ATTITUDES, BELIEFS, AND VALUES TOWARD NATURAL RESOURCES AND PUBLIC LAND MANAGEMENT

A Framework for Ecosystem Management in the Interior Columbia Basin and Portions of the Klamath and Great Basins (Haynes and others 1996) states that a main feature of an ecosystem approach to managing natural resources is to include people, their values, and activities. The Framework acknowledges that people may make demands on ecosystems that exceed physical and biological capabilities in the long term. Developing and implementing an ecosystem management plan requires knowledge of the type and quantity of human demands for ecosystem products and the human values associated with these expectations.

The Forest Service's National Human Dimensions of Ecosystem Management Task Force concluded: “The human dimension of ecosystem management must include information about people’s traditional and changing perceptions, beliefs, attitudes, behaviors, needs, and values and the past, present, and possible future influences of humans on ecosystems.” The ICBEMP Charter reflects this thought by referring to consideration of sustained long-term economic, social, and ecological values of the region and issues identified in scoping. In addition, one of the ICBEMP's key policy questions (November 8, 1994) addressed the impact of ecosystem management on major social issues by requiring an understanding of local, regional, and national attitudes, beliefs, and values associated with natural resources and public land management.

Because ecosystem management is a human construct, like multiple-use management or other public land management systems or philosophies, the decisions on whether and how to implement it are made in a political arena. The desirability of different alternatives is a decision normally determined with public input to reflect the values of the groups involved in the debate over a preferred alternative. Knowledge of prevailing social attitudes relevant to ecosystem management provides a basis for evaluating social acceptability and developing appropriate mitigation. Existing laws, regulations, and policies reflect prevailing social views, but may not adequately describe public sentiments regarding current issues. Finally, surveys that sample populations of interest, such as the Nation's population-at-large or Basin residents, provide a context for interpreting frequently expressed demands of special interest groups.

Attitudes, Beliefs, and Values

The historical overview presented early in this chapter described social mind-sets regarding the role of humans in ecosystems and changing perceptions over time. The following text provides more detail on the current wide range of attitudes people hold toward natural resources and public land management. The objective is to create a more complete understanding of these attitudes, as well as people's expectations for implementing ecosystem management. Several research efforts
have helped identify people's various values, beliefs, and attitudes toward natural resources, the environment, and the agencies that manage land for the public.\footnote{Trent (1995) summarized the results of numerous surveys that described people’s attitudes, beliefs, and values relevant to understanding perceptions of natural resources and public land management in the Basin. Much of the material presented here is derived from that report.}

Because the terms “attitudes, beliefs, and values” have been used differently by social scientists, definitions are provided before presenting the research. The purpose is not to suggest what definitions are best nor to redefine the terms, but to provide descriptions and examples that lead to common expectations in the presented text.

**Attitudes**

Attitudes reflect people’s evaluations of something as favorable or unfavorable. Although definitions and methods of measuring attitudes vary widely, a definition with many common elements was proposed by Fishbein and Ajzen (1975): “A learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object.” The evaluative or affective component (like/dislike or favorable/unfavorable) distinguishes attitudes from other concepts. Attitudes can be strong and well-formed or weak and broad, and are generally developed through various learning processes. Social scientists have developed and refined diverse methods for accurately measuring attitudes over the past 60 years. Many survey research efforts to explore interactions between people and the environment have focused on attitudes. For example, asking people how much they like or dislike the Bureau of Land Management is one way of measuring attitudes toward the agency.

Because attitudes are learned, they are subject to change. Substantial literature is devoted to understanding the nature of attitude change, whether by experience, new information, persuasion, cognitive dissonance, propaganda, behavior change, advertising, or other methods. An undeniable conclusion of this research is that attitudes, although defined as consistent evaluations of an object, are subject to manipulation.

**Beliefs**

Beliefs reflect what people think is true about something. Fishbein and Ajzen (1975) defined beliefs as statements indicating a person’s subjective probability that an object has one or more attributes. Beliefs can be one reason for having a certain attitude. An example of a belief might be that the Forest Service accomplishes planned harvest levels, or protects habitat for endangered species.

Beliefs also are subject to change based on new information, life experiences, or other learning processes. Fishbein and Ajzen (1975) believed that attitudes and beliefs are part of a system that also includes behavioral intent, defined as “a person’s intentions to perform various behaviors.” Both beliefs and behavioral intentions have a strength component, which is based on people's perceptions regarding the likelihood that an object really does have some characteristic, or the subjective probability that a person will actually perform the behavior in question. Another component of beliefs is behavior, which is defined as observable actions.

**Values**

Values reflect things that people consider being precious. They are generally regarded as important life goals or standards of behavior toward which the person has a strong, positive attitude. “Values are the most important and central elements in a person’s system of attitudes and beliefs” (Oskamp 1977). People's value systems could be viewed as building blocks of many attitudes and beliefs. Although dynamic like attitudes, values are more deep-rooted and resistant to change (Burch and Deluca 1984).
For some people, a core set of values can be so strong as to essentially dictate an individual's behavior in a wide range of settings and situations. Many of the toughest social issues facing our Nation today seem difficult or impossible to resolve because they are based on fundamentally conflicting and strongly held values. Value conflicts also form the basis of many disputes about natural resources, suggesting that such disputes are difficult to resolve in a manner acceptable to a wide range of stakeholders in public land management. Part of a land manager's job is to understand these various values and their influence on people's perceptions of land management actions.

Values, like attitudes and beliefs, change over time, creating new expectations and demands for public land management. Gale (1991), for example, argued that one reason for conflict over public lands in the West has been the increase in the variety of expectations about what goods and services such resources should produce. Ecosystem management is the BLM and FS's response to these changing social and cultural values and new scientific understanding of landscape ecology.

Guidelines for Using Attitude Surveys

Although basing public land management on prevailing public attitudes at any given point in time is dubious, the attitudes and the underlying beliefs and values of stakeholders should be considered. Measuring attitudes, however, is also a trying exercise because people's responses can be influenced by many factors, such as wording of questions; order, context, amount, and type of information provided to respondents; and social desirability. A major event can affect societal attitudes almost overnight. Sampling methods, survey administration, and analysis techniques all have specific effects on the validity and reliability of survey results and their general application to the population being surveyed.

A main information source for public attitudes toward natural resource issues was the Survey of Natural Resource Issues on Public Lands in the West (referred to as the CRB survey throughout this chapter), conducted in July and August of 1994 by scientists at Utah State University, Oregon State University, and Washington State University (Brunson and others 1994). The survey's intent was to provide the ICBEMP staff with specific information about attitudes of the local, regional, and national population toward important issues confronting the agencies managing Federal lands in the Basin. It was hoped that the survey would provide additional clarity in identifying the public's feelings about ecosystem management.

Four populations were sampled: eastside public (people living in Basin counties east of the Cascades); westside public (people in Basin counties west of the Cascades); national public (people from the 48 contiguous states); and project participants (people on the Eastside Ecosystem Management Project mailing list or who had participated in the scoping process). Response rates for the four sample groups were uniformly low, ranging from 18 percent of the national sample to 36 percent of the project participants. Because of the low response, the results were treated as responses of respondents only, not as representative of broader populations. However, the data were valuable in describing the range and types of attitudes, beliefs, and values that people hold.

Surveys were just one source of information on attitudes, beliefs, and values used in this assessment. Other sources, though not scientifically collected, provided insight into people's attitudes relative to issues important to the ICBEMP. Among the other information sources were issues identified during project scoping conducted by the EIS team, position statements submitted to the project by various groups and organizations, newspaper editorials and accounts of current events, journal articles, legal proceedings, and political cartoons.
Environmental Concern

A 1989 Gallup survey that explored public attitudes toward environmental protection and the environmental movement found that 76 percent of a national sample considered themselves to be either “strong” environmentalists or environmentalists. Nearly half reported validating this self-perception with behavior: 49 percent said they had contributed money to an environmental, conservation, or wildlife preservation group. In a more recent survey (Roper Starch 1994), 23 percent of a national sample described themselves as “active environmentalists,” 56 percent said they were “sympathetic but not active,” 16 percent claimed neutrality, and 2 percent were unsympathetic.

Dunlap and Scarce (1991) examined trends in attitudes toward environmental issues over the past 20 years, including issues such as threats posed by environmental problems, support for government actions, willingness to pay for environmental protection, perceived seriousness of environmental problems, and tradeoffs between environmental protection and economic development. When asked to name the two most important problems facing the United States, about 20 percent volunteered “the environment,” a rate that has remained fairly constant. They concluded that, as of 1991:

Public concern for environmental quality has reached an all-time high. While questions about the strength of environmental concern remain unclear, growing majorities see environmental problems as serious, worsening, and increasingly threatening to human well-being.

Dunlap and Van Liere (1978) called this set of attitudes the “new environmental paradigm” that supports maintaining the balance of nature and rejects the notion that nature exists solely for human use. In many polls, younger respondents who are part of the baby boom generation expressed values more sympathetic with this perspective than did older respondents. Yaffee (1994) believed this stronger set of environmental values would likely be maintained as baby boomers age.

The causes for increased environmental concern have been reviewed by several researchers (Dunlap 1992, Dunlap and Van Liere 1978, Hendee 1989, Kanagy and others 1994, and Steel and others 1994). Among the contributing causes identified were generational differences, technological advances, urbanized lifestyles that detach people from settings producing demanded goods, many well-publicized events worldwide that demonstrated the risks of substantial human impacts to the environment, and beliefs that the world may not be able to support ever-increasing numbers of people competing for finite natural resources.

The Times-Mirror Magazine’s National Environmental Forum Survey (Roper Starch 1994) conducted in 1992, 1993, and 1994 was used to describe recent environmental trends. In 1994, a majority of respondents (53%) believed that environmental laws and regulations had not gone far enough, compared to 16 percent who felt they had gone too far and 23 percent who believed the right balance had been met. Younger Americans (age 18 to 34) were more likely to feel strongly that regulations do not go far enough (64%), compared to just 36 percent of those age 65 and older.

In 1992, 63 percent of the respondents believed that environmental laws and regulations had not gone far enough, compared to 10 percent who felt they had gone too far and 17 percent who said the right balance had been met. Although the relative ranking of these three response categories did not change from 1992 to 1994, a slight shift in attitudes was apparent; in 1994, more people believed that there was a balance or that regulations had gone too far.

Values Regarding Natural Resources

Natural resource values can be categorized in many ways. The following list is one effort to categorize the types of social values relating to natural resources that were provided by the social assessment chapter of Forest Ecosystem Management: An Ecological, Economic, and Social Assessment (FEMAT 1993). In that document, social values were categorized as:
- Commodity values: timber, range, minerals.
- Amenity values: lifestyle, 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 values: medicines.
- Security values: sense of social continuity and heritage.

The CRB survey contained a query about values similar to those in FEMAT. From a list of 17 factors concerning the future of public lands in the Basin, respondents were asked to rank the 3 most important factors to them and their families. The wide range of factors included ecological health, resources for future generations, several types of commodity production, outdoor recreation and amenities, salmon, and wildlife habitat.

The most important factor of all four population segments was resources for future generations. The national sample's next most important factors were wildlife habitat and ecological health; the westside residents' next priorities were outdoor recreation, wildlife habitat, and ecological health. Next important factors for eastside residents were quality place to live (just 2% behind the top concern), followed by outdoor recreation, and wildlife habitat; wilderness and wild and scenic rivers were rated as less important than hydropower and agriculture. Project participants rated ecological health second, followed closely by quality place to live; more of this group included timber production (25%), livestock grazing (12%), and economic opportunity (15%) as one of their top three. Eastside residents, who potentially would experience the greatest immediate impacts of ecosystem management, expressed priorities similar to the national population.

Steel and others (1994) explored a value dichotomy that they believed was central to explaining conflicts about Federal forest management: an anthropocentric or resource conservation focus that advocates wise use of forests for the betterment of humankind; and a more biocentric orientation that assumes the natural environment has inherent worth apart from any human use. Sociodemographic characteristics, self or group interests, sociopolitical orientations, and geographical location (residence) are some of the variables influencing whether people hold the "more traditional anthropocentric view of forests" or the "emerging biocentric view."

To test the role of residence in value orientation and to better understand related attitudes and beliefs, Steel and others (1994) conducted a survey of two populations: the national public and Oregon residents. To assess value orientations, they used an eight-item scale of statements about the relationship of people to natural resources. People indicated their levels of agreement or disagreement with each item; scores were then combined to yield a total score for classifying respondents as anthropocentric, biocentric, or intermediate.

The authors concluded that Oregonians, and especially the Nation's public, strongly supported a less commodity-based, more ecologically sensitive approach to Federal forest management. Both the Oregon and national samples tended to be more biocentric than anthropocentric, but the national sample was significantly more likely to have stronger biocentric views toward forests than was the Oregon sample. Younger respondents, women, members of environmental groups, and liberals were more likely to have biocentric orientations toward forests than were older respondents, men, people dependent on the timber industry, and self-described political conservatives.

The authors reported that Oregonians and national residents both responded in an anthropocentric manner to only one of the eight items: "Forest resources can be improved through human management." This apparent agreement, however,
could have resulted from different interpretations of the question; agreement with this statement does not necessarily indicate an anthropocentric viewpoint. One could assume that humans have altered some forest environments to the point they cannot recover if left unmanaged. If the goal is to restore forest health, for example, human intervention would be necessary to eliminate exotic species and allow the return of native species.

Steel and others also asked about attitudes toward nine Federal forest policy statements regarding wilderness, clearcutting, old-growth forests, tradeoffs between timber workers and old-growth preservation, and the role of economic vitality of rural communities in decisions. The results were not surprising. People with biocentric orientations were more likely to support bans on clearcutting, creation of wilderness, and protection of old-growth areas. Anthropocentric thinkers were more likely to support setting aside endangered species laws to preserve jobs, or making economic concerns a higher priority in forest decision-making. However, differences emerged between the Oregon and national samples. Anthropocentric thinkers who were Oregon residents were more likely than their national counterparts to support human uses of forests. For instance, 80 percent of the Oregon anthropocentric respondents agreed that endangered species laws should be set aside to preserve timber jobs, compared to just 31 percent of the national anthropocentric thinkers.

The CRB survey (Brunson and others, n.d.) included five items taken from the eight-item scale discussed above in the Oregon and national survey. In general, the responses of all four population segments (national public, westside residents, eastside residents, and project participants) indicated a preference for biocentric over anthropocentric viewpoints. Eastside residents tended to be slightly less likely to reflect biocentric value orientations.

The Economic Assessment (chapter 6) suggested that estimating economic benefits is easier for market resources than for nonmarket resources, meaning that utilitarian values are more easily measured than biocentric ones. However, literature on natural resource and recreation economics is replete with technique examples to estimate dollar values of nonmarket resources, such as non-use values associated with knowing a resource is there (Duffield and others 1994). Dollar estimates associated with non-use or passive use values of natural resource settings are 3 to 20 times greater than those associated with direct recreational use, a notion supported in the policy arena as well (Allen 1985). Duffield and others (1994) suggest that motives for holding non-use values, often referred to as preservation and existence values, include general environmental concern, altruism, and past recreational use of natural resources.

A national values poll commissioned by the Forest Service (Hammond 1994) was designed to discover major trends and themes based on people's responses to broad statements about public forest and grassland uses. The results were used by the Forest Service's Reinvention Team in considering agency changes. Several major themes emerged from the values poll. First, respondents wanted to maintain healthy public forests and grasslands. This was called the overriding theme, because people were more concerned about reaching this goal than about who did it or how it would be accomplished. The authors stated: "Apparently, most people in America are convinced that maintaining healthy public forests and grasslands is somehow tied to the quality of life in this country."

Second, respondents wanted to create recreational opportunities on public lands. Although the poll did not ask for specific activity or setting of preferences, people rated recreation highly. Curiously, Hammond supported this point in part based on respondents' agreement with the following statement which seems to make a different point altogether: "The Federal Government should balance the wilderness and recreational use of public lands with logging, mining, and grazing uses."

People believed that maintaining healthy public forests should be a primary Federal management objective and that human intervention was necessary to meet this goal. They believed that Federal
agencies, such as the Forest Service, best represent their interests in forest management (47%), compared to 21 percent who said they are best represented by special interest groups, 13 percent by state agencies, and 5 percent by the Congress.

Respondents also valued not compromising the long-term health of public forestland for short-term gains. Explaining this theme, the author stated: "The people in this country also seem to realize that the public forests must be preserved for future generations and that what is done today will impact tomorrow...Any short-sighted excesses of the past will not be permitted in the present and the public expects the Federal Government to be responsible for conserving forests for those yet to be born." A related theme, that the consumer needs of the American public should not be satisfied at the expense of the health of public forests, indicated to the author that the general public wanted to place consumer interests within the context of long-term health of public lands.

Finally, people believed that the Federal Government should assist state and local government agencies and private landowners in managing forestlands. This theme indicated two types of responses: (1) people want the Federal Government to discover and disseminate information needed to solve resource problems; and (2) people feel that "those who live in closest proximity should play the primary role in the way public forests are utilized and managed." These responses suggest a preference for Federal agencies to work in partnerships with local governments and communities to reach decisions, a finding consistent with other surveys of both local and national publics.

**Sense of Place**

One value not considered uniformly in past forest and rangeland plans is sense of place, which includes the meanings and images that regions, areas, or specific locations on the landscape have for people. Ecosystems are the intersection of natural forces, social and economic relations, and sociocultural meanings (Williams 1995). Ecosystem management recognizes the social construction of nature; space becomes place when people create and attach meaning to it (Williams 1995).

Place is how people relate to and express an experiential understanding of geographic areas. People's perceptions of "place" or the physical area with which they interact, whether for a few minutes or a lifetime, give that area special meaning to them, their community, and their culture. Humans associate and interact with geographic areas, whether physically, spiritually, or through various media, and form long-term bonds of attachment with these places. Research shows that place attachment is customarily passed down through generations, becoming part of people's heritage. Place is an integral component of community life because collective definitions of socially important places help to form and maintain community bonds and priorities.

Galliano and Loeffler (1995) stated: "Perhaps one of the most significant characteristics of ecosystem management is its ability to substantiate the emotional and symbolic meanings of natural resources on our country's public lands." The values and meanings of the Basin's places serve as significant factors reflecting the human dimensions of ecosystems and serve as links between social experiences and geographic areas. Recognizing this important element, the Framework for Ecosystem Management in the Interior Columbia Basin (Haynes and others 1996) provides a strong alliance between ecosystem management and the social realities of place by having one of its five primary objectives be to "manage for the human sense of place."

The notion that people define landscapes based on their meaning, utility, and image is not new. Through their traditional subsistence economy, Indian peoples gained a very detailed knowledge of the land, including locations of each resource needed to sustain their lives and culture. Attachment to ancestral lands is reflected by the return to favored areas and campsites during annual subsistence rounds. Place importance is also reflected by language such as place names, which relay knowledge of the land by referring to a specific place's plants and animals, the actions of its people, its spiritual role, or other important site characteristics.
Understanding the concept of place in ecosystem management allows managers to more actively inventory and understand the meanings that people attach to the lands and resources within the manager's administrative jurisdiction. The notion of measuring and incorporating human sense of place into public land management is relatively new and has yet to be adopted uniformly by any land management agency. However, there is ample literature pointing to the importance of place that suggests ways to measure and manage for it (Andrews 1979, Brunson 1993).

Williams (1995) defined four different types of meaning attached to landscapes:

- **Scenic/Aesthetic**—Use of formal models from landscape architecture and environmental psychology to map physical characteristics, landscape themes, visual character, and scenic integrity of various landscapes. The current scenery management systems of the BLM and FS incorporate methods to measure and map these types of place meanings.

- **Activity/Goals**—Traditional utilitarian philosophy of natural resource management, which assigns meanings to geographic units by assessing their capacity to promote behavioral and economic goals. One example is the Recreation Opportunity Spectrum, which identifies recreational activity-oriented meanings. Such meanings, however, include other factors such as meanings associated with production of commodities. Typically, resource management agencies have developed extensive methods of identifying, mapping, and managing these types of place meanings.

- **Cultural/Symbolic**—Human emotional, spiritual, and symbolic identification with place, often referred to as the sense of place where natural resources are valued not only for functional purposes, but also places to which people, as a community, are attracted and become attached.

- **Individual/Expressive**—Potential for people to assign highly individualized meanings to places as a mechanism by which they construct and affirm a “sense of self.”

Just as ecosystems must be viewed as hierarchies, so must places. The four approaches listed above can be viewed as different methods for assessing place meanings, ranging from the very broad and tangible (scenic/aesthetic) to the more familiar, often personal and intangible (individual/expressive). A BLM or FS unit manager may consider all four meanings when preparing a watershed or site analysis where the geographic area is relatively small and the desired level of specificity is high. At larger scales, such as the Basin ecoregion, where place inventories are comparably extensive, it would be unreasonable to attempt identification of individual/expressive place meanings. Because neither cultural/symbolic nor individual/expressive meanings can be easily mapped using geographic rule-based systems, these two meanings can only be identified through interactive processes such as those used by Galliano and Loeffler (1995).

Place assessment is a way to inventory the locations, names, and broad attachments that many peoples share for geographic areas within the Basin. Surveys of resource users and communities have demonstrated that the strength of place attachment can be quantified for multiple places and at multiple geographic scales (Williams 1995). Scenic/aesthetic and cultural/symbolic meanings of place were successfully mapped and defined at both a mid-scale (in the Yakima and Silvies basins) and at a Basin-wide scale (Galliano and Loeffler 1995). The issue of scale in defining places having special meaning is important (Tuan 1974). Although Galliano and Loeffler (1995) were successful at using ecological subsections as proxies in their effort to map place meanings in terms of scenic/aesthetic elements across the entire Basin, they recommended mapping places at a finer, more meaningful scale such as the community scale. The finer scale, which provides a positive basis for people and managers to understand the multiple meanings and values that can be attached to landscapes, is a sound basis and methodology for mutual learning and collaboration. Sense of place is particularly meaningful at the community scale; residents' common definitions of local places are the characteristics contributing to community cohesiveness and definition.
Attitudes and Beliefs Relevant to Ecosystem Management

Because understanding people’s perceptions of ecosystem conditions helps to explain their attitudes toward ecosystem management, the following text describes both beliefs and attitudes. Many people believe there are problems with ecosystem health in the Basin. The CRB survey contained a question that first informed respondents: “Recently there has been a lot of talk about whether public lands in the western U.S. are deteriorating due to current management practices.” Respondents were asked to indicate on a seven-point scale whether they believed that no serious environmental problems existed, or that serious environmental problems already existed in the western United States. The clear majority of respondents (between 70 and 78%) in all four samples fell on the “serious problems exist” side of the scale, with project participants expressing the strongest attitudes. Although the rather severely worded introduction may have influenced respondents, the results nonetheless suggest that the public supports reexamination of Federal land management practices.

Regarding beliefs about forest health, Frederick and Schneiders (1994) found that 58 percent of a national sample rated the Nation’s forests as healthy, although just 13 percent of these rated forests as “very healthy” and 45 percent believed forests were “somewhat healthy.” Of the 27 percent who believed U.S. forests were unhealthy, only 5 percent said they were “very unhealthy.” Across every region, people tended to rate forest health conditions in their own part of the country as better than the Nation as a whole. For example, in the Pacific Northwest, 72 percent rated forests as healthy or very healthy, and 25 percent believed forests to be somewhat healthy or very unhealthy.

Comparable results were found in a poll of Idaho voters conducted for the Idaho Forest Products Commission (Moore Information, Inc. 1994); 58 percent rated forests in the state as healthy, and 32 percent believed they were unhealthy. Southwest Idaho residents, however, were either evenly divided in their beliefs or thought that the state’s forests were not healthy. Men age 45 and older were less likely to believe forests were healthy (47%) than were younger men (60%) or women of all ages (62%).

Brunson and Steel (1994) found that “little research has examined public knowledge or beliefs about rangelands.” Their study, one of the exceptions, found that “the public believes rangelands are overgrazed, seriously eroding, losing riparian vegetation, and that conditions are getting worse instead of better.” Not surprisingly, this sample favored managing rangelands for broad ecosystem functioning rather than livestock production. They favored increasing fees to “fair market value” for grazing on public land, but wanted fees phased in to allow ranchers time to adjust. This desire reflects the broader trend of public concern to focus on restoring ecosystems, but in ways that consider and mitigate related socioeconomic impacts.

Although Brunson and Steel believed that the results “reflect a broad national trend toward increasing environmentalism.” Respondents felt that a high priority should be given to the needs of affected local communities when making decisions about Federal rangeland management. The respondents distinguished communities from affected local industries, whose needs were perceived to have much lower priority. The authors noted that the results, in general, paralleled those of an earlier study on forest management, except for the increased proportion of respondents who were unsure about their feelings. This is consistent with other surveys, likely because range management issues and the BLM are less known to the general public than are forest management issues and the Forest Service.

Active and Passive Management Approaches

Brunson (1993) stated that ecosystem management would be most acceptable to people who believed it to be a more natural management approach. The challenge, he believed, would be to convince people that active human manipulation is more acceptable than letting nature take its
course. This issue was reflected in one Basin EIS issue statement about whether ecosystem and forest health restoration is possible and, if so, is it better to actively manipulate ecosystems and mimic natural disturbance regimes, or is it preferable to "let nature heal itself."

A national survey on forest management (Frederick and Schneiders 1994) found that 52 percent favored human management of forest areas, while 40 percent said nature should be allowed to take its course. This preference for human management was even stronger among Pacific Northwest residents (59% and 28%, respectively).

Ecosystem Disturbances

A major emphasis in ecosystem management has been to mimic natural processes, or at least to design activities based on knowledge of natural disturbance patterns. It is important to understand how attitudes toward such natural processes relate to attitudes toward management. Brunson (1993) hypothesized such attitudes may be one possible reason for people not to accept ecosystem management: "...natural processes being simulated (disturbance regimes) carry a negative label." This hypothesis has been supported in studies of people's attitudes toward many disturbances, including fire, diseases, and insects, as well as by public reactions to isolated Federal or state agency actions.

Much of the available research on people's attitudes toward specific ecosystem processes and management actions is summarized below to provide decision-makers with a better understanding of the public's attitudes, as well as factors influencing their attitudes, specific to fire, timber harvest, insect and disease infestation, and roads.

Fire—One national survey (Frederick and Schneiders 1994) found that 55 percent of respondents thought the Forest Service should attempt to extinguish all fires to preserve as much of the forests as possible, while 36 percent said more fires should be allowed to burn their course because fires are a part of the forest's life cycle. Pacific Northwest residents had similar opinions, but by a closer margin (46% and 39%, respectively).

The same survey found support for using controlled fire; 49 percent favored use of controlled fire by Federal agencies to thin forests so wildfires are less damaging, compared to 42 percent who opposed controlled fire use due to concern about potential for fire spread and air pollution from the resulting smoke. Support was stronger in the Pacific Northwest, with 54 percent favoring use of controlled fire compared to 38 percent opposed. Women were more likely to favor extinguishing all fires and were less supportive of controlled burns than were men.

The CRB survey informed respondents that "some people favor the introduction of fire in Federal forest lands to control disease, insects, and excessive fuel levels. Others suggest this use of fire is unnecessary and dangerous." This question was one of the few that the four samples agreed with completely. The top choice of all four samples, by a wide margin, was: "We should suppress wildfires in Federal forests managed for timber; however, controlled fire may be used to protect forest health." The second choice of all four groups was: "We should suppress wildfires in Federal forests only if they threaten human lives or property; otherwise, we should allow fire to resume its natural role in forests."

The third-ranked statement was: "We should suppress fire in all Federal forests managed for timber, and use pesticides or salvage logging if forest health is endangered." Although this statement was rated as significantly less attractive than the second choice for most samples, eastside residents ranked it only slightly lower. It may have been less attractive due to its reference to pesticides, based on other responses showing that chemical pesticides were opposed strongly by all groups. This statement's appeal to eastside residents may be related to its reference to salvage logging. Far behind the other options was: "We should suppress fire in all Federal forests." This was favored by less than 10 percent in each sample. Between 10 and 18 percent had no opinion.
Interpretation of these responses is hindered by the noncomparability of the various statements. For example, one statement included three separate elements, including one element that was not mentioned in any other statement. This noncomparability creates difficulty in determining to which aspect of the question people were keying their response. Nonetheless, the groups' rare agreement suggests that support for use of controlled fire to protect forest health may be acceptable to diverse publics.

Beliefs about the causes of wildfires can influence people's attitudes toward fire management. Moore Information, Inc. (1994) asked Idaho voters which of five factors they believed contributed most to the severity of forest fires in Idaho the previous summer. Fifty percent attributed fires to the drought, 19 percent to acts of nature, 12 percent to lack of forest management, 11 percent to over-dense timber stands, and 1 percent to insects and disease.

In a review of public perceptions of air quality in the Basin, Miller and Deller (1994) found that the public believed that wood stoves, traffic, dust from unpaved streets, and agricultural burning all contributed to air pollution. The specific location and purpose of the various surveys determined the nature and range of responses. The authors did not identify studies about perceptions of smoke from natural or prescribed fires, but did mention that providing the public with specific information about the reasons, location, timing, and effects of a prescribed burn results in a higher level of acceptance.

Timber harvest—Perhaps the most controversial of all forest management actions is timber harvesting on public lands. Moore Information, Inc. (1994) found that 76 percent of the Idaho voters who were surveyed were supportive of “thinning and other forest management techniques as a way to improve forest health and reduce the potential for catastrophic wildfires.” Although the authors concluded that survey results indicate “widespread support for thinning among all voter subgroups,” the question assumes that thinning always improves forest health and reduces fire risk. More important, use of the term “catastrophic” is likely to provoke support regardless of how people actually feel about the issue; nearly everyone is opposed to a catastrophe. We can still assume, however, that many Idaho voters support thinning practices. Thinning was also found acceptable in a survey of Blue Mountain area residents (Shindler and Reed 1996).

A related question asked people which of the following two positions did they agree with most:

- Thin forests to improve conditions for remaining trees and also for wildlife, provide jobs, reduce wildfires, and make forest conditions more similar to presettlement conditions.
- Allow nature to take its course in the forests by not harvesting timber under the assumption that logging can harm the scenic and recreational value of the forest area, the fisheries, and wildlife.

The first statement was the choice of 71 percent, and the second was chosen by 17 percent. Based on this ratio, the authors concluded that Idaho voters support thinning forests to improve forest conditions over allowing nature to take its course. They pointed out, however, that a nationwide survey posing the identical question found considerably less support for thinning (51%), compared to allowing nature to take its course (43%). Follow-up discussion with respondents would be valuable to determine which of the many attitudes and beliefs inherent in these complex statements led respondents to select one over the other.

In their nationwide survey, Frederick and Schneiders (1994) found divided views regarding salvage logging: 48 percent agreed that logging in burned-over areas should proceed rapidly to reduce the risk of further fire and that legal challenges should be limited so the trees do not decay and lose their value; 43 percent agreed with the statement that logging in burned-over areas should proceed only after comprehensive environmental review, public input, and resolution of legal challenges, even if the value of the timber is at risk.
A related question informed people that after forest fires, a considerable number of dead trees remain in the burned-over areas, and asked people to choose between two statements:

- Log some dead trees and use the timber sale revenue to help pay the cost of fighting wildfires and to restore the forest and wildlife habitats.
- Leave all trees in the forest to decay to provide nutrients and support for forest wildlife and the new plants that reestablish the forest following the fire, and lose revenue that logging would have brought.

The first statement was favored by 51 percent, and the second by 43 percent; support for salvage logging was stronger in the Pacific Northwest. The relatively narrow margin of support nationally suggests that people are persuaded by both arguments. One key term may be “some dead trees,” which connotes very limited entry and impacts, compared to logging “most or all dead trees” to which people may have responded differently.

The CRB survey contained several questions related to logging practices that could be used to meet ecosystem goals, including selective logging, clearcutting in burned or insect-infested areas, selective cutting in burned or insect-infested areas, and selective harvesting to prevent forest diseases and infestations. Of the people who had an opinion, the greatest support among all four samples was for selective harvest methods to prevent forest diseases and infestations; the only opposition, which was slight (14%), was from project participants. All four samples also supported selective logging practices in general and were just slightly less supportive of selective cutting in burned or insect-infested areas, which was opposed by about 15 percent of the respondents in each sample. The greatest diversity of opinion was about clearcutting in burned or insect-infested areas; respondents in all samples were nearly equally divided, although eastside residents showed the strongest support.

Insects and disease—The CRB survey asked whether people agreed or disagreed that “insect outbreaks on public lands should be allowed to run their natural course.” All four samples disagreed, at rates ranging from a high of 64 percent (eastside residents), to a low of 51 percent (westside residents). Except for the project participant group, more people were neutral than in agreement with the statement. This was especially true for the national group, 31 percent of whom were neutral, possibly due to their not understanding or having strong beliefs regarding the issue and its implications. The project participant group held the most extreme viewpoints, with just 12 percent being neutral. The widespread disagreement with the statement seems reasonable whether or not respondents understood the role of insects in forest ecosystems. When questions include the phrase “insect outbreaks,” which has a negative connotation, disapproval is fairly assured in the absence of compelling information to the contrary.

Roads—Frederick and Schnieiders (1994) asked national respondents to choose between two statements regarding managing forest areas where roads have not been built. Fifty-five percent did not favor building roads, stating roads create soil erosion and destroy the forest’s wild nature; 40 percent favored building more roads to increase access for fighting fires, allow the forest to be thinned, and support recreational uses. Pacific Northwest residents slightly favored building more roads (48% to 46%). Women were more strongly opposed to constructing new roads than were men; Democrats and Independents were much more opposed to new road construction than were Republicans, who were evenly divided on the issue.

Another CRB survey question about roads asked people whether they supported road closures in ecologically sensitive areas where recreation occurs. Although all four samples supported this position as a strategy to improve conditions on public lands, about 26 percent from each of the eastside and participant samples opposed it.
Attitudes Toward Endangered Species

The Endangered Species Act has a history of broad public support. In a recent nationwide poll (Roper Starch 1994), 51 percent of the American public felt that regulations protecting endangered species of plants, animals, and insects have not been sufficient; 16 percent believed the regulations have gone too far; and 26 percent said the balance was right. The question was one of five elements of environmental concern; the others addressed air pollution, protection of wild or natural areas, protection of wetland areas, and water pollution. More people said that endangered species laws have gone too far compared to laws in the other four areas. Similarly, protecting endangered species was the least likely of the five areas to be viewed as not going far enough. In 1992, a higher proportion (31%) said there was a balance, fewer (11%) said laws and regulations had gone too far, and the same proportion (51%) said laws had not gone far enough.

A related question described the Endangered Species Act as requiring “the Federal Government to take whatever steps are necessary to prevent any type of plant, animal, or insect species from becoming extinct, even at a cost to landowners, businesses, or the local economies where species live.” The question posed was: “Do you agree all endangered species of plants, animals, and insects should be saved regardless of the costs, or do you think the policy should take cost into consideration?” Nearly two-thirds (63%) said costs should be considered (compared to 50% in 1992); 29 percent agreed all species should be saved regardless of the costs, or do you think the policy should take cost into consideration? Nearly two-thirds (63%) said costs should be considered (compared to 50% in 1992); 29 percent agreed all species should be saved (compared to 38% in 1992), and 5 percent said it depends on the species.

In 1992, respondents were asked what they believed to be good arguments for saving species; 79 percent said the loss of life-saving medicines was a strong argument, 76 percent said that extinctions can upset the delicate balance of nature, and 63 percent said species have rights to exist and it is people’s moral duty to help them. This reasoning describes some underlying values that lead people to support endangered species legislation.

A 1991 survey of Oregon residents (Market Decisions 1991 In: Duda and Young 1994) found that 66 percent of residents believed the Oregon Department of Fish and Wildlife “should operate a program to prevent fish or wildlife from declining to the point of becoming extinct, and protect and promote recovery of species that are already threatened or in danger of extinction.”

The CRB survey also contained questions on endangered species management. One question asked respondents about their level of agreement with the statement “Greater efforts should be made to protect rare plant communities on public lands.” In all four samples, more people agreed than disagreed. Agreement was strongest (65%) within the national sample and weakest (42%) for eastside residents. As with many other questions, the project participant group was the most polarized about providing more protection for rare plants on public lands; this group had the lowest level of respondents (13%) saying they were neutral, 49 percent agreeing, and 38 percent disagreeing.

Another CRB survey question was more explicit about potential tradeoffs: “Endangered species laws should be altered to maintain timber and ranching jobs on public lands.” A majority (52%) of national respondents disagreed; just 29 percent agreed. Westside residents followed the same trend, but were more divided in their attitudes; 45 percent agreed and 39 percent disagreed. A majority of eastside residents (53%) agreed with the statement, while 30 percent disagreed. Again, ICBEMP participants were the most polarized; just 5 percent were neutral, 48 percent disagreed, and 47 percent agreed with the statement.

Overall, the results suggest that although remaining strong, support for endangered species laws and regulations may have decreased slightly over the past three years. This decrease may reflect that the public is increasingly concerned with seeking a balance between species protection and costs to society. This concern is especially strong among eastside residents.
One set of questions in the CRB survey was directed specifically toward salmon, many species of which are either listed or under consideration for listing. The four groups considered themselves to have very different levels of knowledge; 73 percent of the project participants, 43 percent of westside residents, 40 percent of the eastside residents, and just 13 percent of national residents said they were well informed about the status of salmon runs in the Pacific Northwest.

When presented with the general statement that greater protection should be given to fish, such as salmon, on public lands, all four samples agreed; the strongest level of agreement came from westside residents (72%) and national respondents (68%), compared to 55 percent of the project participants and 54 percent of the eastside residents. The project participant sample contained the largest proportion of people who disagreed (32%).

Respondents were presented with a list of 11 factors potentially contributing to the decline of salmon runs, and asked how much of a threat they believed each factor to be. National respondents were the most likely group to say they did not know. Three factors were perceived as the greatest threats by people both inside and outside the Basin: commercial ocean fishing by foreigners; water pollution; and dams. Habitat destruction on public and private lands was rated as a threat, but of less severity, and as a slightly higher threat on forestlands than on rangelands. Although patterns of response were fairly consistent across the four samples, project participants were far more likely to cite dams as a definite threat.

Moore Information, Inc. (1994) found that Oregon residents listed hydroelectric dams as the factor most responsible for declining salmon populations (39%), compared to too much fishing (19%), industrial and commercial development (18%), timber harvest activities (7%), and marine predators (7%). Idaho residents listed dams as the biggest factor in declines in Idaho's salmon populations (69%), followed by mining (40%), sport and Indian river fishing (39%), logging (35%), irrigation (31%), ocean fishing (29%), and grazing (19%). Just over half of the respondents (53%) agreed and 31 percent disagreed that there is adequate spawning habitat in Idaho rivers and streams to support increased populations of salmon and steelhead.

A follow-up question on the CRB survey asked about tradeoffs between recovery of salmon and issues such as employment, recreation, irrigation, and hydropower. The response format was a seven-point scale, with one end labeled: "Highest priority should be given to salmon, even if there are negative socioeconomic consequences," the other end labeled: "Highest priority should be given to socioeconomic considerations, even if there are negative consequences for salmon," and the midpoint labeled: "Salmon recovery and socioeconomic factors should be given equal priority."

About 40 percent of the eastside, westside, and national samples chose the midpoint response. Of the remainder, national and westside residents preferred giving priority to salmon by nearly a 3:1 margin, while eastside residents were equally divided on both sides. Project participants were again more polarized, with only 18 percent choosing the balanced viewpoint; 48 percent thought salmon should be given priority and 36 percent thought priority should be socioeconomics.

**Attitudes Toward Tradeoffs in Public Land Management**

As demonstrated above, one method of determining people's attitudes about natural resource issues has been to pose situations that represent tradeoffs between important values. However, one problem with many survey questions about tradeoffs is that they tend to set up dichotomies by asking people which is better, instead of exploring avenues of compromise or consensus. This approach casts the research and the policy issues being studied in a win or lose context, which may not represent actual true choices and can reinforce myths and stereotypes. In fact, most such debates do not really pit socioeconomic considerations against biological ones; they focus on conflicts about human values and priorities.
Despite this, one of the more common findings is that, when given the option, people will be optimistic that balanced solutions can be found. For example, a recent national poll (Roper Starch 1994) found that 90 percent of respondents agreed that: “We can find a balance that will allow economic progress and protection of the environment.” However, more people agreed strongly with this statement in 1992 (58%) than in 1994 (49%). A related question asked people whether environmental protection and economic development could coexist or whether choices must be made; 66 percent believed the two could fit together, and 25 percent believed a choice was imperative. The response differences to these two questions are difficult to reconcile, pointing to the importance of subtle wording, such as asking people to choose between two options instead of asking for level of agreement with a single statement.

A follow-up question made the tradeoff more explicit, asking whether people believed economic development or environmental protection was more important when finding a reasonable compromise was impossible. Sixty percent thought environmental protection was more important, compared to 22 percent who gave more importance to economic development. When summarizing such results, it is important to distinguish very general questions such as this one from more specific questions that provide information on the type, location, purpose, costs, and methods of protection and development.

The Roper Starch survey also asked people whether they believed the only way to preserve wildlife, natural areas, and natural resources was to prevent development and restrict most other human activity in these areas, or whether these goals could be accomplished while being used to benefit the economy and the public. The first statement was chosen by 22 percent, and the second by 72 percent. This ratio may reflect another indicator that many people believe a balance can be found, or the ambiguous phrase “restrict most other human activity” could have been rejected as over-protection by many respondents.

The CRB survey contained several questions about tradeoffs, especially relative to salmon and endangered species. When asked about their agreement with the statement: “Survival of timber workers and their families is more important than preservation of old growth forests,” national respondents expressed the highest levels of disagreement (54%) and eastside residents the lowest (36%). Eastside residents were the only sample that had a higher proportion of respondents agree with the statement than disagree. Somewhat surprisingly, the eastside residents had the highest proportion of people professing neutrality (25%). The sample of project participants again demonstrated their polarization; this group had the most people who strongly disagreed (30%), as well as the most who strongly agreed (22%).

**Attitudes Toward the Federal Government**

The continuing debate about the appropriate role of the Federal Government in shaping our society is a prominent political issue. For example, people who favor minimal government intervention in many arenas may oppose the active nature of ecosystem management, as well as the Federal Government’s involvement.

Concern about the role of the Federal Government is reflected by county rights movements, which claim that Federal administration of public land is illegal. Starting with Catron County, New Mexico, in 1991, about 70 counties have enacted or are considering similar measures to change administration of public lands. In recent years, there has also been increasing social discussion about returning Federal lands to the states, or to American Indian tribes. However, an alternative reflection of county concerns and attitudes toward the Federal Government was the establishment and direction of the Eastside Ecosystem Coalition of Counties, a group created to provide input to the ICBEMP. The Coalition seeks to represent community interests, rather than individual viewpoints, and to provide a forum for discussing the public’s opinion on community values. It is
specifically stated that the Coalition is not an advocate for special interests, nor a forum that trades one use for another, nor a forum for advocating elimination of the role of the Forest Service, Bureau of Land Management, or other federal agencies.

People's trust in the Federal Government is a major issue, because trust is an important type of belief influencing people's attitudes and behaviors about ecosystem management. It is therefore important to measure people's trust in the agencies and other institutions having roles in ecosystem management, such as other federal agencies, scientists, local governments and communities, national and regional publics, and the Congress. Attitude toward these institutions is another reflection of the ease or difficulty expected in obtaining public acceptance of ecosystem management.

Brunson (1993) pointed out that some people may be skeptical of ecosystem management, believing it to be a guise for finding "a level of timber harvest that reduces dissent to tolerable levels while adhering as closely as possible to the status quo." He concluded that public acceptance or preference for ecosystem management will be based partly on people's beliefs about its probability to actually produce desired conditions. Because ecosystem management is a new concept, people may not yet have formed beliefs about its effectiveness. Their beliefs may therefore depend more on past experiences with public agency attempts to mimic or work with natural events, which have had mixed success.

To many people already skeptical about the motives of the Federal Government, ecosystem management connotes attempts by the Federal Government to regulate private land uses. One reason for this concern is that, because ecosystems do not begin or end at public land boundaries, the assessment addresses resources on all lands within the Basin, not just Federal lands. Although the ICBEMP charter and other descriptive materials emphasize that the intent is only to apply ecosystem management to public lands managed by the FS and BLM, the act of inventorying resources on non-Federal lands makes many people suspicious that the next step may be increased regulation of those resources.

**Level of Trust in Various Institutions**

A fundamental issue affecting how the public perceives ecosystem management is the public's level of trust that agencies have the knowledge, willingness, and ability to implement required programs and activities. Many public participants in the ICBEMP have expressed skepticism about agencies' abilities. However, in one national survey (Frederick and Schneiders 1994), 74 percent of respondents gave the Forest Service favorable ratings compared to 8 percent unfavorable; favorable ratings were strong in every region across the Nation. The BLM was perceived less positively, with favorable ratings from 33 percent and unfavorable from 25 percent. The two agencies were rated by different numbers of people, because 43 percent of the national public either had not heard of the BLM or didn't know enough about the agency to state an attitude, compared to just 19 percent for the Forest Service. In the Pacific Northwest, where more people are familiar with the BLM, ratings remained about the same (42% favorable and 36% unfavorable).

Although the national sample had positive attitudes toward environmental organizations (64% favorable compared to 21% unfavorable), ratings by Pacific Northwest residents were lower (49% favorable and 46% unfavorable). Timber companies were viewed positively (36% favorable and 21% unfavorable), especially in the Pacific Northwest (57% favorable and 24% unfavorable). The same survey also asked about state forest agencies; although many respondents did not express an attitude, nationwide 47 percent (and 60% in the Pacific Northwest) gave favorable ratings compared to just 6 percent unfavorable.
Another national survey (Roper Starch 1994) found that 15 percent said they had a highly favorable opinion of most environmental groups, an additional 59 percent had moderately favorable opinions, and 23 percent had unfavorable opinions. Fifty-five percent had never contributed money to any environmental group, and 41 percent said they were unlikely to do so in the near future.

Moore Information, Inc. (1994) asked Idaho voters which of the following two groups did they agree with more about logging and the environment: forest products companies “who say that modern logging practices are an ecologically sound component of forest management plans,” or environmental groups who say “logging is generally destructive to Idaho’s forest environment.” Fifty-six percent said forest products companies, 20 percent said environmental groups, 12 percent said both, and 7 percent said neither. However, the introduction to the question and characterization of each group’s position really questions whether Idaho voters are supporting the statements or the respective groups.

When asked about the relative roles of the Congress and the Forest Service, 74 percent believed that the Congress should give agencies such as the Forest Service more flexibility to manage Federal forests in response to changing conditions; only 17 percent said the Congress should closely regulate such agencies because they cannot be trusted to manage forests wisely.

Finally, the survey asked about trust in scientists. Nationwide, university scientists were the most respected (by 43% of respondents), compared to environmental group scientists (21%), Federal forest agency scientists (16%), and timber company scientists (7%). However, in the Pacific Northwest, timber company scientists were twice as likely to be judged as credible than were scientists working for environmental groups. The authors concluded that trust in Federal agencies was strong and that the public takes a balanced approach to forest management issues: “The survey’s findings provide encouragement for those who would attempt to educate the public and raise awareness of these issues, in order to promote better-informed public participation in the decisions which must be made in guiding forest management policy” (Frederick and Schneider 1994).

The CRB survey obtained different results in querying about people’s level of trust in institutions. Trust levels in government agencies were generally low in the Basin. For example, 42 percent of the eastside residents, 37 percent of the westside residents, and 31 percent of the project participants had moderate-to-great levels of trust in the Forest Service. Comparable figures for the BLM were lower: 31 percent, 26 percent, and 27 percent, respectively. The U.S. Fish and Wildlife Service received high ratings of trust from the eastside (47%) and westside (46%) residents, but was rated low by project participants (29%).

Another survey (Roper Starch 1994) of Idaho, Oregon, and Washington residents showed very low levels of trust in government as well, but did not query about specific agencies. In the Roper Starch survey, the Federal Government as a source of information about the environment was rated fifth, after environmental groups, industry, the media, and university scientists.

In the CRB survey, other entities such as the Army Corps of Engineers, Bonneville Power Administration, and Native American governments uniformly received even lower ratings, moderately or greatly trusted by just 11 to 28 percent of respondents. Urban communities in the Basin, national public opinion, and federal courts also were less trusted, with most ratings in the 20 percent range. However, the distinction of least-trusted of all institutions was the Congress, in which just 8 percent of the eastside residents, 7 percent of the westside residents, and 6 percent of the project participants had moderate-to-great levels of trust.
The authors concluded that the general public places its greatest trust in local residents, the western United States public, the U.S. Fish and Wildlife Service, Forest Service, and university scientists. Rural community residents and university scientists were the only entities trusted more than distrusted by project participants. The project participants generally had higher levels of distrust than did other samples, which could be viewed as discouraging by the agencies, who would hope that increased familiarity would increase trust.

However, project participants tended to have the most polarized views of any of the samples, suggesting that they began the process with strong viewpoints and, perhaps, were motivated by their lower levels of trust in the agencies.

A study of Idaho residents provided additional evidence for a relative lack of trust in the Federal Government, with 33 percent of respondents claiming the greatest confidence in local governments, 33 percent in state governments, and 20 percent saying they had no confidence in any level of government (Boise State University 1992). About 50 percent of respondents said that local government was the level most responsive to their needs.

Brick and others (1995) conducted a survey of residents in five counties surrounding Hells Canyon National Recreation Area (three northeastern Oregon counties: Wallowa, Baker, and Union; and two Idaho counties: Nez Perce and Idaho). They found that respondents reported having "some" to "a lot" of trust in community residents, local landowners, and locally owned businesses to manage the region's natural resources. This compared to "a little" to "some" trust in county commissioners, the FS, BLM, scientists, and state fish and wildlife departments, and to "no" or "little" trust in trade unions, non-profit environmental organizations, and out-of-state corporations.

People's beliefs about the trustworthiness of various institutions should correlate with their beliefs about assumed roles for institutions in influencing decisions about public land management, which would mean the greater the trust, the greater the influence. This hypothesis is only partially supported by available data. For example, the CRB survey found that eastside and westside residents, as well as project participants, believed that rural communities in the Basin, the western United States, public opinion, and university research scientists—all of whom they trusted—should have a moderate-to-great deal of influence in public land management.

The FS and BLM received much higher ratings on the measure about influence than on trust, with 46 to 56 percent of respondents from each population segment saying the two agencies should have a moderate-to-great deal of influence. The biggest difference, however, was the U.S. Fish and Wildlife Service (USFWS): 56 percent of eastside residents, 62 percent of westside residents, and 82 percent of project participants said USFWS should have a moderate-to-great deal of influence. These ratings may reflect people's acknowledgments of the agencies' legal responsibilities and authorities.

Respondents generally agreed that the Congress and Federal courts should have much less influence than Federal agencies or more-trusted institutions. This stance should be viewed as a positive finding and also as people's preference that the public and managing agencies work together to resolve issues, rather than relying on Congress to legislate solutions or the courts to make the ultimate decision. In other words, this could reflect a willingness to work in a collaborative fashion.

Steel and Brunson (1993) asked a national and an Oregon sample to whom government officials should be most responsive when making decisions about Federal rangelands. Both samples believed that government should be most responsive to affected local communities. National respondents believed that governments should then give the most attention to the following, and in the priority listed: national public opinion, government natural resource agencies, environmental groups, local affected industries, states' public opinions, and global and international opinion.
Oregon respondents believed governments should then give the most attention to the following: states' public opinion, local affected industries, national public opinion, government natural resource agencies, and environmental groups. Comparable results were reported in a national and Oregon survey regarding Federal forests (Shindler and others 1993). Respondents in the survey of five Hells Canyon area counties (Brick and others 1995) strongly agreed that "national forests belong to all Americans, but local people living near the forests should have the most say in management of the forests."

These findings appear to indicate that people favor downplaying the role of special interest groups. Perhaps this reflects agreement with a viewpoint expressed by Yaffee (1994) that while interest groups are important elements of our collective choice processes, their dominance is problematic in several ways: "Since they are primarily single-interest oriented, they promote the fragmentation of values and public purposes...that help agencies and decision makers craft effective policy direction."

These results show some of the similarities and differences between regional and national publics. Most interesting is the agreement that local communities should have a strong voice in decisions about Federal forests and rangelands. These results demonstrate the public's clear interest in having a greater role in natural resource decision-making. This involvement role is consistent with the public participation philosophy of ecosystem management, which requires close and frequent collaboration with the public and stakeholders in public land management (see following discussion on role of the public for more detail).

**Attitudes Within the Forest Service**

Several recent surveys of Forest Service employees provide a portrait of agency culture and the attitudes, beliefs, and values of agency employees (comparable studies of BLM employees were not found). A 1991 study examined value orientations of 1,900 Forest Service employees (Cramer and others 1994). A central finding was that "employees of the USFS tend to believe that the traditional priorities on timber and grazing are greater than their own values and the values of the American public. Furthermore, they believe that a greater priority ought to be given to recreation, wildlife, and water management rather than the traditional priority of timber." Employees believed that agency priorities were slowly aligning with the ecosystem values held by themselves and the public.

A 1992 survey of Forest Service line officers and staff (Mohai and others 1994) asked respondents to list the most important positive changes the agency had made over the last 10 years. Line officers and staff alike gave high ratings to increased responsiveness to the public; increased emphasis on noncommodity uses; workforce diversification; better working conditions, communications, and openness; and increased environmental sensitivity and awareness. However, the single most important change needed was one of the same ones: increased emphasis on noncommodity uses and decreased emphasis on commodities. The authors stated that the "vast majority of FS employees, both line and staff, feel the agency's policies have changed over the past 10 years. The vast majority see the agency headed in the right direction. However, they also feel the FS still has further to go."

**Implications for Ecosystem Management**

Discussions about ecosystem management clearly take place in a broad context; the role of the Federal Government, society's values about endangered species, and rights associated with private lands are all being actively debated. Although often stated as jobs versus the environment, commodities versus amenities, or species versus trees, the issues actually represent differing values regarding what benefits society should receive from public lands. Values are really the subject of debate, not just ecosystem management. Understanding and addressing people's values adequately is key to public and agency acceptance of ecosystem management.
Although people express concern about public land management, they look to science to provide many answers and seem willing to trust credible analyses of existing conditions and potential cures and results of scientific study of ecosystems. There are, however, varying levels of trust in scientists employed by different institutions. Although it is recognized that science can provide many types of data and analyses, the people and the institutions with management responsibility decide the use of those results. Science provides the information, not the decision. In other words, science is appropriate for describing problems, proposing techniques for resolving them, and measuring the associated impacts and risks. However, the conditions to be achieved are not decided by science, but are political decisions based on values. Ecosystem management's explicit attempt to blend science and values is both its strength and greatest challenge.

Survey research can help identify barriers to public acceptance of ecosystem management. For example, support for salmon recovery and a willingness to accept resulting socioeconomic impacts seem to be stronger than for endangered species in general. However, most people perceive that the major barriers to salmon recovery are dams and overfishing, rather than lack of suitable habitat. Given this perception, measures that just improve habitat on public lands may be viewed as ineffective and opposed by many if the impacts are perceived as too great.

Defining public lands in public terms such as sense of place, as well as scientific terms, has many advantages. First, incorporating human definitions and meanings about public lands into day-to-day management activities reflects that people are part of the ecosystem. Second, the process of defining and mapping places serves as a new and valuable way of seeking knowledge from the public in a systematic manner. Defining places and their meanings at a community scale extends well beyond traditional forms of public involvement (Williams 1995). Third, considering place in management activities could result in implementation of activities that are more acceptable and more easily communicated in terms that people understand.

Implementing ecosystem management involves continuous learning about people, their attitudes, beliefs, and values. Learning more about people's perceptions of public land and natural resource management and the reasons for those perceptions is a cornerstone of ecosystem management that explicitly includes people, as noted in the Framework for Ecosystem Management in the Interior Columbia Basin (Haynes and others 1996). Only a few relevant values are discussed here, which for some affected populations is just a start. People's tastes and preferences change, their perspectives on natural resources are influenced by knowledge, and their acceptance of differing management practices may shift as experience is gained with ecosystem management. One important way that ecosystem management integrates attitudes, beliefs, and values is in describing desired conditions. Development of ecosystem management alternatives requires developing alternative visions of social, physical, biological, and economic conditions that are desirable, and/or alternative ways of achieving those conditions.

Scientific research will improve managers' understanding of the values and interests that may be either adversely affected or positively enhanced by specific actions. Science enhances this understanding by providing a test for the acceptance of practices and the effectiveness related to various techniques, including public participation. Just as science plays an important role in helping to understand biophysical processes, science also has an important function in explaining the social and cultural aspects of decisions.
The discussion of American Indians in the Basin focuses on their relationships with the natural environment and the trends regarding agency relations with the Basin’s affected American Indian tribes. These topics have particular significance for Federal land managers for two reasons: (1) FS and BLM management actions affect resources and areas of concern to American Indians; and (2) the Federal Government holds certain trust responsibilities and obligations to tribes based on various legal agreements, including treaties, which have implications for ecosystem management. Although many ecosystem management issues are common to American Indians and the general public, the legal status of American Indians, the sovereignty of tribal governments, the nature of reserved tribal rights, and the unique concerns of tribes merit separate attention.

As members of both our collective society and frequently also of an Indian society, Native American peoples are well known to their neighbors. As described earlier in this chapter, American Indians comprise a higher proportion of the total population within the Basin (2.5 percent) than of the national population (just less than 1 percent). These populations are not evenly distributed across the Basin, but tend to be located either in association with Indian reservations or with large urban centers such as Boise, Idaho and Spokane, Washington (map 7.2).

There are 22 federally recognized tribes and numerous off-reservation traditional Indian communities whose aboriginal territories or reserved treaty rights are within the assessment area. Traditional Indian communities are communities either under the jurisdiction of a tribe or with cultural affiliations to one or more tribes and therefore lack federal recognition. An Indian person may be an enrolled member of a federally recognized tribe from the Basin or elsewhere, a member of a non-federally recognized traditional community, or someone with Indian lineage cultural ties to the Basin. For many Indian people, self-identity is based on familial ties and other associations that often include a large number of extended family relations. Such family connections provide socially acknowledged individual roles and the social cohesion that typically characterize tribal and traditional community life in the Basin.

Cultural History

Prior to non-Indian arrivals in the region, Basin peoples had successfully resided here for at least 12,000 years. Their cultures permitted adaptation to changing climates, environments, species distributions, and socio-political circumstances. Settlements were distributed across the region, each a member of a diverse array of indigenous cultures.
The political autonomy of these communities and their relatively loose organizational structures meant that primary collective identity was based on village associations, shared lands, kinship ties, linguistic affiliations, and integrative political and economic systems.

Larger groupings of native peoples were later established by researchers based on shared cultural traits and language groups (families). Basin culture areas include the Plateau, which encompasses the Basin's northern half; and the Great Basin, which covers much of the Basin's southern half and a small area of California located just south of the assessment area's southwest corner. Language families included Sahaptin, Shoshonean, Paiute, Kootenai, Interior Salish, Chinookan, Lutumian, Pit River, and Shasta. Although these cultural groupings reflect and hold static the conditions that existed just before non-Indian contact, their influence extends into modern times and serves to bind certain tribes together.

Major population losses, due to introduced European diseases and then relocation of Indian nations onto reservations in the 19th and early 20th centuries, resulted in geographically isolated and distinct rural communities. These newly created communities were formed under federally imposed political structures called "tribes" and consisted of one or more Indian nations. Some federally recognized tribes, such as the Nez Perce and the Spokane, had to settle on a small area of their homelands. Other tribes had to share a reservation in a portion of their homeland with other Indian peoples, including some who may have been traditionally hostile, such as the Confederated Tribes of the Warm Springs and the Wind River Reservation. In other cases, Indian nations (such as the Kootenai, Paiute, Bannock and Shoshoni) were formally separated onto more than one reservation, usually in a small area of their homeland.

**History of Legal Standing**

Most American Indian tribes and bands were independent and self-governing societies long before their contact with non-Indian peoples or relations with the Federal Government. However, the degree and kind of socio-political organization varied. Consistently, first by European nations and later by the Federal Government, Indian nations have been formally recognized as distinct and independent political communities qualified to exercise powers of self-government by reason of their original sovereignty (Cohen 1971).

The relationship of the Federal Government with American Indian tribes is based on legal agreements between sovereign nations, federal recognition of their dependent sovereign status, principles of jurisprudence, international law, prevailing views of society, and government policies toward American Indians. The body of this formal relationship involves the whole span of United States history, ties with European culture, and conventions in law.

The United States inherited from England two important, albeit conflicting, policies that recognized Indian sovereignty within the context of the "right of discovery" concept, giving title to the discoverer, and made that title subject to Indian peoples' "right of occupancy." These policies are reflected in early documents. The Northwest Ordinance of 1787 (1 Stat. 50) reaffirmed federal recognition of Indian nations' sovereignty, as did the U.S. Constitution. Both policies also stipulated that only the Federal Government could negotiate treaties for cession of lands.

A series of Indian trade and intercourse acts, initiated in 1790 (1 Stat. 137) and permanently adopted in 1834, became the cornerstone of Federal Indian policy. Another significant early contribution to Indian law, known as the Marshall Trilogy, involved three Supreme Court decisions [Johnson v. M'Intosh (1823), Cherokee Nation v. Georgia (1831), and Worcester v. ___]
Georgia (1832)]. These decisions established that: (1) only the Federal Government has the preemptive right to procure Indian land; (2) the Federal Government has trust responsibilities toward American Indian tribes; and (3) treaties take precedence over state law.

**Treaty-Making Period**

When the Oregon Territory was created in 1848, provisions of the Northwest Ordinance were extended to the new territory, confirming Indian title to land and recognizing lands not expressly ceded to the United States by ratified treaty or agreement as Indian Country. Soon after, an aggressive policy of securing land for non-Indian settlers motivated treaty-making efforts west of the Cascade Mountains. However, the Oregon Donation Act in 1850 provided patents (7,437 claims in Oregon and 1,018 in Washington) to land totaling 2.8 million acres to new settlers of the Territory prior to ratification of any Pacific Northwest treaties for tribal land cessions. This action, taken contrary to established United States policy, created considerable tension in the region.

The period between 1840 and 1870 was one of increasing tension between Indians and non-Indians in the region for a variety of reasons: large and dramatic declines in Indian populations due to recurring epidemics; non-ratification of Indian treaties negotiated with western Oregon tribes in 1851; encroachment upon and seizure of Indian lands authorized by territorial leaders and Congressional acts despite legal agreements with tribes; rapid loss of access to and destruction of Indian food resources; and persistent antipathy toward, and mutual fear between, both societies (Beckham 1984).

Treaties with Indian nations of the region sometimes addressed the United States' interest to maintain peaceful relations and to secure rights to travel through Indian lands (Treaty with the Eastern Shoshoni 1863; Treaty between the United States and the Blackfoot Nation of Indians 1865). The purpose of other treaties was more comprehensive and addressed land title status, creation of reservations, and Federal obligations to tribes.

In 1855, some Indian nations within the Basin entered into treaties with Isaac Stevens, then Governor and Superintendent of Indian Affairs for Washington. These ratified treaties provided for apportionment of land and natural resources and still serve that purpose today. Tribes affected by these treaties include the Confederated Tribes of the Colville and the Umatilla reservations; Confederated Tribes and Bands of the Yakama Nation, Nez Perce Tribe; Kootenai Tribe of Idaho; and the Salish and Kootenai Tribes of the Flathead Reservation. The Blackfeet Tribe, located adjacent to the assessment area boundary, also made treaties with Governor Stevens in 1855. These various treaties contain similar language reserving tribes' existing rights, such as this example from the Flathead:

*The exclusive right of taking fish in all the streams running through or bordering said reservation is further secured to said Indians; as also the right of taking fish at all usual and accustomed places, in common with citizens of the Territory, and of erecting temporary buildings for curing; together with the privilege of hunting, gathering roots and berries, and pasturing their horses and cattle upon open and unclaimed land.*

In other Basin treaties and agreements, similar pre-existing tribal rights were recognized, such as the right to access and use water sources, trap animals, cut and gather noncommercial wood, or engage in water power uses. While the scope and intent of the Stevens' treaties concerning rights to fish at all usual and accustomed stations and grounds in common with citizens of the Territory has been addressed through numerous court decisions, the geographical limits on other treaty-reserved rights have remained largely unexplored. Such terms in legal documents as "open," "unclaimed," "public lands," and "unoccupied" lands carry the implied condition that rights reserved on such lands could be exercised until the lands were closed, claimed, or occupied by United States citizens under the public land disposal statutes.

Lands ceded by treaty to the United States were typically delineated by non-Indians and were not accurate representations of tribal homeland areas;
customary land-uses routinely extended beyond the homelands of any particular Indian group. These reserved rights and treaty obligations are a significant factor in public land management. Tribes and traditional Indian communities have areas of interest that are based on prehistoric and historic land-use patterns; these extend beyond reservations boundaries and also often extend beyond lands that tribes ceded to the United States.

The explicit reservation of rights through treaty constitutes an assurance by the Federal Government that traditional lifeway-based land uses can be sustained. What is reserved are the activities that support an Indian community's way of life, not simply a resource use (Hunn 1990). Through historic legal agreements, tribes received promises of Federal protection for their lands, resources, and people. These promises constitute fiduciary responsibilities, also called trust responsibilities and obligations. Considerable benefits were gained by the Federal Government by establishing legal rights to Indian lands and providing a basis for economic, political, and social development in the Northwest.

**Development of Federal Indian Policy**

For more than two centuries, Federal policy toward Indian peoples has vacillated between two conflicting themes: (1) self-determination and an acceptance of cultural plurality; and (2) assimilation of Indian peoples into American culture and weakening of tribal governments. For example, those reservations set aside by treaty, executive order, or agreement, though sizable in the beginning, were systematically and significantly reduced in area as a policy of reservation consolidation and reduction prevailed between 1871 and 1928.

Passage of the Dawes Act in 1887 (24 Stat. 389) led to dramatic reductions in tribally owned lands, if not elimination of reservations in some cases. "Surplus" lands were identified on reservations and allotment plans were developed and implemented over the next few decades, leaving tribes dispossessed of much of their lands (Cohen 1971).

Nationally, tribes lost 90 million acres, from 138 million acres down to 48 million acres, and the remaining Indian Country was severely fragmented. Effects of this Act and the allotment policy can be seen in the land ownership patterns of many reservations.

The allotment process was terminated in 1934 with a basic shift in policy away from forced assimilation to one of cultural and ethnic pluralism. The Indian Reorganization Act of 1934 (48 Stat. 984) provided an opportunity for tribes to adopt provisions for self-determination. The Act facilitated major revisions to federal policy by ending the allotting of Indian lands, extending the trust status to lands allotted, restoring unsold "surplus" lands from the allotment period to tribal ownership, ceasing the sale of Indian lands to non-Indians, promoting acquisition of lands for Indian use, establishing tribal enterprises, encouraging tribes to incorporate, providing revolving loans, and enhancing management practices for Indian forests and range (Cohen 1971).

This policy sought to promote reservation autonomy and self-determination and to preserve Indian cultures and values. For example, under the Indian Reorganization Act, the Quartz Valley Indian Community was established; also, the Fort McDermitt Paiute Tribe received economic assistance, allowing a grazing cooperative for tribal members to be developed through the Bureau of Indian Affairs. Although many Basin tribes accepted the Act and its provisions, some were not receptive due to concern about possible adverse effects to their legal rights and interests.

The Act fostered changes in many Basin tribal governmental structures. Constitutions and bylaws were adopted by tribal members and approved by the Secretary of the Department of Interior. These written laws were then implemented by elected officials who replaced the traditional tribal headmen or recognized chiefs. Elected councils were responsible for establishing economic development and resource management policies for reservation timber, rangeland, and farm lands.
The period between 1943 and 1961 marked another era of major changes and setbacks for tribes. With the Termination Act of 1953, a forced assimilation policy was again introduced. Reservations of selected tribes were terminated and lands sold, often to third parties. Federal recognition and services to these tribes ceased, and tribal sovereignty was terminated.

Often, however, much more was forfeited through the termination process. The Klamath Tribes, one of the Basin tribes affected, lost its federal recognition and its land base; their land base subsequently became the eastern portion of the Winema National Forest. The Quartz Valley Indian Community and the Northwest Band of Shoshoni Tribes were other Basin tribes terminated under this Act. Subsequently, all three tribes have been reinstated as federally recognized tribes. However, as for most tribes targeted for termination, effects on community and social well-being are ongoing. Little of their lost land base has been recovered, and the tribes are struggling to re-establish their governmental organizations and economic self-sufficiency to provide needed services for their members.

By the early 1970s, the termination policy had been rejected and was being replaced by one that promoted a renewal of tribal self-determination. Tribal communities across the Nation greatly benefited from actions of the Nixon administration that resulted in the Self-Determination and Education Assistance Act of 1975 (88 Stat. 2203). The Act provided substantial funding avenues for the tribes and granted authority for tribes to acquire lands adjacent to reservations. The Act also enabled tribes to pursue economic growth and to effectively assert a political role in the region.

Indian Case Law and Federal Administrative Policy

As tribes developed sophistication in dealing with states and Federal agencies, moving away from Bureau of Indian Affairs' domination in tribal government operations, they began to address issues relating to their legal interest and cultural relationship with natural resources; this sometimes involved lengthy and controversial court cases. The interpretation of tribal rights and property interests and the nature of the tribes' legal relations with state and federal agencies have developed into a large body of Indian law. Cases involving Basin tribes, dating from the late 1800s, often revolve around interpretations of treaty-reserved fishing rights.

One early Supreme Court case, United States v. Winans, 198 U.S. 381 (1905), addressed the right of Yakama tribal fishermen to fish at a well-known usual and accustomed fishing station when their access had been effectively denied by construction of a commercial fishing operation. In this case, the court's opinion stated in part:

...the treaty was not a grant of rights to the Indians, but a grant of rights from them - a reservation of those [rights] not granted [away to the United States government]...

The contingency of future ownership of the lands, therefore, was foreseen and provided for—in other words, the Indians were given a right in the land—the right of crossing it to the river—the right to occupy it to the extent and for the purpose mentioned [such as fishing].

The implied right of access to usual and accustomed fishing places extends to both private and public lands. In 1974, a U.S. Washington District Court (upheld by the Supreme Court in 1979) reaffirmed off-reservation fishing rights and their priority over other uses. Tribes were allowed up to a 50 percent share of harvestable fish passing by accustomed traditional fishing places. That case also recognized the sovereign right of tribes, rather than States, to regulate their off-reservation treaty rights. States regulate tribal use for conservation purposes only. An important aspect of this decision is the surmised right of tribes to take part in the protection of fish habitats and to help ensure that the resource persists and in quantities available for fishing. The case has been allowed to stand open, as does the similar United States v. Oregon case that began in the late 1960s, to resolve other disputes concerning exercise of treaty-reserved rights.
Numerous Federal regulatory acts passed in recent decades have increased the roles of tribes in public land management decision-making processes. These acts include:


The portion of case law pertaining to off-reservation tribal interests and federal agency land management is reflected in recent federal administrative policy and guidance. Interior Secretarial Order No. 3175, issued in November 1993, requires all bureaus and agencies to conduct trust responsibilities of the Federal Government, assess the impacts of their actions on Indian trust resources, and consult with tribes when impacts are identified. A White House memorandum issued in April 1994 emphasized the importance of government-to-government relations with tribal governments and the need to consult tribes prior to taking actions that may affect tribal interests.

The close of the 20th century bears witness to an extended period of increasing tribal political and economic involvement in mainstream regional society. Recent Congressional acts, executive orders, and federal court decisions have provided a basis for tribal renewal. The region's tribes have become active in seeking cooperative opportunities with states, federal agencies, and private landowners to address shared concerns about ecosystem issues and specific resource strategies. In keeping with each tribe's unique legal and cultural history, Indian people are forging individual paths toward socioeconomic development. The Federal Government is responsible for assisting tribes while still recognizing their sovereign standing.

The trust relationship between the U.S. Government and Indian Tribes is a part of the very fabric of federal Indian law. There are stringent fiduciary standards of conduct imposed on federal agencies in their relationships with Indian Tribes and Indian-owned assets. Meeting the Federal Government's trust responsibility is consistent with, although not the same as, meeting Federal obligations to all users, which are to protect and restore habitat necessary to maintain resources at healthy, sustainable, usable levels for present and future generations.

**Place in Basin Ecosystems**

The intense interest of Indian peoples and their tribal governments in the region's ecosystems and natural resources is founded in their long-term relationship and spiritual attachment to the land. Although many differences exist among the region's Indian communities, the various tribes hold a common belief about their relationship with the land and water (Dick 1990). All tribes understand that placement of their peoples in this landscape was by the Creator. Therefore, the Indian ancestry in the Basin extends from "time immemorial," a long-term attachment reflected in modern Indian culture.

Indian peoples are part of a large, loose social web strengthened by their shared experience of the Basin and associated ecosystems (Hunn 1990). Traditional subsistence economies were broadbased and included fishing, fowling, hunting, trapping, livestock grazing, and gathering of terrestrial and aquatic resources over very large geographic areas and a diverse range of important places (Walker 1993). The full range of resources needed to sustain families and Indian cultures was found in the socially and culturally important
ethno-environments and ethno-habitats of their homelands and traditional use areas. Living cultural traditions are embedded in these older understandings of the land, resources, landforms, ethno-habitats, and landscapes. Consequently, Indian peoples have accrued a “detailed, encyclopedic knowledge of their environment” through the millennia (Hunn 1990).

The intimacy and length of attachment to the land and the totality of landscape importance have contributed to a strong sense of place for Indian peoples. Lands sacred to Indian peoples and all the natural components of such lands participate together in a system of complex interrelationships. As such, places of significance are created by an intersection of natural systems, cultural uses, social systems, and cultural meanings. Knowledge of places is passed to each succeeding generation through oral storytelling, various performed rituals, and personal experiences. The importance of cultural places is embedded in the regional, although now somewhat melded, Indian cultures of the Basin. This “symbolic link” to the land is the context for maintaining community and cultural identity.

The world view of tribal communities is complex and includes both traditional native values and belief systems along with common Christian-American values. In general, traditional community values assert an interconnected natural world that includes people and the important interactions between Indian people and the land. Indian peoples may consider themselves caretakers of the lands, especially within their homelands, seeking protection of all resources (natural and cultural) and recognizing their collective significance.

Traditional peoples typically feel privileged to be able to eat native foods, be respectful of the Creator, enjoy the bounty of a diverse natural world, and listen to their elders and their teachings. In traditional belief systems, all life in the ecosystem shares the world’s past existence and, with people, has intelligence and possesses moral rights and obligations. The benefits of a balanced and moral human society are extended to the entire local ecosystem.

Today, as in the distant past, tribal members and their governments hold considerable natural resource information in the form of both academic (many tribes employ resource professionals) and “indigenous” knowledge (DeWalt 1994). Elders have kept traditions alive through the practice of traditional culture and their counsel to younger generations. Besides providing cultural continuity and a form of sustenance and comfort for those who follow the traditional ways, these traditions help to sustain social cohesion and well-being. This extensive knowledge base is beginning to gain consideration in public land management, in part as a means to consider American Indian interests and public land-use needs.

American Indian cultural values toward public lands have tended to be subsumed under general categories, such as nonconsumptive or recreational land uses as understood for the general public. The primary cultural activities commonly include harvest of natural resources and associated activities: fishing, hunting, noncommercial wood cutting, gathering, resource processing, scouting for ethno-habitats and camping. Other public land-uses include religious practices or observances such as spirit quests, visiting unmarked graves, rites of passage, livestock grazing, and cultural tours.

Many American Indian cultural uses (such as camping, wildlife viewing, hunting, fishing, and berry picking) follow use patterns similar to recreational uses for the general public. However, differences in the purposes and social context (how such uses contribute to community social well-being and cultural integrity) often distinguish them. Resource acquisition activities such as fishing, hunting, and plant and mineral gathering are usually done within the context of traditional socio-cultural and economic systems. For many Basin tribes, a series of spring and summer root, salmon, and berry feasts mark high points on Indian religious calendars (Hunn 1990). In addition to these substantial feasts, numerous other occasions and events occur throughout the year.
(often held in community longhouses, shorthouses, Indian Shaker churches, or private homes) that are supplied with traditional foods. These native foods are usually collected from a tribe's or traditional community's ethno-environment (area of interest or homeland) and its socially and/or traditionally significant ecological places (ethno-habitats), typically on reservations or public lands.

In 1805, Lewis and Clark observed that thanks were ritually offered to the first spring Chinook by the whole community (Spier and Sapir 1930). The mixture of religious, social, subsistence, and economic values for a variety of aquatic and terrestrial resources found then continues today. The degree that individuals and families participate in this lifeway often brings them esteem from the community and generally acts to provide cultural continuity, social cohesion, and individual well-being. Cultural relationships with aquatic species are reflected in the folk taxonomy and nomenclature of Sahaptin speakers, who classify fish on the basis of both their physical attributes and their Indian cultural uses (Hunn 1990). Fish, such as the Pacific lamprey and sculpin, while of little interest in American society, are still desired and respected by Indian peoples. Living cultural traditions in the Basin are exemplified by the fishing done from wooden platforms with dip nets just below The Dalles Dam on the Columbia River or on southern Washington’s Klickitat River, and the traditional gaff-hooking at fishing stations on the John Day River and Catherine Creek in Oregon.

People’s diets have become largely supplemented with other foodstuffs from American culture, but native game animals are still very much desired and consumed. Hunting as an activity also serves a greater socio-cultural role. For example, the taking of a youth's first game animal becomes the focus of a rite of passage in many tribes. Leadership roles may be aligned in traditional religious arenas based on the knowledge, skill, and proficiency of men who hunt for their communities.

In the past, principal meat sources were derived from wildlife, including deer, pronghorn, bighorn sheep, moose, elk, bison, bear, rabbit, and groundhog. These and other animals may still be considered powerful and able to help or hinder a person's ability to progress through life. The power to cure diseases often comes from animal spirits (Fowler 1986). Their importance in diet, economy, or religion varied by culture and was influenced in part by the natural range and population density of a species and people’s cultural values for them.

Non-Indian fish and game laws may sometimes be viewed as meshing well with traditional Indian laws that prescribe the respectful taking of game life. At other times, when considering a man’s community or family obligations and his right to exercise aboriginal and/or treaty-reserved rights, they mesh poorly. At times throughout this century, there have been public misunderstandings concerning tribal takings of fish and wildlife, which have resulted in complex and extensive Federal court adjudications in recent decades.

The importance of native plants has received relatively little recognition compared to other native resources. Yet, use of plant resources as food during the ethno-historic period was at least equal to, if not greater than, use of fisheries (Hunn 1990, Fowler 1986). In fact, food-plant resource locations, not fishery ethno-habitats, have been considered the critical variable for determining the placement of historic settlements in the Nez Perce region (Ames and Marshal 1980).

Plants and their communities and habitats continue to be valued. Plant parts are used for purification, ceremonial, subsistence, commercial, and medicinal purposes and for creating objects of personal use, trade, gift-giving, or sale (Fowler 1990, Schlick 1994, Wilke 1988). Plants play special roles in the physical and spiritual cleansing or purifying of a person, and may be found at various life-event ceremonies including daily sweats, funerals, and disciplinary actions. Like fish, plants are used commercially and for subsistence, ceremony, and trade.
Traditional use of plants reflects the resilience and persistence of common cultural themes in the Basin (Hanes 1982, Hunn 1990). In recent years, there has been renewed interest in traditional plant use by Indian people in parts of the Basin. Such an interest is seen as socially rewarding and important for maintenance of traditional activities, which provide cultural continuity and reaffirm Indian identity (Coulture and others 1986). For some Indian families and tribes, the practices and relationships associated with plants and plant ethnohabitats have continued unabated throughout this century.

Some plants identified by the ICBEMP as of tribal interest are characterized as habitat generalists and are associated with terrestrial community types found widely distributed in the Basin. However, plants are considered significant in a given culture on the basis of people’s recognition of the plants and the values and/or uses assigned to the plants. As a result, many plant species are more significant than may be recognized by either the native folk biologist or American naturalist. For example, a plant such as camas may be known to live in several habitat types, but the plant normally occurs in the quality and quantity appropriate for harvest in only a few of those types. Also, a plant may occur in abundance in one tribe’s area of interest. Though considered highly valued by a second tribe, the plant may not be valued in the same way, or to the same degree in the two different cultures.

Cultural activities occur frequently outside the purview of both the public and the land managers. The public’s understanding of cultural plants or any competition for them has been restricted to a few plants, such as huckleberries, morel mushrooms, or beargrass. As a consequence, some plant ethnohabitats have not been recognized or valued in a shared way by the general society or the tribes.

Scablands are one example, with their characteristic areas of shallow rocky soils, sometimes interspersed with large mounds of deep soils. Agencies have often dismissed scablands as non-productive timber lands with limited range values, and even considered them unattractive or desert-like. Scablands have been used as convenient road locations or borrow pit sources. Most Basin tribes have a very different perception; to them, scablands are places high in biomass, which produce highly valued foods that are part of the traditional spring-time focus in Indian life.

The cultural significance of the environment is much more complex than simply a source for food or medicine. It involves social values and meanings that interlace traditional societal, political, religious, and economic areas of modern native cultures (Hunn 1981). The culturally familiar natural world and its life forms support individual, family, community, tribal, and regional Indian identity, socioeconomic well-being, and quality of life.

Like most traditional societies, Indian communities have preserved a well-established tradition of close-knit groups. Individuals are recognized through kinship ties and roles, usually in the context of extended family structures. In general, communally controlled uses of lands and resources have evolved over the past century. For some tribes, such uses were greatly altered during the allotment policy period, when families and lands were separated into discrete areas across Indian Country. For those lands remaining in tribal ownership (not privately held), tribal laws and traditional laws prevail. On public lands still visited by traditionalists, communal values and traditional laws commonly dictate appropriate resource uses in addition to tribal, state, and federal laws.

Community health is affected by numerous factors, including economic opportunity; pursuit of traditional uses of the land; effective trust relationships with the Federal Government; and freedom to practice cultural, religious, and social customs. Shortfalls in any of these factors can potentially lead to various effects on the well-being of Indian communities. Accumulative, and at times substantial, adverse effects have been observed in the social history of Basin tribes. These effects have been reflected generally in social measures such as family cohesion, drug and alcohol abuse, depression, low self-esteem, suicide rates, crime, and physical health.
Implications for Ecosystem Management

In casual conversation and in substantial tribal government expenditures, the natural biophysical world still pervades Indian life. The continuance of American Indian/tribal land-based lifeways and Indian people's dependence on natural resources are expected to draw multiple Federal land management agencies into dialogue with affected tribes well into the future.

Tribal governments have an increasing influence on the formulation of public land policy because of their legally reserved and established rights, as well as their unique trust relationship with the United States Government. In recent years, there has been an increased understanding of the sovereign status of tribes and an increase in government-to-government relations between tribes and agencies. This has resulted in increased participation by tribes in all agency planning levels (policy, program, and project) as a consultation strategy. Also important are early involvement in project planning and opportunities to contribute to implementation and monitoring stages of projects.

Agency decision-makers should be familiar with potential effects on tribal interests and rights early in the planning process. Federal agencies are obligated to use their authority in safeguarding tribes' reserved rights and trust properties that are under their jurisdiction. Federal agencies cannot renegotiate or narrowly interpret the historic agreements between the Federal Government and tribes either in the consultation process, or through management decisions and actions.

Recognition of the uniqueness of each tribe has placed the burden on agencies to become knowledgeable of, and sensitive to, Indian interests on an individual tribal basis. There is great variation in demographic characteristics, and the nature of rights, interests, and dependence on public land resources between tribes. One implication is that an ongoing dialogue would benefit agency-tribal relations if established locally, over and beyond the notification and consultation requirements associated with NFMA, NEPA, NHPA, ARPA, NAGPRA, and other regulatory acts. Frequently, agencies have communicated with tribes largely in the context of stringent timeframes derived from statutes that apply to agency undertakings, rather than in desirable tribal consultation processes.

In addition, with passage of the Self-Governance Act late in 1994, increased emphasis is being placed on involving tribes in Federal management processes, including development and implementation of land-use plans, preparation of budget proposals, and conducting of other activities on public lands on behalf of the agencies. Tribes also now have the option of considering the incorporation of programs or functions (otherwise under federal agencies) into their tribal responsibilities if they are interested and can provide justification.

Use of the "ecosystems" concept essentially serves as a social "tool for holistic and empathetic thinking about nature," which takes into account the culturally based perceptions of science and society toward landscapes (Ingerson 1994). Whereas "science" is based on observable elements and processes of nature visible to anyone, the nature, significance, and importance of Basin landscapes for Indian peoples are prescribed by the full benefit of cultural systems and values. The natural world is "sacred" and seen in a manner that is both physical and spiritual, not subordinate to, nor dependent on, scientific analysis. Federal agencies consider the natural world in a linear way, with decision-making that relies on traditional hierarchical and compartmentalized thinking.

One implication of differing world views between agencies and tribes is that agency data collections are commonly performed in the language of natural or social scientists, which may not sufficiently accommodate the general complexity of human behavior or differing cultural world views and sensibilities. An important element in efforts to address these differences is maintenance of meaningful and ongoing dialogue. Ecosystem management provides a sound framework for incorporating traditional environmental knowledge into decision making, but the mechanism for accomplishing this needs to be developed.
Meaningful dialogue through an effective consultation process is an important issue among tribes. Consultation among federal agencies, tribes, and American Indian communities has its basis in Federal law, court interpretations, and executive orders. Consultation is not a single event, but a process that leads to a decision; consultation serves at least four purposes:

- Identify and clarify the issues.
- Provide for an exchange of existing information and identify where information is needed.
- Identify and serve as a process for conflict resolution.
- Provide an opportunity to discuss and explain the decision.

Consultation means different things to different tribes; it can be a formal process of negotiation, cooperation, and policy-level decision-making between tribal governments and the Federal Government, or a more informal process. Consultation can be viewed as an ongoing relationship between one or more agencies and one or more tribes characterized by consensus-seeking approaches to reach mutual understanding and resolve issues. It may concern issues and actions that could affect the government’s trust responsibilities or other tribal interests. Developing a consistent approach to consultation that meets tribal needs is one of the challenges of ecosystem management.

The ongoing nature of consultation suggests that it is not appropriate to solve the issues of treaty rights by providing American Indians with sufficient land, resources, and access to sacred sites, with the assumption that the problem will then go away. Many tribal issues are based upon tribal needs, interests, and rights, which are taken from their histories, living cultural traditions, and modern lifeways. As agencies seek to consider and accommodate human needs in land management decisions, an understanding of the shared and unique relationships that both tribes and the general public have with landscapes will emerge. Ecosystem-appropriate decisions in land management would tend to follow from including these human values and cultural rules.

As agencies recognize that American Indians use places and resources largely because they are among those limited number of places and ethno-habitats shown and interpreted to them by elder relatives, land management may be able to better prioritize and meaningfully consider American Indian needs. Similarly, as agencies incorporate this understanding with tribal interests in healthy ecosystems, and the restoration or conservation of ethno-environments and habitats, apparent conflicts and lingering frustrations may be resolved.

Fundamentally, tribal governments and traditionalists have a well-established history of compromise and acceptance of changes to their homelands, even when changes have affected those places and aspects of their lifeways of most significance. American Indians struggle with many of the same issues in today’s society that others face. As described by Bordewich (1996):

The Indian story does not end, of course, with an intellectual accommodation with the past or even a moral coming of terms. Indeed, the story does not end at all. Until now each age has imagined its own Indian: untamable savage, child of Nature, steward of the earth, the white man’s ultimate victim. Imagining that we see the Indian, we have often seen little more than a warped reflection of ourselves; when the Indians have stepped from the roles to which we have assigned them, we have often seen nothing at all. There will be not an end to history, but an end may be put to the invention of distorting myth. With that may come the recognition that Indians are not, at last, poignant vestiges of a lost age, but men and women of our own time, struggling to solve twentieth-century problems with tools of our shared civilization. To see Indians as they are is to see not only a far richer tapestry of life than our fantasies ever allowed but also the limitations of futile attempts to remake one another by force. Stripped of myth, the relationship between Indians and other Americans may yet remain an uncertain one, an embrace that permits neither consummation nor release, but that is, nonetheless, full of hope.