable sale quantity less than in recent years, the adaptive management areas associated with it will provide management flexibility and help redefine relationships between communities and agencies. The presence of the adaptive management areas is an important distinction of Option 9 as compared to the other options. However, timber-dependent communities are not likely to benefit from Option 9 significantly more than from other options with similar timber harvest levels in the short term.

The negative social and economic effects associated with declining harvest levels have already begun. As panelists indicated, a number of communities have already felt and been, grappling with the effects of reduced harvest levels. Because the reductions in harvest levels are the result of court injunction and not the result of official policy, there has been inadequate recognition of these effects and no mitigation measures have been established to address them. Policy makers must therefore address the social and economic consequences of this decision and the social and economic consequences of previous harvest reductions.

The development of a solution to the "forest crisis" in the owl region has offered hope to many that the selected option will reverse this decline. Policy makers must make clear that improving local conditions involves conceited action on the part of locals and not just the selection of a single option or increase in harvest levels. Policy makers must also realize that a government partnership with local communities is vital for achieving this goal.

The variability incapacity and consequences found in this assessment reinforces the need for policies and programs geared to the specific conditions found within communities, rather than any uniform and regional approach. This is particularly important, given the highly complex and multi-faceted nature of capacity, involving not only financial aspects, but also such diverse components as leadership, community attitude, and infrastructure.

Any generalizations about the social impacts of these options, therefore, must be carefully framed. It also suggests that collaboration between biologists and social scientists might produce management actions that minimize negative biological and social effects.

Selecting an option should be viewed as a starting point for involvement of communities in discussions of forest management, not decisions to be imposed from above. As Louise Fortman noted at the Forest Conference,

> *... we need healthy forest communites...that can take responsibility for successfully solving their own problems...we need locally, based planning processes that enable local people to develop and implement diverse policy options...and we need state and federal policies that will facilitate these local processes.*

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Implications for Community Policy

Land management policies must be sensitive to the dynamic properties of both biological and social communities and the complex ways in which they are interwoven. More than jobs are at stake. Communities are more than collections of workers; they are complex social systems as fragile, resilient, complex, and elegant as the region's biological systems. This document has described some of the complexity of the social factors that help determine how land management policies affect communities. The ability of communities to respond to changes in forest management in recent years and those likely to occur in the near future, will prove crucial to how they fare under any of the proposed options.

Workshop discussion and analysis by the social assessment team have shown that capacity influences how communities are affected by changes in forest management. Thus capacity can be an important factor in helping communities affected by management changes. However, capacity is multifaceted and differs among communities, contributing to the difference in consequences expected throughout the owl region. Panelists discussed how capacity can be enhanced or diminished by federal and state policies. Understanding capacity is thus critical to developing the most effective policy responses.

A number of key issues raised by panelists who participated in this process are discussed below. Each of the issues helps frame specific strategies and programs that might be undertaken. They also illustrate the relationship between capacity and policy and how they can influence outcomes.

1. The desire for stability, predictability, and certainty are key community concerns; attempts by communities to cope with change are greatly constrained by recent high levels of uncertainty.

2. There is a need for an improved, stable tax base to support such basic community services

as schools, social services, and transportation. Adequate social services are prerequisite to responding effectively to displacement caused by changes in federal timber harvest policy. They are also centers of community life where local information is shared and feelings of belonging and
social cohesiveness are fostered.

3. Communities residents want to be part of decisions that affect their well-being. They feel that resource agencies have historically been unresponsive to local needs and at times even patronizing to locals.

Overlapping jurisdictions and the lack of coordination in agency activities act as major barriers to agencies' ability to respond to community needs. These conditions make community involvement in resource decisionmaking difficult.

4. There was an overwhelming perception that communities desire to preserve their culture and, for some occupational groups (e.g., loggers), their culture and work are inseparable. Some communities feel themselves and their culture under siege from a hostile urban world that neither understands nor cares about them. This is aggravated in some communities by the cultural and political conflict with ex-urban migrants and the shift from local to absentee ownership of retail and industrial establishments.

5. Additional family and individual stresses result from job loss, declining incomes, and other economic factors. These stresses are aggravated by the in-migration of impoverished individuals from urban areas who are seeking lower housing and living costs. Unemployment, poverty, and family stress often act to diminish community capacity and thus limit the ability of a community to
address these problems.

6. Rural communities often feel discounted by economic and social changes over which they have little or no control.

From these broad policy concerns, we can derive a number of specific strategies and programs.

1. There is a crucial need to make land-management-resource policies predictable, coordinated, and realistic in both the short- and long-term. Such policies will help reduce the uncertainty that communities experience today and improve their ability to work with managing agencies.

2. A means must be found by which local communities can expand their capacity to help themselves. In particular, there is need to focus priority attention on those communities having negative consequences and low capacity; these communities are "most at risk," because they have the highest costs to bear and the least capacity to pay.

A variety of actions might be undertaken. Once an option is selected for, for example, strong encouragement should be given to hosting workshops that involve a range of people with knowledge and expertise on the region's communities, and develop a more detailed assessment of likely community-level consequences.

The results of the workshops conducted for this social assessment report should be viewed as illustrative of what can be done, rather than as the source of definitive answers. They were organized and conducted within a very short time, the representation across and within states was not as adequate as we desired, and there was a lack of detail in the options that made precise assessments of community impacts difficult.

Despite such shortcomings, however, the workshops revealed considerable insight to the nature of consequences for communities facing changes in federal forest management policy. The specific nature of impacts results from a complex interaction of such things as age-class distribution on the Matrix, specific standards and guides for management and salvage, and the level of technology in local mills. Policies designed in the absence of such detailed information are not likely to prove useful or effective in responding to the consequences imposed on communities.

A component of the region-wide assessment suggested above should include a community self-assessment program. Community-based social assessment is the first step to determine an appropriate role for federal and state governments as communities respond to changes in forest management. Self-assessment is useful for understanding communities needs and, equally important, will enhance community capacity by

stimulating local involvement, providing local residents experience in planning for the community, improving morale and, if assessments include county and state officials and resource agency personnel, making linkages with outside institutions. Providing a forum where communities can voice their concerns, collectively define their needs and become effective actors in determining their futures can help catalyze community-based improvement efforts that go well beyond forest management. Self-assessment is a logical part of any mitigation measure as it will reflect the values of the people living in the community, provide a vehicle for integrating local knowledge in policy decisions, and contribute to a sense of community-level ownership in the resulting recommendations.

If preliminary indications are accurate, more financial support is likely to be channeled through ecosystem restoration projects than through more direct means such as job training, grants, or loan guarantees. The contributions that these restoration contracts make to local economies will depend on a number of factors, many of which can be adjusted to increase community-level benefits.

Ecosystem restoration projects can have positive social effects that go beyond economic effects. For example, in one California community, a stream restoration project reduced erosion and improved fish habitat, and provided local jobs, increased civic involvement, and increased locals' pride. Restoration efforts focused at the local level offer a venue for people to work together on issues of mutual concern, and begin to restore not only the biological ecosystem, but the social system as well.

Restoration work needs to be organized and developed. Contracts should be shaped to encourage the involvement of small, local contractors. In these cases, contracts let by federal agencies cannot be too large (e.g., in excess of $30,000) or small contractors will be shut out. Contracting rules might also need to be modified to allow family or extended families to operate.

Ecosystem restoration is a particularly useful mitigation measure because the jobs skills required for it are often held by local workers; also, local knowledge is brought to bear on restoration work, and increased local involvement with the community can result.

> 3. There is a need to increase the community role in resource decisionmaking, including, but not limited to, the application of local skills and knowledge in the implementation of forest management plans and watershed restoration. This is not just another form of public

involvement, but a fundamental change in the relationship between resource management agencies and communities.

The community role is also justified on the grounds that local citizens have a vested interest in the implementation of sound and sustainable resource management programs; they cannot afford to see the environment they ultimately depend on destroyed. A recent report by Ecotrust states it well:

> *Local people don't want to save the environment any more than they want to conquer it; what they want to do is to live in it. If they are to do this, they must concern themselves with conserving and restoring the natural resources on which their lives and livelihoods depend (Ecotrust 1993, p. 7).*

Paehlke and Torgerson (1990b) agree. Speaking of the role of local residents in working with environmental management agencies, they support the idea that residents can and want to play a major role, because citizens (unlike the agencies) have a direct personal interest in the consequences of the decisions that are made and because they often possess the knowledge of local terrain and infrastructure.

Public access to information is a key component of community empowerment. Strategies should be developed for providing increased access to a range of information (particularly geographically-based) related to land use, local ecosystem status and management, and demographics, as well as information related to economic development assistance and opportunities to exchange information with neighboring communities. It is also important that information be provided in an easily interpretable and non-intimidating format. Public information access programs can take advantage of new technological advancements in interactive information retrieval, display and exchange.

> 4. There is a recurring call for a collaborative relationship among governmental levels and agencies, and between government and private citizens. Such an approach must embrace the states, tribes, and private land managers to mutually create and implement a comprehensive strategy for forest ecosystem management that pays particular attention to the role of people.

There appears to be little coordination across the three states. The governors of the states, or their

representatives, should meet with federal officials to identify the desirable level of coordination. This would ensure that each state is learning from the experiences of others, programs are not duplicated, and resources are allocated as efficiently and promptly as possible.

Cooperative learning programs should be encouraged that bring together resource agency policy-makers, university researchers, college and high school students, woodsworkers, environmentalists, local businesses and community organizations to examine resource questions and design long-term projects. Socio-ecological research programs could provide information on the relationship between forest and communities, can enhance community capacity, can improve relationships between institutions and communities, and can help break down the disciplinary boundaries that foster conflict between resource management policies and social needs. In the California community mentioned above, students have planted native vegetation along the stream banks and been involved in monitoring the stream for a local watershed restoration project and for a high school biology class. Students have taken greater interest in their community and some are considering going on to college to learn more about watershed monitoring and restoration. An ongoing socio-ecological program could build a database from year to year on sociological indicators of community well-being as well as biological indicators of ecosystem health.

> 5. There is a need to utilize the existing network of programs and expertise at local, state, and federal levels. There is a well-established infrastructure for supporting forest-dependent communities in the owl region. State timber teams, economic development departments, and extension services have long focused on the needs of these communities. There appears little need to create a new level of bureaucracy to respond to the forestry situation; it would be redundant, disrespectful of the efforts and people already working on these issues, and wasteful of money hat might otherwise support specific programs.

There is a great deal of formal, information available regarding local communities, supplemented by a large amount of informal information held by individuals. It is important to find ways to capture and integrate these various forms of knowledge into a single data source.

Even though the design of any policy response will rely an technical and demographic data (e.g., migration, employment rates), the personal expertise of local residents, and community support and development specialists should also play a role.

6. It is important to distinguish between, short- and long-term needs. Short-term responses area designed to mitigate the immediate community impacts of harvest reductions (eg., restoration, contracts, replacement funding for schools) and long-term responses designed to enhance the capacity of communities so they are less vulnerable to any single external event. Examples of these long-term responses include local leadership training; planning support technical assistance for evaluating projects, and cost-sharing programs to encourage economic
diversification.

Policy responses should not focus on short-term consequences at the expense of long-term capacity. The proposed changes to federal land management are profound and constitute a fundamental shift in how society views federal forests. These reductions shift the context within which timber harvesting on federal lands occurs. Means must be found to allow federal land management to function effectively within the context of new dynamics. Nevertheless, there is no future in supporting firms or industries that are not competitive in a modern economy..

Short-term consequences can have long-term implications. Loss of cultural continuity, family disorganization, and lack of educational funding can create inter-generational difficulties that might prove more difficult and costly to solve than they would have been to prevent.

7. There is a need to assemble appropriate and comparable data. Because many community support programs are conducted at the state level, most of the data they need or generate is held at that level. Each state tends to gather different information in different ways, making, cross-state, comparisons difficult. The community assessment team's, efforts to use community experts in workshops only partially overcame these problems. Both, workshops produced differences between states in terms of patterns of community consequences, but there is no conclusive way to establish the cause for: these patterns. More information flow among states, as well as increased involvement of local residents and other community experts, would improve the ability to assess communities across the region.

Related to this problem, there is a need to break down jurisdictional barriers to understanding and responding to social impacts. Just as biological processes ignore artificial boundaries, such as land ownership, social impacts cross most jurisdictional boundaries. Arbitrarily focusing on any one level of organization--community, county, state--limits the ability to respond to the social consequences of falling federal timber harvests. Conversely, data collected at any one level can mask important diversity within that category; for example, information reported only at county levels can disguise significant effects within and between communities in that county. Both our analyses and policy responses must focus on multiple levels of social organization so that patterns at all scales can be identified.

> 8. There is much discussion and interest in the role of job retraining. Discussions with community experts confirm its importance, but also highlight its limitations. Retraining can mitigate some impacts, but it can increase others if designed and implemented without adequate attention to broader community issues. For example, former timber workers might be retrained in a field such as electronics, because of the demand for workers and the potential for year round family-wage jobs. However, if few of those jobs are located in rural areas, retrained workers will be forced to relocate to other areas to capitalize on their new skills. Community capacity is not improved at all and can be diminished, as workers leave the community for jobs elsewhere.

Workers who accept retraining might therefore have to accept relocation, if retraining is not tied to comprehensive programs of economic revitalization that create a demand for workers in communities affected by harvest reductions. **A pertinent policy question is how to help people through periods of rapid change in socially acceptable ways.**

It will be important to design any retraining programs with an eye to the social and economic characteristics of specific locations. Importing techniques that proved successful elsewhere does not ensure success at the local level.

Recent retraining program evaluations indicate that the strategy with the highest net return is job search assistance (Leigh 1990). The technique is most successful in large complex job markets where displaced workers need to find jobs appropriate to their skills. It's not yet certain that job search assistance would be

as successful in the rural Pacific Northwest, because there might be fewer alternative career paths for displaced workers.

The concept of cultural continuity is closely linked to the concept of worker retraining and the subsequent possibility of a need to relocate. Occupation and place of residence can be major factors in individual and group identity. Because timber jobs are disappearing, many rural residents will have to change jobs and relocate. Asking people to change their occupation, residence, or both constitutes one of the most stressinducing changes in their lives. In effect, it forces people to redefine themselves in fundamental ways (e.g., "I'm unable to support my family"). A portion of the current social discord in the region has arisen because the political rhetoric around the spotted, owl and old growth controversy has not been sensitive to this point. If anything, workers in the various timber industries have been portrayed as villains, rather than supported (Lee 1991).

Social theory defines cultural continuity as an important ingredient in social well-being. It provides a sense of who is and where he or she comes from; it also allows some notion of where one is going, at both individual and collective levels. A remark by Buzz Eades' at the Forest Conference states the issue:

> *I cut trees for a living just like my father did before me and my grandfather ..*
> *But I'm afraid of the future that faces my family.*

It might not be possible for all the sons and daughters of current woods workers to remain, if they choose, in similar jobs. This observation is based on trends in mechanization, harvest levels, and concern for forest ecosystems. However, if we are concerned with the social well-being of all citizens, policies should strive to maintain the idea of cultural continuity, to the maximum extent possible.

The Options May Lead to Many Consequences For Native American Peoples and Cultures

Native Americans have occupied the Pacific Northwest region for perhaps 35,000 years. They were active managers of the land; they used fire and otherwise managed it to create and maintain specific landscapes.

Harvesting strategies and techniques were governed by a complex system of social, political, and cosmological mechanisms that served to regulate and distribute resources in a manner which ensured perpetuation of, and access to, culturally important plants and animals. Recent research indicates that certain plants may need to be managed in a traditional manner to maintain their vigor and distribution within the landscape (Blackburn and Anderson 1993).

Access to and use of certain plants (e.g., sedges), animals (e.g., deer), and locations (e.g., fishing sites) continues to be vital to the cultural survival of a number of Indian tribes and communities. Plants provide food, medicines, and materials for utilitarian and ceremonial uses. Certain plants are essential for items that play key roles in the renewal of the earth (Karuk), becoming an adult in society (Yurok), and ultimately are essential to being Indian.

Indian tribes and groups are governments and communities that are potentially affected by a natural resource policy. Federally recognized tribes possess legal status and, in Oregon and Washington, also possess off-reservation rights held in trust by the United States Government. The treaty boundaries in Oregon and Washington are shown in figure 7-7.

There are 25 federally recognized tribes in California and 36 in Oregon and Washington that are located, have cultural interest in, or have reserved treaty rights within the owl region. Twenty-five of these tribes have treaties and 10 have Executive Orders that affirm certain rights--both on and off reservations--for water, gathering, hunting, fishing (including the right to erect stations and temporary housing for curing fish), and other activities and resources.

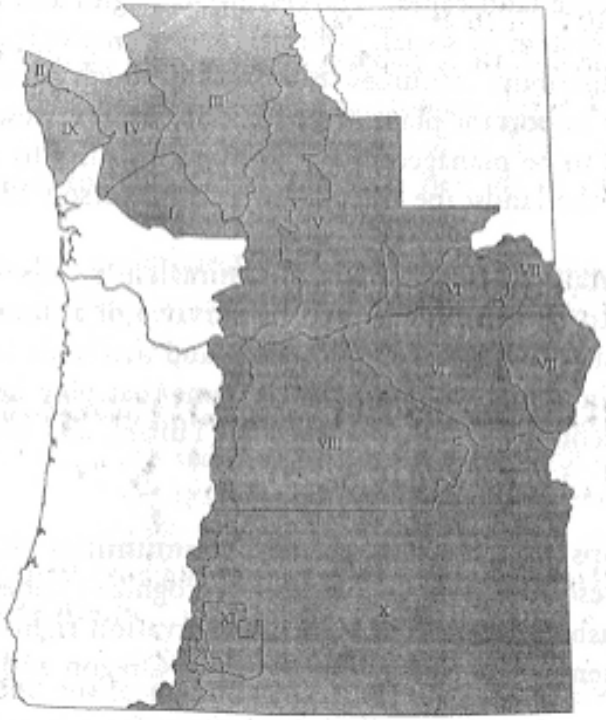
An important legal principle is that the off-reservation right to take fish at usual and accustomed places constitutes a property right; it represents an encumbrance on the land to access the fishing site, irrespective of land ownership. This is the major principle of treaty law that elevates treaty tribes to a higher level than states when discussing relations and governmental matters with tribes. These rights are not granted to tribes, but are retained in their status as prior and continuing sovereigns.

There is a large body of judicial and legislative action that acknowledges these tribes as sovereign governments. As such, the tribes must be consulted on a government basis regarding policy development. Consultation means more than notification and coordination; it includes meaningful discussions and

collaborations with tribal governments in policy development; planning design, and project formulation. Tribes must be consulted as legally constituted sovereign governments, as experts on treaty rights who have precedence over other uses, and as land owners potentially affected by natural resource policy changes.

Treaty rights include reserved rights for fishing; gathering, hunting, and grazing. Treaty reserved rights to gather roots and berries are also reserved by tribes on federal land. These rights have been interpreted through case law to have precedence over subsequent resource uses and must be accommodated by agencies. Only Congress can modify these rights; the federal courts have ruled that these rights must be respected and, if affected, compensation must be made.

Figure VII-7. Treaty boundaries for Oregon and Washington.



I MEDICINE CREEK TREATY
II MAKAH TREATY
III POINT ELLIOT TREATY
IV POINT NO POINT TREATY
V YAKIMA TREATY
VI WALLA WALLA, CAYUSE TREATY
VII NEZ PERCE TREATY
VIII MIDDLE OREGON TREATY
IX QUINAULT TREATY
X KLAMATH TREATY
XI FORMER KLAMATH RESERVATION

Spotted Owl Range Line

June 1993 1.4041204

At present, there are no existing treaty rights recognized by California tribes within the owl habitat areas. However, there are 10 treaties that are applicable to Oregon and Washington tribes within the owl habitat area.

In addition to these treaty-based rights, **there are various cultural uses associated with natural resource products.** Cultural uses are traditional activities that, while not affirmed specifically in legal treaties, are essential to spiritual activities, cultural identity and continuity, and need to be addressed in decisionmaking.

For both legal and moral reasons, the impacts of management options on Native American uses and values are a key policy matter. There, are constraints on direct consultation with the tribes in this exercise. As a result, our analysis of effects is necessarily limited, and it is difficult to determine all the ways that tribes might be affected by federal forest policy and practices.

However, given both traditional and contemporary linkages among Native Americans and forests, it is clear that tribal members have come to depend on public lands and resources for employment, subsistence, and cultural identity. The implementation of **standards and guides--the specific rules that govern management within different management areas in the forests--have a potential to either constrain or facilitate many of the practices and activities undertaken by Native Americans.** For example, standards and guidelines that prohibit or discourage the collection of certain plant materials could affect tribal rights and cultural subsistence practices. Habitat protection measures, such as controls on the use of fire, could also have substantial effects if these controls occur within traditional gathering areas (e.g., for grasses) that need to be burned. There was concern that prohibitions on the removal of Port Orford Cedar in old-growth areas on the Klamath National forest would adversely affect Karuk Tribe members engaged in their rites of passage ceremonies. As with many rural residents (tribal and non-tribal), there was a concern by Native Americans with the constraints imposed on timber harvesting in all the options. The Karuk and Klamath Tribes have requested that specific areas which are managed for full yield be shown as reserves in both Options 1 and 3. Indeed, there appears to be little difference in consequences associated with Options 1 and 3.

Recommendation

- Initiate interagency consultation and collaboration with Tribes on programs sensitive to, and respective of, Native American spiritual beliefs.

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The Options May Lead to Many Consequences For Recreation, Scenery, Amenities, and Subsistence

Recreation, scenic, and related amenity values in forests have been a central aspect of the popularity of forests, as well as a basis for much of the concern expressed in public involvement. Indeed, it was the burgeoning recreational use of National Forests and other public lands in the 1950's that foreshadowed much of the public awareness and concern for forest management that arose in the 1960's (1988).

Subsistence activities on forest lands embrace a range of specific activities and levels of effort, ranging from the casual collection of firewood to significant economic enterprises, such as harvesting mushrooms, floral materials, and other forest products.

Collectively, **these activities represent a major source of values that people derive from forests.** It is understandable that forest management activities (e.g., timber harvesting, road construction) that are perceived to threaten or jeopardize such values are of great concern to the public. These activities and values have remained a consistent and central feature in much of the public input received in response to Bureau of Land Management and Forest Service plans over the past decade; a concern that forest management activities might negatively impact the values,

activities, or places that are important to people.

In this section, we turn to an analysis of the potential effects of management options on selected amenity and subsistence values and activities.

Regional Survey of Social Value Information

As a first step in preparing this analysis, we undertook a regional survey of Bureau of Land Management and Forest Service units to determine the nature and relative availability of data on recreation, scenic allocations, and other public-use information. The availability of such data and the relative ease with which it can be accessed provides one measure for which the impact of forest management decisions on social values can be determined.

The eight Bureau of Land Management and 18 Forest Service field offices located within the range of the northern spotted owl were asked to provide information on the availability of data related to 24 types of uses and values. The information was coded as to relative availability (table 7-13):

AG: Readily available on geographic information system (GIS) maps
AH: Readily available on hardcopy maps
AN: Readily available but not on maps
NA: Not readily available
DNA: Does not apply

We have taken the existence of information stored in GIS files as the most desirable for our standard of performance. Increasingly, information regarding other resource values--particularly commodity values--is available in GIS. The growing importance of GIS systems (which provides an ability to display information in a rapid, graphic, and relational fashion) is that GIS has the potential for significantly improving management decisions, elevating community understanding of issues and consequences, and upgrading the attention given to a range of values. However, this will only be possible if all the relevant information is available in GIS, and can be processed and analyzed in comparable ways.

However, as table 7-13 shows, most of the social value information we inquired about is not in GIS. Those types of information available in GIS seem linked either to the political significance of the data (e.g., Wilderness or Wild and Scenic Rivers) or to a potential relation to conflicts with commodity values (e.g., roadless areas). For the information requested, there were only six data categories for which more than half the reporting units indicated they had GIS records.

Despite these concerns, the agencies maintain fairly complete data bases for recreation areas. Information on areas managed for scenic values (watchable wildlife, scenic byways, visually sensitive areas) are also generally well-documented in agency data files. In most cases, such data are available either in GIS or on hardcopy maps.

The generally complete databases for recreation, scenic areas, and specially designated areas indicates that the Bureau of Land Management and the Forest Service have a longterm concern for these values.

Additionally, the values are reinforced by expressions of concern in public involvement forums and, of course, by the political attention they hold. Clearly, these are major social values for which the agencies must remain sensitive. The results of this survey suggest a relatively adequate data base exists for use in making informed decisions.

However, for other types of social values, data to support .informed decisions are less adequate. For example, we found that information related to various Native American values--historical cultural sites, contemporary cultural sites, and lands under treaty rights--was variable. Although most units possessed information about historical cultural sites, 25 percent of the units indicated they lacked information in mapped form. Also, a significantly large proportion lacked mappable information for contemporary sites; only 30 percent had such information on GIS or hardcopy map. Only half of those reporting they had lands under treaty rights had this information in mapped form.

Information regarding Native American values can be affected by confidentiality and need-to-know considerations. It is possible that such information is purposely not maintained in readily accessible form so that it cannot be accessed improperly or illegally. However, the lack of site-specific knowledge also increases the likelihood of inadvertent impacts from other forest management activities (road building, logging) because of not knowing where these key values are located. The situation sets the stage for conflicts between Native Americans and managing agencies, making it difficult to promote collaborative relationships between the respective parties (see the related discussion on Native American Peoples and Cultures).

The data in table 7-13 also indicate a lack of GIS or hardcopy mapped information for a variety of other social-value categories. Some of these are surprising; for example, nearly 70 percent of the reporting units indicated a lack of information about special-use permits and other leases in mapped form. About 30 percent lack mapped information on utility rights-of-way and special places identified in cost-sharing grants. There are also surprisingly high figures for areas under land-tenure adjustments, and areas where mineral, oil, and gas leases have been granted.

We documented how poorly equipped the agencies are for dealing with issues such as recreation, scenery, special forest products, and subsistence. Information is collected and stored in different forms, even in neighboring units of the same agency. Relatively little of the information is readily accessible in GIS. Some information that would be useful for social assessment, for example community data) is not available in any form. Consequently, it was not possible to easily compare how the options affected the values society is very concerned about.

The lack of GIS-based information about most social values is disturbing. Informed decisions about forest management that consider the subsequent consequences to social values presupposes an understanding of their nature, location, and distribution. The ability to display this type of information quickly, accurately, and in a mapped format is critical in modern resource management. However, results of our review suggest that it is often not possible. In extreme cases, it appears the information is either totally absent or retrievable only through pain-staking efforts. This is not surprising because of the reliance on linear programs such as

FORPLAN in forest planning. Spatial information regarding multiple values, although essential for solving conflicts over forest land use, has only been a priority of agencies in recent years. In summary, it seems impossible to have professional and responsible management of key social values in the absence of these data in GIS format. A major effort to remedy this situation is needed.

Recommendations

- The agencies should immediately and jointly begin to obtain comprehensive coverage of key social value information. Such information is essential for monitoring, evaluating, and assessing the tradeoffs in different management scenarios and actions. The information should be available in GIS to allow easy manipulation of data for analytical purposes.
- Agencies need to improve their systems of institutional memory and analytical ability to respond to growing public concerns that have a range of social values.
- Agencies should work closely with Native American groups to ensure that they possess adequate information regarding cultural values to prevent inadvertent loss of these values in the course of forest management activities. Special care to ensure privacy of this information is necessary.
- Agencies should explore opportunities to participate in joint fact finding efforts including determination of what information is needed and it's acquisition and analysis.

The Case Study Workshop

The social assessment team conducted a workshop to supplement data collected in the regional survey and to provide a geographically specific understanding of

how the options would affect social values.

It was not possible to survey all the Bureau of Land Management and Forest Service administrative units in the region because of the time constraints. The decision was made to select four sub-regional areas for an in-depth case study analysis. These four case studies provided a more detailed examination of the pattern of values and the possible consequences of management options.

Four criteria guided selection of case study locations: (Z) each state should be represented; (2) lands administered by the Bureau of Land Management and Forest Service (representing a mix of rural- and urban-resident influences) should be included; (3) there should be wide geographical representation (e.g., coastal, Puget Sound, Willamette Valley); and (4) areas where the key endangered species (northern spotted owl, marbled murrelet, old growth, etc.) should be included. Based on these criteria, the following case studies and participating field units were selected:

Washington: (Seattle to east side of Cascade Range)

Mt. Baker-Snoqualmie National Forest
Wenatchee National Forest

Oregon

Mid-Willamette Valley	Southwestern Oregon
Bureau of Land Management Salem District	Bureau of Land Management Medford District
Siuslaw National Forest	Bureau of Land Management Klamath Falls Resource Area
Willamette National Forest	Siskiyou National Forest

California (Klamath Mountains to Pacific Coast)

Bureau of Land Management Ukiah District

Klamath National Forest

Six Rivers National Forest

The case studies were conducted during a 2-day workshop. Each group worked in a facilitated setting; with common guidelines for the exercise.

Because of the short timeframe that workshop participants had and the complexity of the seven management options being considered, it was decided to focus analysis on only three: options. Option 1 (maximum reserve), Option 3 (a hybrid involving a diversity of management actions among the geographical regions), and Option 7 (representing the current Bureau of Land Management and Forest Service plans). This range of options also permitted u§ to bracket the range of possible consequences to determine if they were sensitive to changes in the options.

Participants were asked to provide their best estimate of the consequences to a range of social values that might result from the options. The participants were provided a background discussion on the concept of social values, to indicate that these were features, attributes, and qualities of the environment to which people ascribe worth and importance.

We stressed the identification of *consequences* rather than impacts. All management actions, including no action, lead to consequences. Some may be interpreted as positive, others as negative, and still others as a mix. The purpose of this exercise was to obtain the participant's best estimate of the nature, distribution, and significance of the various consequences: what would happen, where, why, and so what?

Participants were urged to be creative and not overwhelmed by the task. They were also asked to be

explicit about assumptions and provide whatever documentation they has to back their judgments. It was stressed that the lack of information was information in itself; and our inability to describe consequences associated with the options helped us define areas of management that need attention and research.

There are Mixed Effects of the Options on Recreation and Scenic Values

National Forests and Bureau of Land Management Districts provided information on the land they currently have allocated to recreation and scenic purposes. From this baseline information, it was possible to examine how the allocations would be affected by the options. We specifically examined the changes associated with Option 1 (maximum reserve) and Option 7 (the Forest and Bureau of Land Management plans) to provide a measure of the likely range of effects.

For recreation, we were particularly interested in the extent that the options would affect the current allocations of primitive and semiprimitive nonmotorized recreation. To what extent would these allocations be located in the Matrix when compared to the Reserve classifications?

The information on recreation demand that is reported in both the Oregon and Washington State Comprehensive Outdoor Recreation Plans indicate there is a high and increasing demand for recreation settings with little development and management activity, relatively low use, and no motorized access permitted. For example, recent work by Swanson and Loomis (1993) indicates that although there are about

5.5 million acres in the region currently allocated to primitive and semiprimitive, nonmotorized recreation, the forecasted demand by the year 2000 will be nearly 13.5 million acres. It is clear that settings which cater to these forms of recreation are especially valuable. Decisions affecting these areas by increasing their accessibility or by modification (e.g., road building, timber harvesting) need to be carefully considered.

We examined the status of the current primitive and semiprimitive nonmotorized acres in the Matrix for Options 1 and 7. Areas within the Matrix will not automatically be subject to timber harvest or other developmental actions. However, given the constraints on development within the Reserves, these lands will be an obvious place where commodity demands may be met. Therefore, having an idea of how much recreation land would be in the Matrix provides an indication of how much recreational opportunities would be at risk to development.

Over half of the primitive and semiprimitive, nonmotorized acreage in each state would be in the Matrix, in both Options 1 and 7; nearly two-thirds of the acreage in California and Washington would be in the Matrix in Option 1 (table 7-14). In fact, Option 7 would actually result in there being slightly less acreage in the Matrix than in Option 1. Although the range between Options 1 and 7 for California and Oregon is only 6 percent, it represents over 100,000 acres for the two states. Combined with the distributional effects of the different options (which we were unable to fully capture in our analysis), the effects of the two options could be quite different.

It remains problematic as to what the implications of these effects will be because of the uncertainty of

what specific management actions are permitted in either the Matrix or Reserves. For example, the fact that areas currently allocated to primitive or semiprimitive, nonmotorized recreation are located in the Matrix does not automatically mean these areas would become roaded or otherwise developed. Conversely, the fact that such areas are located within a Reserve does not automatically preclude the possibility of some developmental activity. However, given the conservation objectives and viability concerns associated with Reserves, their overlap with these primitive or semiprimitive, nonmotorized recreation areas will result in additional protection as well as an opportunity to provide a desired and demanded recreational setting.

The issue of standards and guidelines is crucial for recreation. The extensive reserve systems proposed in the options may offer a wide range of recreational opportunities, especially for nature-based activities such as camping, many styles of hunting and fishing, hiking and so forth. The creation of sensitive standards and guides represents an important way in which special places that embody much of the meaning forests hold for people can be protected for their continued enjoyment (Clark et al. 1984).

Standards and guidelines that allow for the construction of trails, recreation sites, and a variety of other low-level developments would make available the recreational values offered by the options. Such developments would not only result in the provision of desired opportunities, but they would also lead to significant economic values. Swanson and Loomis (1993) have calculated the annual recreation benefits that would accrue under selected options. They report that under Option 1, total yearly recreation benefits would be $825 million, less than that associated with

the current situation ($842 million). However, by developing standards and guidelines that focused on the creation of additional semiprimitive nonmotorized and semiprimitive motorized recreational settings, this annual benefit could be increased to $910 million.

Rich opportunities exist to capture a range of values from the options--they yield not only ecological and scientific values, but can also contribute to a variety of public uses and economic values. The development of standards and guidelines that promote opportunities to realize these values is a key issue; it represents one of the major ways in which the economic and social benefits of the options can be more fully captured.

With regard to scenic allocations, we examined two possible outcomes. First, we examined the extent to which areas currently managed for the retention and preservation visual quality objectives would be located in the Matrix. The preservation Visual Quality Objectives permits only ecological changes in the landscape; retention objectives require that management activities not be visually evident. Therefore, areas in the Matrix with these Visual Quality Objectives' represent another factor that might constrain developmental activities in the Matrix.

Over half these Visual Quality Objectives acres would lie within the Matrix for each state in Option 1. There are not large differences among the three states. In Option 7, the percentage rises in all three states, particularly in California (table 7-15).

We also examined the converse of the above: how much of the land with modification and maximum modification Visual Quality Objectives' would be located in Reserves? Modification permits management activities to be dominant in the

foreground and middle ground of the visual landscape are as, but they must appear natural. Maximum modification is defined as where management activities are dominant, but appear natural because they are in the background (3 to 5 miles out, depending on slope).

Option 1 would result in between 30 and 60 percent of the modification and maximum modification landscapes occurring within Reserves. When Option 7 is considered, the figures drop sharply; only in Washington would a significant proportion of these areas be located within Reserves (table 7-16).

Locating areas managed for modification and maximum modification Visual Quality Objectives' in the Reserves does not necessarily imply that changes in the Visual Quality Objectives would occur (e.g., from modification to retention). However, an opportunity does exist to re-examine the objectives and undertake steps to create landscapes with a more natural appearance landscape. Such a management direction is wholly consistent with research on preferred visual landscapes in forest settings (gibe 1989), and complies with the strongly expressed preference for more naturally-looking landscapes revealed by public input. Driving for pleasure is the most demanded recreational activity on federal lands. Landscapes within Reserves would likely be more appealing for sightseeing as well as a more desirable backdrop for other recreational activities than areas subject to intensive timber harvesting, particularly near campsites (Clark et al. 1984).

The ability to create a more natural appearance for landscapes is also consistent with State Comprehensive Outdoor Recreation Plans results. To meet projected recreational demands by the year 2000,

the Oregon and Washington State Comprehensive Outdoor Recreation Plans indicate that 18.6 million acres of natural landscapes would be needed, compared to only 4.7 million acres of heavily modified landscapes. If the amount of land needed to accommodate the demand for natural-appearing landscapes is not available in the future, associated economic benefits will not be realized.

For both recreation and scenic values, the options present opportunities to meet important public concerns and interests. The provision of primitive, nonmotorized recreational opportunities and the creation of more natural appearing landscapes are consistent in many ways with conservation objectives associated with the Reserves. The specific management of both the Matrix and Reserves will be guided by the standards and guides developed for these areas; the opportunity to increase the flow of human benefits to the community that this discussion reveals will be an important influence on the standards and guides.

Recommendations

- Agencies should develop comparable data collection systems that allow comparisons of recreation use and supply, scenic allocations, and related public uses.
- Information regarding various social values should be incorporated into GIS systems as soon as possible to enhance their value and use in decisionmaking.
- Standards and guides prepared for management of both Reserves and Matrix lands should attempt to accommodate the growing demand for naturalappearing landscapes and recreational opportunities featuring nonmotorized access.

Bureau of Land Management and U.S. Forest Service Field Staff Who Participated in the Workshop Brought High Levels of Expertise, Energy, Enthusiasm, and Creativity With Them

Their local knowledge was impressive and they were typically able to provide detailed and specific information about the nature and location of the values with which we were concerned, as well as trends and patterns in the uses of these resources. Clearly, the agencies have a rich, committed cadre of people upon whom they can call and who bring high levels of energy and enthusiasm to their work.

However, we were also struck by the idiosyncratic and anecdotal nature of much of this knowledge. Often the knowledge these individuals had to provide was the product of their own effort and concern, as opposed to that available through any systematic or routinized data collection system; there was little evidence of organized institutional memory. It was also apparent that little in the way of systematic data sharing among management units occurs; during group discussions, individuals were constantly "discovering" that others were also interested in, collecting, and concerned about, certain uses (e.g., mushroom collecting).

Finally, it was apparent that many of these values exist only as residual, secondary, and incidental to the primary job of timber management. The most obvious and explicit consideration of these values comes when their presence or use becomes a constraint on timber production or when mitigation measures are required.

Despite the growing rhetoric calling for integrated resource management, we found little evidence of such practices. There was little in the discussions during the workshop that would lead us to change our view that the ability to integrate various forms of social values--commodity, amenity, ecological, scientific--into decisionmaking processes is limited by lack of knowledge and mechanisms for managers (Stankey and Clark 1992; Clark and Brown 1991).

Recommendations

- The professionalism underlying management of recreation, scenic values, subsistence, and related social values needs to be upgraded. This includes systematic data collection, "user friendly" data storage and retrieval systems, and integrative analytical frameworks.

- Functional and disciplinary structures and processes, including planning and budgeting, need to be replaced by multi-functional, interdisciplinary systems. Workshops, training sessions, and other forms of continuing education that address integrative approaches to planning and management should be given greater attention.

- Educational curricula need to increase attention to formally incorporating interdisciplinary and integrative approaches into classroom teaching. If forestry and natural resource management programs fail to make these changes, it is likely other academic programs may take the initiative; if this should eventuate, foresters and other technically-trained individuals will find themselves increasingly removed from key decisionmaking positions. In particular, attention needs to be devoted to providing students with analytical frameworks that enhance integrative thinking and strengthen both problem-defining as well as problem-solving skills.

- Agencies should give priority attention to ways of

encouraging and awarding integrative, interdisciplinary approaches to management, planning, and research.

Public Judgments of Acceptability Influence Management

What are the factors associated with effective resource management? Generally, three conditions are seen as necessary for any resource management program to succeed: (1) it must be ecologically sustainable or possible, (2) it must be economically feasible and (3) it must be culturally adoptable or socially acceptable (Firey 1960).

The first two conditions have attracted the most attention. The ecologically sustainable nature of any program is, in fact, what has brought recent attention to the question of forest management in the Pacific Northwest. There is also mounting evidence that many forest management programs, especially those related to timber management, are not economically feasible. Deficit timber sales, for example, have become a major political issue.

The issue of the social acceptability of forest management practices and conditions has attracted less systematic attention. Nonetheless, it is a crucial concern. Those forest management practices (e.g., specific timber management prescriptions) and conditions (e.g., clearcuts, road networks) that society judges unacceptable, by whatever criteria, simply cannot continue in the long-run. This is true, despite the fact that the given practice or condition might be based on sound science, or capable of producing

significant economic returns. An example is the virtual foreclosure of large-scale clearcuts.

The social acceptability of forest management activities bears significantly on the current issue in the Pacific Northwest. Although the effect of public acceptable on management of Matrix lands is particularly a concern (largely because it is on the Matrix that timber harvesting would most likely be considered), it also will affect decisions for Reserves. For example, the question of the role of fire as a means of achieving conservation objectives, in these areas will need to consider public acceptability, irrespective of ecological or economic arguments.

Because there is a relatively large area committed to Reserve status in the options, the Matrix lands, which have a generally greater latitude for multiple-use management activities, will be the focus of much attention. However, Matrix lands also are seen as contributing to the viability of the owl population (because they serve as connections among Reserves); as a result, they have a dual role that will further intensify public scrutiny and concern.

In short, **the lands within the Matrix have been and will continue to be the source of a variety of other values** (e.g., recreation, scenic quality, special forest products, conservation objectives). To the extent that timber harvesting conflicts with these other values, it is likely to be further constrained by them. Public judgments of acceptability will play a major role in the form and extent of these constraints.

Public concerns about harvesting practices and associated conditions--their impacts on scenic quality, biodiversity, wildlife--represent a factor that further influences what proportion of the Matrix will be

available for timber management. For example, comments received from the public on Forest Service and Bureau of Land Management plans reflects extensive concern about the impacts of timber harvesting and resulting conditions on a host of other values, special places, and concerns. In short, public judgments of acceptability can have profound impacts on what proportion of the Matrix is harvested.

Acceptability judgments can be influenced by public beliefs about ecological processes, agency motives, the importance of aesthetics, or the feasibility of achieving alternative forest conditions. It is important to understand the conditions under which acceptability judgments are formed and the factors that affect such judgments. Nevertheless, the concept of acceptability is complex. Even the definition is problematic; for example, that which is acceptable is not necessarily desirable. What is considered acceptable could be defined as a goal that managers strive for or, alternatively, a threshold of tolerance they dare not fall below. In short, do acceptable judgments reflect an optimal state or merely define that which is tolerable?

Managing the Matrix: Implications from the Acceptability Literature `

Several important implications for management of the Matrix can be drawn from the literature and research on the issue of acceptability.

Knowledge is positively associated with acceptability judgments, a point consistent with conventional wisdom about the importance of "educating" the public. When people understand the

rationale, basis, and purpose of a practice, judgments of acceptability normally arise. judgments are based on not only what we see, but also on our understanding of how and why. For example, Brunson and Shelby (1992) reported that.the acceptability of "new forestry" practices was positively related to the evaluators' knowledge about ecosystem management. The practice of new forestry (Franklin 1989) may indeed represent an acceptable practice for timber harvesting, especially in areas where traditional techniques (e.g., clearcutting) are not possible. However, this is most likely only if the public has an opportunity to learn about the technique and its relationship to an ecosystem-based approach to management (Brunson 1991).

Judgments of acceptability concern more than scenic impacts. Public dissatisfaction with timber harvesting in general and clearcutting in particular often is seen as based on an aesthetic concern. However, a growing number of researchers suggests there are other factors. Gobster (1992), Brunson (1991), Kusel and Fortmann (1991), and Fortmann and Kusel (1990) have discussed the priority assigned to such issues as biodiversity, species survival, and long term site productivity in public judgments about acceptability.

The role of context has a major effect on public judgments of acceptability. A contextual issue that is especially relevant to judgments of a forest condition or practice is that of "special place"; specific areas to which people have attached a special meaning or memory (e.g., a favorite recreation site) (Mitchell et al. 1993). Practices or conditions generally judged to be acceptable may not be so in such places. Inventories that identify such sites can be valuable in forestalling actions that might otherwise have been

undertaken.

A closely related issue is the question of scale. Specific forest prescriptions may find acceptance in the abstract, but when applied to the ground may be judged in terms of a larger spatial scale. For instance, Brunson 1992) describes a situation in which a particular prescription was. criticized, not in terms of its appropriateness at a given site, but in terms of being yet another example of harvesting in a large landscape where overcutting had already occurred. The extensive acreage devoted to Reserves in the options might forestall some of this concern, but it is likely that the region's history of harvesting will still lead to concerns about future cutting in Matrix lands.

For some people, **the perceived, risk associated with harvesting will remain an issue** that has two related dimensions. First, there will be a concern that the Reserves still are not adequate to ensure long-term. viability of the species for which they have been designed. In such a view, harvesting in the Matrix will remain a threat to species survival. Second, harvesting methods in the Matrix that adopt non-traditional prescriptions (e.g., new forestry methods) are seen as untested and likely to have unknown consequences. In particular, when biological diversity and ecological integrity appear at risk, decreased acceptability , will characterize the situation (Brunson 1993). When dealing with complex ecosystems where theme are inherently high risks associated with little knowledge, we can expect relatively, low levels of acceptability for practices that are problematic (best expressed by Jack Ward Thomas at the Forest Conference: "*ecosystems are not only, more complex than we think, they're more complex than we can think*").

The risk associated with, uncertainty, and

imperfect, knowledge is exacerbated by the concerns held by many people about agency motives. In a survey of alternative conceptions of the Forest Service New Perspectives Program, Clark and Stankey (1991) reported that a significant number of respondents described the effort cynically. There remains uncertainty among the broader community, as well as resource management professionals, as to whether ecosystem management constitutes a real change or is simply another name for traditional forestry. In managing Matrix lands, as well as those options in which "special" silvicultural practices are used in portions of Reserves, this cynicism may be expected to cloud judgments of acceptability.

The importance of interpreting public acceptability within the proper spatial context cannot be over emphasized. The most obvious implication of this for the Matrix is that the production of multiple, resources, including commodities, will be more acceptable in the Matrix if the area protected from harvesting 'is large. However, the influence of spatial scale on acceptability is more complex.

Just as different properties of a biophysical system emerge at different levels of resolution (e.g., from site to stand, from stand to landscape, etc.) so do properties of a sociopolitical system (from the individual to the community, from the community to the region, etc.). It is important to consider public acceptability at each of those scales. **Any ecosystem management solution must allow sufficient flexibility at smaller scales to allow for adjustments to meet the 'particular needs of the local public, as well as those of locally important plant and animal communities.** However, there must be sufficient structure to ensure that overall ecosystem objectives are met at the larger spatial scales and that the values

of regional and national publics are protected.

There is mounting evidence of public support, in both rural and urban settings (Fortmann and Kusel 1990; Steel et al. 1993), for policies and programs that support environmental protection. This evidence suggests an *acceptable* ecosystem management solution will. be one that clearly goes beyond. the minimum Reserve system to ensure survival of currently listed threatened and endangered species. Moreover, biodiversity and ecosystem sustainability must also be given considerable weight in Matrix lands.

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From Public Involvement to Public Participation

Although an array of legislative requirements exist for public involvement in resource management and planning, well-established programs and policies that integrate public input into decisionmaking remain elusive. The National Environmental Policy Act (and accompanying direction in the *Forest Service Manual*) calls for public input to agency decisionmaking as a means of identifying issues, concerns, and opportunities. When an Environmental Impact Statement is required, Forest Service policy calls for "a*n early and open process to facilitate free and open communication with the public*." The National Forest Management Act reaffirms this direction: public involvement is to play a central role in the forest planning process. The Federal Land Policy and Management Act of 1976 provides similar guidance to the Bureau of Land Management regarding public participation efforts.

Despite this legislative mandate and agency efforts to meet its requirements, there is substantial evidence that the goals underlying public involvement programs--informing people, soliciting their ideas, integrating their concerns into decisions, and being responsive to those who own public lands--are not met in practice (Shannon 1990, 1992b). For example, despite the massive public involvement effort undertaken in the

preparation of Forest Plans as mandated by the National Forest Management Act, virtually all plans have been confronted by litigation, public dispute, and charges that the plans fail to be responsive to public concerns (Behan 1990b).

There are also claims that, at best, the Forest Service uses the results of public participation to make marginal changes in decisions: at worst, it uses them to sugarcoat decisions already made. Using data from the RARE II process, Mohai (1987) contends that statistical support is lacking for the agency's position that public comment was a factor in roadless area allocations. Based on his personal experiences as an environmental advocate in southern Oregon, Brittel (1991) argues that the Forest Service uses public participation, and indeed its entire National Forest Management Act and the National Environmental Protection Act planning processes, to rationalize and substantiate *faits accomplis*.

Such outcomes breed a cynicism toward agency efforts that can be crippling. Ironically, it often seems that agency public involvement programs exacerbate the problem: Wondolleck (1988) has noted that **programs are often designed in such ways that they promote adversarial relationships among various interests**. Moreover, there still remains little understanding and few mechanisms for integrating public input into the planning and decisionmaking process (Blahna and Yonts-Shepard 1989; Stankey and Clark 1992). As a result, public input often remains an outlier to the substantive planning process, and is treated in a consultative fashion rather than as a core aspect for consideration in decisionmaking.

Much of the concern with public involvement stems from its status as a legal requirement in key legislation

under which federal resource agencies operate, including the National Environmental Policy Act, the National Forest Management Act (Forest Service), and the Federal Land Policy and Management Act (Bureau of Land Management). However, while such legislation provides a legal basis to public involvement, it also can lead to a procedural and mechanistic perception, more concerned with meeting the minimum legal requirement than with satisfying the intent and potential of these laws.

Such an approach severely constrains the potential value of public involvement and, ironically, contributes to the likelihood that the process of consulting with the public as a means of improving management will fail to do so. The following statement by Daniels et al. (1993) points out:

> *Finally, a "Catch-22" comes from agency personnel focusing on appeals/litigation. Fear of having decisions challenged or overturned creates a defensive stance, where the strategy becomes one of crafting "bulletproof" decisions. Unfortunately, this orientation is often percieved as suspicious by interest groups, in turn increasing the likelihood of adversarial relationships and ultimately the very appeals that motivated the Forest Service*

behavior initially.

Three common reasons for public involvement are cited: (1) a means of informing the public of agency plans, (2) a way to obtain public views about these plans, and (3) collecting public information that might be of use in planning. However, there are other, more fundamental reasons why public input in the planning process is both appropriate and necessary.

People Should Have a Right to Influence Decisions that Affect Their Lives

There is the normative and populist view that people should have a chance to comment on those decisions that affect their lives. This is a central tenet of democratic governance: given the emerging importance of many of the values associated with forests (employment, recreation, scenery, and biodiversity), the opportunity to participate in decisions that affect these values is crucial.

People Have Much Knowledge to Contribute

In our highly technical society, we often assume that knowledge necessary to make things work is held only by those we call experts. However, expert knowledge is rarely sufficient for analysis, prediction, and management (Friedmann 1987; Schwarz and Thompson 1990), and experts are likely to disagree more often than not (Douglas and Wildavsky 1982). To fully understand the world, one needs knowledge

that is a product
of continuing interaction with the world. Often this knowledge can be found among citizens who live, work, and play in our forests. Robert Lee is currently working on a project examining knowledge that people who live in communities have about forests. The purpose of this research is to learn how to measure, preserve, extend, and enhance local knowledge about forests and forest management. Preliminary results suggest that
for the ways local forest managers think about forests varies with their experience in growing up and current responsibilities for managing the land.

In some cases, we find that citizens are the sole source of key technical information that 1g is essential for effective decisionmaking. There is also mounting evidence that the quality of technical decisions is enhanced through the scrutiny that public involvement can bring (Paehlke and Torgerson 1990a).

Public involvement can provide increased understanding how the world works, how it might respond to changes, and how those changes would affect both people and forests. In this sense, public involvement is broadened to embrace the concept known as "social learning" (Reich 1985), "mutual learning" (Friedmann 1987), and "working through" (Yankelovich 1991), in which both the public and resource managers learn from one another.

Public Involvement Can Help Us Learn About One Another

One of the most disturbing, yet common, features of the debate over forest management is the increasingly

shrill, acrimonious, and accusatory dialogue. Too often, the discussions become dominated by "us versus them" and "right versus wrong," which effectively precludes any chance of accommodation, compromise, or resolution. Unfortunately, many of the public involvement forums undertaken in the past have actually aggravated this situation, fostering an adversarial relationship among the public and between the public and the agencies (Wondolleck 1988; Daniels 1993).

There are examples, however, that demonstrate how thoughtfully constructed public involvement programs can help participants come to understand, and recognize as legitimate, the diverse perspectives and values held by others (examples of such efforts are provided later in this report). Understanding does not constitute agreement, nor should it, but it is an essential and necessary aspect of effective resource management.

What You Hear Depends on Who You Talk To

The means by which public comments are collected influences the nature of the constituency that participates and, as a consequence, the substance of the results. For example, we found that local environmental groups were not represented at the Forest Conference, but were participants in the subsequent input. Moreover, their comments tended to focus on specific places of concern. Conversely, considerable comment at the Forest Conference focused on conditions in rural communities and impacts on rural residents. The follow-up invitation resulted in input from outside the Pacific Northwest

region, with a greater focus on extra-regional effects associated with any decision, such as effects on forests in Alaska, Canada, eastern Oregon, eastern Washington, and even Siberia.

This does not suggest that input from the Forest Conference, or any other forum, is not of value. It is simply that policymakers must be cognizant of how these forums, and associated rules of engagement affect the nature of what they hear: Is the input provided through oral statements, through written statements, and so forth?

This issue is especially important because it relates directly to the question of which interested and affected citizens have an opportunity to participate in decisions that affect their lives. Because not all people have equal access to various forums, or they find the forums alien, such biases can lead to the systematic exclusion of certain sectors of society, and the interests they represent. It is important that planning efforts adopt a variety of mechanisms and forums through which public involvement efforts are conducted.

What You Hear Depends on How You Listen

Our public involvement procedures can selectively screen what information we obtain. There is a tendency to look at public input as the source of

technical, site-specific, and factual data; information that conveys general attitudes, concerns, and opinions is often seen as having little value. Failure to use comments in context can lead to a loss in the richness of information they contain. For example, in the course of our analysis of past public comments, we reviewed comments received in response to the Bureau of Land Management Final Environmental Impact Statement on timber management (1983). The summary reports of comments received suggests that people only commented on various silvicultural aspects. When we reviewed the actual letters, however, we found quite a range of information regarding other issues, such as recreation and scenic management. This finding is consistent with other comprehensive reviews of public involvement in federal decision processes (Force and Williams 1984, 1989; Blahna and Yonts-Shepard 1989; Shannon 1990, 1992a).

Public Input is Information on Public Values

Public input represents one of the major sources of information regarding the nature of societal values (Shannon 1991). Our understanding of public values, such as what they are, who holds them, and how they are affected by management actions, is typically limited (Stankey and Clark 1992). Although public input is not a systematic and representative measure of public values, it is one major way to gain an appreciation for a range of values and their distribution and importance across society. When we fail to capture the full richness of these data, or are unable to easily access and process what information we do have, we lose an important analytical capacity.

The view of public input as a major source of data, critical to any planning effort, rejects the view of public involvement as mere evidence of procedural compliance. Instead public input becomes crucial and central to the heart of any planning process. One related implication of this idea is the need to think of public involvement as an ongoing process, one integrated into planning, providing different functions as the planning effort evolves. Often, public input is sought early in the planning effort (i.e., during the scoping phase), then again at the close to obtain reactions to the proposed decision. However, as one analysis of the Forest Service planning effort has reported, typically little public involvement is solicited during the middle stages of planning when many key decisions are made (Blahna and Yonts-Shepard 1989). In short, at the time when the most important activities, those affecting the various forest values, were occurring, there was little or no systematic contact with the public who would be most directly affected by these decisions.

Is Anybody. Listening? We Told You This Before

The public input record that has been built over the past 25 years is an enormously important and rich data source. One implication that emerges when this lengthy record is examined is that many of the issues, concerns, and questions that the public has raised over this period are still with us. The fact that they are suggests, among other things, that the public does not perceive agencies as being responsive to their concerns. For example, in reviewing the public input record on one forest, we found that public expressions of concern about anadromous fish stocks had been

received as early as 1974, and that recommendations for the protection of key roadless recreation sites had been made for over 2 decades.

The failure to demonstrate responsiveness carries significant costs, not the least of which is the promotion of a public cynicism that can be summed up as, "Why bother?" All too often, there is a public perception that their input disappears into some kind of black box and that the decisions eventually made (sometimes long after the input was provided) reflect little if any responsiveness to that input (Williams and Force 1985; Force and Williams 1984, 1989; Wondolleck 1988). Although it is impossible for everyone to get everything they want, there seems little justification for not providing people who have taken the time and trouble to provide their ideas with an indication of how their input was considered and used in the final decision (Force and Williams 1984, 1989; Blahna and Yonts-Shepard 1989).

Pay Me Now or Pay Me Later, But You Will Pay Me

There continues to be resistance to public involvement on the grounds that it is costly in terms of both finance and time. Although this may be true, the failure to engage the public early, honestly, and in an on-going fashion (Blahna and Yonts Shepard 1989) will merely delay these costs. It will likely increase them as well not only in higher financial terms, but also in terms of increased cynicism, heightened frustrations and distrust, and increased public reliance on alternative

decisionmaking venues, notably the courts and legislature. At the extreme, people may simply by-pass administrative agencies or pay them only perfunctory attention (Dunlap 1991), choosing instead to rely on the legislative or judicial branch to achieve satisfaction. In such a scenario, resource management professionals would become little more than technicians.

Barriers and Solutions to Interagency Collaboration

On April 2, President Clinton stated a vision wherein there will be "one government" focused on public service with respect to management of the federal forests. There seems wide concurrence that government is not working, at least not as it might or should. This, however, does not mean that government **can't** work; indeed, books such as *Reinventing Government* (Osborne and Gaelbler 1993) are based on the premise that government can serve the people, that it can achieve good things; but to do so, it has to find new ways of doing business.

Our workshop participants from the Bureau of Land Management and Forest Service agree. We posed two questions for them to consider as they thought about President Clinton's vision of "one government." First, we asked them to think about the barriers that impede working together (i.e., the two agencies). Second, we asked them to suggest steps to overcome these barriers.

Their responses, grouped into six broad categories, are presented below. Within each category, specific problems and proposed solutions are outlined.

MISSION AND VISION

Perception: Agencies lack a shared land management vision because of conflicting laws, regulations and policies.

Solutions:

1. Change legislation.
2. Consolidate agencies.
3. Create one internal "corporate board of directors" for the federal land
management agencies.

Perception: Agency visions do not reflect contemporary societal values

Solution:

1. Develop a common mission embraced by agency management.

Perception: Two agencies are authorized to manage neighboring land bases differently.

Solutions:

1. Consolidate (block up) agency land holdings.
2. Implement a consistent delegation authority for both agencies.

COMMUNICATION

Perception: Agencies do not work well together as "sister" agencies

Solutions:

1. Co-locate offices.
2. Exchange and detail personnel between agencies.
3. Hold professional and management team meetings jointly.
4. Link agency communication networks.

Perception: Internal communication is cumbersome because of the three-tiered administrative structure

Solutions:

1. Validate and formalize existing field-to-office and office-to-field communication networks.
2. Develop a horizontal structure for communication.

Perception: Legal opinions, and the administrative field direction which follows, differ between agencies.

Solutions: None given.

BUDGET

Perception: Budget processes and timing differ between agencies for both out- year and project-level planning and implementation.

Solutions:

1. Align the two processes.
2. Coordinate timing, particularly for jointly administered projects.

Perception: Current funding does not reflect agency needs.

Solutions:

1. Fund agency programs on some basis other than board feet.
2. Fund agencies to adequately implement approved land use plans.

LAND-USE AND PROJECT-LEVEL PLANNING

Perception: Agencies are.not coordinating land-use planning efforts

Solutions:

1. Use multi-agency interdisciplinary teams for joint planning efforts.
2. Coordinate timing and lead responsibility for joint project-level work.
3. Identify common issues that affect both agencies.
4. Conduct landscape-level planning between agencies.

INFORMATION

Perception: Agencies do not share common terminology, standards and informational databases

Solutions:

1. Develop common terminology.
2. Standardize and use common databases and informational systems (like GIS).
3. Create common inventory and monitoring methods.

Perception: Public information is independently developed and dispensed by agencies.

Solution:

1. Develop joint public information; for example, maps, brochures, etc.

AGENCY CULTURES

Perceptions:

1. "Turf" battles between agencies are prevalent with a pervasive mentality of "we
do it better than you."
2. There is a lack of trust of the other agency's specialists', particularly between
the Fish and Wildlife Service and the Forest Service.
3. A pervasive "watchdog" mentality exists between agencies. Agencies do not
respect each others' views.
4. There is a feeling that public lands are .managed as though they are agency
owned. There is a pervasive mentality of "we've

always done it this way."

Solutions:

None given, in a direct sense, because perceptions relating to an agency's culture change only after fundamental changes to other perceptions occur.

In reviewing these results, several key lessons emerge:

1. There is strong consensus among participants about the nature of the problems and the solutions needed.
2. Many of the solutions have been noted elsewhere. For example, in a recent report on science in the National Parks, the authors report that a major impediment to effective implementation of science findings can be traced to cultural barriers *within the organization, between managers and scientists.*
3. This group, in only slightly more than 1 day, showed its capacity to engage in collaborative, self-critical thinking. As Jack Ward Thomas commented to the President at the Forest Conference, "*You command incredibly talented people...they are highly skilled. They are incredibly motivated. They can do marvelous things...*" Within the organizations, there exists a rich body of creative, energetic, and innovative people who are capable of bringing about significant change.
4. There is wide recognition of the need for fundamental change, and there is an appreciation that marginal changes will not suffice.
5. A rich mix of ideas and suggestions range from the

relatively simple (e.g.,
detailing personnel between agencies) to the fundamental and complex (e.g.,
consolidating agencies, drafting new legislation). We should not lose sight of
the fact that much can be accomplished within current structures. A recent
Forest Service Pilot Project reported that at least 75 percent of the changes
called for could be achieved with no change in the law.

6. The ideas identified by this group are consistent with many of the findings that
we have discovered in the course of the social assessment. There is strong
support for collaborative decisionmaking processes that involve local
communities and the full range of interests; there is concern with the
inadequate data bases from which critical decisions must be made; and there is a
recognition that the loss of trust must be overcome.

Effective Agency and Citizen Collaboration is Occurring

Criticizing government agencies often seems to be a national sport. Resource management agencies have been severely criticized for their seeming failure to be responsive to citizen concerns (e.g., see Wondolleck 1988). Such criticisms have considerable foundation and represent a major barrier to regaining public trust.

It would be a mistake to assume that important progress has not occurred. **There are a variety of examples of successful collaboration between land**

management agencies and citizens. This is particularly true in efforts to establish innovative, collaborative links between federal agencies and their constituents. There are an increasing number **of** examples, many in the Pacific Northwest, showing that the contentious, adversarial nature of agency-public deliberations are not inevitable.

As a key part of our findings, we examined examples of successful undertakings that demonstrate productive links between resource managers and the community. A progress report provided to the social assessment team by Professors Julia Wondolleck and Steven Yaffee, School of Natural Resotirces, University of Michigan, summarized an on-going project entitled, "In Search of Excellence in the United States Forest Service: A Preliminary Assessment."

The Wondolleck-Yaffee study focused on innovative mechanisms undertaken by the Forest Service with various individuals, groups, and organizations. The study was purposely framed in terms broader than "public involvement for three reasons: (1) the concept of public participation is narrowly defined by many in the Forest Service, often limited to a view of satisfying procedural guidelines; (2) there is a mtich larger social and political environment that affects the Forest Service and is affected it, but this is a relation often ignored by agency officials; and (3) much of the recent turmoil in public forest management has been caused hy an inadequate appreciation of the importance of understanding, working with, and influencing the external environment.

The study focused on four key questions: (1) How do agency and nonagency respondents define success? (2)) Why was success possible? (3) What harriers did agency and nonagency individuals face? (4) What are

the overall lessons?

A summary of key findings incltide the following:

What is Success?

Success is a problematic term. The literattire in dispute resolution suggests widely different views of what the term constitutes and, consequently, widely different reports on the relative incidence of success. Daniels et al. (1993) suggest three conceptions of success: substantive (issues involving observable, definable, and measurable questions), procedural (what rules guide decisions), and relational (issues stemming from intangible, often emotional matters that involve power, authority, responsibility, and control).

Success, like beauty, is often in the mind of the beholder. Wondolleck and Yaffee relied on a self-definition ot success. What in the view of the respondents, constituted success?

Their results suggest some situations were successful because they accomplished the following:

- Led to tangible action or benefits.
- Overcame bureaucracy.
- Provided better stewardship of resources.
- Generated administrative resources.
- Generated knowledge.
- Built understanding.

- Improved relationships.
- Resolved short-term disputes; managed long-term conflict.
- Provided for dynamic and flexible working arrangements.

Why was Success Possible?

Wondolleck and Yaffee next turned to discerning what facilitated these successes. What were the specific factors that led to successful outcomes? What did the individuals or agencies do that led to success? A summary of results included the following:
One motivated individual made it happen.

- The individuals involved had a broad conception of their role and responsibilities.
- Support from agency superiors was present.
- Individuals were given explicit responsibility to build bridges.
- Agency-wide incentive programs encouraged or allowed interaction.
- The activity built symbolically on the capabilities of both Forest Service and nonagency partners.
- Agency representatives paid attention to process.
- An open-minded, creative approach was used.
- Ownership was fostered of the problem and its solution.
- Forest Service staff evidenced flexibility, receptiveness, and responsiveness.
- Cultural differences were recognized and pre-existing social

networks were used.

- Relationships were established.
- Forest Service employees were patient.

What Barriers Face Agency and Nonagency Individuals?

The success stories uncovered in this work are important, but raise the question: Why weren't more successes found? Wondolleck and Yaffee conducted an examination of the factors that constrain effective, innovative programs between agency and community. Results suggest that the following explain failures:

- A lack of time, money, staff, and energy.
- Individual and organizational biases, fears, and skepticism.
- Agency standard operating procedures.
- Tradition-bound superiors.
- Lack of pre-existing interagency bridges and relations to build on.
- Lack of leadership in the community to draw from.
- Counterproductive public perceptions.
- Lack of experiences and skills and, therefore, lack of confidence.
- Lack of a role model or an image to emulate.
- Lack of continuity because of the transiency of Forest Service employees

How Can the Agencies Increase the Quantity and Quality of Interactions with its External Environment?

What are the key lessons that emerge from this analysis? How and what can be learned by others from the positive experiences reported in this study? The authors suggest that serendipity often seems important and raise the question of how this might be fostered. Several conclusions emerge:

- Make bridging more of a priority.
- Enhance the ability of Forest Service staff's to develop and utilize links
- Deal with the nonagency world honestly, effectively, and durably.
- Recognize that success begets success.

Daniels et al. (1993) examined 56 natural resource management issues in the western United States to determine what lessons might emerge to enhance efforts at collaborative decisionmaking. A wide range of authorities were involved, including the federal government, states, Counties, private corporations, and numerous citizen organizations. The results of their analysis are similar to the work by Wondolleck and Yaffee, as well as other authors.

For example, efforts to implement ecosystem management must transcend organizational boundaries. Collaborative approaches are essential to the success of the management direction currently being promoted by both the Bureau of Land Management and Forest Service. Daniels and his

group also conclude, in concurrence with Wondolleck and Yaffee and Blahna and Yonts-Shepard (1989), that the public participation model is insufficiently rich and rigorous to accomplish collaborative management. At its heart, public involvement has been bound too closely to procedures to succeed. The core difference between collaboration and public participation lies in the former's central tenet of shared implementation responsibility.

The role of incentives is key to successful collaborative behavior for organizations and the public. At present, the structural characteristics of participation programs and internal reward systems give only limited support and endorsement to collaborative behavior; without changes in the incentive structures, it is unlikely that collaboration can be achieved at any significant scale.

Finally, returning to the notion of success, **it is important to appreciate that iriost innovations and collaborations create some progress, even when the full potential (the maximum possible gain) is not reached.** However, the failure to reach the maximum potential (e.g., **a** written accord signed by all interests) does not mean that improvement has not occurred. If **a** perspective can be encouraged whereby every thoughtful, sincere effort is perceived to produce some improvement (and therefore constitute at least a partial success), the fear of failure from rigid definitions of success can be overcome.

The results of Wondolleck and Yaffee, and Daniels et al. provide clear evidence that useful examples of collaborative management exist and that contain important lessons. The resource management lessons reported here are consistent with experiences and lessons reported in Osborne and Gaeblers *Reinventing*

Government (1993), suggesting they may constitute powerful principles that transcend any given situation.

Recommendations

- Institute a multi-agency review of what does and does not work with respect to agency-citizen collaboration
- Encourage agencies to more aggressively use available approaches and systems.

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Ecosystem Management Includes People

With changing perceptions of forests come changing conceptions of appropriate management. For the better part of a century, the notions of multiple use and sustained yield have framed the basic approach to forestry in this country. Increasingly, however, these basic concepts have been found wanting. Multiple use, for example, was envisioned as a way to achieve "harmonious and coordinated management of the various resources, each with the other", but in reality, what occurred was multiple use by adjacency, with timber harvested in one place, recreation provided in another, and so on (Behan 1990a).

Similarly, the concept of sustained yield has come under increasing criticism. Typically, the emphasis of sustained yield was on the maintenance of a single component or species, not on what is required to sustain either the biological or human system or on the sustained yield of the multiple values people have for forests. For example, the assumption that sustaining timber supply would lead to the sustainability of communities is in error. As Dixon and Fallon (1989) have noted, there are many ways in which sustainability can be defined; its most useful definition is one in which the entire ecosystem is taken into account.

Such concerns have led to the search for "new" ways of doing business. The Forest Service programmatic

effort called "New Perspectives" is an example. Today, however, there is growing interest in the concept of "ecosystem management" and recent policy statements have called for such an approach as an underlying feature of federal forest management. But when searching for new approaches and paradigms, it is important to understand what the shortcomings of previous approaches were before adopting new solutions. Although much of the attention to date in forestry has focused on variations in silvicultural prescriptions and other aspects of biological management, the underlying forces that have led to a re-examination of how forestry does business are socio-political in nature.

An essential feature of ecosystem management then has to be a view in which people are a fundamental part of the system. People are a part of forest ecosystems; they derive material and non-material goods and services from them, they live, work, and play in forests, and their attitudes, behavior, and knowledge of the forest system affect it in both direct and indirect ways. Thus, forest management systems that alter the structure and processes of the biological component will alter the human system that interacts with it. Conversely, the way in which people are organized and the processes through which they make decisions will lead to alterations in the forest ecosystem. This perspective is consistent with a rich tradition in social ecology that concerns itself with "the reciprocal influences between natural ecosystem structures and processes, and social system structures and processes" (Field and Burch 1988, p.95).

Three key elements can be identified that link forests with society. These include **people** (including their distribution, values, organization, and behavior), **places** (both the geographic and symbolic dimension),

and **processes** (the ecological processes and human activities and institutions that affect people, places, and their interaction). It is in the overlap among these three elements that an ecosystem approach becomes essential to understanding the effects of changes in any one area, such as a shift in forest policy.

For example, the concern with people includes an understanding of their attitudes and behavior and how different levels of organization, from individuals to communities or entire populations, affect the kinds of questions that need to be considered. In this assessment, we have focused particular attention on how changes in forest management might affect people in rural communities. However, we have also seen how broad structural changes in society (e.g., growing urbanization) have led to major changes in attitudes about forest management and the growth of support for environmental protection.

We could also examine how changing perceptions of place can lead to significant impacts on how they might be managed. Places involve not only an objective set of geographic attributes, but a host of subjective and emotional attachments as well. Mitchell et al. (1993), for example, explore the consequences of such attachments for land planners; as they point out, many of the planning processes currently in use ignore the social meanings of place and thereby aggravate land use conflicts.

Managing across the intersection of these elements is the heart of ecosystem management. It is also an inherently complex and difficult undertaking. It will need to be characterized by being comprehensive, integrated, and unified (Mitchell 1990b). However, current institutions, educational curricula, and legal structures often operate to thwart these qualities from

being achieved. For example, despite considerable interest in integrated approaches to resource management (e.g., Lang 1986), we find there exists only limited ability to integrate multiple values into resource decisionmaking processes (Stankey and Clark 1992). Clark and Brown (1990) suggest that several fundamental conditions to achieve integration must be met, including a clear and comprehensive definition of what integrated resource management is and is not, that professionals become more open to new ways to manage for diverse values and share decisionmaking power, and that desired futures are visualized and communicated in such a manner that people from diverse social and cultural backgrounds can understand where and when changes affecting them will occur.

Thus, achieving ecosystem management will not be easy. It will require fundamentally new ways of approaching how forests are managed; a perspective that transcends administrative, political, and disciplinary boundaries, one that engages the public as a full partner in decisionmaking, and one that acknowledges the social-political nature of forest management.

Lessons Learned

Some key lessons that emerged from our experience in conducting the social assessment follow.

The Current Situation (Gridlock) is a Result of Many Failures

Contributing to the gridlock are fragmented land

management, unresponsive forest management practices, inadequate monitoring and evaluation of the conditions of both federal and nonfederal lands, fears (often well-founded) about the effects of changes on community health and stability, and lack of a shared vision about the future. Fundamental to successfully resolving the situation are clarity of vision, inclusion of all potentially affected parties, and consistency of action.

We Must Work to Minimize the Negative Effects of Polarization of Political Agendas

Valid concerns exist on both sides of the issues at stake in the ongoing debate. There are many who do not share the extreme views of either. One of the most disturbing characteristics of the debate over natural resources in the United States is the shrillness of the dialogue and the perception of villainy by people of opposing values. Loggers, foresters, urbanites, scientists, bureaucrats, and environmentalists have all been painted as villains, depending on the point of view. Such tactics nullify the claim by the same people that a middle ground or common ground is needed.

Processes must be developed that contribute to an understanding of all the values at stake, regardless of who holds them. This means examining the extent to which current institutions and agency programs and processes increase, rather than alleviate, conflict and polarization. Development of decision making processes that fairly consider all values of concern to society is vitally needed. Failure to choose an appropriate course of action will leave the same

polarized extremes at the table. Ending the gridlock is unlikely if this occurs. We must honor diversity; it's what makes us strong.

Recognize that Distrust is a Symptom of Underlying Problems

Although many reasons underlie the conflicts that characterize forest management today, distrust seems to be the central concern. Distrust exists for many reasons and at a variety of levels: between agencies (regulatory versus management), within agencies (line managers versus staff, management versus research), between agencies and citizens, and among various citizen groups. Distrust will undermine even the best plans. One strategy to build trust is to work together to solve common problems (Wondolleck 1988).

Put Science in its Proper Role

Many issues and problems facing forest policymakers and managers are social and political in nature. Resolution of these issues requires more than scientific knowledge and technical solutions. The role of science is to inform those who are in the business of making social choices. Failure to clearly define the role of science and scientists, and politicians and policymakers, likely will lead to inappropriate or incomplete solutions and further gridlock. Such failure might result in scientists viewed as scapegoats for failed policy.

Advocates for a Particular Group, Resource, Point of View, Pet Theory, or

Policy are Not Functioning as Scientists

Credible scientists will affirm weaknesses as well as strengths in alternatives, and will facilitate the policymaker's and the public's understanding of the implications of choosing one approach over another. The scientist who espouses a personal position, under the mantle of objective science, is dangerous, particularly when the decisions being made have profound consequences on the natural resources and the people whose livelihoods and lifestyles may be in jeopardy. Scientists who become policy advocates are not villains, but they are miscast. A clear distinction between the roles of policymakers and scientists must be made to ensure that controversial decisions are founded on the best knowledge available, not on how articulate the advocates may be. As a nation that must make controversial decisions about natural resources, we need advocates who champion important causes. We need scientists who dispassionately inform and clarify what we do and do not know. We need to know who is in what role. In the absence of clear labels, let the buyer beware.

Avoid the Paralysis and Myopia Fostered by Boundaries

The issues under consideration cannot be solved within any one institution or within the federal forests. Appropriate boundaries must account for both physical and biological resources and other considerations that society believes are important. It became clear during this assessment that a complete solution (or even an adequate understanding of the issues) cannot occur without including nonfederal lands (e.g., state, tribal, and private).

People will not Support what They do not Understand and Cannot Understand that in Which They are not Involved

Many professionals bemoan the seeming lack of understanding the public has for natural resource issues. In many respects this is probably true. But professionals do not understand the public well either. The situation will change when public and agency education and involvement processes become truly participatory, with the public an active partner. Scientists, managers, and citizens all have knowledge important to understanding and resolving issues. Having mutual respect for the people who have information, and creating an environment for mutual learning, are critical for success. Not doing so will likely lead to further polarization.

Walk the Talk

In the United States and abroad, there is considerable distrust of institutions, government, and professions. Skepticism and cynical views mean that actions will be evaluated, not slogans or labels. Saying so does not make it so; actions must be consistent with declarations. We need to address the implications of proposed initiatives and applications, and learn from the results of our actions. Observers will quickly determine if pronouncements are real, or mere window-dressing for business as usual.

Questions Come before Answers,

Problems before Solutions, and Why before How

Thought must go into clarifying and agreeing on the problem before we design solutions. The focus frequently tends to be on a technical fix on how to rather than why. People will not be able to deal with details of how to solve a problem until they understand the problem that needs solving. The problem needs to be clearly defined before people will buy off on a solution, and the solution people are most interested in is the end product, not the tools used to achieve it. Tools are means to ends; we need to understand and agree on the ends desired before selecting the appropriate means for achieving them.

Panaceas Do Not Exist for Wicked Problems

Today, many of the environmental conflicts confronting society represent what Weinburg (1972) has called "trans-scientific" and Allen and Gould (1986) refer to as "wicked problems." They are trans-scientific in that their nature transcends scientific explanation. They are wicked because they defy answer; in fact, a basic quality of such problems is that they have no answer, only more or less useful solutions. For such problems, models of scientific inquiry are of limited utility. What is needed then?

The Process Must Be Open and Fair

Not only must we avoid confusing the means with the ends, and inputs with outputs, but we must focus on

the process as well as the end result. For example, the process of planning is often more important than the plan itself. The process we use to make decisions can be the key to whether the decision itself is understood and accepted. Sometimes, what we learn along the way may lead us to a previously unknown destination. For the success of any new approach to forest management an open process is required that fairly considers all points of view and fosters mutual learning; an adaptive management must be developed, utilized, and carefully monitored.

Change is the Only Constant: Accept It

People seeking stability in the relation between natural resources and societal values, uses, and demands are likely to be disappointed if the past (and present) is prologue to the future. The rate of change may increase, the nature of the pressures faced may vary. Unless we learn along the way, we may find that what is a new approach today may be part of the problem tomorrow. We must continuously and carefully monitor the situation and adapt as is necessary and appropriate. We hope an evolutionary process, where people have adequate time to adjust, may preclude a revolution.

Solutions Must be Founded on the Principles of Inclusion, Leadership, and Vision

Top-down social engineering, particularly targeted at the community level, is a thing of the past. Leadership, both within the agencies and at various levels within the broader society, is essential to breaking gridlock

and finding innovative solutions. A variety of opportunities exist to increase the quantity and quality of interactions among agencies and citizens: (1) deal with the nonagency world honestly, effectively, and durably; (2) provide incentives to encourage innovation, creativity, and risk- taking; (3) legitimize, sanction, and reward efforts to build effective links to the nonagency world; (4) make it easier for nonagency groups and individuals to interact with the agency; and (5) encourage management agencies to see communities and interested citizens as equal partners in management of public lands.

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Major Recommendations

Based on our assessment, a wide range of specific recommendations are possible. We focus here on recommendations central to resolving key concerns documented in the assessment.

Recognize that Ecosystem Management will Require Collaboration by all People across all Forests

The President stated at the Forest Conference a vision wherein all the federal agencies would act in concert to serve the American people. Our findings validate this need, but there is more. We recommend that federal agencies be encouraged to provide leadership by moving beyond the limits of federal jurisdictions to engage states, tribes, forest industries, and other private forest managers as equal and essential partners in discussing their relative roles in sustaining the region's forests and communities.

Collaboration (not simply coordination) between federal, state, tribal, and private lands must commence now. A common vision, a shared framework for action, and an interactive process for creating both are central to successful resolution of the political gridlock (Clark et al. 1992; Shannon 1992c). Continuing to bow to those interested in delay and inaction will inevitably put our biological and human communities at further risk.

Fundamentally Change Federal Land Management Planning Processes to Provide the Leadership for Effective Collaboration

Preoccupation with the technical aspects of federal land management planning processes led to little attention to the reasons society was concerned about federal land management (Wondolleck 1988). Federal land and resource management plans are now inadequate mostly because of the reluctance of agencies to recognize public issues that led to the current gridlock.

In our judgment, marginal changes in the current plans are not sufficient. A fundamental reformation, founded on collaboration, powersharing, and mutual learning, is called for. Land and resource management plans must begin from a regional perspective and place federal lands into a landscape of forest lands, including both urban centers and rural communities. Information regarding forests must be developed from a regional perspective and should include a comprehensive assessment of societal values and uses, as well as ecological processes. Clear indications of who benefits and who loses need to be identified by social and economic assessments.

As part of the planning process, a new way of incorporating the wide array of societal values is required. Considerable attention must be paid to the relation between local, regional, and national values. Which takes precedence, where, and why? The relationship between the agency and citizens in

reaching decisions must be clearly defined.

Current institutional arrangements are based on divided jurisdiction and authority. Collaborative planning will begin a process of building new arrangements. Part of the planning process must be the invention of new incentive-based implementation approaches for both federal and other lands. Information will be the basis for developing trust and common vision, because it can play an innovative role in creating new governance arrangements between agencies and the citizens they serve.

Changes in institutional responsibilities will necessarily address conflicts embedded in relations between values. Recognition of these relations, and inclusion of all affected and interested stakeholders in interactive assessment processes that generate information will undoubtedly be beneficial in building the basis for new institutional frameworks.

Immediately Develop a Comprehensive, Regionwide Assessment of the Effects of the Selected Option for Federal Land Management on Communities, Tribal Rights and Values, Recreational Opportunities, and Amenity Values

This social assessment is just a beginning. Crisis-oriented policy analysis (of which this current report is an example) is not a substitute for comprehensive assessment and adequate research. A full assessment

of effects on communities, important resource values, future opportunities, and economic costs and benefits is essential to implementing new federal direction for land and resource management.

The complexity of issues and the significance of the values affected necessitates that all parties have a role in gathering information and deliberating the expected consequences. It is vital that those who will carry out new policies be part of the assessment of their implications and formulation.

Attend to the Short-Term Consequences from shifts in Federal Policy

While information is gathered, effects are analyzed, and collaborative relations are built, some communities are being immediately impacted by loss of federal timber supply because some jobs will be eliminated. These short-term effects can be mitigated by public policy programs. The communities and jobs that are immediately dependent on near-term federal timber sales can be identified. Specific policy relief can be accorded to both communities and occupational groups.

Federal programs might first seek opportunities to enhance and augment local and state programs focused on communities and workers. Sometimes, the limiting resource will be access to finances; other times, it may be access to technical expertise in effectively competing for existing programs.

Declining federal timber harvests will, however, immediately impact specific communities and jobs. In some instances, new federal programs may be

appropriate. State and local governments should be included in deciding how and where scarce resources are allocated. Communities, in particular, must continue to evaluate and self-determine their future.

Future Forests for Society: Where to Next?

Some may ask why we bother to respond to threats confronting endangered species such as the owl ("species go extinct all the time") or put rural communities at risk because of changes in forest policy ("communities will adapt to change"). Isn't change inevitable, and isn't any effort to intervene through policy pointless and futile?

One response to these questions is **that the forest management issue is fundamentally a moral question.** This would suggest that a society which fails to take care of its environment or its people risks collapse; history is replete with examples. The focus on the survival of the northern spotted owl has deflected attention from the more fundamental concern: the declining status of the owl reflects an overall decline in the health of the environment we all depend on, whether for economic or psychic sustenance. Likewise, the denigration and dismissal of a sector of our society (e.g., timber workers) as not worthy of our concern and support has the familiar but ugly ring of intolerance, prejudice, and arrogance. To be dismissive of one group of citizenry raises the possibility of being dismissive of others.

Unfortunately, **the range of options for responding to the many demands on our resources is**

increasingly becoming very limited. This shrinking decision space provides little latitude for choice, if the requirements of current legislation (e.g., National Forest Management Act, Federal Land Policy and Management Act, Endangered Species Act) are to be met. Our shrinking latitude is a legacy of the failure to come to grips adequately with a range of problems -- social, economic, and ecological -- over the past decades and constitutes a damning indictment of our institutions: management, research, and education. The legacy includes the inability of resource management institutions to be responsive to change and, as a result, the court room has become the forum for debate and resolution about forest management.

Responsive Administrative Decisionmaking Structures are Required, with a Central Element of Participative Management

Shared decisionmaking is critical if people are to be part of the solutions rather than adding to or becoming the problem. Tapping into the rich body of knowledge held by the citizenry, working in collaboration with citizens to formulate alternative conceptions of the future, helping people understand the consequences of alternatives, and enhancing our awareness of the distribution of costs and benefits associated with alternative management all represent features of participatory management. **Natural resource professionals from multiple jurisdictions need to take the lead collectively in interacting with members of the public when addressing complex**

problems. New ways of doing business are needed if we hope to achieve the idea of one government. Ultimately, the institutions of government serve only at the sufferance of the governed. If these institutions are perceived as dysfunctional, they will be replaced.

Research Institutions need to Focus on the Key Questions Confronting Society and how to make the Resulting Knowledge Available to a Wide Range of Constituents

Scientists and researchers must confine their role to addressing the complex social choices that confront society by defining the range of possibilities, the stream of consequences, costs and benefits associated with choices, and the means by which these choices can be achieved. Society is the ultimate beneficiary and consumer of research. The incapacity of research institutions to be responsive to the major concerns of society will diminish their long-term relevance and support.

Educational Institutions need to Refocus and Become Responsive to Changing Public Perceptions and Values of Forests and Forestry

Natural resource professionals need to be educated as citizens, as individuals who have a capacity to teach as well as to learn, and as people who can foster a sense

of understanding, awareness, and appreciation among those around them. Above all, they need to be adept at asking the right questions and being critical thinkers. Like the institutions of management and research, educational institutions must help us understand today's problems and prepare for tomorrow's; conceptions of relevance change and there is growing concern that educational programs and curricula have not adjusted to face the priority issues facing society. Educational institutions must be more aggressive in demonstrating their responsibility and responsiveness to the wider society; failure to do so will diminish their value to (and therefore their support from) society.

Toward Breaking the Gridlock

At the Forest Conference in Portland, President Clinton asked participants to help break the gridlock that paralyzes forest management. To respond constructively, it is essential that we acknowledge the fundamental nature of the problem that confronts us. There is a growing sense of disenfranchisement between citizens and government (a problem not limited to forest management); a perception that the institutions designed to serve society have lost their sense of responsibility. One result of this perception is the increased reliance on the judicial and legislative branches to resolve issues with which the executive agencies are unable or unwilling to deal (Dunlap 1991).

Any successful effort to break the gridlock must address the question of the diverse values held by society: what they are, how they are distributed across the population, their associated benefits and costs, and how they are affected by management decisions. In

this assessment, we have attempted to determine how the various options will affect a range of values held by the citizens of the region and beyond.

In the face of intense conflict and acrimony that surrounds the forest management issue, it may be tempting to not make any decisions to avoid offending some interest. It is not possible, however, to do nothing; "no decision" is a decision. The failure to act proactively defaults to a decision to act passively. Events overtake us and outcomes unfold without deliberation and thought. In such an event, the consequences will fall without reflection and without the possibility of appropriate mitigative action. Moreover, failure to act will only further shrink the range of choice before us; the status quo will prevail, with all its acrimony. As Ted Strong, one of those representing Native American interests at the Forest Conference remarked *"...we must understand that status quo management is completely unacceptable. We must go on."*

There is nothing permanent except change.
Hereaclitus (540-475 BC)

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I. Introduction

A. The Forest Conference

On April 2, 1993, President Clinton convened a day-long conference in Portland, Oregon, to discuss the state of the forests, economy, and people of the Pacific Northwest. The conference was organized into three panel presentations/roundtable discussions, with additional opening and closing remarks by the President, Vice-President Gore, Oregon Governor Roberts, Portland Mayor Katz, and Historian Kimbark MacColl. Seven members of the Cabinet also participated: Interior Secretary Babbitt, Agriculture Secretary Espy, Labor Secretary Reich, Commerce Secretary Brown, Environmental Protection Agency Administrator Browner, Deputy Budget Director Rivlin, and Science and Technology Advisor Gibbons.

Those invited to participate in the conference represented a variety of interests and areas of expertise related to Northwest forests. Members of the first panel addressed the question "Who is affected and how?"; natural and social scientists discussed biological, economic, and sociological dimensions of Northwest forests in the second panel; the third panel spoke to "Where do we go from here?". The conference focused on the region west of the crest of the Cascade Range in Washington, Oregon, and northern California, but forests on the eastern side of the Cascades were also discussed, as were national and international issues that affected or were affected by events in the Pacific Northwest.

B. The Content Analysis

The purpose of this content analysis is to provide a summary of the issues raised during the conference, to identify who said what about each issue, and to locate areas of consensus and disagreement. To do the analysis, I worked from a typed transcript of the public comments made during the conference. I first read the transcript to gain a general overview of the issues discussed at the conference, then assigned each comment to a category that I had determined from my initial reading

of the transcript. After this organizational task, I again reviewed the categories of issues I had chosen and reassigned comments as appropriate before writing the analysis. In all stages of the process, I worked to include every statement of fact or opinion.

The citation convention that I use refers to the typed transcript, listing page numbers followed by line, number(s), e.g., 231:5-12 would refer to page 231, lines 5 through 12.5

II. The Issues

A. The conference and process of reaching a solution

1: Gridlock of past few years: why conference is needed

a. Who says what

i. Government

Gore: "The status quo cannot continue. We must break the gridlock and move forward (12:6-8)." See also 122:16-21.

Clinton: "Thank you very much, all of you, for your endurance today. One person said that she'd been waiting for years to get something done, a few more hours would be well worth it (169:1114)."

"One of the things that has come out of this meeting to me loud and clear is that you want us to try to break the paralysis that presently controls the situation... I was mortified when I began to review the legal documents surrounding this controversy to see how often the departments were at odds with each other, so there was no voice of the United States (251:4-252:16)."
"In the past politics seemed to matter more than people or the environment (4:7-8)." See also 4:24-5:7, 253:10-18, 255:5-10.

Katz (Portland): "Thank you for doing to gridlock in the Northwest what you are doing for gridlock in Washington, D.C.

Strauger (Hoquiam, WA): "And it just seems to me that surely, surely this planet is big enough to support the wildlife species and the human species, and I just want to wish you all of the cooperation and all of the help from all of the people at this table to bring about a solution to what has become a regular log jam (83:4-9)."

ii. Forest workers & Communities

Coates (International Woodworkers of America): "And I hope that you and Congress can come to some agreement, break the gridlock, and just give us some help, please (241:12-14)."

Draper (Western Council of Industrial Workers): "...if we don't break this gridlock the next official endangered species will be the timber family of the Northwest... I have seen families destroyed, towns bulldozed, the very fabric of the rural communities torn by a long period of government inaction and contradiction (28:25-26:7)."

Bailey (Logger's Wife): "...you said the other day that you didn't think that there was -- that nobody would be happy. We wi11 be happy with a solution. We want to-roll up our sleeves and get to work (46:9-12) ."

iii. Forest Industries

Tomascheski (Sierra Pacific Industries): "We think a key element to all of that scheme is to recognize that the federal lands are in a real box right now. There's the gridlock (118:17-19)."

Geisinger (Northwest Forestry Association): "First step is to break the legal gridlock that has essentially kept our federal forest agencies from selling any timber during the last two years (174 : 5-7) . "

iv. Environmentalists

Sher (Sierra Club Legal Defense Fund): "And we've been in court because, for the last 12 years, we could find no other level playing field where the issues of biology and economics and, federal law could be debated and decided in an objective setting, and the record from that courtroom experience is clear. Case after case has found what one federal judge called in 1991 a remarkable series of violations of the federal laws, repeated, systematic, deliberate, and political in nature (90:9-16)."

Kerr (Oregon Natural Resources Council): "It was said earlier that these laws haven't been followed, and that's the problem (199:8-10) ."

Arthur (Sierra Club): "I empathize and understand the frustration and the anger that the communities feel. We do need to break the gridlock (51:18-20) . "

v. Tribes

Powell: "When we first heard the rumblings of endangered species issues and other environmental issues, we immediately began to learn and understand what limitations could be imposed on us, and we began to manage for them instead of simply allowing them to control us because of our inaction. Unfortunately, this is a process that is virtually nonexistent in the federal management and regulatory management scheme. Federal agencies ...have been plagued by multi-levels of decision making and overly bureaucratic and fractionated approval and appeal procedures (86:16-87:2)." See also 85:20-24, 88:4-14.

vi. Social scientists

MacColl (Historian): "We see today long-standing misguided federal policies with little coordination between the federal agencies and between the federal and the state agencies (21:22-24)."

vii. Biologists

Thomas (USFS): "We can't go back now. We have to go on, and there should be no looking back now except to learn from the past, because in the past there's blame enough for all of us, but by

in wake of owl and murrelet. "Mr. President, we look forward to having you revisit the Northwest, but not 480 times, especially to review contentious endangered species issues like this one. What most scientists are advocating is an ecosystem approach to the management of all old forest resources (106:7-107:16)."

ii. Environmentalists

Wales (Audubon Society): "The environmental protection laws we have, such as the Endangered Species Act, are like the red idiot lights going on simultaneous with something terrible happening to your car. The spotted owl, marbled murrelet, and numerous wild fish stocks now at risk are equivalent of all the lights coming on at once. When that happens, it's too late to think about a tune-up, you simply have to stop (32:21-33:2) ."

Kerr (Oregon Natural Resources Council): Don't change the laws, despite any pressure to do so; follow them (199:2-10).

Skier (Sierra Club Legal Defense Fund).: "The laws are good laws. They are this nation's commitment to the future and a covenant with the people that we will not squander our resources in this generation and deprive future generations and not violate our trust responsibilities to the other species with which we share the planet (90:18-23) ."

iii. Forest Industries

Irvine (Home Builder): "I think that we do need to review the Endangered Species Act and look at finding a way to balance it (229:16-18)."

Hicks (Plum Creek Timber Co.): "In the western states, federal and private lands are often intermingled in a checkerboard pattern such as you see here. That land configuration alone presents a tremendous challenge to forest and wildlife

management. However, when 111 owl circles at 6600 acres each are added, as has happened on Plum Creek land, forest management and habitat protection for the spotted owl become exceeding difficult. Because of the presence of the owl, I currently have 12 biologists working for me full time doing nothing but searching for owls on this intermingled ownership." Describes owl research, habitat use (100:17-101:17).

iv. Tribes

Powell: Notes that spotted owls have moved onto the reservation because of poor off-reservation timber management, and the tribe is now obliged to manage their lands for these new owls (85:24-86:4; 88:15-89:3) .

b. Consensus

The Endangered Species Act is a powerful piece of legislation. Powell and Hicks agree that its impact through the spotted owl listing has greatly complicated their forest management operations.

c. Disagreement

The environmentalists like it as it is, industry would like to see its power reduced, biologists question its effectiveness and efficiency in protecting ecosystems and biodiversity, not just single species.

d. Places mentioned

Range of northern spotted owl, owl and murrelet habitat, Plum Creek Timber Co. land, Hoopa Reservation land, lands adjacent to the reservation, Northwest, western states

e. Time periods mentioned

"Nation's commitment to the future" (Sher), time since the owl was listed, present, future listings of other species

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4. Need for a balanced solution and/or compromise on all sides

a. Who says what

i. Government

Roberts (Oregon): "We look forward in the coming months to forging a balanced solution that reflects the long-term interests of the Northwest and of the nation (11:14-16)."

Gore: "The days when this debate was defined by either/or choices are over. This isn't about saving jobs or saving the environment. It's about saving jobs and saving the environment. We can't do one without doing the other; certainly not in the long term (13:17-21)." See also 11:17-23, 13:25-14:9.

Clinton: "So when you leave here today, I ask you to keep working for a balanced policy that promotes the economy, preserves jobs and protects the environment even as you may disagree, as Mr. Thomas said, over how the word 'balance' should be defined (254:5-9)." See also 4:16-5:22, 7:3-11.

Ron Brown (Commerce): "The comment ...caused me to wonder about all the range of delicate balances we have to strike, and how we have to consider the impact on workers in all sectors of our economy... (61:18-62:4)."

Nafziger (Washington): "We need to preserve both our forests and our communities, and all of us are going to have to be willing to take some risks and make some changes if we're going to do that... (190:20-23)." See also 193:2-14.

Schmidt (Linn County, OR): "The counties believe that we certainly need to be sensitive to biodiversity needs, all the environmental considerations, but we believe that we must be managing the forest, not locking it up (242:20-23)."

ii. Forest Industries

Irvine (Home Builder): "Home builders across America truly love the

environment ...but we've got to be able to make sure there's an adequate wood supply today and into the future to meet the demand for housing in America (229:20-230:8)."

Spence (sawmill Owner): "Solutions exist. Solutions that can balance the need for preservation of jobs, preservation of communities, preservation of wildlife (36:15-17)."

C. Bingham (Weyerhaeuser): "We need to have a sensitive balance of people and land (195:16-17)."

Marson (Lumber Dealer): "I really feel in my area -- I live right on the back door of the Alpine Lakes Wilderness Area and close to the North Cascades Wilderness Area -- and I know there has to be a compromise, because I'd be the first one out there if they destroyed the view that's out my window of my office and my home, because it's a beautiful place to live and that's why I live there. But I've also seen families devastated by two mills shutting down in my area (40:917)."

Hicks (Plum Creek Timber Co.): "I'm here to discuss research on spotted owl management and explain innovative forest management practices using new forestry techniques. Both, I hope, will be useful as you develop your balanced solution to the timber crisis in the Pacific Northwest (100:12-16)."

iii. Forest workers & Communities

Draper (Western Council of Industrial Workers): "The forest product workers understand the importance of protecting the forest ecosystem... We don't ask that people be placed above wildlife. We only ask that you remember people count too (30:16-22)." See also 30:23-25.

Lang: "Your challenge at this point is to move us forward, to put people first, to put people back to work and -- in the immediate sense, and in the long term, put us on the road to a solution that puts the forest and people walking -- working hand in hand together (79:10-14)." See also 78:16-79:1.

iv. Biologists

Thomas (USFS): "All sides in the issue including elected leaders easily speak the word 'balance.' They all mean different things .... I think it means obey the law with a high probability of success and then minimize the social and economic cost or maximize the social and economic benefits, whichever way-you choose to put it (208:21-209:4)."

Gordon (Yale): "We did a report in '84 that said there ought to be an old growth reserve that protected some of these species, and then maybe we could go ahead and harvest some of the rest of it. It was resoundingly unpopular and nothing came of it." Clinton: "Unpopular with whom? With everybody?" Gordon: "Everybody. Everybody I knew. Everybody who spoke to me about it ...But, again, now it's ten years later, and I hear the same thing over again, "Yeah, we ought to do it, but it's not popular enough with either side to do it."(133:9-134:20)."

v. Tribes

Powell: "...it will take a cooperative effort on the part of the management agencies, the timber industry, and environmental groups to achieve the balance that everyone is striving to achieve (87:17-20)."

vi. Environmentalists

P. Lee (Oregon Trout): "I would like to thank you... for the initiative that has been shown in trying to reach a compromise or to find that middle ground in the controversy that we have in front of us (37:2-6)."

Arthur (Sierra Club): "Balance is important, and that's something that we should strive for. But balance means saving the 10 percent we have left, that change is inevitable, that we need your help to prepare for the future, to invest in our Northwest; that our northwest rivers, our northwest forests are part of our infrastructure to prepare for the future. We don't hunt buffalo. We no longer kill whales. And we can't sacrifice the last ten percent of our remaining ancient forest for the future (53:24-54:7).

Kerr (Oregon Natural Resources Council): "I want to suggest that what the solution is not, and that is environmentalists such as myself were very wary about this event today, because in a situation like this, all the parties are often called to

compromise a little and give and take and something like that like a labor management negotiation, and then everybody splits the difference and says there's a deal. But when so little of the virgin forest is left, the 10 percent, environmentalists are not in a position to compromise the forest any further (196:17-197:1)."

vii. Church

Murphy: "I believe that only through dialogue and full participation of all concerned parties can we achieve a balanced solution that serves the common good (28:13)."

viii. Social Scientists

MacColl (Historian): "... I am encouraged that sensible solutions to the present impasses will be forthcoming. History does show that logging can coexist with environmental protection as has occurred in Germany (22:24-23:2)." See also 23:3-10.

b. Consensus

All who mentioned the need for a balanced solution agreed that the elements to be balanced were environment and people (also economy/jobs).

c. Disagreement

As Thomas and Clinton noted, disagreement exists over the definition of 'balance', especially between environmentalists and other groups: see old growth issues (Section II.G.3.) for more environmentalists refusals to compromise remaining old growth forests. Biologists Thomas and Gordon are much less optimistic than others on the possibility of reaching a compromise: they've tried to do this before.

d. Planes mentioned

North Cascades and Alpine Lakes Wilderness Areas; Northwest; America/nation; Germany (as example)

e. Time periods mentioned

Past (in Germany as example), coming months, long-term future

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5. Need for all groups to participate in crafting solutions

a. Who says what

i. Government

Clinton: "This conference has established a dialogue... And it's got to continue, between us and you, and among yourselves. You have got to be part of this solution. Even if we make the most enlightened possible decisions under the circumstances, they will be all the more resented if they seem to be imposed without a continuing mechanism for people whose lives will be affected here to be involved (253:19-254:4)." See also 7:8-11, 254:5-255:11.

Gore: "It is because we care about you, the people in these communities, about your jobs, your future and your families that we are here to listen and learn from your experience. We're encouraged by the eagerness of all involved to seek common ground and comprehensive long-term answers (13:8-16)." See also 13:25-14:4.

Schmidt (Linn County, OR): "The counties have been a partner in all the consequences, and we want to continue to be a partner in the solutions... And if there's any way the counties can support you in accomplishing our goals, we want to be a part of it (244:15-21)."

Katz (Portland): "But if democracy is about finding solutions to problems unsolved, if it's about finding the core of common agreement, then this conference will be a step forward in that direction. If you call upon us to try the different approach, the unlikely alliance, the untried alternative, we will respond. This conference is our chance to prove that we have the wisdom, the imagination, and

the courage to find solutions (8:20-9:2)."

Roberts (Oregon): "On behalf of Oregonians and Northwesterners, I thank you for coming here to listen and to work with us... (9:2122)."

ii. Environmentalists

Kerr (Oregon Natural Resources Council): "[Environmentalists] stand ready to support, with all our resources, a program that you and your administration craft... (197:15-17)."

iii. Forest Workers & Communities

Draper (Western Council of Industrial Workers): "On behalf of workers everywhere, I pledge our commitment to work with this administration. Together we can find a solution that protects the forests of God and the families of man (31:7-10)."

Mason (Western Commercial Forest Action Committee): "One of the big problems we've had in the past is we've wanted to seek simplistic solutions based on public relations programs and legislative expediency, and very rarely crafted by people who live and work on the land, sir. We need to be there with you (76:3-8)." See also 76:9-20.

Eades (Logger): "When these decisions are made, science deserves a very prominent role, but it should be only one ingredient in this solution... Keep people like me in this equation. And I'd like to declare myself your friend in this and tell you to call upon me anytime you want, and you'll hear the truth from me (50:1-10)."

Bailey (Logger's Wife): "We can solve these problems if we just continue to do what we're doing here today, and that's join together and find a solution that involves the local people (47:7-10)."

iv. Forest Industries

Hicks (Plum Creek Timber Co.): "Mr. President, if there's anything I -or my company can do, please do not hesitate to ask (104:15-17)."

Tomascheski (Sierra Pacific Industries): "There will be working groups coming out of this session, scientists, that will be looking at this approach, and some of us have extensive experience in attempting to implement this kind of thing on the ground, which is where the real work gets done, and we would ask that some of us be allowed to participate in that process (120:23-121:3)."

Irvine (Home Builder): "We want to work with you (229:2)."

v. Tribes

Powell: "It will take a cooperative effort on the part of the management agencies, the timber industry, and environmental groups to achieve the balance that everyone is striving to achieve. It will not be acceptable for one group or agency to stop the work or efforts of the others (87:17-22)."

Strong: "I was asked to consider, for the purposes of this roundtable, where do we go from here. And, Mr. President, there are an estimated five million American Indians, some watching here today, and they may be tempted to quote an old Hollywood Indian named Tonto and say, "What do you mean 'we,' Kimosabe?" (249:10-15)."
"We come here because we believe your administration represents the redeeming quality of government-to-government relationships between American Indians and the United States of America... (248:15-18)."

vi. Church

Murphy: "I believe that only through dialogue and full participation of all concerned parties can we achieve a balanced solution that serves the common good (28:1-3)."

vii. social scientists

MacColl (Historian): "Thus has there been a progressive tradition in Oregon buttressed by an ethos of egalitarianism with a strong populist influence. This

record is why I am encouraged that some sensible solutions to the present impasses will be forthcoming (22:22-23:1) ."

viii.Commercial Fishermen

N. Gingham (Fisherman): "...there's a lot of people out there that want to work with us to solve this problem. The fishing industry has been working for years developing model programs...We know how to do the job, but we need your help (56:18-24) ."

ix. Biologists

Thomas (USFS): "I also find that there is a large confusion in the body politic about what science is. Science is a process. It's not a product. Scientists propose; elected officials and others dispose. 'Now, I've found in these three crash efforts to develop information that you -- something else that's very encouraging. You command natural resource agencies that have incredibly talented people in your employ. They are highly skilled. They are incredibly motivated. They can do marvelous things when they understand their mission and it's clear and it': concise and all of them move forward together (209:21-210:6)."

Oliver (U Washington): "You'll never have a species completely out of risk. What we're really looking at is how much risk are we willing to accept, and if you list all the trade-offs, risks for the different species, the relation of that to the cost of the local communities, plus the cost that the American public is willing to put forward, either in encouraging private landowners to put these in and money pay in lieu for various forms of welfare or job transfer. You have to look at various levels of set-asides relative to ranking all of these risks. Now, the scientist's point of view is to try to come up with the best ides of what those risk rankings are, but then what level the public is willing to expect becomes a choice of the people, .which is I'm sorry -- that's your job, but we could come up with probably an agreement looking at everything including the global environment, the local economy, the risk to the spotted owl, the risk to other species (130:21-131:13)."

Franklin (U Washington): "I agree completely with Professor Oliver ...you have a document of that sort already available to you in the Gang of Four report where we lay out many alternatives, identify the risks associated with each of those

alternatives, and then leave it to you folks to make your choices about what level of risks we want to deal with (131:16-23)."

b. Consensus

All parties want to participate in crafting a solution; none state that they wish to exclude any other parties from the discussion. Clinton and Gore support/promise participation of all. Only group that does not request inclusion is natural and social scientists, i.e., those who are already a part of the
process.

c. Disagreement

Rather than requesting inclusion in the process (which they already have), biologists seek to define and limit their role in developing a solution. They do not want to be responsible for making policy decisions, but for assembling and presenting the best knowledge possible to policy makers. Strong speaks for American Indians on where the real responsibility for remedying current conditions lies.

d. Places mentioned

Northwesterners as source of solutions

e. Time periods mentioned

Past: exclusion of some groups, gridlock over issue in short term; long-term populist/egalitarian tradition in Oregon; present/short-term future: time during/ after conference when administration will be crafting solutions

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6. Need for reconciliation among groups

a. Who says what

i. Government

Clinton: "The rhetoric from Washington has often exaggerated and exacerbated the tensions between those who speak about the economy and those who speak about the environment (5:4-7)."
"When you hit an impasse, I plead with you not to give up, and don't turn against your neighbors... I don't want this situation to go back to posturing, positioning, to the politics of division that has characterized this difficult issue in the past (254:10-25) ."

Gore: "For far too long bitter fighting and confused policy making have scarred this debate... It is time we moved beyond argument and confusion to a new approach that replaces fear with hope and stalemate with progress (11:24-12:5)."

ii. Environmentalists

P. Lee (Oregon Trout): "I believe education is a key to the beginning of the healing process... (38:5-6)." Describes environmental education center she is starting in her community (38:6-39:10) .

iii. Church

Murphy: "I, the members of my church and the members of many other-churches, stand ready to assist your efforts toward resolution and reconciliation (28:8-i1)."

iv. Tribes

Strong: "...where we go from here... In actuality, tomorrow, we go out and we build coalitions across all ideological lines (251:2124)."

v. Social scientists

MacColl (Historian): "Forty-three years ago, Fortune Magazine proclaimed that, quote Happiness is pursued in the Northwest with a certain calm simplicity that is rare in America,' end quote. I doubt if such words would be repeated today... (15:20-23)."

"Hopefully, this conference will show the way and start the process, that calmness

and happiness may again reign throughout the Northwest (23:25-24:2) ."

b. Consensus

Division and polarization have typified forest issues in past few years; this needs to change.19

c. Disagreement

None.

d. Places mentioned

Northwest; Washington, D.C.; P. Lee's education center in Douglas County, OR

e. Time periods mentioned

Short-term past: debates and divisions; long-term past (43 years ago): calmness and happiness. Future: tomorrow (Strong) to future generations (P. Lee)

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7. Hope generated by the conference

a. Who says what

i. Forest Workers & Communities

Eades (Logger): "Thank you forgiving my people hope, sir (50:12)."

Bailey (Logger's Wife): "I don't know if you've realized what you've done .for millions of families or thousands of families like mine that are dependent on the forests. You've-given us new hope and we desperately need that (46:3-6)."

Ollivier (Longshoreman/Eureka Harbor Commissioner): "You have energized --

both of you have energized our country. You know? 1 was always positive. But now I can smile, you know (247:23-25)."

ii. Forest Industries

Irvine (Home Builder):"The confidence that you bring by being here at this table today alone has lowered the price of lumber today... (229:1113)."

iii. Government

Roberts (Oregon): "...your presence here today, Mr. President and Mr. Vice President, stand as a powerful symbol of change and of hope for this region (11:7-9)."

b. Consensus

Apparent agreement among forest workers and communities (those who had been most disenfranchised from previous discussions).

c. Disagreement

None apparent, but most groups are silent on this issue.

d. Places mentioned

People in forest-dependent towns, the region, the country

e. Time periods mentioned

Present

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8. Appreciation of President's initiative/leadership in convening conference

a. Who says what

i. Forest Workers & Communities

Fades (Logger): "Words can't describe my gratitude for your coming here to help us end the gridlock that is crushing my people (47:23-25)."

ii. Environmentalists

P. Lee (Oregon Trout): "I would like to thank you... for the initiative that has been shown in trying to reach a compromise or to find that middle ground in the controversy that we have in front of us (37:2-6)."

Wales (Audubon Society): "I want to particularly thank you and Vice President Gore for the personal interest you are taking in fashioning a long-range comprehensive strategy for management of the federal forests (31:17-21) ."

Rick Brown (National Wildlife Federation): "As someone who's worked on these issues for quite a while and someone who's spent a few years working for one of your recent predecessors, this level of coordinated high-level involvement from the administration is more than a breath of fresh air to me (125:1116) ."

Sher (Sierra Club Legal Defense Fund): "Thank you both for bringing to the country and to the Northwest an administration which is willing to confront and grapple with these issues as stewards of our public lands rather than as litigants in court (89:18-21) ."

Arthur (Sierra Club): "We very much appreciate your leadership in this important issue (50:24-25)."

iii. Forest Industries

Irvine (Home Builder): "Mr. Vice President and Mr. President, we're really pleased that you have shown the leadership and demonstrated the commitment to resolve this great debate (225:911) ."

C. Bingham (Weyerhaeuser): "...every single large-scale change in this great company has begun with leadership at the top, and we now have leadership in the form of the President and the Vice President of the United States...(195:25-196:3)."

iv. Church

Murphy: "Again, Mr. President and Vice President, your willingness to listen, to have people continue what has begun here, and to be open to understanding the issues involved and to look for ways -- and I think especially within the church community, that we can be of help and assistance in bringing people together, and we hope to, and we will because of your initiative, and we are grateful (92:16-22)."

v. Tribes

Strong: "And as disciplined followers we are eager to follow your lead and hope that we can all see a better future for our children (250:17-19)."

vi. Social scientists

MacColl (Historian): "I maybe wrong, but I believe this is the first time in Oregon history that the President, Vice President and five cabinet members have all visited the state at one time and in the same place, and we are honored (15:16-19)."

vii. Commercial Fishermen

N. Bingham (Fisherman): "On behalf of the commercial salmon fishing industry and the.recreational fishing industry, California, Oregon and Washington,. I would like to express the gratitude that all of us feel that you have recognized that this problem is more than just spotted owls, but that there is another industry which is dependent on a.healthy forest, the salmon fishing industry (54:12-18).

b. Consensus

All appreciate the interest and attention of the President and his Administration, including environmentalists, who had much less to say on other issues related to conference such as need for compromise, for all groups to participate in crafting a

solution, and hope generated by the conference.

c. Disagreement

None.

d. Places mentioned

Federal lands/public forests; Oregon; California; Washington; Northwest; the nation

e. Time periods mentioned

Oregon history, previous administrations; present; long-range future

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9. Requests for continued Presidential involvement

a. Who says what

i. Government

Nafziger (Washington): "Mr. President, we need your help. We need you to help us come together and build a new paradigm for sustainable communities and a sustainable environment (193:15-18) ."

Schmidt (Linn County, OR): "We're asking for your help (242:15)."

ii. Forest Workers & Communities

Coates (International Woodworkers of America): "I hope that you, Mr.

President, will be committed to keep your hands on this matter personally. We're talking about a lot of human beings. They're not just statistics. They're names (241:6-11)."

Ollivier (Longshoreman/ Eureka Harbor Commissioner): "We're fighting for our lives, Mr. President, in northern California. And we're going to make it. With your help we're going to make it (246:15-17) ."

Draper (Western Council of Industrial Workers): "I have the utmost trust in you and the Vice President and your administration to resolve this issue (63:18-19)."

Lang: "We were all so pleased, during your campaign, Mr. President, to hear you talk about putting people first, and we couldn't support you on that front more. Your challenge at this point is to move us forward . . . (79 : 7-10) . "

iii. Environmentalists

Kerr (Oregon Natural Resources Council): "So environmentalists urge you to save the last of the big trees., deal with log exports, and help these communities move in order to the 21st Century economy (199 :11-13) . "

Arthur (Sierra Club): "The past administration was frankly mired in the past and we need your help to move towards the future (51:1-2) .

iv. Tribes

Strong: "Mr. President Clinton, you have been chosen to write one page on the book of American history. American Indians, natives to this land, hope and pray that the pen that you wield will be guided by the Sacred Beings who created and authored the perfect laws of nature by which all mankind have existed since the beginning of time (250:6-11) ."

v. Commercial Fishermen

N. Bingham (Fisherman): "We know how to do the job but we need your help (56:23-24)." r b. Consensus All groups look to the President and his Administration

for continued involvement and assistance in resolving the current situation and in providing aid to people who are suffering.

c. Disagreement

Strong directs a prayer for guidance for the President to higher authorities, compared with direct requests to the President by other groups. This is more a difference in form than disagreement over issues, but it does reflect a different sense of time and authority than that of American politics. Archbishop Murphy's comparable appeal was "May the blessings of a good and gracious God be with all of us and grant us the wisdom to find solutions (28:11-13)." Mayors Katz and Strauger also wish Clinton "God speed" and "God bless."

d. Planes mentioned

Northern California

e. Time periods mentioned

"Since the beginning of time," present, future: Clinton's term and 21st Century

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10. Responsibility to future generations

a. Who says what?

i. Government

Clinton: "...we need to protect the long-term health of our forests, of our wildlife, and our waterways. They are, as the last speaker said, a gift from God, and we hold them in trust for, future generations (252:25-253:3)."

Gore: Old growth forests "if once destroyed will be gone forever= for every generation that follows (14:7-9)."

Roberts (Oregon): "...our economic and environmental stewardship of these

resources will in no small part determine the heritage we leave for our children and our grandchildren (10:17-11:1)."

ii. Environmentalists

Wales (Audubon Society): "The bottom line is that those most affected by environmental decisions of this decade will be the grandchildren of our grandchildren (33:17-19)."

Arthur (Sierra Club): "These great forests do define the character and the culture of the Northwest. They are part of our

B. Rural communities

1. Value of rural culture, way of life

a. Who says what

i. Forest Workers & Communities

Lang: "Are all of our children in the Northwest supposed to grow up and work for multinational corporations because they're the only ones who can survive? I hope not. The roots of this country are in small businesses and in small community. And if we are serious about respecting the cultural integrity of those small communities then our long-term solution, how we deal with this problem right now, has to respect those cultures (78:8-15)."

Hollenbeck (Logger/Sawmill Owner): "When I stared working in the woods at 14, I learned our heritage, and our heritage is a proud heritage. One of the speakers at the first table today said it in a nutshell. He said that we were problem solvers by heritage, and that's absolutely correct, and that spirit is alive and well today (219:14-19)."

Eades (Logger): "My two sons, Corey and Kevin, work with me every day in the woods. Like I said, we cut down trees, and I have a daughter that's a wildlife biologist and a forester. We work on some of the same ground our grandfather worked on every year. Mr. President, my people, my family are forest people. We love the beauty of the forest; we respect it. It's part of what we are. We have a heritage in the forest (48:20-49:2)."

Mason (Western Commercial Forest Action Committee): "...I brought with me letters from the school children in my community ...These are the children that we need to manage the forests in the future. We can't send them to the city to be retrained. These are the rural heritage. These are who we are... (77:14-24)."

Ollivier (Longshoreman/Eureka Harbor Commissioner): "We're fighting for our lives, Mr. President, in northern California. And we're going to make it (246:15-16)."

ii.
Government

Clinton: "As I've spoken with people who work in the timber industry, I've been impressed by their love of the land. As one worker told me...'I care about Oregon a lot, the beauty of the country.' (4:11-15)."

"I remember the families from the timber industry whom I met last September in Max Grossbeck's back yard in Eugene, Oregon. I was moved beyond words by the stories that people told me there and by their determination to fight for their communities and their companies and their families (3:16-21)."

"I cannot repeal the laws of change ...But what we have to find a way to do is to try to make it possible for more people to be faithful to their cultural roots and their way of life and to work through this process in a human way (94:13-24)."

Compares processes in rural Northwest to collapses of agriculture and rural communities along the Mississippi River after the Depression and in the early 80s, also to defense workers laid off in southern California (93:3-95:7) .

Gore: "At its very heart this debate is about people... It is about people who care deeply about their communities and about a way of life passed from one generation to the next, rich in traditions, strengthened over time. It is about people who care about the forests, wildlife, water and fish. It is about proud, hard-working people worried about losing their jobs and their dreams, worried about a future now uncertain for their children. (12:20-21:7) ."

Strauger (Hoquiam, WA): "When I hear people start to talk about putting these good workers back to work building picnic tables and cutting trails, it's unacceptable to me because we are a proud people, a proud community, and they deserve full-time family wage jobs (81:1-5) . "

iii. Church

Murphy: "A culture, a way of life, prized and reverenced in our timber communities is dying (27:17-18) ."

iv. Environmentalists

Kerr (Oregon Natural Resources Council): "I was born in a mill town, Creswell, Oregon, and I could have dropped out of high school and went to work in the woods, but I had a chance and a choice that many of my high schoolmates did not have, and I -- so I feel for those people in those timber towns. I grew up with them (196:6-11) .

Wales (Audubon Society): "I was born and raised in Klamath Falls, Oregon, and have lived in Roseburg for the last 15 years ...Being an environmentalist in Douglas County is not easy. Views that would be considered moderate elsewhere are blasphemy in Roseburg. I am married to a life-long resident of Douglas County whose father was part owner of a small mill that was absorbed by Roseburg Forest Products. Cliff put himself through college and through law school working in mills, and his older brother still works in a mill just north of Roseburg ...My clients come from all walks of life in Douglas County, and my business is as dependent as

any other small business on the economic health of my community. I am deeply committed to my community's long-term economic and environmental well-being (31:22-32:13)."

b. Consensus

The culture and heritage of timber-dependent communities are a valuable part of American culture. They include a love of the land and natural beauty passed from one generation to the next

that our employees have placed in our company has been shaken. The story I have to tell you could be told by just about any lumberman in the West. We are all in the same precarious position (34:7-22) ."

iii. Government

Schmidt (Lien County, OR): "We need to find a level of stability. We have such a stake, and of course we are close to the people that are affected (242:12-15)."

Roberts (Oregon): "The citizens of this region know that change is coming, and they are preparing for change. But as they adapt to these changes, they also seek predictability as we plan together for our communities, our industries, and our workers (11:3-7) ."

iv. Environmentalists

P. Lee (Oregon Trout): "My first thoughts about how the timber crisis has affected my community is the economic uncertainty, the polarization and fear it has engendered, all elements of our community from the timber worker to the cafe owner, to the banker has been affected (3 7 :13-17) . "

Arthur (Sierra Club): "I grew up in rural northwest Montana and in Eastern Washington. My family ran a logging and Christmas tree operation. I partly put myself through college logging as well. I empathize and understand the frustration and the anger that the communities feel (51:15-20) ."

v. Social Scientists

MacColl (Historian): "Timber workers especially feel helpless because they, like the rest of us, cannot control our own destinies. They have seen their livelihoods threatened just like the forests are threatened. There appears to be little that the individual can do to make the Oregon dream a reality (18:9-14)."

b. Consensus

Timber and wood product workers, employers, and communities are afraid of what will happen to them economically, and how economic changes will change their livelihoods and ability to provide for their families, their communities, and themselves. This fear of not being able to provide is linked to losing that aspect of self-identity and self-respect. These people have little feeling of control over their lives.

c. Disagreement

None

d. Places mentioned

Olympic Peninsula (Kostopulos); Southwest Washington, the West (Spence) ; this region (Roberts) ; my community (in Douglas County, OR: P. Lee); rural nw Montana, e. Washington (Arthur); Oregon (MacColl); timber communities (several)

e. Time periods mentioned

Since 1932; time growing up; experience of fear in recent past and present; fear of what future brings

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3. Breakdown of community ties

a. Who says what

i. Forest Workers & Communities

Draper (Western Council of Industrial Workers): "I have seen families destroyed, towns bulldozed, the very fabric of the rural communities torn by a long period of government inaction and contradiction (29:5-7)."

ii. Environmentalists

P. Lee (Oregon Trout): "A friend I've known for 20 years avoids me now because I suggested there are limits to what we can take from the environment. The business that I manage has suffered harassment because we have been labeled as just a bunch of environmentalists (37:25-38:4)."

iii. Church

Murphy: "But I do know that this man's tragedy has been repeated thousands of times by workers who have lost their livelihoods in our forests. These are not only personal experiences; they are community tragedies. The man who lives in his pickup truck has lost the wherewithal and the self-worth that builds community. He does not vote. He does not belong to the Rotary Club or Kiwanis. He doesn't show up for coffee at the diner or McDonald's (27:29) .

iv. Social scientists

R. Lee (U Washington): "In the most recent assessment that I have made in the health of our communities, we're moving into a process which looks an awful lot like what happened to the inner city. We're seeing ... disintegration of communities... (148:5-10)."

b. Consensus

Not many people talk directly about the breakdown in friendships, business networks, community participation, and other informal relationships that bind a community together, but those who do see these relationships note their importance and their loss.

c. Disagreement

None apparent, but lack of comment on this subject by most could mean that many groups do not consider this an important issue.

d. Places mentioned

Timber communities, meeting places in those communities, P. Lee's community and business (Steamboat, OR)

e. Time periods mentioned

Friendship of 20 years, recent past (past few years), present conditions

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4. Unemployment

a. Who says what

i. Government

Strauger (Hoquiam, WA) : "My city got hit on November the 12th with the closure of a three-unit mill, and our unemployment is now 19.5 percent and climbing. We expect it to go over 20 percent." Describes impact of closure on city budget, probability of having to lay off 22 city employees. "But I cannot describe to you the feeling that I have in the pit of my stomach when I know that I have to add to this unemployment. I've never had to lay people off before in my whole life (79:19-80:10) ."

ii. Forest Workers & communities

Coates (International Woodworkers of America): "I closed 39 mills between March of 1990 and March of 1991 just in Gray's Harbor. The 650 who now have lost their jobs as of January 1 have not impacted to date. That impact, I feel, will probably hit around June, and we will feel another three times that many because of the indirect and the induced (240:25-241:5)."

Bailey (Logger's Wife): I live in Trinity County ...And in January our unemployment rate was 21 percent. In February it was 23. We still have two mills left that have probably approximately eight to twelve months' worth of logs to ply (46:14-19)."

Draper (Western Council of Industrial Workers): Lists the types of people who have lost, are losing jobs: people who construct homes, carpenters, woodworkers, millworkers, paperworkers. Gives example of one family in which both parents lost jobs in the same veneer mill in Colburg, OR, when it closed in December... "Sadly, they are not unique. Thousands of men and women have lost their jobs. Thousands more are at risk due to a dwindling timber supply (29:14-30:4) . "

iii. Forest Industries

Spence (Sawmill Owner): "If the Gifford-Pinchot timber sale program is not reinstated soon companies will have no choice but to curtail production and to begin laying off workers. Employers who depend on the timber from private and state lands are also being damaged ...the pulp and paper industry in this region also faces devastation. They depend on wood chips produced by sawmills for their raw material (35:18-36:9)."

b. Consensus

Unemployment is bad, is getting worse, and many more are at risk in the next few months. Workers in many economic sectors are affected, both in a variety of forest and wood product industries and in jobs that are funded indirectly by timber production.

c. Disagreement

None.

d. Places mentioned

Hoquiam, WA; Gray's Harbor, WA; Colburg, OR; Trinity County, CA; Gifford-Pinchot National Forest

e. Time periods mentioned

March 1990-March 1991; November-December 1992; January-February 1993; June 1993; next 8-12 months

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5. Poverty

a. Who says what

i. Government

Strauger (Hoquiam, WA): "I think probably the instances that hurt me the most are the time that a mill worker came into my office
not too long ago, and he told me what it was like to stand in his first food line, and he said, 'Mrs. Strauger, I made it back to the car,' and then he said, 'I sat there and I cried.' (81:13-17)."
"92 percent of our kindergarten children are on free and reduced lunches... it goes down to 50 percent by the time they get to high school because the high school kids don't like to sign up for it (80:14-19)."

Tallerico (Siskiyou County, CA): "What I have observed in our county, and I think it's indicative of the region, is the constant increase in the aid for dependent children. Over the last 5 years we have steadily increased to a high of 28 percent of our school population being recipients of aid to dependent families... in the last year, our free and reduced meals have increased to 41 percent of the total school population of 8500 children. We feed also breakfast and lunch. So we're feeding about 7200 meals a day simply because these children's parents no longer have the resources to provide those lunches (43:4-16)."

ii. Forest workers & Communities

Bailey (Logger's Wife): "The average median income for a person living in Trinity County is $13,900. We don't have much to compromise at that rate. There's not much left to give...60 percent of our children in our public schools are on free and reduced lunches. This means that they also live at or below poverty level (46:20-47:5)."

Coates (International Woodworkers of America): "I have a distribution warehouse that last year we put out 730,000 pounds of free food from. We're currently feeding 10,660 people in two counties (240:10-12)."

iii. Social scientists

Fortmann (UC Berkeley): "Poverty is a long-standing and persistent feature of these communities. In 1989 nearly a fifth of California's forest-dependent communities had poverty rates that were equal to or greater than inner city rates. In the decade between 1979 and 1980, forest counties in California that experienced increases in timber cuts did not experience decreases in their poverty rates. The lesson is that at least in California, large timber harvests will not automatically resolve the poverty problem, particularly when profits are not reinvested in the communities or counties to any significant extent (143:2-12) ."

iv. Church

Murphy: "The loss of that man and those like him is evident in the empty storefronts in downtown Hoquiam and other timber communities. The loss is evident in the lines at the soup kitchens and the welfare office... (27:10-13)."

b. Consensus

There are a lot of poor people in timber communities and their numbers are increasing, as measured through soup kitchen and welfare lines, use of food banks, school lunch programs, and other such services.

c. Disagreement

Fortmann's statement that large timber harvests will not automatically reduce poverty is a novel point in discussion of this issue, as is her description of long-term poverty independent of recent events; don't know whether other groups would agree with her or not on this.

d. Places mentioned

Hoquiam, WA; Trinity County, CA; forest-dependent counties and communities in California; Siskiyou County, CA

e. Time periods mentioned

1979, 1980, 1989, "long-standing problem", last year, present.

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6. Homelessness

a. Who says what

i. Government

Strauger (Hoquiam, WA): "Another man came and told me -- he's 50 years old -- how he was going to lose his house... A friend of mine went up the Wynoochee River and found two families camping in a tent with little children, and in order to keep their kids in school, they had gone to the nearest community and had bought a post office box because that gave them an address, but they didn't want those kids to tell anybody where they were, and they were cautioned not to do that at school because they were afraid that somebody would take the children away from them when they found them living like that (81:18-82:13)."

ii. Forest Communities & Workers

Coates (International Woodworkers of America): "I hear Andy and some of the others talking about the beauty of the forests. When I go into the beauty of the forest, in the capital forest, and in the park service and in some of the rock quarries,

we have people living there. They have no home. They have no water. And they have no power. If I was to divulge where these people were, they wouldn't have their children either (240:12-19)."

Draper (Western Council of Industrial Workers): "I speak on behalf of Tia, a young mother living homeless and jobless with three children in a tent community in Amiter County Park, Oregon. She lost her job in Dillard, Oregon, due to this gridlock. Separated from her husband, she has since gone from job to job looking for the steady work to support her family. These are the faces behind the statistics, Mr. President (30:8-14)."

iii. Church

Murphy: "...I arrive in Hoquiam...here I meet a burly strapping fellow in the prime of life. He has worked most of the 40 some years in the woods felling trees. He has been without work for months, stretching into years. He has lost his home, and his ties to family and friends are tenuous. 'Archbishop,' he asks me, 'do you know what it's like to work for 20 years and then end up sleeping in your pickup at the side of the road?' (26:16-25)."

iv. Social scientists

R. Lee (U Washington): Mentions homelessness as one symptom of poor community health (148:10).

b. Consensus

Job loss leads to homelessness for some people; personal stories discuss impacts on families and children, feelings of helplessness.

c. Disagreement

None.

d. Places mentioned

Hoquiam; WA; Wynoochee River; Amiter County Park, OR; Dillard, OR; National

Forests and Parks; quarries

e. Time periods mentioned

Past couple of years, present

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7. Condition of children and families

See also poverty and homelessness sections 5 and 6 above.

a. Who says what

i. Government

Strauger (Hoquiam. WA): "There was a young couple up in the Quinault area ...They got laid off. They were down to the point where the only food they had was out of the food bank, and that was it. She became pregnant and had her baby, and the baby died, and afterwards they learned that for three days before that baby was born, that mother had not had anything to eat. Anything she'd had, she had given to the two little kids they already had (82:14-22)."

Tallerico (Siskiyou County, CA): "What I have discovered, is that when Dad or Mom comes home in the evening and addresses the issue that we are looking at kill closure and/or layoff ...that youngster's life is now changed, because what this youngster's going to focus on is what's happening to me and my family and my friends, will my father and mother be here tomorrow, or do we have to pick up and move?" Notes that in their region, father often leaves for timber jobs in other parts of California or the Northwest, leaving mother at home with the children. "We are de facto-ly creating single-parent families. And if you have a youngster that's in those middle teens that requires a lot of parental guidance, we are finding that to become very important for us to react to that." Notes increasing numbers of young men in juvenile hall.
"And that's why we need a reasonable solution to this problem. And we need it soon, or we're going to lose a whole generation of young people (44:17-45:8)."

ii. Forest Workers & Communities

Mason (Western Commercial Forest Action Committee): "I brought with me letters from the school children in my community... if you would read those letters which I gave to your staff, you will have a new understanding of the depth of the psychological legacy that we are handing on in rural America... it's a tragedy of great consequence (77:12-19)."

Draper (Western Council of Industrial Workers): "I speak on behalf of the thousands of children at risk, their happiness, their hope, their dream imperiled by an uncertain future (30:5-7).

Fletcher (AFL-CIO): "We have people on the abyss who cannot wait, some have gone over the abyss. Divorce, suicides, child abuse is in endemic [sic: epidemic?] in timber communities that have lost mills (201:1-4)."

Lang: "The future is our children, and in fact much of my concern I share with a lot of the mothers in the Oregon community is for our kids. When I was holding my one-year-old son this morning, I was feeling sad that in the short time that he's been on this earth his choices have already diminished considerably (78:2-7)."

iii. Forest Industries

Marson (Lumber Dealer): "I've also seen families devastated by two mills shutting down in my area (40:15-16)."

iv. Church

Murphy: "...and the loss is evident in the homes where unemployed workers, anxious, depressed, sunk in despair, lash out at their loved ones or find solace in alcohol or drugs (27:13-16).

v. Social scientists

R. Lee (U Washington): "...we're moving into a process which looks an awful lot like what happened to the inner city. We're seeing the collapse of families,

disintegration of families, disintegration of communities, loss of morale, homelessness, stranded elderly people, people whose lives are in disarray because of substance abuse... (147:7-12)."

b. Consensus

There are serious and lasting effects on children and families in timber dependent communities with high unemployment. Children are being physically harmed through poverty and abuse by distressed parents. They are being psychologically harmed through family and community disintegration and their loss of hope and dreams for the future. Symptoms of family breakdown include physical abuse, substance abuse, divorce, single-parent households, juvenile delinquency.

c. Disagreement

None.

d. Places mentioned

Quinault area; Siskiyou County, CA; California; Mason's community (Forks); Lang's community (OR); Marson's area (WA); timber dependent communities in general

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9. Community and forest-sustainability

a. Who says what

i. Government

Nafziger (Washington): "We need to help us come together and build a new paradigm for sustainable communities and a sustainable environment (193:15-17)."

Gore: "The days when this debate was defined by either/or choices are over. This isn't about saving jobs or saving the environment. It's about saving jobs and saving the environment. We can't do one without doing the other; certainly not in the long term (13:17-21) ."

Clinton: "A healthy economy and a healthy environment are not at odds with each other. They are essential to each other. Here in the Northwest, as in my own home state; people understand that healthy forests are important for a healthy forest-based economy (6:13-14) ."

ii. Environmentalists

Norman (Headwaters): "A healthy ecosystem is the economic infrastructure for communities with a natural resource base. By working for sustainable communities as well as sustainable forests, we hope to ensure the well-being of both (173:8-11)."

iii. Forest Workers & Communities

Lang: "How about taking a step back and concentrating on overall forest health? How do the forest ecosystems work best together, while we're integrating and responding to the needs of people? That's the comprehensive approach that will take us to a road where the future will be more stable (79:2-6)."

Mason (Western Commercial Forest Action Committee): "Our membership includes a broad spectrum of individuals from all occupations who perceive that their future is connected to the sustainable and responsible management of our forests (73:13-16).

b. Consensus

A direct connection exists between the health and sustainability of human and

natural communities.

c. Disagreement

I suspect Larry Mason and Julie Norman would not agree on what constitutes 'sustainable forest management.' More generally, not many people comment on this interconnection: the content of much of the conference still is one of either/or, in the short term, pat least: saving jobs or saving old growth.

d. Places mentioned

Northwest, Arkansas

e. Time periods mentioned

Present, future

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10. Fishing communities

a. Who says what

i. Commercial Fishermen

N. Bingham (Fisherman): "For 30 years I've been privileged to participate in that [salmon] fishery industry. It was a wonderful way of life. I can't tell you how rewarding it is to go out on the ocean and work all day out there and come back with a catch of fish and sell them and be a provider for your family. That way of life is fast disappearing. We are now faced with almost an identical situation that the timber harvesting families are. Next week the Federal Pacific Fisheries Management Council which Mr. Brown administers will decide whether we are going to be allowed to fish at all on the Pacific Coast this coming season. Last year 500 miles of the West Coast was closed to commercial salmon fishing, including my home port in Fort Bragg, California (54:19-55:7)."

Estimates that with support industry, around 65,000 jobs involved in commercial fishing industry in Oregon, California, and Washington (57:4-8).

Robinson (Oregon Salmon Commission): "Everything that you've heard about forest workers' jobs being lost and the effects on our communities is every bit as true when you look at what happens now with salmon fishermen. It's the same. I don't want to compare one family to another family. It's the same story (205:18-23)."

b. Consensus

Salmon fishermen and their communities are facing the same level and kinds of difficulties that forest workers and their communities are: loss of culture and self-identity, economic and social stresses that accompany job loss.

c. Disagreement

None, but only one group commenting.

d. Places mentioned

West Coast; California; Oregon; Washington; Fort Bragg, CA; coastal communities

e. Time periods mentioned

Last year; now; next week; coming season; 30 years as a fisherman

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C. Opportunities for displaced workers

1. Retraining/employment in non-forest work

a. Who says what

i. Government

Clinton: "I was also inspired by Frank Henderson who had lost his job as a timber worker and had gone through retraining to learn thermoplastic welding and now owns a plastics welding building of his own (3:22-25)."

Nafziger (Washington): "We must develop a coherent national retraining policy to help workers who have lost their jobs (192:20-21)."

Reich (Labor): Asks whether people are being trained for jobs that are in demand, that they can easily find work in (221:11- 222:18) .

ii. Forest Workers & Communities

Ollivier (Longshoreman/Eureka Harbor Commissioner): Asks for retraining and for an educational program like the GI Bill (245:10-25).

Hollenbeck (Logger/Sawmill Owner): "My wife and I feel so strongly about this right now that we are terminating the manufacturing at our facility, and we're going to start -- were starting right now a school, a school to train people in our community that are out of work and the young people in our community how to make a product, how to market it, and how to get out there and do it (220:24-221:5)."

Heffner (Vocational Counselor): Finds that formal schooling, even in community colleges, does not work well for most timber workers who haven't been in classes for years, are used to working outdoors and using mechanical skills. If they finish formal schooling programs, they often have problems competing against others who already have related work experience. Heffner recommends on-the-job training, tax credits and/or help with worker comp costs for employers who take on displaced workers for training and employment (187:3-189:10).

Also notes that timber workers have skills that are readily transferable to other sorts of work without extensive retraining, e.g., operating heavy machinery in

construction work, working in a machine shop or operating a forklift. Individual's hobbies are another source of skills for reemployment, e.g., knowledge of photography (184:19-186:11; 189:11-190:8).

Coates (International Woodworkers of America): "You hear from some of the others on training and retraining. You're talking about a lot of people with some very few selective jobs to retrain to. You have to break the gridlock on this thing and put people -- at least a portion of people back to work -- within the industry (240:20-24)."

b. Consensus

Retraining is an important element in placing displaced timber workers in new jobs.

c. Disagreement

People put different qualifiers on value of retraining: e.g., are people trained for jobs in which they can readily find work? Ollivier advocates formal education; Heffner says that often doesn't work well. "Retraining" seems to mean different things to different people, and some have thought out what sorts of retraining would work best while others give retraining a blanket recommendation without distinguishing different approaches. Heffner also notes that many workers have skills that are transferable to non-timber work without any formal retraining program; identifying these skills may require personal knowledge of individual's work and education history and outside interests.

d. Places mentioned

School in Hallenbeck's community; Oregon preferred worker program (Heffner)

e. Time periods mentioned

Post World War II programs for employing, educating returning servicemen (Ollivier); recent past: successful retraining; present efforts; need for programs in short-term future

2. Environmental restoration/New Forestry

a. Who says what

i. Government

Clinton: "I'd like to know what you think the realistic prospects are for harvesting second growth forests, how it's affected by the way the Endangered Species Act has been interpreted? So I'd just like to hear you talk a little bit about to what extent some of the jobs and the human problems we've heard might be solved over the long run with aggressive replanting and responsible managing of the second growth forests (63:25-64:10)."

Schmidt (Linn County, OR): "It was mentioned here a few minutes ago about taking some wood out of the many, many thousands of acres of dead and dying timber, particularly in Eastern Oregon, but we've got the problem coming over in Western Oregon as well. It's a disaster, but it's also an opportunity to extract a lot of fiber, to put some people to work, and to do some of the long-term help that those stands need, reducing of densities that have come on since fire has been controlled by man; to modify the species in the stands to more correctly assimilate the stands as they used to be 150 years ago, things like this (242:5-15)."
"We think that investing in these forests is a very good idea: thinning, road maintenance, brush control on young plantations, and certainly stream and riparian enhancement could be done (244:3-6)."

ii. Environmentalists

Norman (Headwaters): "The future of both [federal agencies and local communities] obviously lies in restoration and second growth, given the fact that old growth will soon be gone if not protected ...As an example, the Applegate partnership seeks to find common ground with the local timber industry in designing sustainable forestry and restoration projects (172:21-173:5)."

Doppelt (Pacific Rivers Council): Discusses a "comprehensive regionwide watershed protection and restoration program" that his organization has been developing... "the first two steps will create income stream for 15 to 25,000 person-years of employment. The entire program, if implemented over a ten-year period or so, would create the income stream for 50,000 person-years of employment. These would be primarily jobs back up in the woods doing things that many of the rural community people have done in the past like use bulldozers and excavators to treat road systems. So a program that we feel is absolutely vital for the future of our river systems and fisheries will also provide one piece to the short-term transition needs for rural communities (202:14-25) ."

Wawona (New Growth Forestry): Answering question on skills and jobs in sustainable forestry from L. Mason: "Many years ago I was on the California Future Timber Supply Task Force to the State Board of Forestry where we learned that there were millions of acres in California that need -- that are in understock condition, need planting or thinning or a number of different types of treatment. The skills are use of chains, surveying, forestry principles, controlled burning. There's a number of different types of skills. I couldn't say what the amount of jobs that would be created (61:1-16)."

iii. Social scientists

Hanus (Oregon Department of Forestry): Clinton: "What else could be done that would enable each local community to devise opportunities to put people to work?" Hanus: "There's an opportunity in Oregon as well as in other states. We have about 500,000 acres of underproductive land that are nonindustrial private forest land ...These could be converted and planted to full stocking, in other words, restored to their natural condition ...Some other possibilities are on federal lands where you could do some restoration work (151:4-153:3)."

iv. Biologists

Oliver (U Washington): "[To create stands with old-growth structure] What we could do would be using the creativity of the local people ...to do the thinning, the pruning, the creating the snags, the creating the-openings (115:4-9)."

Franklin (U Washington): "One of the aspects of [the experimental approach of New Forestry] that's very important is that we begin to monitor seriously our

management activities ...And this, incidentally, is one place for a potential link with the rural populations. Because it's very clear to me that as we develop this work force for the monetary activity, the rural resident populations are an obvious place to draw (109:12-20)."

v. Forest Industries

Hampton (Willamina Lumber): Responding to Clinton's question on employment in harvesting second growth: "I do have experience in second growth forests. My father bought a peckerwood sawmill at Willamina, Oregon in 1942 at which time virtually all the old growth in that area had been harvested, what little there was, because the bulk of the timber in the area had been burned over years ago, and we had a very vigorous crop of second growth Douglas fir coming on. The Siuslaw National Forest on which we depend is almost exclusively second growth Douglas fir. Our company hasn't cut an old growth log since 1950. We have high technology. We have highly trained workers, highly educated workers, highly paid workers. Our average worker last year, Dr. Reich, received $39,000. These are not small-potatoes jobs (64:11-25)."

Irvine (Home Builder): Mentions salvage sales as short-term source of timber (228:7-13).

b. Consensus

Restoration and New Forestry projects are a potential source of employment for rural communities, and would require skills that timber workers already have. Hanus and Doppelt both say that funding restoration work would-be costly, discuss how this might be accomplished. Harvesting second growth forests has long been a source of employment in the PNW.

c. Disagreement

Each person who discusses restoration/New Forestry has different sorts of projects in mind: salvage and restoration on public lands, watershed restoration, restoration of private nonindustrial forests, silvicultural treatment of existing stands, monitoring efforts. None of these are mutually exclusive, but if financial resources are limited, disagreement could occur over which ones should get priority.

d. Places mentioned

Forests in eastern and western Oregon; Applegate partnership (in Medford BLM District, OR); Pacific Northwest watersheds; nonindustrial private forests in Oregon; federal lands; private lands; California forest lands; forests in Western Washington; Willamina, OR; Siuslaw National Forest

e. Time periods mentioned

Lands harvested before 1971 Reforestation Act (Hanus); time since humans have controlled fire, 150 years ago (Schmidt); present conditions; short-term, up front costs; long-term benefits; Doppelt's ten-year program, 1942, since 1950

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3. Value-added manufacturing/new wood products and technologies/manufacturing networks

a. Who says what

i. Government

Clinton: Discusses idea of small scale manufacturing networks as dating back to medieval guilds... income gain in Northern Italy in 1980s due in part to use of such manufacturing networks ...gives example of a small metalworking manufacturing network in southern Arkansas ...considers such networks to have potential for generating income in small communities (182:12-183:9) .

Ron Brown (Commerce): "...the other thing we're trying to do also as part of the stimulus and investment package is this whole concept of manufacturing technology centers. And a lot of what we've heard today would speak to bringing new technology. It's not necessarily high technology. It's just new technologies to an industry in transition so that you can keep mills open, you can create employment situations in that local community, and we've got to see -- we've got to think very carefully about how we place them. They don't all need to be in urban areas. Some of them need to be in rural areas with a good spread around the country to bring the possibility of technology transfer to some of these small and medium-

size companies (167:2-15)."

Reich (Labor): "I was actually visiting a mill yesterday, a fairly high technology mill, and they were adding employees. I mean they kept on reinvesting in that manufacturing process... Technology was not replacing workers. Technology was creating more employment (156:25-157:6)."

ii. Forest Workers & Communities

Kostopulos (Woodnet): Discusses Woodnet; started two years ago on the Olympic Peninsula, "a network of over 300 very independent
wood products manufacturers." Lists myriad products that memberfirms of 1-40 people produce. Network activities include attending trade shows, learning about new technologies, advertising and marketing, coming up with ways to use what was waste from mill production. Woodnet is looking to develop a manufacturing technology center [in Forks?] (178:4-182:11).

Mason (Western Commercial Forest Action Committee): "Now you hear about the opportunities in employment and how levels of employment would have automatically declined in the timber industry, and I contend that that's not so, and our mill was an example of that. We use a very small volume of wood and employ 40 local people. And the way we were able to do that was by having a value-add process in our mill ...And what you see naturally as resource access becomes restricted the value of fiber increases, and when the value of fiber increases, you can afford to put more investment into labor... (Discusses manufacturing boards from industrial by-products to replace old-growth sawn boards.] That was the transition that I envisioned for my family when in the '80's we invested a million dollars in modernizing our sawmill [to make the transition from milling old growth to milling second growth] (74:10-75:21)."

Hollenbeck (Logger/Sawmill Owner): "We have learned to do more with less, too. In fact, for the last 21 years, we've gotten to be masters at existing on air. We're a Victorian mill work firm. We make all the fancy Victorian trim work and ship it all over the United States. Let me give you a little history of our company, and I think that you can see what can happen to the displaced timber workers today. I'm one of those kids that started working when I was 15 years old in the woods. I worked up until I was 24, and then I quit and started this company. I started it first

as a logging company. We logged dead and diseased trees from the Forest Service and made a good living doing that ...Then that was stopped, and it wasn't stopped by the government. It was stopped by market, and you couldn't give your logs away. All of a sudden in the mid-70's, the timber industry ran into a recession and nobody wanted the logs...So I went and found in the local sawmill's boneyard, and I dug out parts from there, and I built my own sawmill to try and keep money flowing somehow. I had the logs, so then I started selling fence boards and then we began manufacturing little buildings out of that, and then I began accumulating one piece of machinery at a time. The facility that we have today sits on two and a half acres (218:2-219:8)."

iii. Forest Industries

Spence (Sawmill Owner): "The great bulk of the old growth product goes into the door and window market, not only here in the United States but in foreign markets such as Italy, Germany, and Japan. And we are in the process, now, of transitioning from those types of products into what we refer to as engineered wood products. And as we make the transition we will be able to make that adjustment, but to do that in a short period of time would cause an overwhelming burden on a huge employee base throughout this country (69:17-70:1)."

Minnick (TJ International): "What we've done is we've worked very hard on these reconstituted wood products. [Shows and describes an example.]...the wood fiber can come out of second growth trees, and because it's got a high labor content, probably creates twice as many jobs as sawing a round log into rectangular lumber (223:1-16)."

Mater (Mater Engineering): "We are clearly learning how to make more with less, and I'll give you some examples of how we do that relative to value-added manufacturing." Mater gives examples of products, states interest of Japanese in purchasing some of these products, not raw logs ...describes a microthin veneer technology in which 60-75 employees could work an eight-hour shift using only 14 logs ...thinks many of these new technologies have worldwide market potential (212:18-214:22).

Irvine (Home Builder): "The new technology issues which several have talked about around this table, I think there's a grand opportunity there. Our national

research center in Maryland spends a great deal of time working at new technologies... (228:14-18) . "

Hampton (Willamina Lumber): "Last year at our Tillamook Lumber Company Plant alone we invested five million private dollars in the renovation of that plant which is in pretty good shape before that to get the highest value and quality and volume out of those second growth logs. It's laser technology. It's scanning. It's computerized positioning, all run by skilled workers who make this average wage that I identified as $39,000 a year (71:1-8)."

iv. Environmentalists

Kerr (Oregon Natural Resources Council): "And so we need to talk about secondary manufacturing, the future of the timber industry in Oregon, making more with less, and higher value products (198:4-6) ."

Norman (Headwaters): "We believe the answer lies in adding value to forest products and investing in new community-based market opportunities ...the Rogue Institute for Ecology and Economy is promoting value-added wood products (172:25-173:7)."

Wawona (New Growth Forestry): Wawona: "We have a sawmill also that uses old growth and makes those very products [windows and doors]." Reich: "Can you make the transition?" Wawona: "I don't think that they could, no. For one thing, retooling is a tremendous expense, several million dollars (70:2-7)."

v. Social Scientists

Greber (Oregon State O): "The thing I want to emphasize here is that technological change can do a lot of things to the way we use labor in the wood products industry. A lot of people talk about the technological change and its impact on labor displacement. And if we look in that time period from 1980 to 1986, we did see that there's a large displacement of labor due to technological change. Twenty-five percent of jobs were displaced in that time period due to technological change. But if you look back in the 70's, technological change actually added jobs to the economy of the region. What happened was in the 70's, the industry was focusing on mill recovery, residue utilization, and secondary wood products. You can see that as we head into the 90' s, our labor use per million board

foot has started to step up once again, perhaps due to scrambling for that raw material recovery (140:12-141:3)." Discusses composites technology in wood products as example of new (expensive) value-added process that could generate employment and income: 161:1-162:5.
Response to Secretary Brown's comment on manufacturing technology centers: "I think that is a point of great concern in the Pacific Northwest right now. We have this large network of small secondary wood products firms ranging from furniture to cabinet to small molding and mill work and specialty firms that are really at a loss for some of the new technology that's out there in wood products. And they can be a great contributor to a number of the rural economies and capitalize on a lot of the skills of the work force that is out there, but they really don't know how to proceed in marketing or manufacturing (167:16-25)."

Whitelaw (O Oregon): Notes that new wood products technologies can both displace workers and create new employment opportunities, but new employment opportunities in both high-tech wood products and other sectors may not be open to "the 50-year- dislocated worker with a GED or junior in high school dropout (156:11-157:10)."

b. Consensus

New value-added technologies are an important potential source of employment; though technology has displaced workers in the past, the present trend appears to be one of technology creating jobs. These technologies permit the wood products industries to make "more with less," and thus could mitigate reductions in employment due to reductions in timber supply.

New technologies must be available to manufacturers to do any good. Technology transfer centers and manufacturing networks are two mechanisms that could aid in this. The latter can also assist small manufacturers with much-needed assistance and advice in marketing their products.

c. Disagreement

Some, e.g., Kerr (Environmentalist) seem to view value-added technologies as an easy panacea to unemployment in the woods product sector. Others consider that relationship between technology and employment to be more complex. Spence (Industry) and Wawona (Environmentalist) note that adoption of new technologies

cannot happen overnight, even though the industry is moving in that direction: Small mills, in particular, would have problems with the costs. Whitelaw (Economist) notes that a job in a high-tech mill might not employ the same worker laid off from an older mill. Disagreements or differing emphases seem as common within groups as among them for this set of issues.

d. Places mentioned

Northern Italy, southern Arkansas, local communities, urban & rural areas, Olympic Peninsula, mill that Reich visited, Mason's mill, mill in Wawona's community, United States, Germany, Japan, Maryland research center, Oregon, Pacific Northwest

e. Time periods mentioned

Middle Ages, 1970s, 1980s, 1980-1986, two years ago, now, 1990s, short-term future, generalized future

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4. Non-timber forest products

a. Who says what

i. Forest Industry

Mater (Mater Engineering): Mater describes economic diversification through tourism and special forest products processing, e.g., mushrooms, food, pharmaceuticals, botanicals, florals. "And the neat thing about these kinds of products, they're in abundance. You can harvest these products on an environmentally sound two-year rotation. If you do it right, that species can come up in even higher volume than the index volume that you cut, and secondly, we're talking about good family wage job development." Mentions Willamette National Forest study, conceptual plan that would employ 134 people ...global market potential (215:24-217:22).

ii. Environmentalists

Kerr (Oregon Natural Resources Council): "We need to look at ways to make money off of forests ...people do make money off of forests without cutting them down. Our organization has appealed a few timber sales in its days, and one of the timber sales that we appealed is a sale where we tried to show the Forest Service that the annual value, the annual harvest of gourmet mushrooms from that stand of trees each year was worth more than the standing value of that timber (198:7-17)."

iii. Social Scientists

Fortmann (UC Berkeley): "Let me stress that forest dependence is not synonymous with timber dependence (142:24-25)." Mentions Trinity Alps Botanicals, which produces non-timber forest products for export as an example of local community effort in Northern California (145:7-12).

iv. Government

Clinton: "If we destroy our old growth forest we will lose jobs and salmon fishing and tourism ...recreational opportunities and hunting and fishing for all...(6:17-21)."

Gore: "If we destroy the old growth forests we lose jobs and threaten entire communities. Jobs in tourism and fishing, recreational activities like hunting and hiking and fishing... (14:11-14)."

Espy (Agriculture): Asks about tourism as one alternative to timber production for rural economies (83:16-18).

Strauger (Hoquiam, WA): In response to Espy, notes "Tourism is something we had been working on even before this hit (83:2021) ."

v. Forest Workers & Communities

Bailey (Logger's Wife): "Let us work. We need those jobs. We need that pride ...Let us continue to provide recreation and opportunities for wilderness experiences which we've done (47:13-18) ."

b. Consensus

Mater and Kerr agree that special forest products can provide substantial income to families and communities. Mater, Espy, and Strauger also identify tourism as an avenue for community economic diversification.

c. Disagreement

Fortmann makes a unique point in the conference in noting difference between forest and timber dependence, though others may not disagree with her. Mater, Kerr, and Fortmann see nontimber forest products as potential sources of economic growth. Clinton, Gore, and Bailey, in contrast, seem more concerned with not losing existing jobs in commercial fishing, tourism and recreation; they do not identify these activities as job opportunities for displaced timber workers.

d. Places mentioned

Willamette National Forest; Northern California; Hoquiam, WA

e. Time periods mentioned

Past timber sales appeals; two-year rotations; present activities; development or maintenance of these opportunities in the future

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5. Need for family-wage jobs, work not welfare

a. Who says what

i. Government

Clinton: "We need to do our best to offer new economic opportunities for year-round, high-wage, high-skill jobs (251:22-24).

Schmidt (Lien County, OR): "We need to be thinking about family-wage jobs, not entry-level wages (244:13-14)."

Strauger (Hoquiam, WA): "I've often heard you say that you are a child of the '60's. Mr. President, I'm a child of the Depression. The stock market crashed creating the Depression the year after I was born, and I never knew anything else growing up except the poverty of the Depression, and quite frankly, I had all of the WP programs I want. And when I hear people start to talk about putting these good workers back to work building picnic tables and cutting trails, it's unacceptable to me because we are a proud people, a proud community, and they deserve full-time family wage jobs (80:20-81:5)."

Reich (Labor): Asks about quality of jobs in timber, forest, wood product employment: where are best salaries and benefits? (145:22-6) .

ii. Forest Workers & Communities

Bailey (Logger's Wife): "...don't send us money. Let us work. We need those jobs. We need that pride. Let us work towards the solution that will benefit not only us. Let us continue to provide a product to this country that the country desperately needs. Let us continue to provide recreation and opportunities for wilderness experiences which we've done. Let us continue to do what we've done, which is grow trees better than anybody else in the world so that we can have not only a healthy forest in the future, but a healthy economy also (47:12-21)."

Ollivier (Longshoreman/Eureka Harbor Commissioner): Discussing possible employment, retraining, education programs for displaced workers: "You know, people want dignity. You know. We want dignity in this world (245:24-25)."

Heffner (Vocational Counselor): Asks that job placements and tax credits, training for displaced workers not be allocated according to what they have in savings or whether their wife works..."If it's a displaced worker, then let's have the job...(188: 1-9)."

iii. Social Scientists

Greber (Oregon State U): Answering Reich, Greber states the highest wages are in pulp and paper; then sawmill and logging jobs; then secondary manufacturing, which tends to have lower-than-average-wages. "So you can talk wages when it comes to quality of the jobs. That's a subjective judgment that I wouldn' want to venture into saying whether my job's better than a logger's job, or a logger's job is better than a mill worker's job (146:7-21)."

Fortmann (UC Berkeley): Answering Reich, "When I was interviewing loggers and their wives, the logger's wife said to me, 'Every day at 3:00, I thank God he's alive, because she knew if he made it to 3:00 that day, he hadn't been killed. And I believe it was 1976 -- these are very old data -- deaths in the logging and the forestry industry in California, Oregon, Washington, and British Columbia exceeded deaths among policemen and fire fighters in those same areas. It is a very, very dangerous occupation for certain occupations (146:23-147:7)."

b. Consensus

Displaced workers want and should get family wage jobs.

c. Disagreement

Several people discuss job quality, but have different criteria for 'quality'. . Reich, Greber, Clinton, Schmidt focus on wages; Fortmann mentions safety; people closer to workers themselves (Strauger, Bailey, Ollivier) talk about need for a job that maintains workers dignity and pride. See also section II.C.1.a.i for comments from forest workers on the value they find in their work.

d. Places mentioned

The country, Oregon, Washington, California, British Columbia

e. Time periods mentioned

Depression, 1976, present, future

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6. Federal unemployment policies

a. Who says what

i. Government

Clinton: "A lot of these battles we're all fighting are big-idea battles... it is astonishing the number of people who would literally -- in the Congress -- who would not sleep until the unemployment extension is passed, you know, to pay people who they feel sorry for who are unemployed. Then turn around and say that we're wasting money if we want to have a huge increase in the Labor-Department's ability to retrain people on a continuous basis to keep them from getting on unemployment in the first place...We've got to change our attitudes and start all in government thinking about how government can work with the private sector to make good things happen instead of just be there when bad things occur...(164:24-165:22)."

Gore: "...the kind of federal-state partnership or stewardship programs that were referred to earlier to take a proactive approach, money for that is in the stimulus package that is being considered --excuse me for the commercial just for a moment-- that is being considered on the floor of the United States Senate right now, and people who want to see a proactive approach to create jobs and start getting serious about helping working people, should encourage the senators who are voting gridlock in holding that up, to let it come for a vote and start, getting these kinds of stewardship programs enacted... (164:11-21)."

ii. Forest Workers & Communities

Fletcher (AFL-CIO): Offers support for Clinton's economic stimulus and deficit reduction packages, suggesting a similar short-term/long-term approach to current problems, noting in the short term "we need adequate assistance for displaced workers, because we know they're going to be displaced workers, both wood products and those workers who are going to be displaced because of the wood products jobs that are gone (199:16-200:17)."

Ollivier (Longshoreman/Eureka Harbor commissioner): "...the best social

program that the President can give all of us here is a job (247:18-20). "

iii. Social Scientists

Whitelaw (U Oregon): "...when you're talking about what federal policies, if we could shift to -- or from this passive labor market policy where we sort of wait till the tragedy occurs and then kick in with certain number of weeks of unemployment compensation, if we could anticipate and plan to facilitate that transition, it would relieve immensely the trauma, the tragedy that goes on (164:3-9) . "

b. Consensus

Unemployment compensation is a stop-gap policy that doss riot address the underlying causes of unemployment or low people may become reemployed, both of which are of long-term importance. Proactive approaches that prevent job loss are needed.

c. Disagreement

None apparent among those commenting here, but Clinton and Gore mention political battles over unemployment policy in Congress.

d. Places mentioned

Oregon, not really place-specific

e. Time periods mentioned

Present efforts/packages before Congress, short-term and longterm future

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D. Opportunities for the federal government to assist rural economies

1. Economic diversification and community development

a. Who says what

i. Government

Clinton: "...one of the things that we're trying to is to set up a representative number of community development banks ...and it may be that we ought to make sure we have one or two in the Pacific Northwest... (166:19-167:1)."

Schmidt (Linn County, OR): "Rural community development is-also very important to us. If there is a way to cut some of the red tape, maybe get past some of the traditional ways of doing business that agencies responsible for delivering these packages to the communities -- that would be a big help. Our small communities do not have the sophistication and abilities to deal on and on with the programs when they're all changing, the goal posts are always moving, and if there's something that can be done with the agencies involved here, we would appreciate that (243:16=25)."

Nafziger (Washington): "We must attract capital to rural timber communities through the creation of community development banks. Redlining and uncertainty created by the timber crisis have cut off the lifeline of capital to these towns, and capital's essential if there's going to be any diversification or any value-added, and a government private partnership through community banks could leverage private capital (192:11-19)."

Espy (Agriculture): Asks Mayor Strauger how a town like hers fashions alternatives once it loses its principal timber-based industries, and how the federal government can assist in developing alternatives, e.g., tourism (83:12-19).

Strauger (Hoquiam, WA): Replying to Espy: "We are working on tourism, and we're doing everything we can to diversify, but our biggest problem with diversification is that we have no industrial park. We have no warehouses. I don't know how many times we get inquiries for warehouse space. All we have to market is an empty log truck and a rusty spar pole. The industry, our county has been 85 percent timber, and it just has never been necessary to have the kinds of things you

need to diversify (83:20-84:7) ."

ii. Environmentalists

Wales (Audubon Society): "Federal policies of the last half century have fostered the development and dependency of communities like mine. But diversification has already begun, and at this point a gradual transition to a nonextraction-based economy is possible (33:9-14)."

iii. Forest Communities & Workers

Ollivier (Longshoreman/Eureka Harbor Commissioner): Mentions needs for low-cost business loans and investment in infrastructure (246:114).

iv. social scientists

R. Lee (U Washington): Mentions community development corporations as possible legal mechanism for providing a more secure environment for the financial community in rural areas (166:7-11) .

b. Consensus

Diversification of rural economies, so that they become less dependent on timber extraction or any single source of revenue, is desirable. Loans and community development banks are appropriate means for mobilizing diverse investments in rural communities.

c. Disagreement

Potential disagreement exists over how development programs should be implemented and which federal agencies should be responsible. Wales and Schmidt, who live in timber counties, mention past and potential involvement of federal natural resource agencies (USFS, BLM) in community economies, as does Lee (old sustained yield units 166:13). State and federal government officials (Clinton, Espy, Nafziger) seem to focus on bank and loan programs that are more likely to be administered by economic agencies from state capitols and Washington,

D.C.

d. Places mentioned

Pacific Northwest; Hoquiam, WA; Strauger's county, rural communities

e. Time periods mentioned

Last half century, recent past, present, future

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2. Assistance/incentives for non-industrial forest owners and forest industries

a. Who says what

i. Government

Clinton: "... Anne's citation here of the potential of second growth forests on privately owned timberlands that are presently not well-managed or well-planted, where the owners can't afford to do it. If there were a very close level of cooperation between the state and federal forestry agencies, the private timber owners, and the big companies who might contract to harvest the land, it seems to me you could get a whole lot more done more quickly than if you just hope that these individuals could come up with the cash from their local bank to do it. Is there anything that the federal government could do to change policy to facilitate that? (158:22-159:8)."

Schmidt (Linn County, OR): "We've heard a little bit about tax incentives on private lands. A lot can be done with the carrot rather than the stick (244:7-9)."

Nafziger (Washington): "We can strive to develop an entire landscape of natural forests... but we can't achieve this goal by ramming new regulations down private landowners ...Everybody's got to contribute to this forest landscape, but we need to create market incentives like generous capital gains tax treatment for environmental sensitive forest investments so that protecting the earth can become a question of economic self-interest... Investment tax credits can help create an incentive for value-added investments (191:5192:2)."

ii. Social Scientists

Greber (Oregon State U): Mentions his experience consulting with nonindustrial private forest landowners in the South, how forestry is done on private land there with consultants, state agents, industry landowner assistance and cooperative management programs. Thinks that public policy to encourage long-term industry-private landowner partnerships could be beneficial and cost-effective (160:3-25).

Hanus (Oregon Department of Forestry): "... there are substantial up-front costs of restoration. There are limited options for obtaining financing. For example, if you were to do reforestationon a hundred acres, it would cost approximately $50,000, which is a substantial investment for a small woodland owner. There are programs that could provide assistance that way. There are cost sharing programs that are available, but in the state of Oregon, those federal cost-sharing programs that we receive through state and private forestry or the Forest Service, give us enough for about 7,000 acres a year. That's not clearly enough to help with those 500,000 acres. Plus there are some very innovative programs that have been talked about, a forest trust that would provide venture capital to provide some of that up-front funding (152:421) ."

iii. Biologists

Oliver (U Washington): "Now, what you're asking is these private owners, industrial and otherwise, to provide a public value on their land [by restoring land or using new forestry techniques]... rather than looking at it in a regulatory approach, I encourage your incentives approach ...you could do something similar to the soil bank program... (168:15-169:2)."

iv. Forest Industries

Minnick (TJ International): "...if you throw in some procurement incentives, if you would get out of the business of subsidizing low-cost timber sales and the other old way of doing things and let the market work, I think you'd be amazed by how successfully we can have both spotted owls and a very successful and vibrant growing forest products industry (224:20-225:1)."

Hampton (Willamina Lumber): Suggests raising the number of employees permitted under the SBA Act from 500 to 1000: "we have sold several businesses

which were value-added businesses to stay under 500 personnel (66:22-67:16)."

v. Forest Workers & Communities

Hollenbeck (Logger/Sawmill Owner): "Small is okay, and we need to get that message out to the community that everybody starts someplace." Hollenbeck discusses difficulties for small businesses to compete under current USFS policies of cost efficiency when the minimum bid for small business set-aside sales is $30,000. "You might as well make the minimum bid the national debt. Ninety percent of the small operators starting on this can't even go to the table. You want to see the hardwood market start up? Everybody's screaming hardwoods in our industry. Get the Forest Service to sell a couple of trees to the gypo loggers. You'll see hardwood cut. You'll see hardwood cut in a hot tick, and we'll experiment with it because it's some thing that we can afford. It's something that we can do and that wewant to do (219:25-220:23) . "

b. Consensus

Incentives and voluntary cooperation between private landowners, industry and/or government are the most appropriate means to increasing timber supply and other forest values on nonindustrial private forest lands. Incentives are also favored for industrial private owners. No one spoke in support of more regulations on private forest owners.

c. Disagreement

Hollenbeck's point about institutional barriers to small forest businesses indicates potential conflicting interests between small and large forest businesses. Incentives or programs that favor one may exclude the either. Cost of programs and incentives could also become an issue among government officials when discussions of state and federal aid become more focused.

d. Places mentioned

The South, Oregon, private non-industrial lands

e. Time periods mentioned

General: present and future

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3. Stability in policy needed to promote investment

a. Who says what

i. Government

Reich (Labor): "I just wonder how much of the problem, or to what extent there is any problem, with lack of predictability? That is, does merely not knowing what the policy is going to be or likely to be have a chilling effect on investment and on business and on jobs? [See response by Hampton, below] (70:15-22)."

ii. Social Scientists

Greber (Oregon State U): "You've got an industry out here that a lot of times right now has a tough time going to the bank. You say you're going to develop something in forest products, you want to invest $500,000 in new equipment, people say, "Where's the timber supply going?" I think until we get some certainty in the timber supply picture, people are going to have a tough time coming up with the finances to move ahead in that technology, so some certainty in this public policy on timber will help...(161:6-17)."

R. Lee (O Washington): "I think there's some legal mechanisms for addressing the points that Dr. Greber raised about the security of both supply and then the security of the lending institutions, and legal mechanisms such as community development corporations or other vehicles by which jurisdictions can then enter into contractual relationships with the Federal Government for supply or provide a more secure environment for the financial community. And I think there's an enormous potential there for sort of relooking at what these old sustained yield units were, but doing it in a way which would bracket it and contain the flow of wealth... (166:4-17)."

Hanus (Oregon Department of Forestry): "With the type of uncertainty we have now, both federal and state regulatory, it is difficult for landowners to make investments... (152:6-8)."

iii. Forest Industries

Hampton (Willamina Lumber): Responding to Reich: "The cost of modern technology is extraordinary. It takes a leap of faith under these conditions to invest the kind of money that one does to modernize a plant." Hampton discusses the $5 million investment his company made in modernizing their Tillamook Lumber Co. plant last year (70:23-71:8).

C. Bingham (Weyerhaeuser): "From a private landowner's point of view-this region was fundamentally different than the Midwest and New England. In 1941 the private landowners said, "We are going to manage these lands on a continuous basis," and they began protecting them. They built the roads. They put the fire protection in. They paid the taxes on them now for -- since the Roosevelt administration now for 55 years ...The folks who made those investments 50 years ago had confidence in only two things. One, Will I be able to harvest this?' ... two, that they could market it ...we do need the confidence, the small private landowner as well as the industrial landowner, we need the confidence of two very simple things. Will we be able to harvest it? Seriously in doubt with the way the owl has been politicized and passed back and forth by regulatory agencies. And will we be able to market? [Discusses $400 million modernization of Longview facility.] We need assurance that there's going to be raw material ...And we need assurance that we can compete in the international market [In context of policy on log exports from private lands.] (234:3-237:21)."

Minnick (TJ International): "And there are quite a number of these engineered lumber technologies. They're gaining in market share, and essentially what we need the government to do is get out of way, let the market system work, get some certainty into the west side timber supply because we don't know whether to build another plant here or to go to Canada or even whether we should be hiring folks for a month from now, because we can't be assured that our veneer suppliers are going to have the raw material we're going to need (223:17-25)."

iv. Forest Workers & Communities

Bailey (Logger's Wife): Commenting in discussion of economic/ technological transition from milling old growth to milling second growth: "And it all comes back to access ...how can you expect a company to invest billions of dollars if one day they're not going to have access. In our county the mills were 70 percent dependent or more on federal timberlands, on second --and mainly its land that's been used over and over again. If we don't have that access its hard to get people to invest (70:8-14) ."

v. Biologists

Oliver (U.Washington): Discussing investment in silvicultural treatment of second growth: "I could show you stands that were begun thinning at age 40 that are now age 80 and 36, 37 inches in diameter have very many of the old growth structures. The problem is that this is on private lands, and people aren't doing that because they're scared stiff a spotted owl will fly into it, and then they've lost any economic advantage to their stands (112:13-19) ."

b. Consensus

If the federal government expects people to invest in forestry and forest products technologies, they have to provide more of a climate of stability in forest policy than now exists.

c. Disagreement

Different people identify different aspects of stability (differences in comments, but not necessarily disagreements): of timber supply in general, of access to federal lands for harvest, of ability to harvest private lands, of ability to market forest products on the international market. Lee's suggestion of communities or others having legal contracts with the Forest Service to assure sustained supply is a novel point in the discussion.

d. Places mentioned

Old sustained yield units, Midwest, New England, this region, international markets, Longview facility, private industry lands,private nonindustrial lands, federal timber lands, Tillamook facility

e. Time periods mentioned

50 years ago, 1941, 1955 and on, last year, now, future

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4. Federal receipts to counties

a. Who says what

i. Government

Tallerico (Siskiyou County, CA): "I am a school superintendent in Siskiyou County, California, of which the land mass or land base of 6,400 square miles, sixty-three and a half percent is in federal jurisdiction. So as you know those federal receipts are very important to us, because that translates into numbers of positions and numbers of teachers, numbers of staff that we're able to provide (42:19-43:1)."

Schmidt (Linn County, OR): "The State of Oregon, 31 of our counties receive timber revenues, 18 of them from the O&C lands. Fifty-two percent of our state is in federal ownership; slightly lesser percentages in the states of California and Washington ...County revenues are made up of some state revenue, some property taxes in the state of Oregon and other private fees, and about $200 million from federal lands go into providing our services, critical services such as public safety, human services, mental and public health, environmental services. These are services that the demand is increasing as we see the problems that we're discussing here today go on and on and on (241:17-242:11)."

ii. Forest Workers & communities

Fletcher (AFL-CIO): "On a long-term basis, we also need some guaranteed level in place of the timber receipts because currently $136 million a year of that comes into Oregon in lieu of taxes... (200:18-21)."

iii. Environmentalists

Wales (Audubon Society): Mentions that husband's salary as Douglas County Counsel comes largely from O&C receipts (32:7-8).

iv. Social Scientists

MacColl (Historian): "One problem unique to Oregon relates to the Oregon and California railroad lands, or the O&C lands, which are the remainder of the public lands originally granted to the railroad in 1869. Somewhere between 25 and 50 percent of all timber receipts are distributed annually to 18 Oregon counties in lieu of property taxes the lands would earn. Now, these revenues have been crucial to balancing the budgets of many counties like Lane and Douglas. Lowered timber sale receipts mean less funds for county operations (20:7-17)."

b. Consensus

Loss or reduction of federal timber receipts to counties will reduce services counties can offer unless other sorts of revenue are found or provided. Focus on O&C counties, but counties throughout the PNW are affected, to varying degrees.

c. Disagreement

None.

d. Places mentioned

Siskiyou County, California, Oregon, Washington, Lane County, Douglas County, federal lands

e. Time periods mentioned

1869, present, future, long-term future

E. Regional and national economy

1. State of regional economy

a. who says what

i. social scientists

Greber (Oregon State O): Discusses role of timber industries in the regional economy. For employment, every billion board feet is estimated to produce 11,000-14,000 jobs in the region. From 1988-1992, employment in timber industries went from 140,000 to 116,000 in the Western Oregon, Western Washington, and Northern California region, a reflection of changing harvest levels, driven by national and global economic trends as well as recent harvest restrictions.

"Timber industry's role in the regional economy is changing. As its share of employment fell from ten percent in the early 1970's to five percent in the late 1980's...The region is becoming less well characterized as a timber economy, but still it contains many communities that are dependent upon timber ...a lot of the communities are diversifying. and have diversified in the last 20 years. But the other thing you'll notice is still in the late 1980's, there are 21 counties who had at least 15 percent of their employment directly in timber industry in the late 1980's. These counties are particularly concentrated in Southern Oregon and Northern California, which is an area which is very heavily federal timber reliant ...Many of these counties', that were heavily timber dependent in the late 1980's currently have unemployment rates much in excess of 10 percent. If you're to do a map of unemployment rates, it would mirror that timber dependency fairly heavily at this point in time. So we do have a healthy economy in aggregate, but there are some severe differences as you look across the landscape and the role that timber industry and other industries are playing (137:12-142:14)."

Whitewall (U Oregon): "...in the early '80's in a three-year period from '79 to '82, Oregon and Washington's timber industry lost 27,000 jobs permanently. During the decade though, the two states added over 700,000 jobs. Now, that was a surprise to a lot of us. Jerry Franklin's talking about the mysteries of old growth forests that he encountered in the early '80's and the '70's. Well, there's some mysteries going on in the northwest economy. It wasn't clear what was happening. One thing that was clear was that timber was no longer driving the northwest economies. Something else was going on. And that mechanism -- and this is where the link comes back to the forests and the ecosystem. We have accumulated evidence, but not with a lot of rigorous study, that many of these jobs, including jobs in manufacturing that are paying substantially higher than the timber industry is paying, many of those jobs are quite sensitive to the environmental amenities here in the Northwest (154:22-156:10)."

MacColl (Historian): "The lumber industry has always been plagued by boom and bust cycles. It's also faced ruinous competition, overproduction, market chaos and dependence on railroads for shipments to market. During 1920's the problems of oversupply and low prices in a very fragmented industry initiated movements to merge the smaller timber companies in an effort to stabilize the industry. The merger movement culminated in the 1950's and '60's when corporations like Georgia Pacific and Champion Paper acquired many smaller companies from Arkansas to Oregon to Northern California as they added their extensive holdings. Financed by larger national banks and Wall Street they treated their region more like colonies. They came to cut and then departed, using their cash flow to liquidate their acquisition debts (20:18-21:6)."

ii. Forest Industries

Mater (Mater Engineering): "Let me preface my comments by giving you a little background on the engineering firm of Mater Engineering. This process of being a part of timber crisis is not new to us. We've been around for almost a half a century working in the wood products industry throughout the world. Needless to say, we've seen a lot of transition within the wood products industry. This is not the first time that we've been involved, and I suspect, Mr. President, won't be the last time that you'll be involved in these type of issues (211:18-212:2)."

C. Bingham (Weyerhaeuser): "I've worked for Weyerhaeuser now for over a third of its existence. It's been in business for 93 years. I think if there's one thing that we have learned, it is that we must be able to manage large-scale change." Discusses fire protection, Depression, Mt. St. Helens... "and now we have another one, which is the role of private lands in landscape ecology. What is their contribution? I would suggest that there are a half dozen things quickly that one needs to do. First, there has to be a recognition of the need to change, and every one of those we had to recognize that we had to change (194:10-195:3) ."

iii. Environmentalists

Sher (Sierra Club Legal Defense Fund): "Contrary to some of the things that you've heard today, the industry problems are not unanticipated. Industry was predicting this a long time ago. In 1986 George Weyerhaeuser gave a speech in Longview, Washington in which he said that: "We are weathering a revolutionary restructuring that is shaking the forest products' industry in the Pacific Northwest... Forest products companies, both big and small, must learn to play by a new set of rules if they are to survive." This was long before the spotted owl flapped its wings (91:20-92:6). "

iv. Forest Communities & Workers

Draper (Western Council of Industrial Workers): "Our workers deserve and need a healthy forest products industry to maintain the economic stability and viability of this region (31:1-3)."

b. Consensus

There has been a great deal of change in the regional economy that is not tied to timber production in the past few years, and there has been a great deal of change in the forest industries that is not tied to spotted owl/environmental issues in the past few years. The region as a whole is not highly timber dependent, and is becoming even less so, but some communities and counties still are. Large forest industries will weather current changes, as they haves previous ones in this century.

c. Disagreement

Draper is the only one who claims a strong linkage between regional economic health and the health of forest industries. Whitelaw's hypothesis of the contribution of environmental amenities to a growing regional economy challenges traditional timber-based analyses of employment and income attributable to PNW forests.

d. Places mentioned

Western Washington; Western Oregon; Northern California; "the region"; Pacific Northwest; southern Oregon; Longview, WA; Mt. St. Helens; Oregon; Arkansas

e. Time periods mentioned

Past 93 years, past 50 years, past 20 years, first 20 years of the decade, the Depression, 1920s, 1929, 1931, 1941, 1950s and 1960s, eruption of Mt. St. Helens, 1970-1990, 1979-1982, 1986, 1988, 1992, 1970s, 1980s, 1990s, early 70s, early 80s, late 80s, future

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2. International trade, lag exports

a. Who says what

i. Government

Gore: "...do any of you have a view on the present subsidy for the export of whole logs? I mean is it a significant factor in the percentage of logs that are exported and the percentage that remain here available for higher value added to jobs in the forest industries and if so, do any of you have views on that?(162:8-13)."

Clinton: [Continuing from Gore's question] "Well, before you answer it, let me ask the whole question. Also, if you repealed it, would you generate more jobs than you lose? (162:14-16)."

Nafziger (Washington): "We must adjust our trade policies. Landowners cannot

be expected to stop exporting logs, when our trading partners put up barriers to finished products but not to raw logs. The wood products industry in the U. S. cannot be expected to compete with foreign nations in finished product markets when we have higher environmental standards than our competitors. Trade policies must create a level playing field (192:3-10)."

ii. Forest Industries

Irvine (Home Builder): Recommends removing countervailing duty on Canadian timber and federal tax subsidy on export of raw logs (227:22-228:-6).

C. Bingham (Weyerhaeuser): Notes that no federal logs are being exported, no state logs from Oregon and Washington, very few state logs from California. Logs from private lands that, are being exported are predominantly second and third growth. In 1992, his company sent 72 percent of their volume in Oregon and Washington to domestic mills, 28 percent to the international market. In 1992; 70 percent of their export in dollar value was value-added, compared with 30 percent in the Japanese market 15 years ago. Bingham states that the tax incentive on log exports does not encourage export of logs over lumber because the incentive applies to all exports, but the incentive in general does help the industry be more competitive in international markets, and any amendment of it to exclude logs would reduce industry's competitiveness (234:3-239:25).

iii. Social Scientists

Whitelaw (U Oregon): "When I come to this issue on the exports, I always feel there's something fundamentally wrong if we're hauling items of that magnitude and weight across the Pacific. I mean there's something flawed in the trading arrangements, either at the buying end or the selling end (162:19-23)."

Greber (Oregon State U): Notes that 80 percent-of logs harvested in the region go to domestic markets, 20 percent go overseas ...from 13 percent of the harvest in the early 70s to 21 percent of the harvest by the end of the 80s..."the last three years the exports have started to decline, and that's due in large part to a global recession, but also because of increased competition for the logs within domestic mills in the region (139:9-21) ."

iv. Environmentalists

Rick Brown (National Wildlife Federation): "We also need to be looking at creative options such as dealing with log exports as a way to work through a transition while some of these problems are out (129:25-130:2)."

Arthur (Sierra Club): "We export one out of every four trees that are cut in the Northwest. I'm not against log exports, but I'm in favor of exporting finished products: wood, lumber, and finished wood product materials, so that we can get both the jobs and the economic rewards here in the Northwest (53:4-8)." Arthur mentions dealing with exports as an opportunity for a short-term bridge to a long-term solution (71:23-72:1).

Kerr (Oregon Natural Resources Council): "I would urge that an important issue that has to be on the table here is log exports. Trying to talk about timber supply in the Pacific Northwest and talk around log exports is like trying to talk about the national deficit and not talk about the Defense Department (197:22-198:1) ."

b. Consensus

Log exports are an important issue; environmentalists advocate reducing or eliminating exports to provide short-term supplies to domestic mills, as does one industry person (Irvine).

c. Disagreement

Little consensus appears on this issue, even within groups, and even on the volume of logs being exported (Arthur says 1 in 4 logs, Greber 1 in 5). Some call for a complete ban on exports, others for changes in trade incentives, others for no further restrictions. Bingham tries to show minimal environmental and economic effects of current exports, while others consider these effects to be quite serious.

d. Places mentioned

Pacific Northwest, U.S., Japan, Canada, foreign nations, global markets, Oregon, Washington, California, the Pacific

e. Time periods mentioned

15 years ago, early 70s, late 80s, 1992, short-term future

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3. Lumber prices

a. Who says what

i. Forest Industries

Geisinger (Northwest Forestry Association): States that as volume harvested in the Northwest has declined since 1990, lumber prices in the country have been going up "and it really doesn't take a genius to figure out that there's a cause-and-effect relationship that has driven up the price of lumber (231:3-232:1)."

Irvine (Home Builder): "My market [in Portland] is predominantly the first-time home buyer. And my homes six months ago were selling in the range of $95,000, and now I'm having to price the same homes at $98,500 just to cover the costs and the increase attributable to the lumber costs and to those homes. Nationally it's about a $5,000 increase over the last five months. So this is a significant increase and truly impacts housing affordability. And the best way to illustrate that is to just tell you a brief story about a family, and I know we've had a lot of stories about families this morning earlier, but think this one shows why this is more than a regional issue and is truly a national issue." Irvine describes a couple who were told they could not qualify for a loan to buy their first home when lumber prices increased the cost from the time they had decided to buy it.
"First-time home buyers everywhere are feeling the impacts of these increased costs, and why that's significant is that we're forecasting... 1.3 million housing starts this year, and a ten percent reduction in those starts could truly forestall the economic recovery. Instead of losing the 25,000 and 35,000 jobs that have been talked around this table, you could be talking 200,000 jobs across the country. (225:12-227:21)."

Marson (Lumber Dealer): "The lumber prices have gone up substantially since

October, nearly have doubled. In a $5,000 increase or more in the cost of a house eliminates approximately 227,000 people from the housing market every year. In many cases, the increases in prices have gone up much more substantially than just $5,000. Housing, I know to you and Vice President Gore, is an essential component of the economic development and growth of this country, and we're really concerned that we're starting to see areas of the country have a slowdown in housing because the builders can't afford it, the homeowners are disqualified from loans and everything (39:22-40:8)."
On questioning from Gore, attributes rise in lumber prices to lack of supply, not other factors such as demand or Canadian tariff (41:5-42:12).

ii. Environmentalists

Norman (Headwaters): Responding to question from Gore on lumber prices: "From my perception, it is the scarcity that's been created due to the overcutting on the private lands. You know, the private lands were the primary source of supply in this country up until the 1950's because the private landowners didn't want the markets to be flooded with the public timber.. And then in the '50's, the policies changed, and we began to cut off the federal lands to supplement the depletion that had occurred on the private lands. So I think it is just a growing depletion worldwide that we face (230:14-24)."

Wawona (New Growth Forestry): "Wood is simply too cheap, even at today's prices to afford to practice sustainable forestry. Lumber prices today, adjusted for inflation, are less than what they were in 1977. The usual glut of federal timber on the national wood market has kept log prices low (59:17-21)."

Kerr (Oregon Natural Resources Council): "If you compare the cost of dollars, you'll find that the prices are comparable to lumber in the 1970s (232:9-11)."

Pace (Klamath Forest Alliance): "The Congressional Research Service has looked at this, I believe, just recently, and always, if you look historically, in periods like this where we're coming out of a recession and demand is picking up for housing, lumber prices have gone up. And I think that we're looking at multiple factors here, but just the fact that two things are happening at the same time does not prove any causality behind them, and I think we have to take this longer perspective.
The analysis says that it's a combination of coming out of a recession and the

situation down in Florida have both combined to produce those higher prices. And I might add to that, that the high price -- the high price that finally we're getting the true price of the log into the log, and in my county, in the rural areas, the small landowners, who in California, according to the state figures, are the only people that over the last two decades have been growing more wood than they've been harvesting, those people are now taking their logs to the market. And these are small farmers and small landowners, and they're getting a good price for them, and they're investing that money back into our communities, and that provides the incentive ...to invest in those lands (232:13-233:11)."

b. Consensus

Consensus appears among forest industries that rising lumber prices negatively affect housing starts and thus the national economy, as well as causing distress among potential first-time home buyers. Consensus appears among environmentalists that, if anything, wood is too cheap.

c. Disagreement

Disagreement exists over the increase in lumber prices in the past six months: caused by lack of supply or other factors? Disagreement, noted above, over what price of lumber should be. Some of these disagreements reflect short-term/long-term viewpoints on the part of forest industries and environmentalists, respectively.

d. Places mentioned

Northwest, Portland, nation, private forest lands, public forest lands, worldwide, Florida, California

e. Time periods mentioned

In this country until the 1950s, 1950s, 1970s, 1977, since 1990, last 5 months, future

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F. Timber supply

1. Historical harvest levels

a. Who says what

i. Social Scientists

MacColl (Historian): "Tree stumps symbolized prosperity to 19th Century Pacific Northwesterners because felling trees was often associated with activities that connoted growth and progress ...To the lumbermen, most of whom came from the East and Midwest in the latter years of the 19th Century, after they had exhausted their homelands, here was a vast continent to be settled, limitless resources to be utilized and infinite wealth to be created. Thousands upon thousands of acres, the very cream of the timber claims in Oregon and Washington, were secured by these entrepreneurs. [MacColl documents railroad grants and forest land exchanges and purchases around the turn of the century.]

By 1910, Weyerhaeuser and his 90 affiliated companies owned 26 percent of all timberlands in Washington and 20 percent in Oregon. The fact that this ownership has helped to save the forests is one of the reasons, until recently, the federal presence has not-been resented. It is also the reason that
valuable federal holdings are now the center of the biggest battle ever fought between the environmentalists and the lumber industry...
The merger movement culminated in the 1950's and '60's when corporations like Georgia Pacific and Champion Paper acquired many smaller companies from Arkansas to Oregon to Northern California as they added their extensive holdings. Financed by larger national banks and Wall Street they treated their region more like colonies. They came to cut and then departed, using their cash flow to liquidate their acquisition debts. And many agree that this process led to excessive cutting of some of the most productive timberland in the world...
The historical record is not a pretty one, and all parties must bear some of the blame. From 1980 to 1985, some reported that timber harvests were 61 percent

greater than growth (17:1221:22)."

Greber (Oregon State U): "Harvests in 1992 reached their lowest levels in two decades. This chart shows harvests from 1970 to 1992. This harvest has jumped up and down anywhere from 11 billion board foot to 19 billion board foot, primarily fluctuating with housing demand." Greber states that federal harvests have been about a third of the harvests in the region and are primarily older growth stands. Harvests from private and other public lands have been primarily second growth stands and smaller logs.
"In the last three years there, you see that most of the harvests come off of private lands in even greater percentage, and the public harvest has been dwindling. That harvest has been coming primarily out of timber under contract from sales that took place in 1980's. Research in Washington and Oregon indicates that [private harvests] and the [other public harvests] are pretty much at their sustainable levels, given current management practices, but there's some debate over whether those current management practices on private land are what people desire in the region as well (138:1-22)."

ii. Forest Industries

Hampton (Willamina Lumber): "We have built our plants, our capacities and our employees at a level based on a sustained, yield policy on these federal lands. And now the tables are being turned (68:10-13)."

Tomascheski (Sierra Pacific Industries): Responding to Gore: "The Forest Service and the Bureau of Land Management are under sustained yield, even-flow constraints by regulation, so that when they ...take land out of the land base, that harvest level that's sustainable automatically drops because they can't produce anymore now than they produce over time (136:3-9)."

iii. Environmentalists

P. Lee (Oregon Trout): "When we were school kids, we learned about the boom and bust times in the American West, but we never thought we'd be in the position that we'd have to live through it. Douglas County's motto for years was Timber Capital of the Nation, and now we find that we're at the epicenter of the storm (37:7-12)."

Rick Brown (National Wildlife Federation): "I think the problems that the industry and the communities are facing is not the prospect of protecting the remaining ten percent of the ancient forests. It is the speed and the extent to which we liquidated the first go percent... (130:2-6).11

Norman (Headwaters): Responding to question from Gore on lumber prices: "From my perception, it is the scarcity that's been created due to the overcutting on the private lands. You know, the private lands were the primary source of supply in this country up until the 1950's because the private landowners didn't want the markets to be flooded with the public timber. And then in the '50's, the policies changed, and we began to cut off the federal lands to supplement the depletion that had occurred on the private lands. So I think it is just a growing depletion worldwide that we face (230:14-24)."

Wawona (New Growth Forestry): "In '79 to '81, I was on a Timber Supply Task Force to the State Board of Forestry. Now, this is just California. We reviewed dozens of reports, Forest Service reports, UC Berkeley reports...And what they forecast was a timber supply crash on industrial timberlands in California at current rates of harvesting. And the committee asked representatives what were they planning to do? Were they going to reschedule their cut levels so that didn't happen? And the industry representatives told the committee that what they were going to do was go to the Forest Service and ask for increased cutting on the national forest for a 20-year period to cover that timber supply gap, and they asked the committee to write into the policies a request to the federal government for that increased cutting, above and beyond sustained yield levels. Now, I understand that happened in a number of forests during the 1980's. In Mendocino National Forest in my own county, that same thing happened.

Arthur (Sierra Club): "It's not accident this conference is taking place on the edge of the Pacific Ocean. We have cut our way west from the Atlantic to the Pacific. It took a little over a generation to wipe out the great woods of Wisconsin and Michigan and for the logging to move west. We are blessed with bigger, larger, vaster forests here in the Northwest. It took a couple of generations to eliminate 90 percent of the once vast ancient forest that we have here. We have only 10 percent left. We're at the edge of the Pacific Ocean, and the timber frontier is over (51:2-12)."

iv. Forest Workers &

Communities

Mason (Western Commercial Forest Action Committee): "Our mill was an old growth mill. The reason it was an old growth mill was because the only available timber supply that was accessible to us was off of federal lands, and the federal lands where I live on the Olympic Peninsula are managed on a 100-year rotation, much longer than on some of the private landowners. And we were 50 years into that rotation (73:23-74:4)."
"At the same time as my mill was being shut down by the injunctions on federal lands, harvest levels on some private levels increased. The age of the timber being harvested increased in an urgency that was fueled by a stock market opportunity and also a fear of private landowners that in the very near future they would be unable to harvest their lands (77:3-9)."

v. Biologists

Gordon (Yale): "Two-thirds of the old growth we talked about in that report [1984 old growth management report] is gone (133:21-22) ."

Franklin (U Washington): Responding to Gore: "Well, I think a direct answer to your question is, yes, when you do remove land from the base, the ASQ, the allowable cut should go down. I think there's been great resistance to it... I would express doubt that it's always been done adequately (136:14-137:2)."

vi. Government

Gore: "When you take lands like that out of the base, should the expected harvest be adjusted, and if it is not, then doesn't that redouble the pressure on the percentage that is left in the base? (135:24-136:2)." Tomascheski and Franklin respond, above.

b. Consensus

Several groups agree that harvest levels increased during the 80s. Boom and bust cycles and speculation have been characteristic of the PNW timber industry in several time periods, recent and past. Industry has harvested their own lands preferentially; industry has looked to federal lands mostly when their own lands did

not provide adequate supply. Harvests in Pacific Northwest are one part of history of American logging and settlement.

c. Disagreement

Environmentalists seem more likely to describe past harvest levels as overcutting: the value judgements people place on the historical record vary. Hampton, Tomascheski, and Mason emphasize that the federal forests work under a policy of sustained yield, and that their private operations and investments have been based on these expectations, but most other groups claim that federal harvests have exceeded growth, i.e., were not sustained yield, in the recent past at least.

d. Planes mentioned

American West, Douglas County, California, Mendocino National Forest, Oregon, Washington, industrial lands, private lands, federal lands, Olympic Peninsula

e. Time periods mentioned

19th century, 1910, 1920s, 1950s, 1960s, 1970-1992, 1979-1981,1980-1985, 1984, 1980s, boom and bust cycles, 100 year rotations, past 50 years

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2. Short-term timber supply needs

a. Who says what

i. Government

Strauger (Hoquiam, WA): "They've got to have some timber freed up ...They've got to have some sufficiency. They've got to know where they stand... (81:6-10)."

Schmidt (Linn County, OR): "Our timber pipeline in most of the areas in Oregon will be running out in the next few months, approximately the fall; a few areas a year from now (242:16-19)."

ii. Forest Workers & Communities

Bailey (Logger's Wife): "[In Trinity County, CA] We still have two mills left that have probably approximately eight to twelve months' worth of logs to ply (46:17-19)."

iii. Forest Industries

Hampton (Willamina Lumber): "A company as ours dependent on second growth timber has not bought a federal timber sale for three years, and we're getting swept up in the trash bin in the old growth argument (65:10-13)."

Spence (Sawmill Owner): "If the Gifford-Pinchot timber sale program is not reinstated soon companies will have no choice but to curtail their production and to begin laying off workers. Employers who depend on the timber from private and state lands are also being damaged (35:18-22)."

Geisinger (Northwest Forestry Association): "If we don't reinstate some federal timber sale program this year, our industry is going to be forced to lay off thousands of workers and curtail production very significantly. Some type of interim ecosystem protection and timber production plan is essential to try to get us from where we are today to when Congress can act on a long-term solution (174:8-13)."

iv. Social Scientists

Greber (Oregon State U): "...timber under contract that we've been harvesting out of the Pacific Northwest is about to come to an end. Those sales from 1980's are marginally going to exhaust this year. In some communities in the region, they have already exhausted themselves. We have less than a year's running supply off of the federal lands. When I say running supply, I mean running supply of the level of the last three years, not 1980's or '70's levels (138:23-139:6)."

b. Consensus

Universal agreement that federal timber supply for PNW mills will run out in the next 6-12 months, which would have significant economic consequences. A short-term plan is urgently needed to address this impending shortfall.

c. Disagreement

None.

d. Places mentioned

Oregon; Trinity County, CA; Gifford-Pinchot National Forest; nonindustrial private lands; federal lands; Pacific Northwest

e. Time periods mentioned

1970s, 1980s, past 3 years, next 6-12 months, this year, next 5-10 years, long-term future

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3. Long-term timber supply needs

a. Who says what

i. Government

Clinton: "The plan should provide a predictable and sustainable level of timber sales and non-timber resources that will not degrade or destroy our forest environment (253:7-9)."

Gore: Asks how easy it would be to "reach an agreement on the definition of the phrase 'sustainable levels of harvest from forests'? (130:8-15)."

ii. Forest Industries

Mater (Mater Engineering): "The first strategy is an obvious one, and we've heard it consistently repeated, and that is to stabilize the supply (212:12-14)."

Minnick (TJ International): "And if we do this [set aside reserves, buffer areas, and commercial timber lands], reports like Dr. Ward's suggest that we can get the -- we can get back to 40 to 50 percent of the pre-owl cut if we just do this. Now, that may not sound so good, but 40 percent of the pre-owl cut is six times as much as the government sold last year, and that provides a lot of certainty... (224:14-19)."

Marson (Lumber Dealer): "And so I just hope today you can find a fair and equitable solution to the timber supply, because we need a stable supply. We can't turn to Canada to expect more. And we just should try to help stabilize the supply so everybody in the United States will have access to the American dream of a home (40:22-41:2)."
"Most of the building materials in terms of lumber nowadays used in the construction of home is second growth timber. But I have a small mill that is started up in our area that uses the highest laser technology from Europe and cutting down to the smallest tree, and they're even concerned in the long run about being able to have access to the second growth... (69:2-8)."

Irvine (Dome Builder): Also asks for a stable wood supply for housing needs (228:21-229:11).

iii. Biologists

Gordon (Yale): "There's also hope for a reduced but substantial sustained timber harvest along with the retention of wildlife and old growth values (97:13-17)."

iv. Forest Workers & Communities

Fletcher (AFL-CIO): "At the heart of the long-range solution, the proposal is a sustained and sustainable secure level of harvest of federal timber (200:11-13)."Ollivier (Longshoreman/Eureka Harbor Commissioner): Mentions importing logs from Russia and New Zealand as supply source (246:4-17).

v. Social Scientists

Hanus (Oregon Department of Forestry): States that in the next 5-10 years, Oregon could realize about a billion board feet from nonindustrial private lands if the maximum amount of technical assistance and incentives was made available to private owners from government and private industry; long-term benefits would be an increased yield of 360 million board feet (153:4-154:7).

b. Consensus

Stability and sustainability of timber supply dominate the discussion of long-term needs, rather than actual quantities of wood products: Minnick states that a stable, reduced supply is preferable to none at all or a very uncertain one. Hanus and Ollivier mention possible new supply sources.

c. Disagreement

None apparent here, though different groups may have different ideas of what a sustainable level of harvest is, when "forest sustainability" includes non-timber forest resources and values.

d. Places mentioned

Canada, U.S., Russia, New Zealand, Oregon non-industrial private lands

e. Time periods mentioned

Pre-owl, last year, present, next 5-10 years, long-term future

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G. Old growth

1. Values of old growth and natural environments

a. Who says what

i. Government

Clinton: "How can we preserve our precious old growth forests which are part of our national heritage and when once destroyed can never be replaced? (4:21-23)." "We need to protect the long-term health of our forests, of our wildlife, and our waterways. They are, as the last speaker said, a gift from God (252:25-253:3)." "If we destroy our old growth forest we will lose jobs and salmon fishing and tourism and eventually in the timber industry as well. We'll destroy recreational opportunities and hunting and fishing for all and eventually make our communities less attractive (6:17-21)."

Gore: "'... our old growth forests, a part of national heritage which if once destroyed will be gone forever for every generation that follows... If we destroy the old growth forests we lose jobs and threaten entire communities. Jobs in tourism and fishing, recreational activities like hunting and hiking and fishing, water supplies we count on to be clean and safe. And we lose what we've yet to discover: vital new substances like the potential cure for some kinds of cancer, Taxol, that's found in the bark of the yew trees in the old growth forests (14:7-18)."

Roberts (Oregon): "Our forests are as much a part of the economic infrastructure as our bridges, our highways, and our water systems. But they are more. Historically they are an integral part of the culture and the identity of the Northwest. They are also a web tying together animal life and a lush forest flora and towering trees and streams. They define our quality of life from many perspectives, and our economic and environmental stewardship of these resources will in no small part determine the heritage we leave for our children and our grandchildren (10:17-11:1)."

Katz (Portland): "What you will not find is anyone whose soul is left untouched by our natural beauty. It is our land that ties us all together in a web of mutual interdependence and common heritage, and it is that mutual interdependence and common heritage that is at the heart of our dilemma; to strive to meet the needs of all of Northwest, for all of the values we cherish (8:13-19)."

Babbitt (Interior): "Are there any differences in the array of wood products that come from old growth as contrasted to, say, a 60- or 70-year second growth log? (68:19-21)." Hampton describes differences below.

ii. Environmentalists

Rick Brown (National Wildlife Federation): "...these are the most spectacular, most magnificent forests on earth, and that splendor is not simply a function of the awesome and humbling size and age of the dominant trees; it is also a function of the extraordinary richness and complexity of these forests (126:13-17)."

P. Lee (Oregon Trout): "We can all agree that we live in Douglas County because of the beauty that it holds and the resources that are available to us (37:20-22)."

Sher (Sierra Club Legal Defense Fund): "I have for six years now represented-national organizations whose tens of thousands of members in the Northwest and millions of members around the country are all terribly concerned about the future of this region and the ancient forests (89:25-90:8)."

Arthur (Sierra Club): "These great forests do define the character and the culture of the Northwest. They are part of our heritage, but they also ought to be a part of our legacy, the legacy that we leave to our children and grandchildren so that they have choices to make, they have opportunities to experience and enjoy what we have, but also to reap the economic rewards and the economic benefits these forests can provide if we sustain them, protect them, and manage them well (52:7-15)."

Wawona (New Growth Forestry): Describes redwood forests in northern California as "the last of our [nation's] primeval forest heritage (58:11-13)."

iii. Forest Workers & Communities

Fletcher (AFLCIO): Asks for "protected forest ecosystems because our people are also environmentalists. Those who work in the woods also recreate in the woods (200:23-25)."

Eades (Logger): "Mr. President, my people, my family are forest people. We love the beauty of the forest; we respect it. It's part of what we are. We have a heritage in the forest (48:20-49:2)."

Clinton: "As I've spoken with people who work in the timber industry, I've been impressed by their love of the land. As one worker told me... 'I care about Oregon a lot, the beauty of the country.' (4:11-15)."

Coates (International Woodworkers of America): "I hear Andy (Kerr) and some of the others talking about the beauty of the forests. When I go into the beauty of the forest, in the capital forest, and in the park service and in some of the rock quarries, we have people living there. They have no home. They have no water. And they have no power. If I was to divulge where these people were, they wouldn't have their children either (240:12-19) ."

Draper (Western Council of Industrial Workers): "Together we can find a solution that protects the forests of God and the families of man (31:9-10)."

iv. Forest Industries

Marson (Lumber Dealer): "I live right on the back door of the Alpine Lakes Wilderness Area and close to the North Cascades Wilderness Area... it's a beautiful place to live and that's why I live there (40:9-17)."

Hampton (Willamina Lumber): Replying to Babbitt: "The old growth trees have very high-quality, clear-type lumber that produces extraordinary values that are unique to these old growth resource. Second growth is a common structural type product (68:22-25) ."

Geisinger (Northwest Forestry Association): "We can maintain healthy forest ecosystems in a manner that we'

ve never been able to before, and most importantly, we can have healthy watersheds. We can have fish and wildlife habitat. We can have recreational opportunities, maintain diverse ecosystems, and still produce the wood product needs that this country demands (176:5-11)."

v. Church

Murphy: Describes "the magnificent moss-covered old growth forest of the Olympic National Park, pristine forest, virtually untouched by human hands ...abundant forest life which God has graced creation (26:7-15)."

vi. Social scientists

Whitelaw (U Oregon): "CEO after CEO will be speaking to their ability to attract highly educated, technical, professional personnel at less than national market rates because it's a nice place to live, and specifically most of them will refer to the environmental amenities out here. Now, what's complicated though is, you know, is it the spotted owl, or is it clean streams, or is it forested mountains, or the 491 other species? And the answer is its probably a lot of those things, and we don't really understand that mechanism, but it seems to be pretty strong (155:19-156:3)."

MacColl (Historian): "But the historical record would indicate that beauty per se was not what pioneer Northwesterners were primarily seeking. They desired a new life with new opportunities. They would not today qualify as nature lovers. To them nature was an obstacle, a rough world to be tamed, a wilderness to be cleared ....But over the past 50 years or so the relationship of Northwesterners to the varied natural environment has been a key theme with the old growth debate simply the culmination of years of working the natural habitat. When I arrived in Oregon 40 years ago it never dawned on me that our natural resources were limited. Here was the promised land, with its boundless natural wealth and timber, farmland, water, wildlife and fish. The realization that such resources are limited and all related within the ecosystem has caused much of the frustration and anxiety we currently face (17:5-18:9)."

"Concern about overcutting was slow to develop. In 1927, Oregon's leading banker, John C. Answorth, warned, "Something surely must be done before long to prevent the wholesale slaughtering of our timber." If you listen, reforestation became acceptable only in the past 30 to 40 years. Until that time, and even in more recent years, settlement became the accepted way to salvage logged-off lands. It has only been since the mid 1970's that a concerted effort has been mounted to save the old growth and very quietly at that in its earliest years (21:9-18)."

"Oregonians have always been a people possessed by nature. In recent years, at least, the land has been viewed as both a useable resource available to all and a public trust. But Oregonians are also divided within themselves. Within each Oregonian sits a concern and often caustic environmentalist. But Oregonians also need to make a living, and nature has been one of the major sources of that livelihood, although less so today than in the past (23:11-19)."

vii. Biologists

Gordon (Yale): "Forests are the long-term basis of society in the Pacific Northwest, and they're thus worth being very careful about (99:12-14)."

b. Consensus

The aesthetic and spiritual values of old growth forests and other natural environments are important both in themselves and in the quality of life and economic benefits (e.g., tourism and recreation, wildlife, fish, clean water, new businesses moving in) to which they contribute.

Forests are integral to the culture and identity of the Pacific Northwest.

Old growth forests are a national heritage, both for present and future generations. Several commenters (Clinton, Gore, Murphy, Draper) also note that forests are a "gift from God:" Both of these types of comments imply that people do not own the forests, but hold them in trust. See Section II.A.10. on responsibilities to future generations.

The biological diversity and complexity of old growth forests are also of value, both in themselves and in their potential use to humans, e.g., Taxol.

Forests have been, and to some extent still are, sources of income and livelihood, symbols of opportunity.

Babbitt and Hampton comment on superior wood quality of old growth trees.

c. Disagreement

Coates provide the single dissenting voice by noting that beauty is very nice, but food and shelter are basic human needs that are being neglected by environmentalists. MacColl provides an historical perspective on changing attitudes towards forests that illustrates the mutability of environmental values in the last century or so, a perspective absent from other comments.

d. Places mentioned

Nation, old growth forests, Northwest, Douglas County, northern California, Oregon, Alpine Lakes Wilderness, North Cascades Wilderness, Olympic National Park

e. Time periods mentioned

Pioneers, 1927, past 50 years, 40 years. ago, past 30-40 years,since mid 70s, past 6 years, present, future, long-term forest health, children's and grandchildren's generations

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2. Amount of old growth

a. Who says what

i. Biologists

Gordon (Yale): "Past harvesting patterns ...although often good forestry from a regeneration and wood production point of view, have greatly reduced the extent of old growth and late successional forest ecosystems and habitats on the Pacific Northwest west side. Most of the remaining old growth is on federal land, and about half of it isn't formally protected from harvest (96:8-15)."

Meslow (Fish & Wildlife Service): "At the time of settlement in the Northwest, the Northwest was blanketed with forests. Perhaps 60 to 70 percent of that forest was old growth. Those are big trees, over 200 years of age. Those extensive stands of old forests are mostly gone now. Essentially all old forest has been cut on the private lands. Depending on where you look, on national forest or BIM lands, old growth forest currently constitutes from as little as 10 percent to perhaps as much as 50 percent of the current area. Not only has the area of the old forest been dramatically reduced what remains has been highly fragmented ...Even on public lands, cutting has created so many holes in the blanket of the forest, that the fabric holding that the segments together has been severed. We routinely find that old growth forest exists mostly as islands (105:15-106:6)."

ii. Environmentalists

Arthur (Sierra Club): Only 10 percent of the "once vast ancient forest" is left (51:11).

Norman (Headwaters): "4 million acres of prime old growth forests had been turned into monoculture tree farms in the last 40 years on Forest Service land in Oregon and Washington alone (171:5-7)."

iii. Social Scientists

MacColl (Historian): "A century of indiscriminate logging has eliminated all but about 13 percent of the ancient forest in Western Oregon and Washington. Of that, six percent is protected in wilderness areas and parks, and the other seven percent mostly in national forest and BIM lands which is part of the reason the people are fighting over this issue today (22:2-7)."

iv. Forest Industries

Hampton (Willamina Lumber): "The. volume of old growth is in dispute. Other people choose to define old growth in their own terms and to measure the remaining amount of old growth... [The Forest Service's) 1991 inventory established on their land 6.9 million acres of old growth timber at that point in time. And you could ask Dale Robertson who's here today, their forest plans would string that harvest out at a 50-year rotation level. We are not running out of old growth tomorrow (6b:8-19)."

Geisinger (Northwest Forestry Association): "I want to share with you our view of the question of how much old growth forest exists today and how much has been logged. The allegation is that only 10 percent is left. Yet the Forest Service, the Bureau of Land Management, and the National Park Service say that they have about eight million acres of old growth forest on their ownerships today. Mathematics would tell you then that at some point in time there was 80 million acres of old growth in existence. Yet I have to tell you there's only 42 million acres of commercial forest land in all of Washington and Oregon. So we don't buy that figure, Mr. President. And I think the more important issue here is that our ecosystems are dynamic. They have been manipulated by nature with natural catastrophes such as fire and windstorms throughout the centuries. There has never

been an ocean of old growth forest in the Pacific Northwest, and I would point specifically to a study done by the Bureau of Land Management just this past year by a fire ecologist who mapped the age classes over the last couple of centuries of timber on the lands administered by the BLM in the Northwest part of Oregon. And what they found, frankly, was that there was never more than 40 percent of our forest in an old growth condition at any point in time... (176:14-177:12)."

b. Consensus

Apparent agreement that of the remaining old growth, about half is protected from harvest.

c. Disagreement

Industry disagrees with other groups on the amount of old growth in the PNW at present and in the past.

d. Places mentioned

Pacific Northwest west side, public lands, national forests, BLM lands, private lands, Northwest, Oregon, Washington, wilderness areas and parks, northwest Oregon

e. Time periods mentioned

Time of settlement, centuries of natural processes, this past century, last 40 years, 1991, present, future, 50-year rotation (future)

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3. What should be done with remaining old growth?

a. Who says what

i. Environmentalists

Norman (Headwaters): "We must disturb no more of the last remaining centers of biodiversity. These are the refuges and the seed sources for tomorrow's forest, tomorrow's wildlife, and tomorrow's economy (171:8-11)."

Arthur (Sierra Club): "Our public, our federal forests are literally the only places we have left that can provide the full range of values, the full range of resources. Most of the private lands in the Northwest have already been logged. They're being converted to second growth tree farms and plantations. The Northwest is a great place to grow wood. We will have a future timber industry here. But the future of that timber industry must rely on the forests that we grow, not the ones that we have left that we found here. We do have lots of trees. We have very little ancient forest that remains. Protecting that ancient forest must be the foundation for rebuilding our ecosystems, for protecting the full range of values that we have (52:16-53:3)."

Sher (Sierra Club Legal Defense Fund): "The solution to this problem is not to throw more federal old growth timber at the industry (92:9-10)."

Wawona (New Growth Forestry): "Absolutely no further logging of the last remnants of our ancient forests (60:12-13)."

Kerr (Oregon Natural Resources Council): "When so little of the virgin forest is left, the 10 percent, environmentalists are not in a position to compromise the forest any further. We can't do that because the scientists, the economists, and our own eyes tell us that if we continue to log out the last of the big trees, that the extinction of species, the extinction of ecosystems, and the extinction of economies that are dependent upon the sustainable use of those forests will result. So the forest has been compromised all it can (196:24-197:7)."

Rick Brown (National Wildlife Federation): Argues for fully protected permanent reserves, both because of what we know about the complexity and richness of old growth, but even more because of what we don't know about these systems: "Reserves are a hedge against our own monumental ignorance (126:11-128:3)."

ii. Forest Industries

Hampton (Willamina Lumber): "We cannot stop cutting old growth without creating a huge vacuum that private timber supplies cannot fill. We cannot fill the nation's building material needs. We will have massive unemployment. There is no way to make a transition to second growth in the term (69:12-16)."82

Tomascheski (Sierra Pacific Industries): "There is a feeling on the part of many that we already have significant old growth reserves set aside through statute that will be there forever... That would be the death now [sic: knell?] of the industry in the Pacific Northwest, if we set aside significant old growth reserves on top of what's already been set aside (128:25-129:16) ."

Geisinger (Northwest Forestry Association): "Past government decisions have left 80 percent of our national forests off-limits to timber production purposes today. A fifth of our national forest lands is what was available for timber production before Judge Dwyer's injunction. Nearly five million acres of old growth forests are off-limits to logging today, and they will never be logged (174:20-25)."

b. Consensus

Environmentalists agree that all remaining old growth should be preserved. Forest industries agree that some old growth reserves are appropriate.

c. Disagreement

Disagreement is over how much should be reserved: are there enough reserves already? Industries thinks there are, environmentalists do not. Industry people discuss short-term economic and social impacts of setting aside old growth, environmentalists focus on long-term benefits and values, do not discuss short-term impacts.

d. Places mentioned

Existing reserves, national forest lands, old growth, ancient forests

e. Time periods mentioned

Before Dwyer's injunction; general past, present, and future

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4. Growing new old growth and old growth structure

a. Who says what

i. Government

Clinton: "How can we preserve our precious old growth forests which are part of our national heritage and when once destroyed can never be replaced? (4:21-23)"

Gore: "... our old growth forests, a part of national heritage which if once destroyed will be gone forever for every generation that follows (14:7-9) .

ii. Environmentalists

Wawona (New Growth Forestry): "Our nation is on a course of mining the last of our primeval forest heritage (58:12-13)."

Rick Brown (National Wildlife Federation): "The best and brightest of us do not have the means of developing management plans or silvicultural techniques that will recreate and produce that extraordinary complexity of the old growth forests (127:47) ."

iii. Biologists

Franklin (U Washington): "This is not to suggest that we have the techniques to grow old growth forests. We can, with new forestry, grow structurally complex forests. We probably can grow spotted owl habitat, but we do not know, and it's unlikely we're going to know any time soon, how to grow old growth forests

because the complexity of those systems is beyond imagination...We can do a lot of good stuff, but growing old growth, that's a challenge for the next century .(110:16-111:9)."

Oliver (U Washington): Discusses silvicultural treatments to create old growth structure where it is lacking in the landscape, but these treatments are not a substitute for protecting existing old growth forests (111:21-114:22).

Gordon (Yale): "Remedying this current and projected deficit of old growth ecosystems is the central issue to be resolved....ecosystem management ...has the potential, I think, to remedy this old growth deficit (96:16-22)."

iv. Forest Workers & Communities

Eades (Logger): "I represent a family that has been working actively in the logging and lumbering business for almost 200 years. Two hundred years is a long time. Mr: President, that's how long it takes one of these trees to reach that point we call old growth. I like to think that some of those trees that started life when my first ancestor worked in the timber might be old growth today, and the trees that I am so careful to leave might be my grandchildren's old growth. You're going to hear a lot about old growth today, and I'd like to keep it in the perspective that trees are like people: It just grows. And it gets older every day, and I can show you big, big trees growing up out of the ruins of sawmills that aren't there anymore between the ties of the railroads. They grow everyday. We're getting old growth some every day. They're like you and I. You're going to be old growth one day, Mr. President (48:1-17)."

v. Forest Industries

Hampton (Willamina Lumber): "These old growth forests cannot stand to live in splendid isolation. They will deteriorate by themselves. They will not regenerate a Douglas fir crop without a management policy of adapting them through techniques that scientists know how to utilize. If the old growth forests are all preserved they will ultimately reach their demise and will be replaced by white fir and hemlock which are shade-tolerant species (65:18-25)."

Tomascheski (Sierra Pacific Industries): "Jerry [Franklin] is right. We'll never know much about -- enough about old growth ecosystems, but that doesn't mean that we shouldn't try. I mean, we didn't know how to fly 90, 100 years ago; now we do. And I think we ought to recognize the significant contribution that forests can make that are currently off-limits to harvesting. They may not be old growth now, but they're coming along, and even though we'll never understand all those complexities, that again needs to be a piece of this puzzle (119:9-18)."

b. Consensus

Politicians and environmentalists see present stands of old growth as irreplaceable. People who work with forests---biologists, forest workers, forest industry people -- see all forests, including old growth, growing and changing, and subject to human manipulation in the process. They also identify forests that are not yet old growth but are getting there as important to the long-term management and preservation of old growth.

c. Disagreement

Politicians and environmentalists understand old growth or ancient forests symbolically: as pristine, untouched nature (in Archbishop Murphy's words, "pristine forest, virtually untouched by human hands 26:9") subject to human corruption but otherwise constant, unchanging. Eades presents the opposite viewpoint of forests as dynamic systems most succinctly: "It just grows." Among people who work with forests, there is varying confidence in how well humans can regrow old growth. Only Eades is perfectly confident: biologists and forest industries say we can't now, but should be trying, and what we know how to do now is better than what we have done in the past. Industry people seem most likely to argue that if old growth is locked up in preserves, it will eventually be lost through natural catastrophe or succession.

d. Places mentioned

The nation

e. Time periods mentioned

200, 100 and 90 years ago, present, "our grandchildren, "the next century, "forever"

H. Ecosystem management

1. State of forest ecosystems

a. Who says what

i. Environmentalists

Sher (Sierra Club Legal Defense Fund): "The breaches of laws that we have seen over the past decade have had concrete, real world terrible effects. They have resulted in an imminent ecological crisis in our public lands (90:24-91:2)."

Rick Brown (National Wildlife Federation): "I first started studying these forests more than 20 years ago as a graduate student. Some 15 years ago, I started actively working as a volunteer for their conservation, partly because of what I was learning about those forests, partly really more so because what I was seeing in the transformation of the landscape in the Northwest, and how policies that gave priority to timber management over the other public values that these public lands were to provide was transforming that landscape (125:21-126:4)."

Wales (Audubon Society): "Historically federal forests in the Northwest have been managed essentially as though they were an inexhaustible raw material stockpile. The result is an ecosystem on the verge of collapse (32:14-20)."

Norman (Headwaters): "My involvement in the forest issue blossomed in the late 1970's when I was working as a river guide and I began to notice the march of the clearcuts across the vast expanses of the tallest and the wildest forests in the world (170:23-171:2)."

Arthur (Sierra Club): "But we have also treated our forests as if they were an inexhaustible resource. But they are not. We have cut our forests like there was no tomorrow, but tomorrow caught up with us yesterday. In my lifetime I have watched our forests and our rivers, once rich with fish and wildlife, turn into battered landscapes... (51:21-52:2)."

Wawona (New Growth Forestry): "Some of the industry-owned watershed where I live have had up to 90 percent of their forest cover removed in the last 10 years: Industry's overhead cost may be lower, but the real costs in terms of cumulative effects to the ecosystem such as soil erosion, loss of forest productivity, habitat destruction, species on the brink, these are the externalized costs that are impoverishing our communities (59:9-15)."

ii. Biologists

Meslow (Fish & Wildlife Service): "The problem with forest management in the Northwest is not that we are growing out of trees. Professional forest managers have become quite adept at replanting cutover areas. What is becoming an increasing scarce commodity in the Northwest are forests, especially old forests. Plantations of trees nurtured to maximize wood fiber production are referred to as tree farms and rightly so. Tree farms lack many of the attributes of forests. Tree farms lack the physical characteristics, with their structure and ecological function of old growth forests they replace (105:4-14)."

Franklin (U Washington): "The Sustainable Forestry Roundtable, which was a process in the State of Washington, gave a very clear direction in terms of the ecosystems that were at risk. It was the riparian ecosystem, and it was the late successional old growth forest ecosystem (122:25-123:5)."

iii. Tribe

Powell: "Generally speaking, the timber industry has come along way from logging practices of previous decades. Indian forest programs have also made great strides in developing model management programs and systems, unfortunately at the same time trying to recover from decades of neglect, mismanagement, and inadequate funding (87:3-8)."

Strong: "In our time, as natives of this land, our forests grew as many salmon as trees. In the short ten generations, one broad sweep of the geological second hand, America has reduced its life forms to struggling endangered species (249:1-5). "And we understand that status quo management is completely unacceptable... We cannot linger amidst the technological pollution that we have created (250:14-16)."

iv. Forest Workers & Communities

Mason (Western Commercial Forest Action Committee): "You know, many people have talked about the damage that has been created to the forests in the last 50 years. There have been some inappropriate things that have occurred in the forests. Like all industries we make mistakes. Like all industries, we learn as we go, and we've learned a great deal (76:13-18)."

v. Church

Murphy: "I also pass through private and public lands that have been logged and logged again. Some of these lands have been replanted and the uniform group of Douglas firs awaits some future harvest. Other lands are clearcut and fallow, all but devoid of the abundant forest life which God has graced creation (26:10-15)."

b. Consensus

Forest ecosystems in the Northwest are degraded from what they once were.

c. Disagreement

People focus on different time periods: environmentalists claim much degradation has occurred in past 10-20 years; seeing this has spurred them into activism. Biologists, tribal representatives, and forest workers discuss a longer, more gradual process.

Environmentalists speak in terms of imminent catastrophe while others speak with less urgency, or with a sense of hope, that we have learned from past mistakes and will do better in the future (Powell and Mason).

d. Places mentioned

Public lands; Northwest; watershed where Wawona lives; the world; eastern Washington, eastern Oregon, west of Cascades (Arthur)

e. Time periods mentioned

Past 35,000 years/700 generations; past 10 generations; previous decades; Arthur's lifetime; last 50, 20, 15, and 10 years; late 1970s; present; "tomorrow caught up with us yesterday"

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2. What is ecosystem management?

a. Who says what

i. Government

Clinton: Notes apparent consensus in second panel, at least in theory, about need for new forestry and ecosystem management, including a reserve system. Asks how difficult it would be to get people to agree on the particulars of such an approach in practice (128:13-22).

Nafziger (Washington): "...we must begin to manage our forests differently. We heard that stands managed in a new way not only contained a diversity of wildlife, but also can produce higher quality wood products. We can strive to develop an entire landscape of natural forests, and what we need to reach for is a sustainable ecological system that includes old growth, wildlife, and people who live in real communities... (191:1-8)."

ii. Biologists

Oliver (U Washington): Encourages management across the entire landscape (public and private lands) for a variety of forest structures, similar to the diversity of forest types that would occur under the natural disturbance regime of the Pacific Northwest (111:21-116:6).

Thomas (USFS): "Ecosystem management is in vogue. It's the new means of natural resources management. I concur and I applaud that move because addressing one species at a time is leading us both to an exhaustion of patience and of resources. However, that approach is not going to be simple. It's not going to be cheap. One of my heros said, "Ecosystems are not only more complex than we think, they're more complex than we can think." That leads us to some caution and to be a little bit humble here. There may be not more than a hundred or so people in the entire world that are geared up to really think about what ecosystem management means. I encourage you to convene a working group out of that several hundred people as soon as possible to go to work on giving us some idea of what ecosystem management may be at world scale, national scales, and local scales (209:5-20)."

Meslow (Fish & Wildlife Service): "Mr. President, we look forward to having you revisit the Northwest, but not 480 times, especially to review contentious endangered species issues like this one. What most scientists are advocating is an ecosystem approach to the management of all old forest resources. We need an old growth forest ecosystem management plan that provides for all the species involved. We need to develop a strategy that can focus mostly on public lands that reserve significant tracts of old forests. We also need to manage the intervening public lands with a gentler touch. Such a strategy has as its goal maintaining the full diversity of species associated with our forest system. We believe we have the expertise to attempt such an ecosystem-based approach (107:12-25)."

Gordon (Yale): "From an ecological point of view, ecosystem management, based on sound integrated knowledge of the whole forest, allows us to do many things at the same time rather than saving one or two species at a time and has the potential, I think, to remedy this old growth deficit; focuses on maintaining the health and productivity of the entire forest asset rather than on isolated parts or processes. Its important to recognize that it will probably not anywhere result in the optimization

of the yield of any single resource, commodity, or species (96:17-97:2) ."

iii. Forest Industries

Geisinger (Northwest Forestry Association): "...we believe there is only one way to break that gridlock [over management of federal lands], and that is to embrace the exciting and innovative concepts that you heard described here today called ecosystem management ...our industry will be a constructive player in developing a long-range plan for managing our forests. We just have one stipulation, and that is as we move forward with ecosystem management, that we adhere to the very theory that it is based on, and that is that we manage broad landscapes. We manage entire ecosystems rather than applying these new techniques to just that small amount of land that Dan Tomascheski referred to that is currently available for timber production.

If we can do that, we can avoid the economic catastrophe that is otherwise going to happen. We can maintain healthy forest ecosystems in a manner that we've never been able to before, and most importantly, we can have healthy watersheds. We can have fish and wildlife habitat. We can have recreational opportunities, maintain diverse ecosystems, and still produce the wood product needs that this country demands (175:10-176:11)."

Tomascheski (Sierra Pacific Industries): "Now, what we've done with our implementation of an ecosystem approach on our timberlands is that we've taken a lot of the concepts that were just mentioned and tried to incorporate them on our lands. We were also substantially checkerboarded with public ownership. And what we've tried to do is assess, on a landscape basis, a fairly large-scale look at our landscape. What kind of habitats we have now, in terms of age of forest, structure, canopy closure? Where are they? How big are they? How are they dispersed through space? (116:21-117:5)."

iv. Tribes

Powell: "It seems ironic that we are required to manage within the parameters of complex federal, legal, and regulatory management schemes that are intended to protect the environment, when in reality we have practiced the principles of conservation for thousands of years (85:11-16)." Powell also describes her tribe's

integrated resource management system: "Mr. President, I respectfully submit that Indian tribes such as Hoopa may serve as useful models to the problems confronting this conference (85:7-88:3)."

Strong: "The natives to this land have existed for at least 35,000 years which is an estimated 700 generations. Present day America is approximately 10 generations old. For 690 generations ecosystem management was defined, illustrated and scientifically conducted by each generation of American Indians living on this land. Diverse life forms were naturally integrated and in abundance (248:19-249:1)."

v. Environmentalists

Rick Brown (National Wildlife Federation): "My understanding is that folks who deal in mediations say that, "Sometimes when you're dealing with a can of worms, the trick is to open a larger can of worms," and maybe that's what we need to do with this issue, is to start taking the big picture, take our focus off of the remaining old growth, and really start dealing with the forest landscape (132:22-133:3)."

b. Consensus

Ecosystem management is management of the entire forest landscape and all its natural components. At this scale, it includes both public and private lands, reserves and harvest areas. The intent of ecosystem management is to apply the best available knowledge of ecology to forest management, with the aim of achieving a diverse set of biological and economic values. Checkerboarding of public and private lands in the Northwest complicates ecosystem management efforts.

c. Disagreement

Thomas and other biologists claim with industry that ecosystem management is new and exciting; biologists claim special knowledge of ecosystems that places them at the forefront of its development and application. These claims contrast with those of tribal representatives, who consider that they have been practicing ecosystem management for generations, without any western scientific experts.

Industry representatives and Nafziger emphasize the landscape approach to ecosystem management, which in their view should allow for continued harvest, with new techniques on private and some public lands: forests should not be removed from harvest, but managed differently. In contrast, the biologists who advocate ecosystem management present it as a more effective alternative to the singlespecies management now enforced through the Endangered Species Act, in terms of maintaining diverse biological values. Plenty of room is left for disagreement over the relative weights of biological and economic values when industries and biologists apply their different visions of ecosystem management.

d. Places mentioned

Pacific Northwest, Sierra Pacific lands

e. Time periods mentioned

35,000 years ago, past 700 and 10 generations, present, future

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3. Treatment of harvest lands

a. Who says What

i. Biologists

Gordon (Yale): Discusses management of federal lands in long rotations, coordinated with different management of private lands, as described to Congress by Gang of Four (97:3-12). Recommends thinning for forest health and productivity, both economic and biological (98:9-14).

Oliver (U Washington): "...most of our forests in Western Washington are in this dense young structure. We need to find a way to encourage creation of all of the different structures across each drainage base in a landscape unit ...What we could do would be casing the creativity of the local people that you heard of this morning to do the thinning, the pruning, the creating the snags, the creating the openings, some of the new forestry... in doing that, we would also be creating high-quality

wood, which, by the way, is an environmentally very sound substitute for aluminum, steel, brick, concrete, or importing wood from elsewhere (114:24-115 :13)

Franklin (U. Washington): "What I've been trying to do during the last decade is take a lot of that information on how natural forest ecosystems work and begin to integrate it with our traditional forestry practices to try to produce approaches to do a better job of integrating both ecological and economic values. And that's fundamentally what new forestry is about, and it includes a tremendous array of different kinds of things (108:16-23)." Franklin gives examples of creating structurally diverse stands, providing for reserves on the landscape level, protecting riparian zones, and growing spotted owl habitat, all in the commodity landscape (108:24-109:8; 110:1-14).

ii. Forest Industries

Minnick (TJ International): "We've got to set aside here on the west side some forest preserves ...We've got to surround these areas with some buffer areas that are managed with Jerry Franklin's new forestry with multiple-age, multiple-species, multiple-entry, longer rotations, protection of riparian habitat. But we can get some wood fiber out of them, too (224:3-13)."

Tomascheski (Sierra Pacific Industries): "And what we think that we'll find if we take this kind of an ecosystem approach is that the federal lands will tilt somewhat toward providing the older forests and the species that are dependent on older forests, while the private lands will tilt more toward providing those younger forests, given that those are privately owned timberlands, that they made investments with. expectations of having a return, that they keep people employed in a significant way ...We do a lot of the same kind of practices that you heard about, leaving stand structure, leaving snags, leaving down and dead material (117:15-118:4)."

Hicks (Plum Creek Timber Co.): Describes and illustrates "innovative harvest techniques that are more compatible with owl habitat needs than some traditional harvest methods," e.g., leaving snags, large downed logs, healthy green trees. Hicks also describes management techniques for other species.
"Though the public and private sectors share a common goal of meeting ecological

and economic objectives, they have different roles. Public lands should provide reserves and manage forests. Biological diversity cannot be addressed by preservation alone. Managed landscapes can and should play a role. On the other hand, private lands can experiment with innovative approaches such as new forestry and continue to provide additional habitat through such practices as protection of the inside zones and the wetlands (101:18-104:12)."

iii. Environmentalists

Norman (Headwaters): "...when we protect large areas from logging and road building, we must remember that we are only treating the symptoms and bandaging the wounds. The decline of our forests' health must be dealt with at its source. Cutting practices must be reformed, and diversity must be restored to the 4 million acres of tree farms, otherwise the carefully designed system of reserves will crumble, a victim of forest fires and insect and disease epidemics that might spread from the managed lands (171:21-172:4)."

Wawona (New Growth Forestry): "Sustainable forestry is guided by natural selection and biological criteria, not short-term profiteering... It's time to make the necessary U-turn and make a serious commitment in the United States to sustainable forestry. We need to end the heartless abuse of our forest ecosystem as a mere fiber factory (58:20-60:16)."

b. Consensus

Unanimous advocacy for new forestry techniques on harvest lands, both public and private. Harvest lands are considered to complement reserves in ecosystem management strategies to maintain diversity of wildlife and forest stand structures across the landscape. New forestry techniques include harvest methods that preserve some of the characteristics of the original stand and silvicultural treatments prior to harvest, e.g., thinning and pruning. The latter also contribute to growth of high-quality wood, a secondary issue in this discussion.

c. Disagreement

See previous section on ecosystem management for different weights given to biological and economic values by different groups.

d. Places mentioned

Western Washington, United States

e. Time periods mentioned

Last decade, present, future, longer rotations

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4. Fish and watersheds

a. Who says what

i. Commercial Fishermen

N. Bingham (Fisherman): "...fishing has not been the cause of the decline of the salmon; the destruction of the salmon's habitat has been the cause of the decline of the salmon. The loss of fresh water habitat and the forests, the siltation of streams, cascades of sediment pouring into the streams, loss of shade from removal of the over-story trees, and loss of character of the streams have destroyed the home of the salmon... If we don't do something right now to protect the remaining habitats, we're going to see listings of salmon that will be in the order of magnitude under the Endangered Species Act that will make the spotted owl situation pale by comparison (55:15-56:13)."

Robinson (Oregon Salmon Commission): "It takes 200 years to grow an old growth tree. It takes three years to grow an old growth coho salmon. It takes five years to grow an old growth Chinook salmon. Figure it out. We can do a lot of production of salmon in a short period of time. If we put salmon in the middle of this recovery program, we can start generating income again. We suggest a threeprong approach. One is management reform... Point two would be to establish natural production goals for salmon. Point three would be to establish and facilitate hatchery production goals (206:13-25)."

ii. Biologists

Sedell (USFS): Describes declining fish runs, attributes this in part to degradation of habitat in the last 20, 50 years, along with other non-forestry factors.

"When we start talking about new forestry, most of the discussion centers on tree structure and on forest creatures, and, in fact, I would submit that new forestry is really about watershed health and about watershed biology and ecology and hydrology also."

"The best habitat that remains, remains on public lands, and that land that it does remain on is probably in some of the most fragile parts of the landscape that we have left ...and when we start to talk about getting a lot of the volume from thinning, when we talk about working in many of these areas, the light touch from watershed's perspective is going to be essential. The protection of the best habitat of what we have left is going to be crucial to anchor any maintenance and recovery of these stocks (123:18-125:4)."

Responding to Babbitt, Sedell describes logging on fragile slopes with helicopters, or taking fragile areas out of the harvest base, when roads are exacerbating watershed problems (135:6-22).

Gordon (Yale): "Roads ...urgently need attention in many forests to reduce danger to threatened fish stocks and to improve the transportation network that underpins the management of other resources. The Gang of Four report that I mentioned identified 137 key watersheds on the west side containing 22,976 miles of road, all of which need some kind of review and attention (98:1-8)."

iii. Forest Industries

Draper (Western Council of Industrial Workers): "...the thing that we can't do in this debate, whether it be fisheries, whether it be forest practices, is blame everything on the wood products industry. There are many factors that include the declining runs of salmon, and I think my friend here would agree with that; not just the forest industry or the forest product workers (63:6-12) ."

iv. Environmentalists

Doppelt (Pacific Rivers Council): "The problems with salmon and fisheries are in great part directly related to the loss of habitat and healthy watersheds across the Pacific Northwest. Indeed the future of salmon and the future of sustainable supplies of clean water, fiber, soils, and all-forms of aquatic life including fisheries is inextricably tied to the future of watersheds that originate on our public lands... identifying and working on the public lands and in these headwaters is going to be critical (201:23-202:16)."

Rick Brown (National Wildlife Federation): "I think watersheds are the most natural delineation we can make of ecosystems (132:17-18)."

Norman (Headwaters): Advocates a watershed reserve system, with particular attention to key watersheds for salmon (171:11-17).

Sher (Sierra Club Legal Defense Fund): "I have for six years now represented... local fishing groups, sport and recreational as well as commercial fishermen trying to save salmon...(90:1-4)."

Arthur (Sierra Club): "Near Seattle where I live now, there's a creek called Deer Creek which is a tributary to the North Fork of the Stillaguamish River. I'm an avid fisherman. I love to fish for steelhead and virtually anything else that swims in the water... Zane Grey caught his first steelhead in Deer Creek in 1919. Since then this watershed has been heavily logged. It's been heavy roaded, and it's been severely damaged. There are now less than 200 steelhead that now return to a river that once was renowned for its fishery. It's not only that I won't be able to catch steelhead there or that my son won't be able to catch steelhead there, but we're depriving the region and the community of both that environmental resource and the economic resource (53:9-23)." .

v. Government

Browner (EPA): "I presume when we talk about ecosystem ...that we are in fact talking about the air, the land, and the water, that we are talking about all three. And I would ask maybe Mr. Sedell or maybe Mr. Brown if ...watersheds might

provide sort of a natural planning unit around which we could develop solutions or proposals for how we deal with the forest and all of the parts of the ecosystem (131:25-132:8)." Sedell and Brown agree with Browner that watersheds are natural planning units.

Babbitt (Interior): "I'm wondering if there are any realistic alternatives to the degree of clearcutting that I saw in much of the Cascades and the intensive road building that goes along with that, where you have these kind of tiered terraced kind of road systems up mountainsides which almost suggested it's getting ready to go into the river in the next rainstorm (134:22-135:3)."

b. Consensus

Salmon runs and other fish stocks in the Pacific Northwest are in serious trouble, in part due to forestry activities, especially roads and road-building. For people practicing ecosystem management, watersheds are natural planning units. The best fish habitat that remains is on public lands.

c. Disagreement

Draper challenges others who he thinks are blaming too much of the fishery declines on forestry activities. People differ in the degree to which they attribute current problems to habitat loss and degradation or other factors.

Everyone who emphasizes the importance of fish or watersheds is challenging or at least seeking to expand the prevailing forest and terrestrial wildlife orientation of the conference and of ecosystem management/new forestry. Sedell notes that some new forestry techniques could negatively affect fish habitat.

d. Places mentioned

Central Valley of California (Gingham), federal lands, Pacific Northwest, the Cascades, Seattle, Deer Creek, Stillaguamish River

e. Time periods mentioned

1919, past 20-50 years, past 6 years, 1991, 200 years to grow old growth, 3-5 years

to grow salmon, present, future

5.Institutions and processes for ecosystem management

a. Who says what

i. Commercial Fishermen

N. Bingham (Fisherman): "The fishing industry has been working for years developing model programs, putting our own dollars to work through a program we've innovated in California to try to solve the inland habitat problems. We know how to do the job, but we need your help. We want to get together with the forest people, with the Indian tribes and the farmers, and work on a watershed base to empower local communities to go to work to solve this problem (56:20-57:2)."

Robinson (Oregon Salmon Commission): "If we put salmon in the middle of this recovery program, we can start generating income again. We suggest a three-prong approach. One is management reform. Watershed by watershed management, federal leadership, federal facilitation, local people involved designing their destinies (206:19-22)."

ii: Environmentalists

Doppelt (Pacific Rivers Council): "What we need to do in reality is institute a comprehensive region-wide watershed protection and restoration program." Doppelt describes such a program that his organization, and others, have developed in the past 2.5 years (202:16-204:13).

Norman (Headwaters): "We need a scientific review committee for the managed lands. One goal of this committee would be to focus the new ecosystem management policy of the Forest Service and the BLM into a program of well-monitored experiments. As Jack Ward Thomas on this panel stated in the recent Scientific Analysis Team report, "Unless adequate research and monitoring are

instituted and pursued vigorously an even stronger habitat reserve system will be needed in the future." To achieve this will require nothing less than a revolution in the Forest Service and the BLM. Those agencies must be placed under new leadership to ensure reform and a proactive compliance with the existing. laws (172:5-18)."

Kerr (Oregon Natural Resources Council): "The Forest Service as a bureaucracy doesn't get rewarded for providing mushrooms for people to harvest and sell like it does for timber, so we need to change the agency incentives. We need to also remove duplication in the agencies, and, for example, in Western Oregon, the Bureau of Land. Management has been atrociously managed, and I think those lands should be transferred to the Forest Service (198:14-21) . "

P. Lee (Oregon Trout): "To accept change people need to understand why change has come about. As we move in a direction of partial harvest and manage for a diversity of tree species, we need to teach the children and adults of our community why changes in forest practices are essential (38:17-21)."

iii. Biologists

Sedell (USES): "Part of our dilemma has been that we haven't been very good at planning, and we're neophytes at planning at largescale watersheds. I'm talking about watersheds the size of the Little Tennessee or the Buffalo, and these are the size of rivers that you're going to need to start to manage around if in fact water quality as well as fish stocks that may be at risk need to be managed on and planned around (132:10-16)."

Gordon (Yale): "There will be no final solution to the old growth or any conflict over forest uses and values because times and people and knowledge continually change. The best we can hope for are improved processes and the leadership to use them (15-18)."

iv. Social Scientists

Fortmann (UC Berkeley): "We need locally based planning processes that enable local people to development and implement diverse policy options that take into account the social and ecological diversity of their communities, and we need state

and federal policies that will facilitate these local processes. We need community-initiated and locality-based planning and management units that make ecological sense and social sense (144:9-16)."

R. Lee (U Washington): "...the security that people have in their community, in their families, in the tenure relationships they have, and that their children feel about their futures are key to healthy forests. This is where people learn to protect forests, to enhance them. This is where the knowledge is. This is where the creativity is... I think we need some fundamental reforms that where we're going to be producing commodities on what are the now public lands we may need to move toward a system of community trust or something else that brings people together in legal authorities ...We can't do it [affirm both environment and people], in my opinion, through the large centralized federal bureaucracies (147:19-150:18)."

MacColl (Historian): "We see today longstanding misguided federal policies with little coordination between the federal agencies and between the federal and the state agencies (21:22-24)."

v. Forest Industries

Tomascheski (Sierra Pacific Industries): "[The USFS and BLM have] gone through a land management planning process where every constituent group got a piece of pie. They wanted this, so we--okay, we set aside that for them, and then this group wanted this. Well, now we only have this little piece of the pie left to practice timber management on, and as a consequence, in order to try to keep timber supplies coming, we've acted very intensively on that little piece of the pie (118:19-119:1)."

C. Gingham (Weyerhaeuser): "We fund our reforestation and research budgets over decades. It does not go down through economic cycles. I don't think we can fund the great national forests on an annual appropriations. We have to be willing to make long-term funding commitments (195:8-16)."

vi. Tribes

Powell: "Federal agencies ...have been plagued by multi-levels of decision making

and overly bureaucratic and fractionated approval and appeal procedures (86:23-87:2)."

b. Consensus

To effectively implement ecosystem management, federal agencies (especially the BLM and USFS) will have to change a number of ways in which they do business. Working at a landscape level also requires new sorts of institutions and processes that coordinate and plan over a range of public and private lands.

c. Disagreement

Everyone has different ideas for particular programs or reforms that are needed, though none of these are directly at odds with one another. A more subtle distinction can be made between people who advocate local participation for the purpose of effective ecosystem management and those whose primary concern is giving local people control over their lives: see Section II.B.8.c. (Need for local control in rural communities: disagreement).

d. Places mentioned

California, western Oregon, Little Tennessee and Buffalo watersheds

e. Time periods mentioned

General past, past 2.5 years, present, Doppelt's 10-year plan, general future, long-term funding

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6. Research and monitoring needs

a. Who says what

i. Biologists

Gordon (Yale): "The most urgent restoration need is a better idea of what forest conditions are at a fine-grained local level. We need this information to observe the first rule of forest restoration which is, as for surgery, in the first instance, do no harm (97:21-25)." "I'd like to say a word also about the research deficit. The lack of fundamental knowledge about old growth's potentially endangered species and disagreement about the information that does exist have been drivers of conflicts over forest management in the Pacific Northwest and elsewhere (98:15-20)."

ii. Forest Industries

Tomascheski (Sierra Pacific Industries): "We need more research and monitoring into that whole condition [of habitats]. We need to monitor as we go. That's the whole thing adaptive management is. Try something. Learn a little. Then move on after you've learned something. But we really have a research deficit (122:10-15) ."

C. Bingham (Weyerhaeuser): Discusses need to gather data and adjust management accordingly. "We fund our reforestation and research budgets over decades.. It does not go down through economic cycles. I don't think we can fund the great national forests on an annual appropriations. We have to be willing to make long-term funding commitments (195:8-16)."

iii. Environmentalists

Norman (Headwaters): "We must establish a permanent forest and watershed reserve system based on the best scientific knowledge. We must also establish interim protection for additional areas to preserve our options while thorough scientific studies are completed. All suitable habitat for threatened species, all roadless areas, key watersheds for salmon, riparian zones, and large blocks of intact forest must serve as our scientific controls during this research period (171:11-19)."

b. Consensus

Research and monitoring are integral to ecosystem management; there is still a great deficit in knowledge of how ecosystems work and respond to human activities.

c. Disagreement

Industry or others might disagree with Norman's proposal: it sounds as if very little land would be available for harvest in the short term.

d. Places mentioned

Northwest and elsewhere

e. Time periods mentioned

General past, present, and future; long-term funding; permanent reserves

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I. East side forests

a. Who says what

i. Government

Clinton: "There's one other topic I want to make sure we touch ...that is the issue of whether the administration should deal with the forest on the east side of the Cascades... (125:5-9).

Schmidt (Line County, OR): "It was mentioned here a few minutes ago about taking some wood out of the many, many thousands of acres of dead and dying timber, particularly in Eastern Oregon, but we've got the problem coming over in Western Oregon as well. It's a disaster, but it's also an opportunity to extract a lot of fiber, to put some people to work, and to do some of the longterm help that those stands need, reducing of densities have come on since fire is not -- since fire has been controlled by man; to modify the species in the stands to more correctly assimilate the stands as they used to be 150 years ago, things like this (243:5-15)."

ii. Environmentalists

Norman (Headwaters): "These reserves must encompass the east side of the Cascades as well as the west side forests (171:19-20)."

Arthur (Sierra Club): "The east side forests are an ecological time bomb waiting to explode (52:5-6)."

Rick Brown (National Wildlife Federation): "...those reserves must include forests east of the Cascades, as you asked. The salmon, the steelhead that swim the Columbia River pass beyond the Cascade crest, and they don't understand our distinctions between spotted owl forests and non-owl forests, nor do the goshawk, the pileated woodpecker, the American martin, and other species that stand both sides of Cascades. To them the Northwest forest landscape is one seamless tapestry of a forest ecosystem, and we must include, I believe, the east side forests in any resolution that we seek out of the processes that develop from today (127:8-19)."

Doppelt (Pacific Rivers Council): Estimates that $200 million is needed to secure the remaining healthy watersheds on the east side (204:4-6).

iii. Social Scientists

Hanus (Oregon Department of Forestry): Mentions 200,000 acres of land in eastern Oregon that could be converted (151:22-23).

iv. Biologists

Oliver (U Washington): "I think in doing this we would create a system that would be robust, not just for Western Washington, but for Eastern Washington, and incidentally for the red cockaded woodpecker and other species in the country, and I think we'd also create an example for the rest of the world (114:1-5)."

v. Forest Industries

Hicks (Plum Creek Timber Co.): Discusses spotted owl-research and new forestry techniques applied on the east side of the Cascades in Washington (101:1-25).

b. Consensus

Environmentalists agree that east side forests need attention; others do not say this directly, but by mentioning east side forests imply the same thing.

c. Disagreement

None.

d. Places mentioned

East side forests, eastern and western Oregon and Washington, west side forests, Columbia River, spotted owl forests, non-owl forests, Northwest forest landscape, Cascade crest, the country, the world

e. Time periods mentioned

150 years ago, present, future

III. Participants in the Conference

BILL ARTHUR is Director of the Sierra Club's Northwest Office in Seattle. He grew up in Montana where his father was a small independent timber operator. He is an economist by training and has been involved with the Sierra Club and forestry issues for the past ten years.

BRUCE BABBITT is Secretary of the U.S. Department of Interior.

NADINE BAILEY of Hayfork, California, is the wife of a logger and a dedicated spokeswoman for loggers whose livelihoods depend on timber harvesting. Nadine's daughter, Elizabeth, participated with the President in the ABC TV Town Meeting for children.

CHARLES W. BINGHAM, Executive Vice President, Weyerhaeuser Company,

Director of Puget Sound Power and Light Company; Chair of the Tacoma-Pierce County American Leadership Forum; Vice President of the Mountains to Sound Greenway Trust; and a trustee of the Weyerhaeuser Foundation. He is past chair of the National Forest Products Association Board of Governors.

NAT BINGHAM is a commercial fisherman who owns and operates a fishing vessel and fishes for salmon, crab, and albacore. He served as President of the Pacific Coast Federation of Fishermen's Association and currently serves as their field coordinator for their fisheries habitat program.

RICK BROWN, National Wildlife Federation, Portland, Oregon. Brown is a wildlife and forest ecologist who previously worked for the Forest Service. He has actively promoted 'ecosystem' approaches to forest management.

RON BROWN is Secretary of the U.S. Department of Commerce.

CAROL BROWNER is Administrator of the U.S. Environmental Protection Agency.

JIM COATES, Vice President, International Woodworkers of America Local 3-2. From 1990 to the present, he has served as Community Outreach Coordinator to provide information on training programs and available social service resources, creating innovative programs, such as a weekly television broadcast, "People Helping People", through a local ministerial association, to provide information to timber families.

BOB DOPPELT, Executive Director and Co-Founder of the Pacific Rivers Council. He began the Council because he owned a commercial river trip and fishing business for 11 years and experienced first-hand the environmental impacts on the region's rivers and fisheries and felt a group was needed to specifically focus on these issues. He is known as a creative national expert on riverine protection and restoration strategies.

MIRE DRAPER, Executive Secretary, United Brotherhood of Carpenters, Western Council of Industrial Workers, Portland, Oregon, represents 30,000 members across ten western states. His members work as loggers, in sawmills, and in plywood and particle board manufacturing and re-manufacturing plants:

BUZZ EADES, Eades Forest Resources, is a graduate forester and a sixth generation logger.

MIKE ESPY is Secretary of the U.S. Department of Agriculture.

IRV FLETCHER is President of the Oregon AFL-CIO.

LOUISE FORTMANN, University of California, Berkeley, California. Dr. Fortmann is a rural sociologist who has focused on environmental protest and community well-being. She has conducted major ethnographic and statistical analyses in the region.

JERRY FRANKLIN, University of Washington, Seattle, Washington. Dr. Franklin is a leading forest ecologist whose research focuses on old growth forests. He was one of the "Gang of Four" and has been called the "Father of New Forestry".

JIM GEISINGER, President, Northwest Forestry Association, Portland, Oregon. The NFA represents forest product manufacturers and forest landowners in Washington and Oregon who depend on public lands for fiber supply. He has more than 17 years experience working for forestry trade associations and has spent his entire career on resource issues affecting federal forest management.

JACK GIBBONS is U.S. Science and Technology Advisor

JOHN GORDON, Dean, Yale University School of Forestry. Dr. Gordon is a forest ecologist who spent the majority of his career at Oregon State University. He has written extensively on forest policy issues and was one of the "Gang of Four", the team of four government and university scientists who produced a 1991 study on the health of the forests and different management alternatives at the request of the House Agriculture and Merchant Marine Committees.

BRIAN GREBER, Professor, Oregon State University, Corvallis, Oregon. Dr. Greber's research addresses forest product markets and regional economics. He has been an advisor to several federal task forces, including the "Gang of Four", and the Endangered Species Committee.

JOHN HAMPTON, Chief Executive officer, Willamina Lumber Company, Portland, Oregon, founded Hampton Lumber in 1950 and became CEO of Willamina in 1970. He currently serves as chairman of the Northwest Forest Resources Council.

ANN HANUS, Assistant State Forester, Oregon Department of Forestry, Salem, Oregon. Ms. Hanus is a professional forester and economist who has been involved with this issue since 1985. She served as staff to Tom Walsh, the Oregon representative to the Endangered Species Committee.

ROSLYN HEFFNER has been operating her own vocational counseling service since 1987, focusing primarily on assisting injured workers back to gainful employment. She is a registered nurse and has a Master's Degree in rehabilitation counseling.

LORIN HICKS, Plum Creek Timber Company, Seattle, Washington. Dr. Hicks is a wildlife biologist who has conducted research on spotted owls on private and public lands. He was a contributing author of the Spotted Owl Recovery Plan, the Bush Administration's Department of Interior plan for protecting the owl.

ERIC HOLLENBECK began working in the woods at 14, first surveying for timber access roads and later logging. At 24, he began a logging company, the Blue Ox Millworks. Three years later, along with his wife, Hollenbeck built a sawmill and has been manufacturing finished wood products for the last 17 years. Two years ago, they opened the historic facilities for tours and this year they are opening a School of the Traditional Arts to educate tomorrow's woodworkers and entrepreneurs.

JIM IRVINE is Vice President and Treasurer, National Association of Home Builders and is a home builder from Portland. He is President of the Conifer Group, a construction, development and property management company building primarily single family homes and light commercial developments.

VERA KATZ is Mayor of Portland, Oregon.

ANDY KERR is Conservation Director for the Oregon Natural Resources Council, a 20-year-old coalition of more than 40 sports, conservation, recreation,

commercial and educational groups interested in the wise management of Oregon's lands, waters, and other natural resources. ONRC represents more than 6,000 individual members and maintains offices in Portland, Eugene, and Bend.

GUS KOSTOPULOS, Executive Director, Woodnet, a non-profit network of more than 300 wood products manufacturers on Washington's Olympic Peninsula. Before establishing Woodnet, Kostopulos held a number of management positions, employing many of the techniques and strategies characteristic of flexible manufacturing.

BOB LEE, University of Washington, Seattle, Washington. Dr. Lee's field of study centers on the social aspects of forest resource use. For many years, he has studied the social and cultural consequences of wood supply reduction on forest-dependent communities. He is affiliated with the non-profit group, The Temperate Forest Foundation, which seeks to develop a middle ground for the development of sustainable use practices.

PATRICIA LEE, Charter member Oregon Trout, Streamside Inn, Steamboat, Oregon, runs an inn and is in the process of creating an environmental education center for the children of Douglas County.

KEN MARSON, Marson & Marson Lumber, runs a retail lumber yard, Ace Hardware Center and Truss Manufacturing Plant. He also is active in the National Lumber Dealers and Building Material Dealers Association.

LARRY MASON, Western Commercial Forest Action Committee, is from Forks, Washington, and owned a mill that had to close. He now heads a group of 500 individuals who represent a broad section of timber dependent communities.

KATHERINE MATER is Vice President of Mater Engineering, Inc., a forest products engineering and market research firm based in Corvallis, Oregon, which has served the wood products industry for 50 years. She is recognized as an industry leader in researching and identifying value-added wood product manufacturing solutions which adapt to reduced raw resource supplies, yet offer profits and job security for the industry.

CHARLES MESLOW, Director, U.S. Department of Interior Fish and Wildlife

Service, Cooperative Research Unit, Corvallis, Oregon. Dr. Meslow is a research biologist and professor of wildlife ecology at Oregon State University. He is known for his research on northern spotted owls and was a member of the Scientific Analysis Team that released its report to the court on March 19, 1993.

WALTER MINNICK is CEO of a $400 million facility, TJ International, one of the largest purchasers of veneer in the west. They have 1,000 employees in Oregon and own four mills on the west side. He is currently a member of the Governing Council of the Wilderness Foundation, American Business Conference, Idaho Conservation League, and the Nature Conservancy.

ARCHBISHOP THOMAS MURPHY, Catholic Archdiocese of Seattle. Archbishop Murphy has led the Roman Catholic Church in Western Washington since 1991. He has helped organize relief and social service efforts for timber-dependent communities.

RICH NAFZIGER is currently Deputy Insurance Commissioner for Policy and Legislative Affairs for the State of Washington. Between 1988 and 1993, he served as Special Assistant to the Governor for Timber Policy and Rural Development and was Director of the Governor's Timber Team, responsible for coordinating state policy and programs relating to forestry issues and timber community development.

JULIE NORMAN, President of Headwaters, a southwest Oregon grassroots group working for federal forestry reform through policy research, timber sale monitoring, public education, and negotiations/litigation.

CHARLES OLLIVIER has been an active participant in the International Longshoremen and Warehousemen's Union Local 14 for 27 years, 12 of which were as President. Presently, he is elected Commissioner, 5th District Humboldt Bay Harbor, Recreation and Conservation District and is the Vice President of the District.

CHAD OLIVER, University of Washington, Seattle, Washington. Dr. Oliver is a silviculture and forest policy professor at the University of Washington, School of Forest Resources.

FELICE PACE is Program Coordinator for the Klamath Forest Alliance, a community-based, non-profit organization based in northern California. The KFA works to reform public land management with special emphasis on rehabilitating damaged watersheds on public land to restore salmonid and other fisheries at risk of extinction. He has lived in Siskiyou County for 18 years and has been active in forest issues since 1980.

MARGARET POWELL, Member, Hoopa Tribe, Hoopa, California, is the owner of a small mill located on the Hoopa Valley Indian Reservation. She also has served on the Hoopa Tribal council for 14 years and is active in other tribal affairs.

ROBERT REICH is Secretary of the U.S. Department of Labor.

ALICE RIVLIN is Deputy Director of the U.S. Office of Management and Budget.

BARBARA ROBERTS is Governor of Oregon.

TOM ROBINSON for the past six years has been manager of the Oregon Salmon Commission, representing the Oregon troll fishermen and primary processors through product promotions, education, communications and research. He has served as an official salmon fishery representative on the Pacific Fishery Management Council By Catch Committee and on the Oregon Coho Review Committee.

DAVE SCHMIDT has served as County Commissioner of Linn County, Oregon since 1988. He is a member of the Council of Forest Trust Lands and is a Board Member on the Western Interstate Region of Public Lands, which works with the Bureau of Land Management and the Forest Service on local issues.

JIM SEDELL, U.S. Department of Agriculture Forest Service, Corvallis, Oregon. Dr. Sedell is a fishery biologist who is a leading researcher into how forest land use affects fish habitat. He was the principal fishery biologist on the Scientific Analysis Team. He is a native Oregonian and local fisherman.

VIC SHER is the Managing Attorney for the Sierra Club Legal Defense Fund in Seattle, Washington. His practice is devoted entirely to representing citizens in

litigation and administrative action related to environmental protection. He has been counsel to the environmental plaintiffs in a series of. cases relating to the forest and wildlife management issues in the region.

BOB SPENCE, President, Pacific Lumber Sales Company, Seattle, Washington. Mr. Spence and his family operate this privately-held company which owns three sawmills and exports both logs and finished wood products.

PHYLLIS STRAUGER, Mayor, Hoquiam, Washington, has served on the Hoquiam City Council from 1969 to 1988. She has served as Mayor since 1988. She has been active in state service and in the National League of Cities.

TED STRONG has been the Executive Director of the Columbia River Inter-Tribal Fish Commission for four years, created by the Confederated Tribes of the Warm Springs Reservation of Oregon, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes and Bands of the Yakima Indian Nation, and the Nez Perce Tribe.

FRANK TALLERICO, Superintendent of Schools, Siskiyou County, Yreka, California, has served as Superintendent for the past eight years. Prior to that, he served in other capacities in the Superintendent's office and taught fifth through twelfth grade classes.

JACK WARD THOMAS is the Chief Research Biologist and Project Leader for Range and Wildlife Habitat Research for the USDA Forest Service. He has published more than 250 works and was a member of the "Gang of Four", the team of four government and university scientists who produced a 1991 study on the health of the forests and different management alternatives at the request of the House Agriculture and Merchant Marine Committees. Dr. Thomas chaired the Interagency Scientific Committee, which established the conservation strategy for northern spotted owls. He also was the leader of the Scientific Analysis Team which, under court order, released its report on the management of old growth ecosystems in March.

DAN TOMASCHESKI, Vice President, Sierra Pacific Industries, Redding, California. Tomascheski's company owns 1.1 million acres of commercial forest land in California. It is also the largest California purchaser of timber on federal lands. Tomascheski was active in efforts to reach consensus with environmentalists

on private forest lands in California.

DIANA WALES is a partner in a small law firm in Roseburg, Oregon with a practice limited to family law. She is also co-chair of the Umpqua Valley Audubon Society Conservation Committee as well as other environmental, professional, and civic organizations.

MECA WAWONA is the founder of New Growth Forestry in Ukiah,. California. She and her husband run a small business cooperative that specializes in forest and salmon habitat restoration.

ED WHITELAW, University of Oregon, Eugene, Oregon. Whitelaw is an economist who believes that northwest regional economies are in transition and that most timber workers and companies realize federal lands will provide less timber than in the past.

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Appendix VII-B

Post-Forest Conference Public Input: A Summary of Policy Issues

Prepared by Catherine Woods Richardson and Debbie Deagan

June 4, 1993

Post-Forest Conference Public Input

A Summary of Policy Issues

Prepared by
Catherine Woods Richardson and Debbie Deagen
for the Interagency Social Assessment Team

I. Introduction

Sources of Comments

At the conclusion of the Forest Conference on April 2, President Clinton directed the Cabinet to begin drafting a long-term plan to address the socioeconomic and ecological issues that had been discussed that day. In so doing, he commented to those present, "You have got to be part of this solution. Even if we make the most enlightened possible decisions under the circumstances, they will be all the more resented if they seem to be imposed without a continuing mechanism for people whose lives will be affected here to be involved."

Although the teams of natural and social scientists who were brought together after the Conference worked on possible solutions behind closed doors, written comments and suggestions were solicited and accepted from outside groups. This document describes how comments received by May 14 were directed internally

and gives a basic summary of the major policy issues in these comments. Comments received by the Social Assessment Team after May 14 were not distributed and are not included in this analysis. They were logged in and will be forwarded to the team conducting the Environmental Impact Statement on the Conference plan.

Most comments were directed to Tom Tuchmann in Washington, D.C., who contacted the Social Assessment Team in Portland with a request for assistance in analyzing them. Jeff Rogers and Jack Ward Thomas in Portland also received some comments, which were included in this analysis.

Disposition and Analysis of Comments

We reviewed 229 documents, catalogued in Table 1, for basic content that would be of value to the different working groups in the Interagency Team. Any document that contained technical information or substantive scientific or policy recommendations was copied and distributed to the appropriate working group(s): Aquatic, Terrestrial, Economic, Social, and Policy (J. Pipkin). Each group was instructed to review each document, record how they used it in their working group, and report back to the Social Assessment Team.

Time constraints prevented us from completing a thorough analysis of the comments, given the richness of the material that they contained, but we did review all 131 documents directed to the policy working group, focusing on the policy issues that commenters raised.

The summaries and examples that follow represent the range of issues that appeared in the comments, not the number of times they were mentioned, or all the people or organizations who commented on each issue. We did identify the types of organizations that made similar statements, to gain a general sense of the degree of consensus or disagreement on each issue. The issue list also is not exhaustive, but representative of the types of policy issues that were raised.

Groups identified in public input

Environmental Organizations
Forest Industry

Tribes
Government (Local, County, State) Sustainability organizations (Organizations practicing and promoting sustainable resource management)
Academic/Professional Individuals and Societies
Civic/Grass-Roots Community Organizations
Forest Workers Individuals claiming no formal affiliation

Differences between the Conference and Post-Conference comments

Specificity of post-conference comments

* Post-conference comments address particular places of interest, federal laws or taxes, community development programs now under way.

* This is a function of the different formats -- short sound bites vs. written submissions

Representation of different groups

* Post-conference comments represent a lot of small, local environmental groups who were not invited to the conference and have things to say about specific places that were not said at the conference

* Very little is said about conditions in rural communities or heard from rural community representatives or timber workers in post
-conference comments
- a lot was said on these topics at the conference; much of this is general testimony: "We're losing our livelihoods and families"
- this is not a group with the same degree of political organization/operation as environmental groups and industry, especially when it comes to written input

* Post-conference comments also came from groups and individuals outside the PNW (again, mostly environmental)

People asking about bigger picture in post-conference comments

* What about changing consumer demand for wood products? (How is it expected to change, how can it be changed?)

* Where will/can wood or wood substitutes come from if not the PNW? (Alaska, Siberia, recycling, etc.)

* What about forests in the rest of the country, especially on the east side? (Forests all over the country are in trouble: national forest policy and national reform are needed.)

Focus on legislation as preferable to administrative policy, including submission of proposed bills

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II. Comment Summaries

A. Socioeconomic issues

A1. Import and export of raw logs and forest products

Many groups commented on the issue of raw log exports. Environmental groups generally favored a ban or restrictions on exports, as did groups of forest workers. Some industry groups favored bans or .restrictions, particularly secondary manufacturing industries, but other industry groups, and some nonindustrial private forest owners favored continued exports. Some commenters opposing exports mentioned current export subsidies on logs that could be revoked. A civic/community group noted that adjusting tariffs would be preferable to banning exports; the former action would benefit private landowners economically while the latter would cause them economic loss.

Comments by environmental groups on the possibility of importing raw logs from Siberia or elsewhere were negative, citing the likelihood of pest introduction.

A2. Rural businesses, including value-added manufacturers

Comments and proposals for ways to encourage local business in rural areas were myriad. Industry, environmental, sustainability, civic/community, worker, and government groups all had suggestions for both developing forest-based businesses

and promoting economic diversification. Tax credits, community development banks, loans, technical and marketing assistance, and grant programs were all frequently mentioned. Also at issue were
ways the Forest Service and other resource agencies could promote community development, e.g., through changing timber sale procedures to favor smaller operators and mills. Sustainability organizations offered suggestions for promoting "Green" business in rural areas, and government groups discussed non-timber forest products such as mushrooms and florals. Government and worker groups also identified the importance of coordinating information and efforts among economic development agencies and of investing in infrastructure to support new businesses.

A3. Displaced workers

Nearly all groups who commented identified environmental restoration and/or timber stand improvement as sources of jobs in rural communities, both on public and private lands. Incentives could be offered to private owners to contract such services. Groups commenting included environmental, government, worker, and civic/community groups, plus individuals. The need for family-wage jobs and secure employment for displaced workers was also identified. Worker groups addressed education and skill training for displaced and soon-to-be-displaced workers and pension supplements for older displaced workers.

A4. Nonindustrial private forest lands

Most groups commenting on these lands identified them as potential sources of both high-quality timber and environmental values, but in need of active management to produce these amenities. Tax laws, e.g., on estate and capital gain taxes, and federal and state incentive and technical assistance programs for reforestation and restoration were identified as means to these ends. Incentives were considered preferable to regulations. Environmental, academic/professional, sustainability, industry, civic/community, and nonindustrial private land owner groups all commented on this issue.

A5. Private property issues

Industry groups expressed concern that any future policy or legislation assure private property rights of timberland owners. Current spotted owl restrictions are viewed as taking of private property without compensation, and the possibility of banning exports of raw logs from private lands is also seen as an obstruction to private property rights and free enterprise.

A6. Federal receipts to counties
Government, environmental, and academic/professional groups identified the impact of a loss of federal timber receipts on PNW counties. Possible approaches to minimizing that impact include providing federal funds in lieu of private property taxes based on the area of federal land in the county, or, for O&C counties in Oregon, merging BLM lands into National Forests and directing the administrative savings to county budgets.

B. Ecosystem management issues

B1. Restoration
Many comments focused on the need for river and stream restoration, also on reforestation, timber stand improvement, the need to deal with introduced species and pests, and opportunities to diversify forest structure across the landscape. Worker and civic/community groups identified salvage of diseased and downed trees as an aspect of restoration. Environmental groups noted particular areas in need of restoration, and a recreation business noted the dependence of the recreation industry on healthy forests and streams. Academic/professional and government groups also commented.

B2. Reserves
The use of reserves as a part of ecosystem management appears contentious: local environmental groups wrote in about numerous particular places they would like to see reserved, several of which are scheduled for timber harvest in the near future. Some civic/community, industry, and academic/professional groups questioned the use of permanent reserves in ecosystem management when PNW ecosystems are dynamic systems in which disturbance (especially fire) is common. Civic/community and worker groups were of the opinion that enough land is already in reserves in the PNW.

B3. Nonreserve forest lands
Academic/professional, civic/community, industry, environmental, and sustainability groups had recommendations about how to treat forest lands that would be managed for timber, most of which focused on new forestry and other silvicultural practices. Other comments addressed need for agencies to consider

adjacent or
embedded private lands in their planning and management efforts, and to work to acquire some of these private lands into the public base.

B4. Watershed management and fisheries
Environmental, government, sustainability, and worker groups noted that watersheds should be the basic planning unit for agencies, and also the basic reserve unit for reserves, rather than patches of old growth. Protection and restoration of fish habitat were considered by many to be basic to restoring fish populations; however, a civic/community group noted that many factors have contributed to declining fish stocks, and not all the blame should be placed on forestry. Fisheries rehabilitation is complicated by dam and reservoir systems on the Snake and Columbia Rivers and by political, bureaucratic, and institutional constraints.

B5. Spotted owl management
Industry commented on the presence of spotted owls in second growth, especially in California, that should revise scientists' estimates of population numbers, viability, and viable habitat. An industry/worker group noted that current spotted owl plans for federal lands do not consider spotted owl management areas on adjacent private lands. In general, industry seems to agree that federal actions on the spotted owl have been excessive, and more moderate, considered policies are in order. A civic/community group noted that multi-species management is preferable to single-species management, which does not work, while an environmental group noted that poor habitat management in British Columbia may require greater conservation measures in the adjacent U.S.

C. Processes of forest management

C1. Groups that want to be included
Many groups felt they were not adequately represented at the Forest Conference and are not allowed adequate voice in developing solutions: family-size tree farmers, advocates for the forest, the Karuk Tribe, practitioners of sustainable forestry/ecoforestry, secondary wood products industries, mining interests, professional foresters, local businesses, and private landowners. More generally, environmental, worker, civic/community, and academic/professional groups and

individuals emphasized the importance of community-based solutions and forest management processes that draw on local knowledge and talent in designing plans and projects. An associated issue is the need to include Native American interests, identified by both tribes and environmental groups.

C2. Need to address short and long term
Environmental, industry, worker, sustainability, civic/community, and government groups identified the need for a short-term timber supply program to address immediate problems in the context of a long-term plan of sustainable forest management and stable timber supplies. Short-term remedies should not be inconsistent with long-term goals. Commenters suggested that the 60-day period be used to develop a transitional plan or planning process, allowing more time to develop a sound long-term plan.

C3. Criteria for decision-making
Environmental groups and others asserted that forest management decisions should be based on the best science available, but other comments by academic/professional, industry, government, and worker groups suggest that everyone may have different ideas about what or where the "best science" is.

Comments on how a plan might work included the importance of considering funding sources and setting and working toward measurable goals rather than following procedures and allocations. Also that local forest ecology, not. a regional PNW plan, should drive local forest management.

C4. Research and information exchange
Research needs were identified in a number of areas: spotted owl and marbled murrelet biology, forest practices, processing technologies for small mills, engineered wood products.

Needs for improved information exchange, cooperation, and technology transfer were noted in wood products among academia, agencies, and small industries and in ecology among agencies and between agencies and industry. A civic/community group identified local, experiential and academic, scientific knowledge as complementary sources of information for responsible management. Environmental, tribal, government, civic/community, and sustainability groups commented.

C5. Environmental regulations and legislation

The greatest number of comments on any law were on the Endangered Species Act, which all groups supported, though workers, industry, and government asked that it be amended to recognize social and economic effects while environmental groups wanted it to be amended to further encourage ecosystem protection.

Industry, civic/community, and environmental groups agreed that conflicting directives in national laws and regulations, e.g., ESA and NEPA, need to be resolved.

Industry/worker and civic/community groups suggested actions to reduce the number of appeals and litigation and generally speed the planning process; one industry/worker group provided extensive comments on federal statutes and regulations that could be changed or reinterpreted to do this.

Comments were received on a number of other existing laws, and proposed legislation was also submitted.

More generally, environmental groups argued for protection of reserves in legislation rather than administrative policy.

C6. Agency reform and redirection

Everyone had comments on how the Forest Service and other resource agencies needed to be reformed or at least redirected. Comments on legal violations, difficulties working with the FS, and FS personnel who should be replaced reveal, as one person wrote, "a major rip off of the public trust," at least for some of the public, especially those with an environmental bent. Some of these commenters wanted some form. of empowered citizen review of FS activities.

More generally, the FS needs to change from a timber management to an ecosystem management organization, according to general consensus, which necessitates changes in bureaucratic structure, budgets, staffing, etc.

Environmental, civic/community, tribal, and sustainability groups wanted the FS to take more active responsibility for local communities, e.g., in community development and conflict resolution.

An industry/worker group made extensive comments on the role the U.S. Fish and Wildlife Service should take on both public and private lands; they are currently

overstepping their bounds.

D. Broader issues not addressed at the conference

D1. Effects of PNW forest policy on lands outside the PNW
Academic/professional, civic/community, environmental, worker, and industry groups asked that the administration consider the environmental effects of reducing harvest in the PNW on forests in the rest of the world, especially in Siberia, the Tongass in Alaska, British Columbia, and countries that do not practice reforestation.

D2. Consumer demand for wood products
Academic/professional, worker, and environmental groups also asked why ways of changing consumer demand for wood products were not addressed at the Conference, e.g., use of alternative materials, improving efficiency, recycling.

Civic/Community and Worker groups advocated wood products over alternative materials that require much more fossil fuel to manufacture.

D3. Need for policy on forests and ecosystems outside the PNW
Consensus appeared among all groups that the federal governmentshould not limit its focus to the PNW: forests and forest policies nationwide need attention. Specific proposals for an umbrella National Organic Act, an Endangered Ecosystem Act, and a North American Commission on the Environment were submitted.

D4. Global warming
Environmental groups commented that global warming and ozone depletion should be considered in all forest plans, and studies and programs should be implemented that address these problems in the U.S. and internationally. A worker group noted that trees store carbon dioxide, while using fossil fuels to make alternatives to wood products would release more carbon dioxide into the atmosphere; therefore, we should continue to harvest and replant trees.

E. Eastside forest issues
Sixteen commenters wrote in specifically about forests on the east side, and another fourteen commented extensively on eastside forests in more general submissions. Many more mentioned that these forests need attention in the current

interagency effort. The relationship of the Eastside forest to the Northwest ecosystem planning effort for threatened and endangered species (including anadromous fish in the Columbia River basin) was stressed.

Forest health is deteriorating rapidly, and dubious Forest Service policies and actions (high-grading, fire suppression, even-aged plantations, inadequate biological evaluations of sales, questionable inventories, misuse of salvage sales) are exacerbating eastside forests' decline. Owl injunctions on the west side have contributed to higher cutting rates and even more mismanagement by the Forest Service in these already stressed forests. The most extensive comments on eastside issues came from environmental groups, but there was general consensus among all groups that this region needs immediate attention. Industry/worker and civic/community groups advocated salvage sales on the eastside for forest health and to meet short-term timber supply needs.

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