

## Attitudes and Knowledge of People Living in the Greater Yellowstone Ecosystem

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*Concerns over threats to the integrity of the Greater Yellowstone Ecosystem (GYE) have increasingly led to calls for coordinated management of the region. To be most effective, GYE management requires an understanding of the attitudes and knowledge of local people. A structured knowledge and attitude survey of 308 people living within the GYE was conducted. A large majority of respondents recognized the importance of coordinated management of the GYE to conserve and protect the region's natural attractions, but most misunderstood or were worried about the economic and political implications of ecosystem management. The belief that ecosystem management would lead to loss of local control in the region was prevalent. Most respondents also believed that ecosystem management would negatively affect their communities, lifestyles, and natural resource-based industries. Although most people were knowledgeable about the area's attributes, few were aware of the sizable problems facing coordinated management of the GYE. Strong utilitarian, dominionistic, and libertarian values, as well as a relatively good understanding of the natural world, were evident among respondents dependent on agriculture and natural resource extraction. Ascriptive demographic and socioeconomic factors were also found to be important influences on attitudes toward the GYE and its management. Despite a shift of local economies away from resource exploitation toward a service sector economy based on nature tourism, the historical orientation toward agriculture and natural resource extraction strongly shapes and influences local values and attitudes.*

Received 1 June 1992; accepted 1 December 1993.

We would like to thank Tracy Anderson for her assistance in designing the survey and for collecting the data. Denise Casey, A. Peyton Curlee, and three anonymous reviewers enhanced the manuscript with their critical reviews. Funding was provided by the Fanwood Foundation, Tom and Sibyl Wiancko, Patagonia, the Merrill G. and Erita E. Hastings Foundation, Yale University, G. R. Dodge Foundation and the New-Land Foundation.

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**Keywords** attitudes, ecosystem management, Greater Yellowstone Ecosystem, knowledge, natural resources management

There have been increasing calls for coordinated management of what people now refer to as the Greater Yellowstone Ecosystem (GYE) (Berger, 1991; Brussard, 1991; Clark & Zaunbrecher, 1987; Clark et al., 1991; Craighead, 1979; Patten, 1991; Rasker et al., 1992). The GYE, defined by distinctive wildlife, vegetation, watersheds, and geologic features, represents the largest intact, or nearly intact, ecosystem in the United States, outside of Alaska (Clark & Harvey, 1988; Clark & Zaunbrecher, 1987; Marston & Anderson, 1991). It consists of over 6 million hectares surrounding Yellowstone and Grand Teton National Parks, and includes seven national forests, three national wildlife refuges, land administered by the Bureau of Land Management (BLM), land owned by Idaho, Montana, and Wyoming, and private interests. Concern over threats to the integrity of the system have led conservationist and resource managers to the recognition that coordinated management of the entire region is desirable.

People within and adjacent to the GYE have expressed concern over the implications of ecosystem-level management to local economies and to their lifestyles (Jobes, 1991; Power, 1991; Rasker et al., 1992). We attempted to assess the extent and cause of these concerns and to analyze local knowledge of the GYE through an attitudinal survey of people living within the GYE. To be most effective, GYE management requires an understanding of the attitudes and knowledge of local people in addition to policy and organizational concerns (Clark et al., 1991).

Developing policies consistent with the desires of local, regional, and national constituencies is a difficult task given the often variable and conflicting demands (Jobes, 1991). Even locally, divergent attitudes and opinions typically prevail as a consequence of varying natural resource dependencies (Jobes, 1991; Patten, 1991; Power, 1991; Rasker et al., 1992). For example, people dependent on tourism require protection of the natural vegetation and wildlife, ecological processes, scenic views, and geological phenomena that attract visitors each year. This often places tourist interests in direct conflict with extractive resource objectives that seek to exploit the natural resources of the area. Moreover, internal conflicts often exist within the tourism industry, since increasing tourism causes adverse impacts that threaten the integrity of the ecosystem.

Difficult policy decisions obviously lie ahead in the GYE as managers and decision makers attempt to balance preservation of the area with increasing demands for tourism and natural resource extraction. We have been developing a holistic model for conservation that explicitly recognizes the social, organizational, and valuational components of policy making, in addition to biological and technical considerations (Kellert & Clark, 1991; Reading et al., 1991). We argue that successful policy development and implementation requires, among other things, that managers and decision makers carefully anticipate public responses to the policy options they select. This requires an understanding of the values, attitudes, and knowledge (e.g., the valuational component) of the different publics a policy will affect.

## Methods

A structured survey of 308 residents within the GYE was conducted over a 4-month period during the summer of 1988. Selection criteria required the survey participant to be a resident of the GYE and to have lived there for at least 12 months. Fifty randomly selected ranchers and 258 randomly selected residents, roughly equally divided among 25

towns within the GYE and peripheral areas in Wyoming, Idaho, and Montana, participated in the survey. Approximately 25% of survey participants were randomly selected using local telephone directories and interviewed by telephone. All remaining participants (approximately 75%) were interviewed in person. In-person interviews were conducted on a random basis at fixed points in public areas near town centers. To ensure representative sampling, both telephone and in-person interviews were conducted from early morning until late evening. The response rate for both techniques was greater than 90% and no difference was detected depending on method of contact.

Given both the geographical extent of the GYE and the many residents who lived beyond municipal boundaries, the combination of techniques ensured that sampling included residents in all areas, including rural areas. In addition, the combined techniques provided increased opportunity for contacting people more likely to be either at home or at work.

Knowledge of and attitudes toward the GYE were explored using both individual questions and scales. Four major areas of inquiry were explored based on the individual attitude questions: wildlife issues, park and regional protection issues, regional control issues, and economic development issues.

The survey consisted of 95 closed-ended questions: 35 attitude questions, 28 knowledge questions, and 32 demographic questions. The survey required an average of 30 minutes to complete. A five-point Likert agree/disagree response format was used for the attitude questions. Several questions addressed similar attitudes. These were combined into three attitude scales using principal component and factor analyses to group and weight individual attitude questions. Scales included between 6 and 10 questions (questions and exact procedures available from the authors upon request). One-sentence operational definitions of the three attitude scales are indicated below:

Ecosystem management: Strong support for ecosystem management of the greater Yellowstone region and for the protection of wildlife and natural features within the area.

Utilitarian: Strong support for the direct utilization of natural resources within the GYE for human use.

Libertarian: Strong support for individual rights and freedoms within the GYE.

A GYE knowledge scale was developed based on 10 true-false questions about ecosystems and the GYE (see Table 7). Two points were awarded for a correct answer, one point was awarded if the respondent did not know the answer to the question, and no points were given for an incorrect response. All knowledge and attitude scales were standardized on a 100-point scale.

Data were analyzed using the SAS statistical package. Means were compared using analysis of variance (ANOVA) for multiple means and a simple *t*-test for paired means.

## Results

Several questions examined wildlife issues associated with GYE management (Table 1). A large majority of respondents recognized the importance for coordinated management of wildlife conservation in the GYE, but most misunderstood the implications of ecosystem-level management or believed such management would have important economic and political consequences. For example, more than 70% of the respondents recognized that elk (*Cervus canadensis*) and grizzly bears (*Ursus arctos*) required coordinated management of land outside the national parks and forests, and that the survival of many wildlife species necessitated ecosystem-level management. However, 54% of the respon-

**Table 1**  
Responses of Greater Yellowstone Ecosystem (GYE) residents ( $N = 308$ )  
to selected questions on wildlife issues

Question	Agree or strongly agree	Neither agree nor disagree	Disagree or strongly disagree
The needs of elk and grizzly bears require that the lands outside parks and national forests be included in plans to manage the GYE.	70.8%	2.3%	26.9%
The future survival of the grizzly bear, trumpeter swan, and other wildlife in the Yellowstone area depends on overall management of the GYE.	75.0	4.5	20.5
Only by managing the GYE will it be possible to successfully reintroduce the timber wolf to Yellowstone National Park.	70.5	9.7	19.8
If private and state lands are not included in plans for managing the Yellowstone area, animals such as the grizzly bear will decline and disappear.	38.6	6.8	54.6
Management of the GYE would probably lead to many millions of acres being declared as critical habitat for grizzly bears.	68.8	19.2	12.0

dents did not believe that animals like grizzly bears would decline and disappear if private and state lands were not included in regional management plans. In addition, a large percentage (69%) believed that management of the GYE would lead to millions of acres of land being declared critical grizzly bear habitat.

Another major issue examined by the attitude questions focused on protection of the national parks and regional natural resources (Table 2). Most respondents believed that without ecosystem management of the GYE, Yellowstone National Park would become isolated and eventually be adversely affected. A majority also agreed that management of the GYE was necessary to protect many of Yellowstone's most famous attractions such as its wildlife and geothermal features. Three-quarters of the respondents agreed that ecosystem management was necessary to protect the GYE from harmful cumulative impacts. On the other hand, the vast majority of respondents were opposed to restrictions on visiting the national parks and forests to protect the GYE.

The importance people placed on the various features of the GYE are indicated in Table 3. Respondents rated mountains as the most important characteristic of the GYE, followed by water resources, including rainfall, rivers, and geothermal areas. People ranked elk, cutthroat trout (*Oncorhynchus clarki*), and lodgepole pines (*Pinus contorta*), species with direct, consumptive benefits to humans, higher than other species. Of these other species, grizzly bears and aspen (*Populus* spp.), relatively well-known and attractive species, were preferred over less charismatic pine beetles (*Dendroctonus* spp.).

Wilderness was rated more important than human population areas. Despite the ecological importance of fire to the GYE, people ranked wildfires quite low.

A third group of questions addressed a variety of regional control issues (Table 4). Nearly two-thirds of the respondents feared that ecosystem management would result in greater governmental control of the region, and some 70% believed that GYE management might represent an attempt to control development of lower elevation lands. On the other hand, only a minority (38%) believed the federal government was promoting ecosystem management to achieve greater political control of the area. The belief that environmentalists were promoting ecosystem management to gain control of the area was also prevalent, although not predominant. Finally, 55% believed that dividing management responsibilities among different regulatory authorities would result in inadequate protection of the region.

The last category of attitude questions considered various issues of economic development (Tables 5 and 6). Two-thirds of the respondents agreed that the economic and social stability of GYE communities depends on natural resource extraction, but only a minority believed ecosystem management was being promoted to stop economic growth in the region. Additionally, very few respondents (15%) believed the ecosystem concept is useful for social and economic decisions. Regarding the possible impact of ecosystem management on particular industries, over 70% of the respondents believed oil and gas

**Table 2**  
Responses of Greater Yellowstone Ecosystem (GYE) residents ( $N = 308$ )  
to selected questions on park and regional protection issues

Question	Agree or strongly agree	Neither agree nor disagree	Disagree or strongly disagree
Unless the GYE is protected the national parks will become isolated islands and more species will become endangered.	57.8%	6.8%	35.4%
If we don't manage the entire Yellowstone Ecosystem, Yellowstone National Park will eventually be harmed.	69.2	3.6	27.2
The watersheds and geysers of the Yellowstone area can only be protected by managing the GYE.	57.1	5.5	37.3
Overall management of the GYE is needed to assure the area is protected from the cumulative impacts of development activities occurring over many years.	75.0	3.2	21.7
Ecosystem management means leaving the Yellowstone area to regulate itself and not interfering with its natural processes.	26.9	9.4	63.7
The number of visitors to Yellowstone and Grand Teton National Parks must be limited if the GYE is to be adequately protected.	17.2	4.2	78.6

**Table 3**  
Which of the following do you think are important characteristics of the Greater Yellowstone Ecosystem?

Characteristic	Least important (1-3)*	Moderately important (4-6)*	Important (7-8)*	Most important (9-10)*	N
Mountains	0.0%**	2.9%	17.6%	79.4%	102
Rivers	1.0	14.9	21.8	62.4	101
Rainfall	2.3	4.7	29.1	64.0	86
Geothermal areas	3.0	19.4	28.5	49.1	165
Elk	1.1	10.2	45.5	43.2	176
Cutthroat trout	2.6	14.3	40.7	42.3	189
Wilderness	11.1	13.9	38.9	36.1	208
Lodgepole pine	2.3	17.1	44.9	35.6	264
Aspen	2.6	24.1	47.8	25.4	232
Grizzly bears	12.6	22.9	39.7	24.8	214
Human population centers	17.4	31.8	35.6	15.2	264
Wildfires	33.1	27.8	27.4	11.8	263
Mountain pine beetle	31.4	40.3	19.8	8.5	258

\* All answers on a scale of 1 to 10, where 10 is most important.

\*\* Percentage of respondents to selected characteristics. These percentages do not include respondents who "did not know" or refused to answer.

development and timber harvesting would be greatly or moderately limited by managing the greater Yellowstone area as an ecosystem. Moreover, nearly two-thirds were unwilling to limit timber harvesting to protect the GYE if it harmed local economies. Fewer respondents believed that livestock grazing would be greatly or moderately limited under ecosystem management, and even fewer believed hunting or tourism would be limited by ecosystem management.

Several questions examined people's knowledge of the GYE and ecosystems in general. To assess this knowledge, people were asked how much they know about the GYE. Less than half (47%) responded that they knew "very much" to "a moderate amount" about the GYE, 31.5% stated that they knew only "a little," and the remaining 21% indicated that they knew "not much" or "hardly anything at all." Only 35% of the respondents knew that more than 25 political and administrative agencies were involved in governing areas of the GYE. Additionally, only 32.5% realized that over 2.5 million people visit Yellowstone and Grand Teton National Parks each year. A vast majority of respondents knew the federal government controls over 75% of the land in the GYE (the actual percentage is almost 78%; Rasker et al., 1992).

Most people responded correctly to most of the true-false questions posed; however, there were some notable exceptions (Table 7). The vast majority of respondents knew that rocks and soil are included in the "notion of an ecosystem" (95%), that the Yellowstone plateau is not roughly 3,000 feet above sea level (94%), and that aspens are not the most frequently harvested timber species in the GYE (93%). Most people also knew that there are "few if any mountain lions [*Felis concolor*] in Yellowstone National Park"

(75%) and that ecosystems are not characterized by stability and absence of change (64%). On the other hand, few people knew the correct responses for other questions. For example, most people were unaware that the grey wolf (*Canis lupes*) is the only large vertebrate absent from Yellowstone. In addition, most people believed all plants and animals are equally important to the maintenance and functioning of an ecosystem. For some questions, even though a majority of respondents answered correctly, the percentage of incorrect responses was surprising. For example, some 14% of those surveyed believed more than 50 people had died during the past 10 years from grizzly bear attacks, and 26% were under the impression that the Yellowstone area does not experience any air pollution.

#### *Knowledge and Attitude Scales*

As indicated, knowledge and attitude scales were constructed to assess general perceptions of the GYE among varying demographic groups (Figures 1–4). Gender variations were substantial, with males scoring significantly lower than females on the ecosystem management scale, but significantly higher on the utilitarian and knowledge scales (Figure 1a). Among age groups, younger respondents scored significantly higher on the ecosystem management scale, but significantly lower on the utilitarian and libertarian scales than did older respondents (Figure 1b). Variations among respondents by income and education level were also assessed (Figures 1c and 1d). Respondents with an income of more than \$50,000 per year scored much lower on the ecosystem management scale

**Table 4**  
Responses of Greater Yellowstone Ecosystem (GYE) residents ( $N = 308$ )  
to selected questions on GYE control issues

Question	Agree or strongly agree	Neither agree nor disagree	Disagree or strongly disagree
I am afraid management of the GYE would lead to increased government control of the area.	64.3%	12.3%	23.4%
The federal government is promoting the ecosystem management idea as a way of taking greater control over private and state lands in the Yellowstone area.	37.7	17.9	44.5
The idea of managing the GYE is an attempt to control development of the area's lower elevation lands.	70.1	9.7	20.1
The ecosystem concept is an idea created by environmentalists to take control of the Yellowstone area.	48.1	14.6	37.3
Inadequate protection of the Yellowstone area is partly due to divided management responsibilities among federal, state, and local authorities.	54.9	13.6	31.5

**Table 5**  
Responses of Greater Yellowstone Ecosystem (GYE) residents ( $N = 308$ )  
to selected questions on economic development issues

Question	Agree or strongly agree	Neither agree nor disagree	Disagree or strongly disagree
The economic and social stability of communities in the Yellowstone area depends on the continued exploitation of its natural resources.	67.5%	4.9%	27.6%
The idea of managing the GYE is just another way to stop private economic growth in the area.	38.0	11.0	50.9
An ecosystem is a scientific idea and, therefore, not useful as a method for making social and economic decisions.	14.6	9.7	75.7
Timber cutting should be limited to protect the GYE, even if some local economies have to sacrifice a little.	65.9	5.8	28.2

but slightly higher on the libertarian and knowledge scales than did lower income persons. College-educated respondents scored significantly higher on the ecosystem management and knowledge scales and significantly lower on the utilitarian and libertarian scales than did persons of limited education.

Greater economic dependence on agriculture and natural resource extraction, as suggested by rural residency, large property ownership, and employment patterns, was found to be an important socioeconomic influence on basic attitudes toward the GYE and its management (Figure 2). Respondents from small towns scored significantly higher on the utilitarian and knowledge scales than did persons residing in more populated areas. Addition-

**Table 6**  
How much do you think each of the following activities would be limited by management of the Greater Yellowstone Ecosystem?  
( $N = 308$ )

Question	Greatly or moderately	Somewhat or not at all	No opinion
Oil and gas development	72.1%	19.5%	8.4%
Timber cutting	71.4	21.4	7.1
Hunting	33.4	56.5	10.1
Livestock grazing	48.4	41.5	10.1
Tourism	22.1	67.6	10.4



**Table 7**  
Knowledge of the Greater Yellowstone Ecosystem ( $N = 308$ )

Question	True	False	Don't know
Rocks and soil are not included in the notion of an ecosystem.	3.2%	94.8%*	1.9%
The average elevation of the Yellowstone plateau is roughly 3,000 feet above sea level.	2.3	93.8*	3.9
Aspen is the most frequently cut tree for its timber in the GYE.	0.6	92.5*	6.8
At least 50 people have died from grizzly bear attacks in the past 10 years.	14.3	81.5*	4.2
There are few if any mountain lions in Yellowstone National Park.	75.0*	15.3	9.7
Yellowstone National Park is one of the few places in the U.S. that does not experience air pollution.	26.3	73.4*	0.3
A healthy ecosystem is characterized by stability and the absence of change.	31.8	63.6*	4.5
The grey wolf is presently the only large vertebrate absent from Yellowstone National Park.	38.6*	26.0	35.4
Grizzly bears mainly feed on plants and berries and rarely eat meat.	56.8	36.0*	7.1
All plants and animals are of equal importance to an ecosystem's maintenance and functioning.	69.8	29.9*	0.3

\*Correct response.

ally, respondents who owned the most land scored significantly lower on the ecosystem management, but higher on the utilitarian and libertarian scales, than did other property owning groups. People employed on farms or ranches received the lowest ecosystem management and highest utilitarian and libertarian scores of any occupational group. In marked contrast, people employed in professional or technical positions received the highest ecosystem management and knowledge scores and lowest utilitarian and libertarian scores. Respondents dependent on the federal lands for their income scored significantly lower on the ecosystem management scale and significantly higher on the utilitarian and libertarian attitude scales than did persons who were not dependent on these lands for their livelihoods.

Comparisons between people employed in agriculture or tourist industries and people not employed in these industries yielded similar results (Figure 3). Length of residency in the GYE also influenced attitude scale scores. People raised in the GYE scored significantly lower on the ecosystem management scale and significantly higher on the utilitarian and libertarian scales than did people raised elsewhere. Of people raised outside the area, the longer their residency within the GYE, the more similar their ecosystem management and utilitarian scores were to people who had lived in the GYE all their lives.

Finally, attitude scale differences were compared between hunters and nonhunters, and between members of conservation and wildlife organizations and nonmembers (Fig-

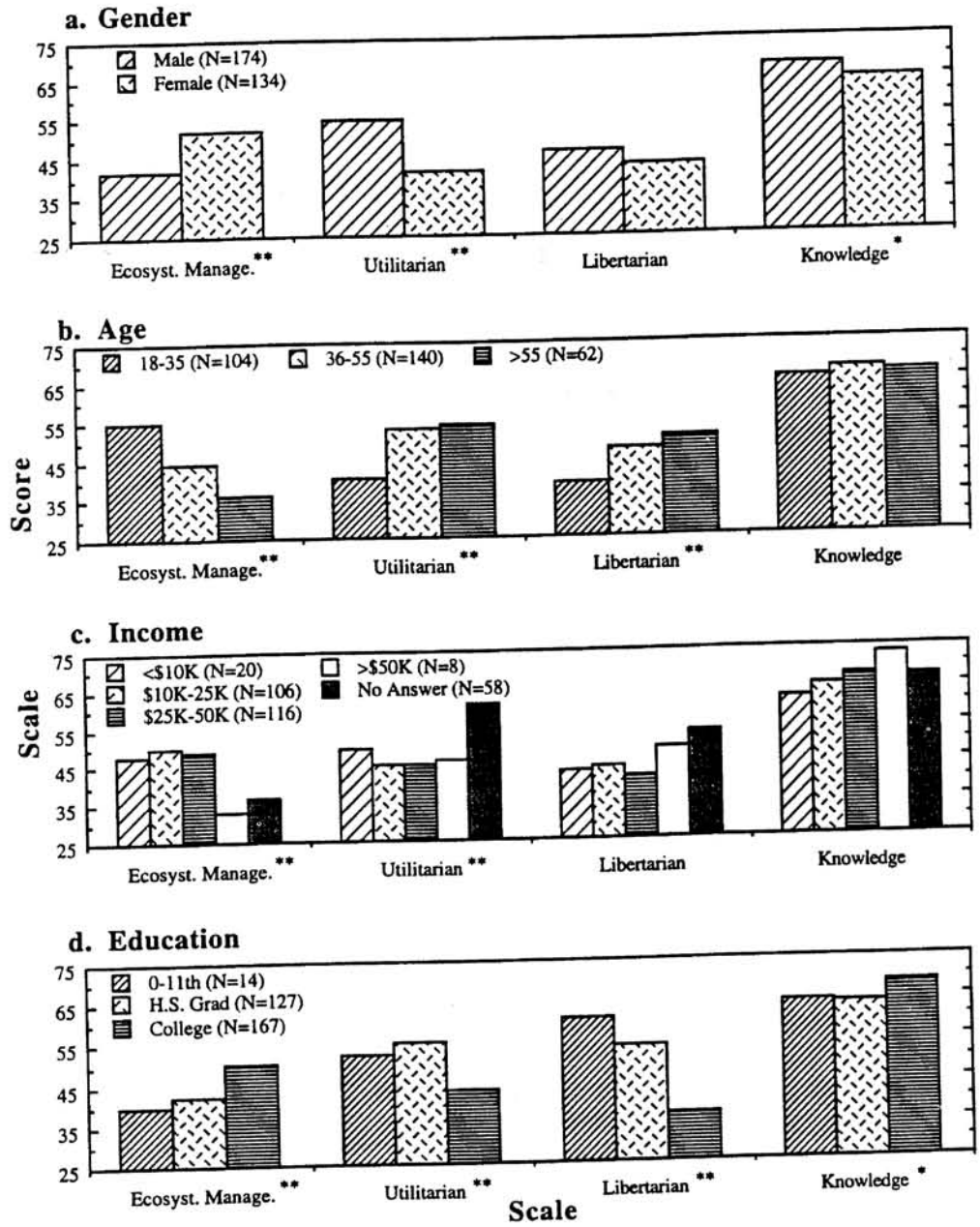


Figure 1. Mean attitude and knowledge scale scores by basic demographic groups: (a) gender, (b) age, (c) income, and (d) education. Scale score differences between groups were compared using analyses of variance. Asterisks indicate significant differences: \* $p < .05$  and \*\* $p < .01$ .

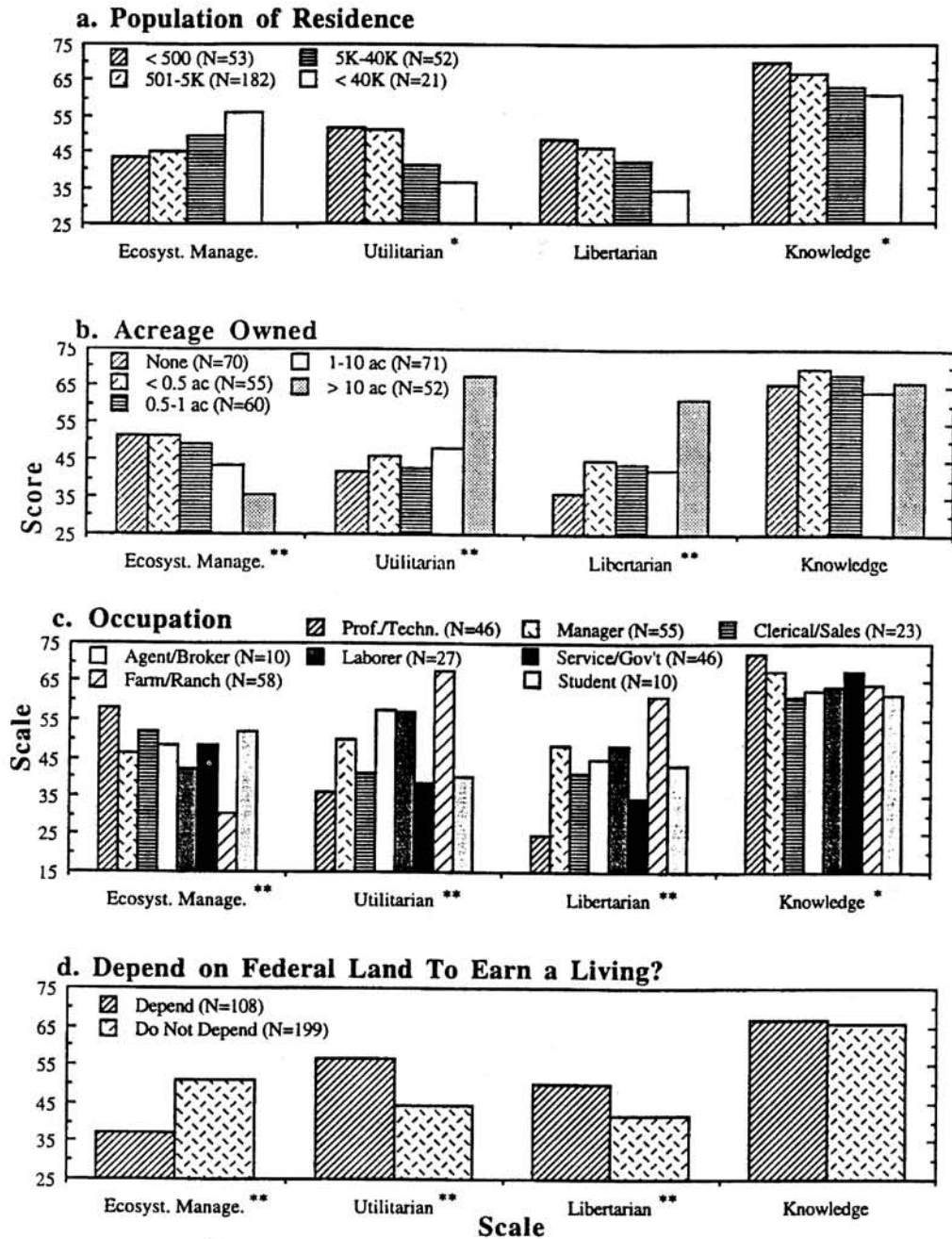


Figure 2. Mean attitude and knowledge scale scores by (a) population of residence, (b) acreage owned, (c) occupation, and (d) federal land dependence. Scale score differences between groups were compared using analyses of variance. Asterisks indicate significant differences: \* $p < .05$  and \*\* $p < .01$ .

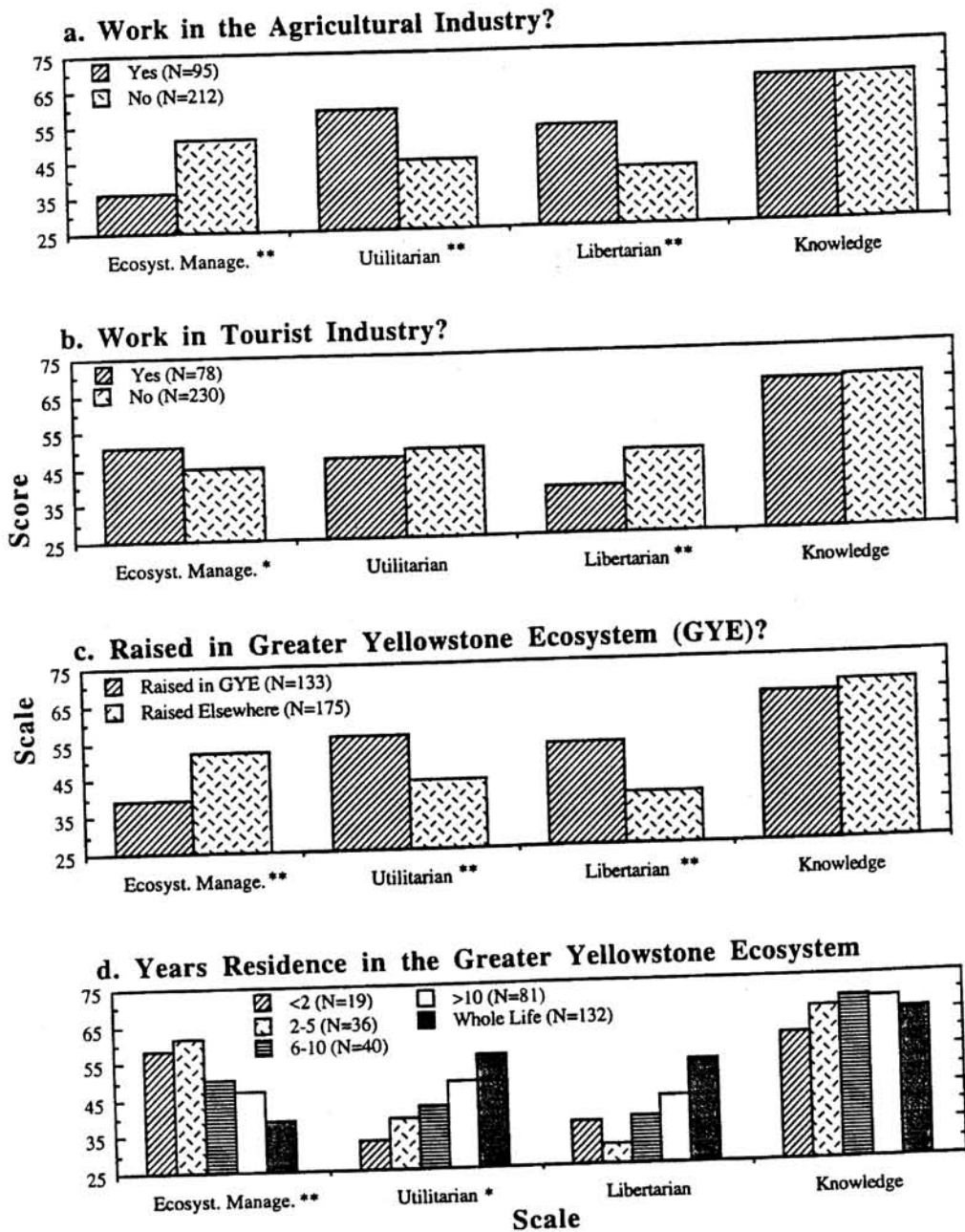


Figure 3. Mean attitude and knowledge scale scores by agriculture or tourism industry employment and length of residency in the area: (a) agricultural industry employment, (b) tourism industry employment, (c) raised in the Greater Yellowstone Ecosystem (GYE), and (d) length of residency in the GYE. Scale score differences between groups were compared using analyses of variance. Asterisks indicate significant differences: \* $p < .05$  and \*\* $p < .01$ .

ure 4). Hunters scored significantly higher on the utilitarian and libertarian scales than did nonhunters, while members of conservation or wildlife organizations received higher ecosystem management and knowledge scores and lower libertarian scores than did non-members.

### Discussion

The responses of GYE residents provide valuable insight, and are important to the development of effective policies for the region (Clark et al., 1991). The people living in and adjacent to the GYE differ demographically, socially, politically, and economically from people in other parts of the country and even the surrounding states (Jobes, 1991; Power, 1991). Jobes (1991) characterizes people in the region as young, well-educated, moderately wealthy, and white, with often romantic attitudes toward the naturalness of the area. He further suggests that most residents remain in the region only temporarily. The communities of the area have historically been dependent on natural resource extraction; however, the economic base has shifted, and continues to shift away from resource exploitation toward a more service sector economy largely based on nature tourism (Jobes, 1991; Power, 1991; Rasker et al., 1992). Despite this change, the historical orientation toward agriculture and natural resource extraction strongly shapes and influences local values and attitudes, resulting in what Power (1991, p. 397) refers to as a "rearview mirror" vision of the local economy." As a consequence, the political landscape largely reflects the traditional social and economic patterns of the region. Although lines are often blurred, most residents are either libertarian, dominionistic (e.g., control and domination of nature), and pro-resource exploitation in their attitudes or oriented toward a more ro-

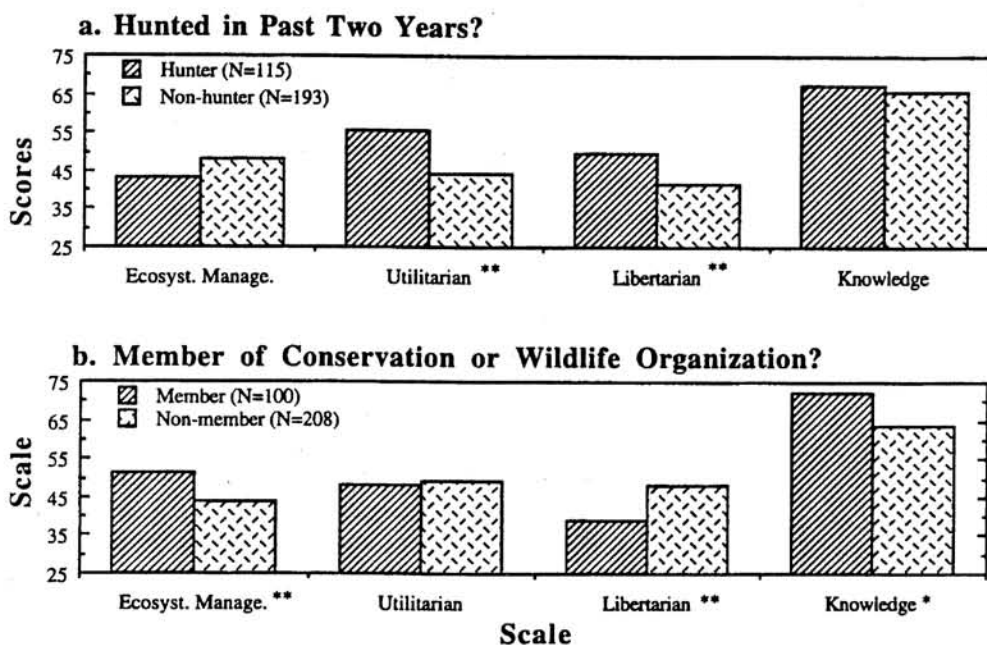


Figure 4. Mean attitude and knowledge scale scores of (a) hunters and (b) members of conservation or wildlife organizations. Scale score differences between groups were compared using analyses of variance. Asterisks indicate significant differences: \* $p < .05$  and \*\* $p < .01$ .

mantic, naturalistic, and pro-resource protection and conservation perspective (Clark et al., 1991; Jobes, 1991; Power, 1991).

Most people surveyed in this study were supportive of coordinated management to protect the parks, wildlife, and geothermal and other natural features of the Yellowstone region. Despite this support for resource protection, most respondents believed ecosystem management could affect their communities and lifestyles. For example, respondents overwhelmingly recognized the importance of managing and protecting land outside the national parks and forests to the survival and management of wildlife in the region, but most were unwilling to include private and state lands in management plans and believed critical habitat designation for the grizzly bear would be extended. Threatened and endangered species programs often face local opposition due to real and perceived fears regarding possible restrictions on private and public land use that may result (Bath, 1989; Kellert, 1991; Reading & Kellert, 1993).

Although there has been growing concern in the GYE about the possible negative impacts of the vast and increasing number of tourists visiting the region each year (Anon., 1992), most respondents were against restricting visitation to the area. This may be attributed to our finding that most people were unaware of the actual volume of tourists into the area each year, but it may also be consistent with the growing economic dependency of most people in the GYE on tourism and other service industries (Power, 1991; Rasker et al., 1992).

Much of the opposition to ecosystem management appeared to be related to concerns about governmental control and economic issues. Western agricultural and natural resource extractors have often been characterized by strong utilitarian and libertarian values and attitudes (Jobes, 1991; Kellert, 1984; Reading & Kellert, 1993). Many GYE residents appeared to be concerned they would lose control over public and private land use practices if ecosystem management were instituted. Most respondents also feared that oil and gas development and timber harvesting would be greatly or moderately limited by ecosystem management policies. In addition, they believed the economic and social stability of local communities depended on continued resource extraction and were unwilling to sacrifice local economies to protect the GYE. Even though recent and convincing evidence suggests these perceptions are inaccurate (Power, 1991; Rasker et al., 1992), providing this information to local residents may not induce attitude and value changes because knowledge is only one of several factors influencing attitudes and values (Brown & Manfredo, 1987; Kellert, 1993; Rokeach, 1972, 1979; Williams, 1979).

Most respondents seemed aware of the problems arising from divided management of the GYE among several political and administrative units. Despite this recognition, most residents may not realize the extent of the management coordination problem, as suggested by the finding that only one-third of those surveyed knew that over 25 different governmental units have authority in the GYE.

It is interesting to examine the importance respondents placed on various characteristics of the GYE (Table 3). Given the importance of water to the arid and semiarid regions of the western United States, it is not surprising that rivers and rainfall ranked among the most important perceived characteristics of the region. Among the flora and fauna cited, species with commodity, recreational, and "charismatic" value tended to be the most preferred. Such attitudes toward wild plants and animals are widespread, especially in the United States (Eckholm, 1978; Kellert, 1979; Kellert & Berry, 1981; Westman, 1990). Despite the widely recognized and important role of wildfires to the communities of the GYE (Christensen et al., 1989; Knight & Wallace, 1989; Varley & Schullery, 1991), this attribute of the region ranked very low in perceived importance, which is not surprising

given the dangerous and economically threatening wildfires that prevailed during the time when the study was conducted.

Value, attitude, and knowledge trends found among the demographic groups were interesting and important. Strong utilitarian, dominionistic, and libertarian values, as well as a relatively good understanding of the natural world, were evident among respondents dependent on agriculture and natural resource extraction, and similar findings have been evident elsewhere (Kellert, 1981, 1984, 1986, 1991; Reading & Kellert, 1993). Respondents with large land holdings, residing in the most rural areas, dependent on federal lands for their income, and employed in agriculture and timber industries had the highest utilitarian and libertarian scale scores and lowest ecosystem management scale scores, as well as relatively high knowledge scale scores. These groups tended to favor policies that emphasized continued exploitation of the region's natural wealth, and most expressed fears that attempts at ecosystem management would result in restrictions on further resource development. As in other studies (Kellert, 1991; Reading & Kellert, 1993), they expressed fears of losing traditional control over use of the public lands to outside interests (i.e., federal agencies and environmental groups; Clarke & McCool, 1985; Culhane, 1981).

Ascriptive demographic and socioeconomic factors were also found to be important influences on attitudes toward the GYE and its management. Young, female, high-income, and well-educated respondents in this study, as in others, were characterized by less support for resource consumption, and instead expressed more naturalistic, moralistic, and protectionist views toward the environment (Kellert, 1979, 1980; Kellert & Berry, 1981, 1987). Furthermore, as reported in other studies, we found that males, high income earners, well-educated persons, and environmental organization members tend to possess greater knowledge of the natural world (Bath, 1989; Kellert, 1986, 1991; Kellert & Berry, 1987; Reading & Kellert, 1993). These various demographic groups were generally more inclined to support greater restrictions on development and natural resource exploitation policies, and preferred increased protection for the wildlife and protected areas of the Yellowstone region. Consistent with this perspective, these groups tended to endorse the notion that ecosystem-level management for the GYE would facilitate achieving those goals.

This article constitutes an exploratory effort to examine the values, attitudes, and knowledge of people living within the GYE. The findings have implications for conservationists, managers, and decision makers interested in developing effective and acceptable policies for the GYE. Additional data, however, are necessary, and a much larger and more comprehensive investigation should be conducted to compare and contrast the different GYE constituents, especially farmers and ranchers, mining interests, the timber industry, people dependent on tourism, conservation and environmental activists, hunters, and government employees.

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