David N. Bengston
Zhi Xu

Shifting and Expanding Forest Values

The Case of the U.S. National Forests

The idea that public forest values have changed significantly in recent decades has become widespread. According to this view, forest values—conceptions of what is good or desirable about forests—have changed in two important ways. First, it is often claimed that forest values have shifted, i.e., the relative importance of different values has changed. Social scientists refer to this type of change as a shift in a value system. Second, some have argued that the number of forest values has expanded, i.e., that there are new concepts of what is good or desirable about forests (new values), or new forest attributes that people care about (new objects of value).

Shifting forest values—the first type of value change—have been discussed for many years. In 1970, for example, the University of Montana's influential report on the clearcutting and terracing controversy on the Bitterroot National Forest stated that there has been "considerable change in our value system—a rising public concern with environmental quality" (U.S. Congress 1970:14). In recent years, many prominent leaders in the forestry community have observed that forest values have shifted, including deans of forestry schools, chiefs of the USDA Forest Service, leaders of the Society of American Foresters, organizers of the Seventh American Forestry Congress, as well as a host of social scientists. The report of the Forest Ecosystem Management and Assessment Team—a major study following up on President Clinton's 1993 Forest Conference in Portland, Oregon—stated: "The paradox is that those social values for which our ability to define and measure is poorest, are the very ones that appear to be of increasing importance in our society" (FEMAT 1993:VII-33).

Expanding forest values have also been discussed in recent years. Environmental historian Samuel Hays has written: "New values have emerged about what the forest in America is and what role it ought to play in modern society" (Hays 1988:550). Others have stated that management of the national forests in ways that are responsive to new public values is the core challenge faced by the Forest Service (Shands 1991). The broadening and deepening of forest values in the United States is reflected in the major laws affecting the Forest Service. Between 1960 and 1980, Congress enacted at least 30 laws whose main thrust was the conserva-

tion of resources, wilderness, recreation, or environmental quality on national forest land (Shands 1994).

The view that forest values have changed significantly is important because, if true, it implies that forestry must also change. Few would deny that the management of public forests must be responsive to the ways in which the public values those forests. In a democratic society, public lands are managed with the tacit consent of the citizenry. Therefore, if public forest values have changed, the forestry profession and forest management agencies must respond. Changed social values imply the need for new goals, policies, and management programs.

Private forest lands are not immune to the effects of changing forest values. In a market-based economy, firms and private forest land managers must also be responsive to changing public values, especially values expressed through consumer demands. There is some evidence, such as the growing number of "green forestry" certification programs (Fox 1995) and the American Forest and Paper Association's Sustainable Forestry Initiative (Wallinger 1995), that the forest products industry perceives and is responding to changing forest values.

This paper examines the nature of changing forest values in the United States, with an emphasis on the national forests. The following sections summarize the findings of two studies by the authors on change in national forest values in recent years, one focusing on shifts in the relative importance of values and the other focusing on expansion of the objects of value (forest attributes, outputs, and functions) associated with the national forests. Implications for forest policy and management are presented in a concluding section.

Shifting National Forest Values

The authors used content analysis to test the hypothesis that forest values—specifically, values associated with the national forests—have shifted over time (Bengston and Xu 1995). For the purposes of this study, we distinguished four broad categories of forest values: economic-utilitarian, life-support, aesthetic, and moral-spiritual (Figure 1). These categories represent four distinct ways in which people value forests. They are fundamental motivations for caring about the environment, and many more specific values are subsumed under each of the four categories.

The first two categories of forest values—economic-utilitarian and life-support—are "instrumental values." Instrumental value is one concept of the good in which the good is equated with what is useful as a means to some desirable human end. The instrumental value of the environment arises from the fact that "nature benefits us. Nature is useful: it serves a purpose, satisfies a preference, or meets a need" (Sagoff 1991:32). Economic-utilitarian value is a type of instrumental value, and stems from a forest's usefulness for

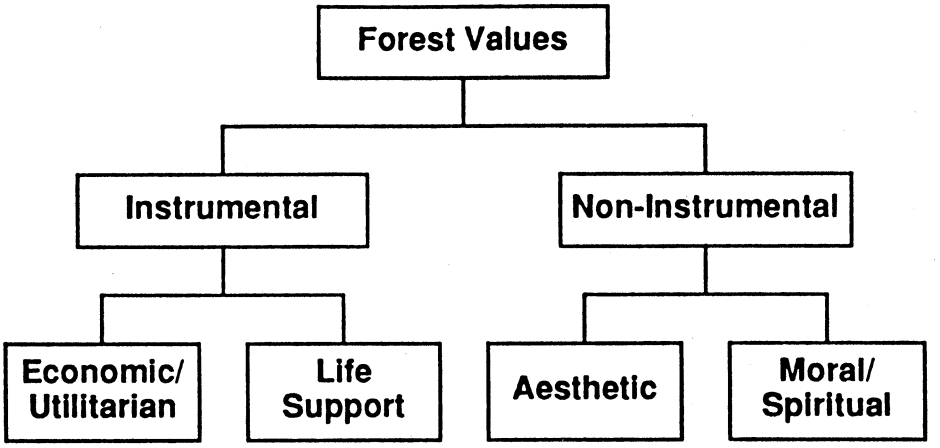

Figure 1. A classification of forest values.

achieving human ends, where the ultimate end or goal is maximizing preference satisfaction. Life-support (or ecological) value is another broad concept of what is instrumentally good about forests. For people who hold this value, life-supporting environmental functions and services are good because human well-being depends on these functions and services.

Aesthetic and moral–spiritual value are both non-instrumental values. We value an object non-instrumentally when we care about it as an end in itself, rather than as a means to an end. Aesthetic value is a type of non-instrumental value in which beauty is the concept of what is good or desirable. Aesthetic value has historically had and continues to have profound impacts on public land policy and management (Callicott 1992). Finally, we value something morally or spiritually when we regard it with love, affection, reverence, and respect. This is what Aldo Leopold had in mind when he wrote: "It is inconceivable to me that an ethical relation to land can exist without love, respect, and admiration for land, and a high regard for its value. By value, I of course mean something far broader than mere economic value" (Leopold 1966:261).

We developed a computer-coded content analysis procedure to analyze change in these four broad categories of forest values. Content analysis is a research technique for making valid inferences from text by systematically identifying and analyzing specified characteristics within text. It has been used by social scientists for many purposes, ranging from determining the psychological state of individuals to analyzing cultural patterns over time (Weber 1990). An important premise of content analysis for our study is that the language used in social discourse is not mere words—it is an expression of our values. Histo-

rian Paul Hirt (1994:17) notes that "language is a very important indicator of values and ideology. Industrial foresters use a common set of terms that both reflect and shape the perceptions and assumptions of those sharing that vocabulary." Hays (1992:11) has identified forest terminology as a vital indicator of forest values: "Through such terms a profession tells what it values, what it believes, what role it wishes to play in the larger scheme of things." Changes in this language therefore reflect changes in our systems of beliefs and values, which have a powerful influence on the way we think and behave.

To measure forest values and track them over time, we developed four "value dictionaries"—lists of words and phrases that are indicators of the expression of each of the four values. The dictionaries enable us to indirectly observe and quantify expressions of forest values. The validity of the words and phrases contained in the dictionaries as indicators of forest values was tested by repeated examination of computer-generated keyword-in-context lists. In this way, we were able to determine which of the words and phrases were accurate indicators of the expression of the four values. Words and phrases that were found to be used ambiguously or incorrectly—i.e., that did not accurately capture expressions of forest values—were dropped from the dictionaries.

The final value dictionaries were applied to computer databases of text on the national forests covering the period 1982 through 1993 for three populations of interest: (1) forestry professionals, represented by text on the national forests from the *Journal of Forestry* and the Society of American Foresters national convention proceedings; (2) mainstream environmentalists, represented by text on the national forests from *Sierra, National Wildlife,* and *Wilderness;* and (3) the news media, represented by text on the national forests from the NEXIS electronic database of newspapers and news services.

Figures 2a-d summarize the forest value time trends revealed by our content analysis. These figures show changes over time in the relative frequency of expression of forest values, i.e., the vertical axis is the share of a particular value as a percentage of total expressions of all four values.[1] As shown in Figure 2a, the relative frequency of expression of economic/utilitarian value declined significantly for both environmentalists and forestry professionals. The decline is particularly pronounced for forestry professionals, with expressions of economic/utilitarian value dropping from more than 80 percent of total value expressions in the early 1980s to about 55 percent in the early 1990s. The trend for the news media is basically flat throughout most of the 1980s, and then be

[1] Statistical tests were carried out to determine the significance of the trends. See Bengston and Xu (1995) for detail on the tests and results.

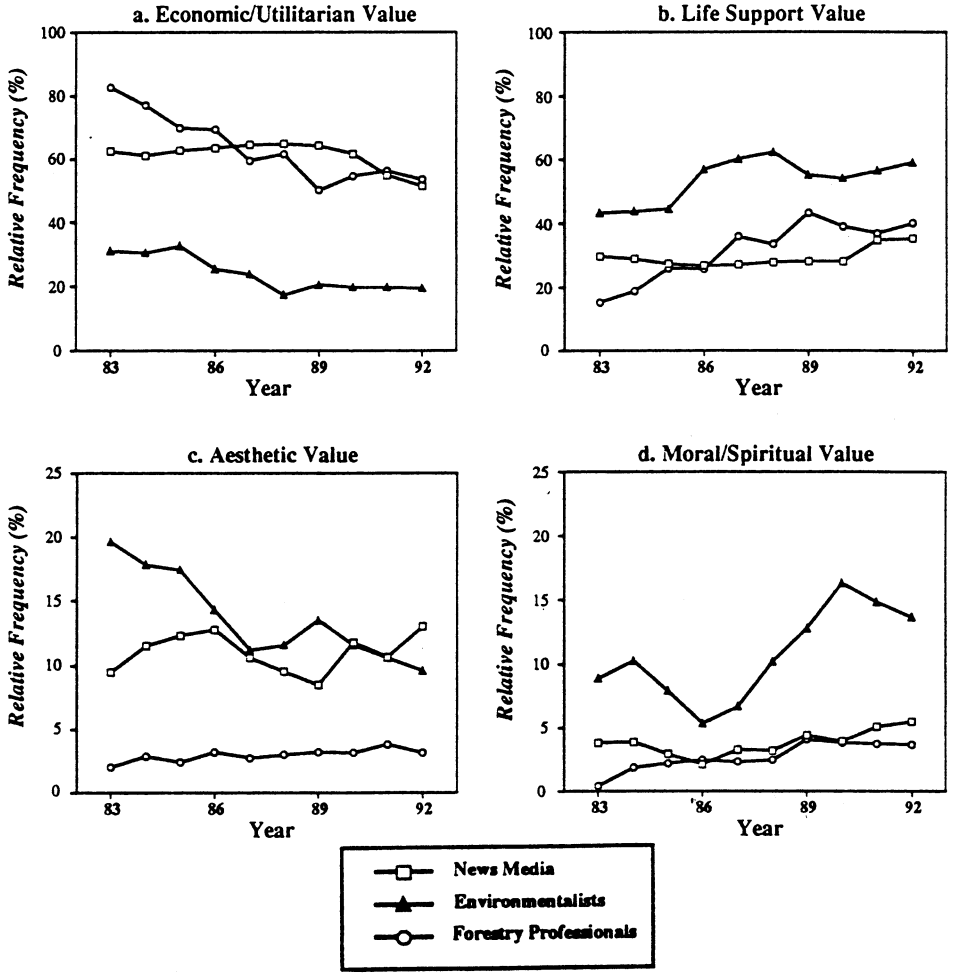

Figure 2. National forest value time trends.

gan to decline significantly during the late 1980s and early 1990s.

Figure 2b shows the trends in relative frequency of expression of the life-support value of national forests. Trends for environmentalists and forestry professionals are upward and highly significant. For the news media, there is evidence of an upward trend in the expression of life support value for the second half of the 12-year period.

Trends in the expression of aesthetic value for the national forests are shown in Figure 2c. Note that the scale on the vertical axis has changed for Figures 2c and 2d, reflecting the fact that aesthetic and moral-spiritual values are expressed less frequently than economic-utilitarian and life-

support values in the text we analyzed. We found no clear trend for aesthetic value for the public or forestry professionals. Surprisingly, however, we found evidence of a downward trend in the expression of this value for environmentalists. This may be due to a change in the nature of environmental aesthetics. Callicott (1992), Gobster (1995), and others have described an ecological aesthetic—a concept of the beauty of nature informed by ecological knowledge—that seems to be gaining ground. If an ecologically informed aesthetic is beginning to replace the more traditional "scenic" aesthetic, then our aesthetic value dictionary may be limited by its inability to identify these ecologically oriented expressions of aesthetic value.

Finally, Figure 2d shows the trend in the relative frequency of expression of moral–spiritual value. Results of statistical tests provide evidence of a significant increase in expression of this value over time by forestry professionals and environmentalists, but no trend for the news media.

Expanding National Forest Values

We surveyed USDA Forest Service land managers to explore the hypothesis that forest values have expanded and to identify key objects of value associated with the national forests. The mail survey included the following two-part question: "We would like to find out your views, as a manager of public land, of what the public is most interested in or concerned about in your district or forest.... The following is an incomplete list of forest ecosystem attributes, outputs, and functions. Please look over this list and: (1) add any additional items that *the public* is interested in or concerned about in your district or forest, and (2) check the 10 most important forest attributes, outputs, and functions to *the public* in your district or forest." This questionnaire was sent to all Forest Service district rangers and forest supervisors—more than 700 forest managers—and the response rate was almost 54 percent.[2]

Figure 3 shows the ranking of national forest "objects of value" based on responses to our survey. This figure ranks objects of value by their relative importance, which is defined as the frequency of a given object divided by the frequency of the object with the *highest* frequency (in this case, wildlife and fish habitats). The six objects of value most often identified by managers is a rather traditional list of forest outputs and attributes. Wildlife habitat was identified by nearly all respondents, followed closely by consumptive recreation (e.g., game hunting, fishing), nonconsumptive recreation

[2] The results of this questionnaire should not be interpreted as the public's preferences and values, but rather as managers' perceptions of the public. Vining and Ebreo (1991) have shown that forest managers' perceptions of the preferences and values of the public may differ from the actual preferences and values of the public. We are planning a follow-up survey of the public that will enable us to compare managers' perceptions with actual values.

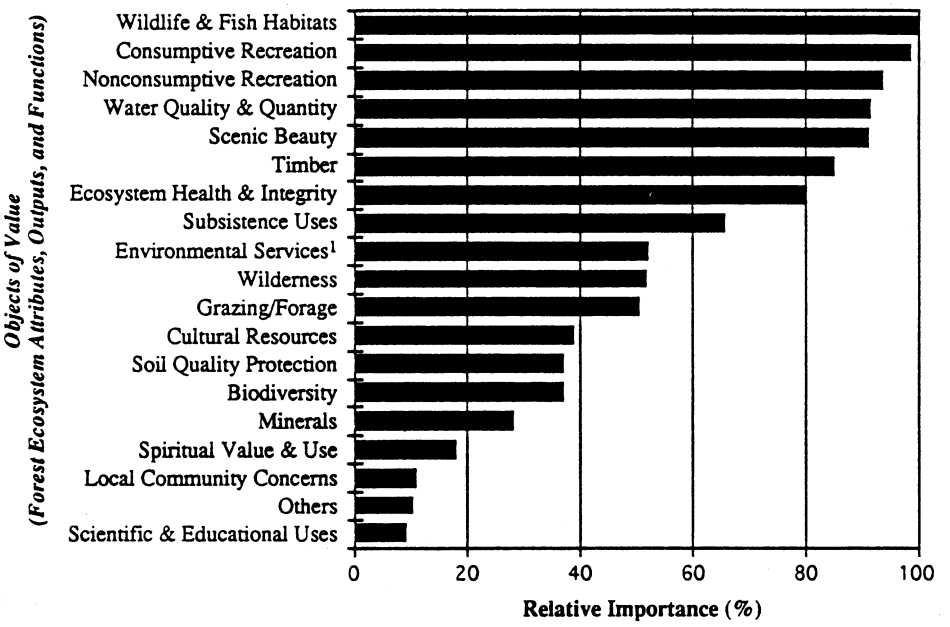

Figure 3. Relative importance of forest ecosystem attributers, outputs, and functions (all regions). Relative importance (%) is the frequency of a given attribute divided by the frequency of the attribute with highest frequency (Wildlife & Fish Habitats). [1]Environmental servicds include air quality, absorption of wastes, climate regulation, erosion control and watershed protection, and forests as carbon sink.

(e.g., camping, bird-watching, hiking), water quality and quantity, scenic beauty, and timber.

But our survey also revealed that a variety of other, nontraditional forest attributes, outputs, and functions are perceived to be important to the public. An interesting finding in Figure 3 is that, for the United States as a whole, ecosystem health and integrity was identified by managers almost as frequently as timber as an important object of forest value. In ecoregions that are not major timber producers, ecosystem health and integrity was rated higher than timber. It is also noteworthy that forest attributes and functions such as the environmental services provided by forests, biodiversity, and ecosystem health and integrity were identified as frequently as is shown in Figure 3. It is highly unlikely that environmental attributes and functions such as these would have even appeared on the "radar screen" of public concern a few decades ago.

Conclusions and Policy Implications

Our studies of shifting and expanding national forest values point

to a central dilemma for forest policy, planning, and management. On the one hand, we found an increase in the relative importance of forest values that have often been neglected or ignored in the past—specifically, life-support and moral-spiritual values. We also found that objects of value related to life-support value (eco-system health and integrity, environmental services, biodiversity) were ranked surprisingly high in Figure 3. On the other hand, we found that traditional economic values and related objects of value are still important. Figure 2 reveals that, although declining, economic–utilitarian values are still frequently expressed, and Figure 3 shows that various forest outputs and attributes that are valued primarily for economic reasons are perceived by managers to be among the most important to the public.

The increasing importance of life-support values and continuing importance of economic–utilitarian values have several significant implications for forest policy and management. First, the tension between emerging and traditional forest values implies the need for change in the way forest managers think about and deal with conflict. Value change has been the underlying source of increased conflict over public forest management in recent decades. Bitter clashes between forest stakeholders with divergent values have characterized forest manage-ment debates, and they will likely intensify unless forest managers learn how to deal with conflict more positively, proactively, and effectively. Part of the change in thinking that is needed is recognition of the fact that some level of conflict is a natural and inevitable part of how we manage natural resources in a democratic society. Recognizing the positive role of conflict will help managers develop and implement conflict management approaches that will more effectively bridge the gap between those holding emerging forest values and those holding traditional values.

Second, the tension between emerging and traditional forest values implies the need for planning and decision making processes that are better able to incorporate diverse values. There is a greater need than ever before for meaningful stakeholder participation in forest planning and decision making. Participatory planning and decision making is a key to getting diverse values on the table and working them out. It is through discourse and deliberation that people discover and express social values, which can then be incorporated into management. Natural resource management agencies have often used limited forms of stakeholder involvement in the past, but generally have not implemented meaningful public participation and shared leadership.

A third implication of the forest values dilemma is that ecosystem management—an emerging natural resource management paradigm—may be an appropriate and timely

policy response to the current social milieu. Most definitions of ecosystem management emphasize that its goal is to sustain ecological health and integrity while simultaneously meeting socioeconomic needs, including the need for commodities produced by forests. For example, the Ecosystem Management Charter of the Forest Service defines ecosystem management as follows: "Ecosystem management means using an ecological approach to achieve the multiple-use management of national forests and grasslands by blending the needs of people and environmental values in such a way that national forests and grasslands represent diverse, healthy, productive, and sustainable ecosystems" (USDA Forest Service 1992). Thus, ecosystem management can be interpreted as an attempt to manage simultaneously for the "new" ecological forest values and the traditional economic-utilitarian forest values. This is an ambitious goal, and it remains to be seen whether or not ecosystem management will be able to deliver on its promises.

Shifting and expanding forest values have made the jobs of forest planners and managers much more challenging and complex. The traditional five resources that the USDA Forest Service focused on in the era of multiple-use forest management—timber, recreation, water, wildlife, and forage—are still important, but this is clearly an inadequate list of concerns for today. National forest management must continue to shift from a focus on the production of a narrow set of commodities and uses to a much broader set of forest values (Thomas 1992).

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David N. Bengston, USDA Forest Service, North Central Forest Experiment Station, 1992 Folwell Avenue, St. Paul, Minnesota 55108

Zhi Xu, Office of Policy Analysis and Research, Washington Department of Natural Resources, P.O. Box 47014, Olympia, Washington 98504