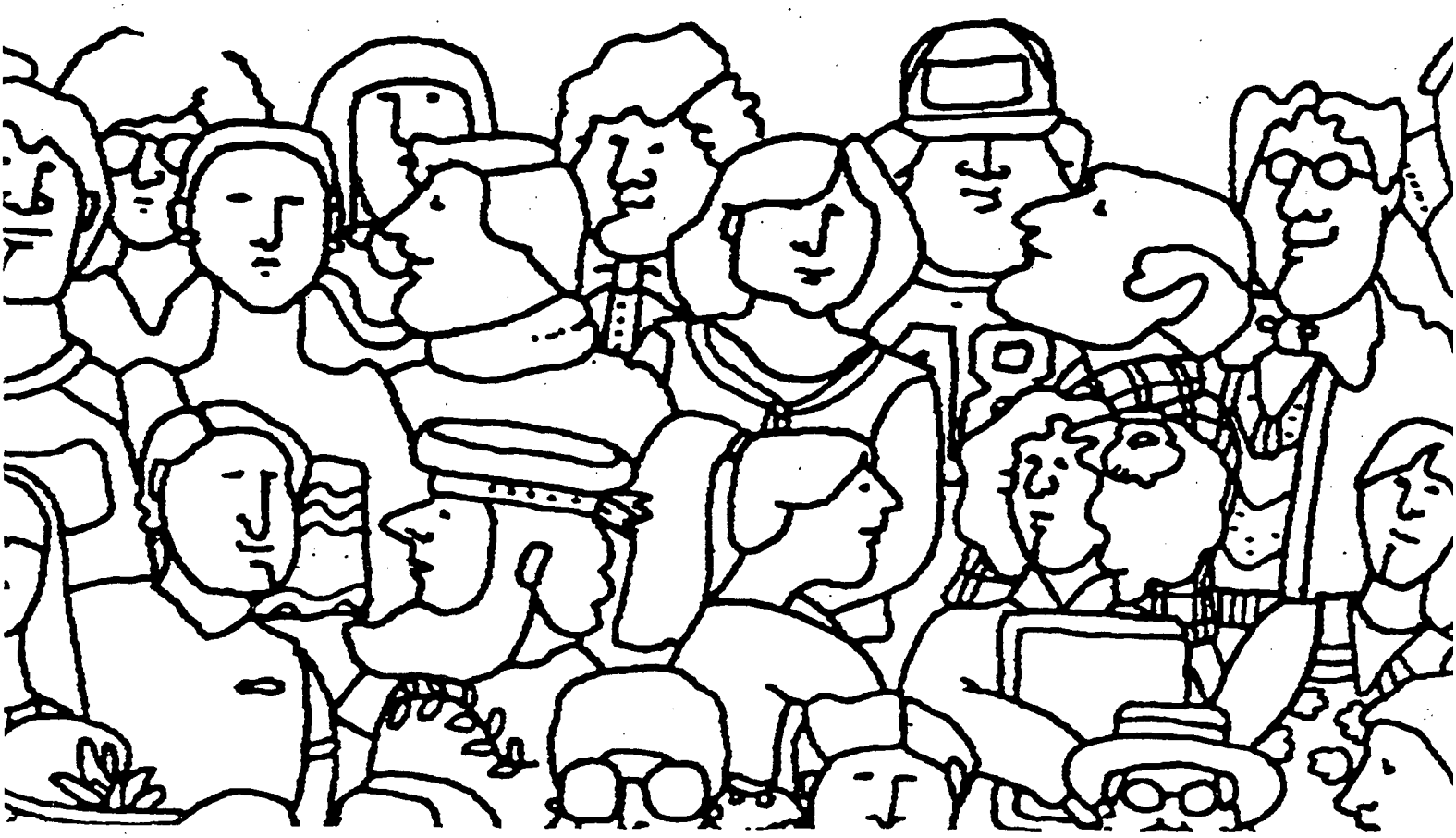
ATTITUDES, BELIEFS & VALUES

FOR

INTERIOR COLUMBIA BASIN
ECOSYSTEM MANAGEMENT PROJECT



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ATTITUDES, BELIEFS & VALUES

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I. Introduction

A. Why Attitudes, Beliefs & Values Are Important

". . .(M)ost of the "big" issues facing natural resource management are attached to social issues. In the case of global climate change, agencies have shown a tremendous willingness to invest in monitoring and baseline studies. Important, to be sure, but the social sciences have lagged far behind in assessing the interactions between physical changes and human activities. . . . (F)ar more is known about the processes of global warming, deforestation, resource depletion, and pollution than about the processes of various human institutions and behaviors that create these effects. Any long-range solutions must involve the. behaviors and attitudes of the public and individuals to be ultimately successful." (Ewert, 1990)

Steel (1993) indicates "At the heart of this debate are differing philosophical and normative views about the environment and human relationships to the environment. These views in turn are connected to different conceptions about the management of natural resources". These differing philosophical and normative views are reflected in people's attitudes, beliefs, values and behaviors.

Ongoing social trends are raising many questions for natural resource managers. Hendee (1989) defines four social trends associated with changing attitudes, beliefs and values that are driving changes in the public's demands for natural resources and the way the public interacts with land managers. These trends include:

--the urbanization of the American public resulting in less dependence on nature and less understanding of natural processes,

--growth in the appreciation of the noncomodity values of natural resources,

--the public's desire to be involved in protecting the natural values they cherish,

--a growing unwillingness to accept professional authority.

The trends cited above have resulted in an increasingly polarized public that wants to be actively involved in public land management. Information on attitudes, beliefs and values can help this to occur in a more organized and equitable manner.

B. Goal of this Paper

The goal of this paper is help the reader gain a better understanding of the public's expectations regarding the use of natural resources in the Columbia Basin. This will be'accomplished in two ways:

- ✓ presenting a summary and interpretation of the results of a survey conducted for this project (Brunson, Mark, Bruce Shindler, William Schreckhise, Brent Steel & John Tennert (1994); Tennert, John, William Schreckhise, & John Briney (1994));
- ✓ supplementing this survey information with a discussion of other information available on the attitudes, beliefs and values held about natural resource issues.

A discussion of the methods for the survey conducted for this project, including limitations of the data, are included in Appendix AI.

The next part of this paper (Section II) presents both a historical and

forward looking context in which the information in the paper can be viewed. More detailed information on this context is available in Appendix AII. Section III presents the results of the survey conducted for this project as well as the results of other pertinent surveys. These results are divided into subject areas such as Attitudes, Beliefs and Values about Forestry/Range/Salmon/Endangered Species, Environmental/Economic Trade-Offs, etc. Each discussion begins with the results of the survey conducted for this project, followed by the results of other surveys that supplement the results of this survey or add information of a more general nature. A summary section is included in each subject discussion. Section IV pulls the information together into a discussion of the implications for the Interior Columbia Basin Ecosystem Management Project.

II. Context

A. Where Have We Come From

1. Trends in Attitudes Toward Environmental Issues

Changes in attitudes toward the environment have been documented by Dunlap and Scarce (1991). They examined trends in responses to questions from the early 1970s until 1990. These questions included the relative importance of environmental problems, perceived seriousness of environmental problems, degree of threat posed by environmental problems, support for government actions, business and the environment, environment versus the economy, willingness to pay for environmental protection and environmental activism and pro-environmental behaviors. In all areas but relative importance of environmental problems, the trends clearly show that support for environmental issues is increasing. In examining the relative importance of environmental problems, the percent of the respondents volunteering the "environment" has remained relatively low at about 20 percent. The authors conclude that "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."

In describing the environmental movement, Dunlap and Mertig (1992) say, "The second half of the twentieth century has seen the emergence of numerous social movements in the United States. Most of these movements have faded away with little discernible impact, but history will surely record the environmental movement as among the few that significantly changed our society. . . Although environmentalism has clearly endured over the past two decades, with unintentional aid from its opposition, it nonetheless has changed 'substantially. The major change appears to be its vastly increased diversity . . .Although this diversity may lead to fragmentation, . . .we believe that it may prove to be an important strength of contemporary environmentalism."

2. What Is Causing These Trends

Steel (1994) discusses how the rise of environmentalism may be related to other changes that occurred in industrial nations following World War II.

" .(E)conomic growth in the 1950s and 1960s was so rapid that fun&mental structures of society were altered, and social commentators began to note a new stage of development. This new stage of socioeconomic development in advanced industrial society has been labelled 'postindustrial.' . . . Postindustrial societies are characterized by:

-economic dominance of the service sector over that of manufacturing and resource extraction,
-complex nationwide and international communication networks,
-a high degree of economic activity based upon an educated work force employing scientific knowledge and technology in their work,
-a high level of public mobilization in society (including the rise of new social movements such as the environmental movement),

-increasing population growth and employment in urban areas and subsequent depopulation of rural areas, and
-historically unprecedented affluence associated with suburban living.

Correlated with the advent of postindustrial society were individual value structures, particularly among younger individuals, that placed emphasis on 'higher order needs.' These supplanted more fundamental subsistence needs as motivators for much societal behavior."

The argument is made that adoption of these higher order (Maslowian) needs may lead to less materialism and lifestyles that are less threatening to the environment (Dunlap, Grieneeks & Rokeach, 1975). However, the Maslowian perspective suggests that higher order needs appear only after security needs are met. The need for economic security may affect the emergence of higher order needs, and ultimately the environmental movement.

B. Where We Are Headed (With the Current Trajectory)
OR If We "Stay the Course", Where Will We End Up

III. Survey Results

A. Attitudes, Beliefs and Values About Forestry/Range/Salmon/Endangered Species

1. Hail Survey of Natural Resource Issues on Public Lands In The West (Brunson, Shindler, Schreckhise, Steel & Tennent, 1994)

(Note : See Appendix AI.C for descriptions of the survey methods and respondent groups.)

Respondents were asked their views on a variety of statements concerning forest, rangeland, and salmon management. Table 1 compares the responses of the National Public from the survey for this project (with a response rate of 18 percent) with two national telephone surveys (Brunson & Steel, 1994; Shindler, List & Steel, 1993) that asked similar questions but had response rates of nearly 70 percent. The responses from the three national surveys are much more similar than the responses between the groups in the survey developed for this project. (See Tables 1 and 2.) This suggests that the mail survey responses were not unrepresentative, as least for questions at this level. (Note that national level data from this survey is only reported where responses from other national level surveys with much higher response rates are available for comparison purposes. See Appendix AI.C for further explanation.)

Table 2 describes respondent agreement with general statements about forest, rangeland and salmon management. Majorities in each group indicated greater protection should be given to fish, such as salmon, and wildlife habitat on public lands. Participants and members of the Eastside CRB Public were least likely to agree and most likely to disagree. Fewer respondents in each group agreed that greater efforts should be made to protect rare plant communities on public lands. The National Public showed the most agreement with each of these statements.

Disagreement with the statement that federal rangeland management should emphasize livestock grazing over other uses ranged from 45 percent for the National Public to 59 percent for the Participants. About a third of each group was neutral except for the Participants. Participants were also the most likely to agree with this statement (27%).

Responses to the question of whether more wilderness areas should be established on public lands differed greatly among the groups. The National Public and Westside CRB Public were most likely to agree with this statement (65% and 54% respectively). Conversely, Eastside CRB Publics and Participants were most likely to disagree (40% and 52% respectively). Eastside residents were essentially split on the issue with 40 percent agreeing and 40 percent disagreeing.

There was little support for the idea that insect outbreaks on public lands should be allowed to run their natural course. Agreement ranged from 28 percent among participants to 15 percent among the Eastside CRB Public.

Three of the questions asked respondents to consider the balance between preservation of natural areas and the economic well being of families or communities. The same pattern is seen in the

responses to all three questions. The Eastside CRB Public tended to favor economic concerns over environmental concerns. The National Public tended to favor environmental concerns over economic concerns. The Westside CRB Public. fell somewhere in the middle. Participants tended to be polarized with respondents being roughly evenly divided.

2. Additional Survey Information

Smith & Steel (1994) cite several surveys which asked specific questions pertaining to salmon management. Two national samples support the results obtained in the survey conducted for this project. In one sample, 76% of the respondents indicate "Greater protection should be given to fish such as salmon in rangelands". In the other sample, 78% indicate "Greater protection should given to fish and wildlife habitats on federal forest lands. Oregon residents' responses to the same questions were 59% and 55%, respectively. A similar question "Greater protection should be given to fish such as salmon on federal forest lands" was' asked of community residents in 4 cities in Oregon and Washington, and rural southwest Washington. Agreement with the statement ranged from a low of 59% in rural southwest Washington to 79% in Seattle. Eighty-three percent of a national sample, and 78% of an Oregon sample agreed with the statement from the same surveys, "The loss of streamside vegetation is a serious problem on federal rangelands".

Previous surveys also asked respondents to chose their preferred model of forestry and rangeland management on federal lands (Steel and Brunson, 1994; Steel, Brunson & Kruger, 1992). In both cases a majority of the respondents chose a multiple benefits mode of management where a long-term sustainable balance between human and ecological concerns was emphasized. In all cases except for a rural Washington sample, the second most common response was forestry/rangeland management on federal lands should adopt a preservation mode of management and emphasize minimal alteration and interference in forests by humans. The least common response was to adopt an agricultural mode of management where the efficient production of wood/meat products was emphasized.

A study by Frederick/Schnieders (1994) for American Forests asked a national sample whether they favored human management of forest areas or whether they believed, in general, nature should be allowed to take its course in forest areas. A majority of respondents (52%) indicated they favored human management; 40 percent said nature should take its course. According to the authors, "Views are evenly divided in the midwest, but strongly supportive of human management everywhere else, especially in the Pacific Northwest (59% to 28%) and Inland West (62% to 27%)."

Another study (Moore Information, Inc., 1994) asked Oregonians about differences between forests managed by people and forests not managed by people. The respondents indicated the following:

--27% agreed & 64% disagreed that "Visually, its hard to see the difference between a forest managed by people and a forest not managed by people",

--69% agreed & 23% disagreed that "Forests managed by people provide many of the same benefits to fish and wildlife as forests not managed by people",

TABLE 1
VIEWS ON FEDERAL LAND MANAGEMENT POLICIES
A COMPARISON OF THE RESPONSES OF THREE NATIONAL PUBLIC SAMPLES

A. The economic livelihood of local communities should be given the highest priority when making decisions concerning public lands.

	DISAGREE (%)	NEUTRAL (%)	AGREE (%)
NATIONAL PUBLIC 1	42	24	34
NATIONAL PUBLIC 2[A]	42	21	37
NATIONAL PUBLIC 3[B]	41	22	37

B. Federal rangeland management should emphasize livestock grazing over other uses.

	DISAGREE (%)	NEUTRAL (%)	AGREE (%)
NATIONAL PUBLIC 1	45	38	17
NATIONAL PUBLIC 3	43	32	25

C. Survival of timber workers and their families is more important than preservation of old growth forests.

	DISAGREE (%)	NEUTRAL (%)	AGREE (%)
NATIONAL PUBLIC 1	54	24	22
NATIONAL PUBLIC 2	53	27	20

D. Endangered species laws should be altered to maintain timber and ranching jobs on public lands.

	DISAGREE (%)	NEUTRAL (%)	AGREE (%)
NATIONAL PUBLIC 1	52	19	29
NATIONAL PUBLIC 2[C]	65	18	17
NATIONAL PUBLIC 3[D]	64	17	19

E. More wilderness areas should be established on public lands.

	DISAGREE (%)	NEUTRAL (%)	AGREE (%)
NATIONAL PUBLIC 1	14	21	65
NATIONAL PUBLIC 2	13	15	72
NATIONAL PUBLIC 3	15	14	71

TABLE 1 (CONTINUED)
VIEWS ON FEDERAL 'LAND MANAGEMENT POLICIES
A COMPARISON OF THE RESPONSES OF THREE NATIONAL PUBLIC SAMPLES

F. Greater efforts should be made to protect rare plant communities on public lands.

	DISAGREE (%)	NEUTRAL (%)	AGREE (%)
NATIONAL PUBLIC 1	12	23	65
NATIONAL PUBLIC 3	13	12	75

G. Greater protection should be given to fish, such as salmon, on public lands.

	DISAGREE (%)	NEUTRAL (%)	AGREE (%)
NATIONAL PUBLIC 1	9	23	68
NATIONAL PUBLIC 3	14	10	76

H. Greater protection should be given to wildlife habitat on public lands.

	DISAGREE (%)	NEUTRAL (%)	AGREE (%)
NATIONAL PUBLIC 1	10	16	74
NATIONAL PUBLIC 2	12	10	78

[A] refers specifically to federal forest decisions.
[B] refers specifically to federal rangelands.
[C] refers only to timber jobs.
[D] refers only to ranching jobs.

Sources:
National Public 1: Brunson, Shindler, Schreckhise, Steel, and Tennet (1994)
National Public 2: Shindler, List & Steel (1993)
National Public 3: Brunsen & Steel (1994)

Note: Definitions'of samples are described in Appendix AI.C.
Strongly disagree and disagree have been combined.
Strongly agree and agree have been combined.

TABLE 2
VIEWS ON FEDERAL LAND MANAGEMENT POLICIES

A. The economic livelihood of local communities should be given the highest priority when making decisions concerning public lands.

	DISAGREE (%)	NEUTRAL (%)	AGREE (%)
EASTSIDE CRB	30	19	51
WESTSIDE CRB	42	13	45
NATIONAL PUBLIC	42	24	34
PARTICIPANTS	43	8	49

B. Federal rangeland management should emphasize livestock grazing over other uses.

	DISAGREE (%)	NEUTRAL (%)	AGREE (%)
EASTSIDE CRB	47	32	21
WESTSIDE CRB	48	36	16
NATIONAL PUBLIC	45	38	17
PARTICIPANTS	59	14	27

C. Survival of timber workers and their families is more important than preservation of old growth forests.

	DISAGREE (%)	NEUTRAL (%)	AGREE (%)
EASTSIDE CRB	33	25	42
WESTSIDE CRB	47	19	34
NATIONAL PUBLIC	54	24	22
PARTICIPANTS	47	13	40

D. Endangered species laws should be altered to maintain timber and ranching jobs on public lands.

	DISAGREE (%)	NEUTRAL (%)	AGREE (%)
EASTSIDE CRB	30	17	53
WESTSIDE CRB	45	16	39
NATIONAL PUBLIC	52	19	29
PARTICIPANTS	48	5	47

TABLE 2 (CONTINUED)
VIEWS ON FEDERAL LAND MANAGEMENT POLICIES

E. More wilderness areas should be established on public lands.

	DISAGREE (%)	NEUTRAL (%)	AGREE (%)
EASTSIDE CRB	40	20	40
WESTSIDE CRB	30	16	54
NATIONAL PUBLIC	14	21	6'5
PARTICIPANTS	52	10	38

F. Greater efforts should be made to protect rare plant communities on public lands.

	DISAGREE (%)	NEUTRAL (%)	AGREE (%)
EASTSIDE CRB	33	25	42
WESTSIDE CRB	27	20	53
NATIONAL PUBLIC	12	23	65
PARTICIPANTS	38	13	49

G. Greater protection should be given to, fish, such as salmon, on public lands.

	DISAGREE (%)	NEUTRAL (%)	AGREE (%)
EASTSIDE CRB	24	22	54
WESTSIDE CRB	12	16	72
NATIONAL PUBLIC	9	23	68
PARTICIPANTS	32	13	55

H. Greater protection should be given to wildlife habitat on public lands.

	DISAGREE (%)	NEUTRAL (%)	AGREE (%)
EASTSIDE CRB	23	23	54
WESTSIDE CRB	23	19	58
NATIONAL PUBLIC	10	16	74
PARTICIPANTS	32	13	55

TABLE 2 (CONTINUED)
VIEWS ON FEDERAL LAND MANAGEMENT POLICIES

I. Insect outbreaks on public lands should be allowed to run their natural course.

	DISAGREE (%)	NEUTRAL (%)	AGREE (%)
EASTSIDE CRB	64	21	15
WESTSIDE CRB	51	25	24
NATIONAL PUBLIC	46	31	23
PARTICIPANTS	60	12	28

Sources: Brunson, Shindler, Schreckhise, Steel, and Tennet (1994)

Note: Definitions of samples are described in the text.
Strongly disagree and disagree have been combined.
Strongly agree and agree have been combined.

--46% agreed and 39% disagreed that "Forests managed by people are healthier than forests not managed by people",

--70% agreed and 19% disagreed that "Forests managed by people can be designed to replicate forests not managed by people",

--65% agreed and 28% disagreed that "A forest managed by people can look as natural as a forest not managed by people".

Roper (1992) examined nationwide attitudes toward endangered species management in depth. At that time 51 percent of the respondents indicated current laws and regulations had not gone far enough to protect endangered species, 31 percent indicated the right balance had been stuck with laws and regulations, and 11 percent indicated the laws and regulations had gone too far. This question was repeated in a 1994 survey (Roper Starch, 1994). In this newer survey, the same percent of respondents thought the laws and regulations had not gone far enough. However, a higher percentage (16%) indicated they had gone too far and fewer (26%) indicated the right balance had been struck.

Respondents in both of these surveys were then asked whether a species should be saved regardless of cost. In 1992, 38 percent of the respondents indicated all species should be saved regardless of cost; that number dropped to 29 percent in 1994. In 1992, 50 percent of the respondents indicated policies should be changed to consider costs; that number increased to 63 percent in the 1994 survey. In the 1992 survey, the following types of respondents were less likely to support saving species at all costs: conservatives, Republicans, and those over 45 years of age.

In 1992, respondents were also asked what were good arguments for saving species. Respondents indicated the following reasons were strong arguments for saving species: extinctions mean humans lose life-saving medicines (79% saying strong argument), extinctions can upset the delicate balance of nature (76%), and every species has a right to exist and it is our moral duty to help them (63%).

Respondents in the 1992 survey also indicated who should decide which species should be saved. University biologists were the most frequently chosen response (39%) followed by environmental groups (29%), federal agencies (7%), Congress (2%) and Courts (2%). Fifty-eight percent of the respondents to the 1992 survey indicated it was worth maintaining strict policies on endangered species at risk to economic growth and jobs; thirty percent indicated it was not worth the sacrifice.

3. Conclusions

Survey research shows strong support for protection of fish and wildlife on public lands. Survey respondents support a multiple benefits mode of management which emphasizes a long-term balance between human and ecological concerns. Surveys on endangered species management indicate that, although the public still supports protection of endangered species, concern about costs is increasing. They also suggest the most persuasive argument for saving endangered species may be their potential benefit to man.

B. Pacific Northwest/Columbia Basin

1. Mail Survey of Natural Resource Issues on Public Lands In The West (Brunson, Shindler, Schreckhise, Steel & Tennent, 1994)

(Note: See Appendix AI.C for descriptions of the survey methods and respondent groups.)

Respondents were asked to identify the factors most important to them and their family concerning the future of public lands in the Columbia River Basin. For each of the groups, resources for the future were mentioned most frequently. (See Table 3.) For the Eastside CRB Public and the Participants, quality place to live ranked almost as high as resources for the future. This is not surprising because these are the survey respondents most likely to live in the Columbia River Basin. Participants were most likely of the three groups to mention commodity values (timber, agriculture and economic opportunity appeared in their top nine) while members of the Westside CRB Public were least likely to mention commodity values. (Only hydro-electric power appeared in the CRB Public's top nine factors; hydropower may be the only commodity use where the Westside is dependent on the Eastside CRB.)

Respondents were also asked to state their agreement or disagreement with the statement, "I would rather live in my community than in any other community." Agreement with this statement was as follows: Participants (90%), Eastside CRB Public (73%), and Westside CRB Public (69%).

Information was also collected about the recreation/tourism use of the Columbia River Basin. Respondents indicated their reasons for going on their last recreation trip to the Columbia River Basin. There was substantial agreement across the groups. (See Table 4.) Each group rated "viewing scenery" and "escape from normal routine" as their top two reasons. "Physical fitness" and "Being with others" were ranked lowest for each of the groups.

Among the respondent groups, 56 percent of the Participants indicated they visited public lands in the Columbia River Basin for recreation at leave once a month on average. The same figure was 22 percent for the Eastside CRB Public, and 8 percent for the Westside CRB Public. Over a third of the participants said other uses interfered with their recreation activities on public lands. The figure ranged from a low of 18 percent for the Westside CRB Public to 37 percent for the Participants. Therefore, the groups that used the area most often for recreation reported the highest levels of interference from other uses. For Participants, the "other uses" that interfered with recreation were grazing/cow pies (26 percent), crowding (13 percent) and logging (18 percent) (Tennert, Schreckhise & Briney, 1994).

2. Additional Survey Information

Another study conducted in northeast Oregon offers additional information on how residents of the Columbia River Basin view their area as a place to live (Hannigan, 1994). This study surveyed citizens of Wallowa, Baker, and Union counties in northeastern Oregon. The residents of these counties very strongly indicated "the natural undeveloped character of the land in our region is a big part of what makes this a quality place to live" and many said "I would take a lower paying job if it meant

that I could remain in my community".

In a 1993 study of Oregon residents' values and beliefs (Oregon Business Council, 1993) respondents were asked what they personally valued about living in Oregon. The three most common responses were natural beauty and recreation (36%), the people/sense of community (21%), and environmental quality (14%). Oregon residents' biggest fears for the their state included: overpopulation (12%), becoming like California (10%), environmental destruction (8%), economic problems (7%), and loss of forests (6%).

In a study of Idaho residents (Boise State University, 1992), over 90 percent of the respondents were satisfied with their quality of life. A national study of over 1,000 respondents offers some indication of how people view quality of life in rural areas (Roper Organization Inc, 1992a). Over two-thirds of the respondents indicated small towns and rural areas had better freedom from pollution and better overall quality of life. Rural residents indicated agreement but at slightly higher levels. Two-thirds of all the respondents said the overall quality of life in their community was good or excellent; 81% of the rural residents agree with this statement. Forty-five percent of all respondents indicated freedom from pollution was good or excellent in their community while 65% of the rural residents agreed.

A study of the hunter access policies of Idaho farmers and ranches asked the reasons they operated their ranch or farm (Bolon & McKetta, 1991). The reasons given were: to live in a rural environment (78%), to have privacy (72%), for aesthetic enjoyment (55%), as an investment (54%), to maintain family tradition (51%),to enjoy outdoor recreation (43%), and for an inexpensive place to live (35%).

A study of 2,500 potential California travelers examined the potential for tourism from California to the Pacific Northwest (Institute for Tourism and Recreation Research, 1993). The researchers found that more than half of the respondents perceived the Pacific Northwest to be better than most other destinations for seeing wildlife and nature, outdoor activities, a simpler lifestyle, getting away from demands and a safe and secure place to visit. Recent visitors to the area rated the area slightly higher on each of these factors than all potential visitors.

3. Conclusions

These studies indicate that the Columbia River Basin'is viewed as a very good place to live and that the rural qualities of the area including outdoor recreation opportunities are part of the attraction.

TABLE 3
MOST IMPORTANT FACTORS CONCERNING THE FUTURE OF PUBLIC LANDS
IN THE COLUMBIA RIVER BASIN

	EASTSIDE CRB % (RANK)	WESTSIDE CRB % (RANK)	PARTICIPANTS % (RANK)
Resources for Future Generations	48 (1)	42 (1)	48 (1)
Quality Place to Live	46 (2)	24 (6)	43 (3)
Outdoor Recreation	34 (3)	31 (2)	17 (6)
Wildlife Habitat	24 (4)	30 (3)	23 (5)
Hydro-Electric Power	20 (5)	23 (7)	
Ecological Health	18 (6)	29 (4)	45 (2)
Agriculture	15 (7)		14 (8)
Wilderness	14 (8.5)	26 (5)	15 (7)
Wild & Scenic Rivers	14 (8.5)	18 (8.5)	
Salmon		18 (8.5)	
Vacation Destination			
Timber			25 (4)
Economic Opportunity			14 (9)

Source: Brunson, Shindler, Schreckhise, Steel, and Tennet (1994)

Note : Respondents were asked to choose three factors. Only the top nine responses for each sample are included here.

TABLE 4
REASONS FOR GOING ON LAST RECREATION TRIP
TO THE COLUMBIA RIVER BASIN

	EASTSIDE CRB (%)	WESTSIDE CRB (%)	PARTICIPANTS (%)
Viewing Scenery	95	96	94
Escape From Normal Routine	94	96	93
Getting Away From Other People	79	74	83
Learning About Nature	72	73	77
Excitement and Adventure	71	74	75
Physical Fitness	59	66	69
Being With Others	50	50	66

Source: Brunson, Shindler, Schreckhise, Steel, and Tennet (1994)

Note: Percent saying moderately to very important.

C. Knowledge Levels and Perception of Resource Problems

1. Mail Survey of Natural Resource Issues on Public Lands In The West (Brunson, Shindler, Schreckhise, Steel & Tennent, 1994)

(Note: See Appendix AI.C for descriptions of the survey methods and respondent groups.)

Respondents were asked how well informed they were concerning natural resource issues in the Columbia River. Not surprisingly, Participants were most likely to rate themselves as very informed (41%). Eastside and Westside CRB Publics were most likely to rate themselves as moderately informed (42% and 49% respectively). Respondents were also asked how well informed they were concerning the status of salmon runs in the Pacific Northwest. Responses followed the same pattern as for the natural resource issues question. However, the Eastside and Westside CRB Publics rated themselves as more informed about salmon runs than about natural resource issues in the CRB.

Respondents were also asked whether they believe environmental problems exist in the Western United States and in the Columbia River Basin. More than 70 percent of each group indicate that environmental problems exist in the Western United States, with a higher proportion of the Participants indicating these problems are very serious. The Participants also had the highest proportion (28%) indicating there are no environmental problems in the Western United States, indicating Participants are the most polarized respondent group. Responses to whether serious environmental problems exist in the Columbia River Basin elicited much more uncertainty among every group except the Participants. The proportion of groups indicating there is a problem ranged from 54 percent for the Eastside CRB Sample to 71 percent for the Participants. Participants were much more likely to say the problem was very serious (39%), or to say that a problem did not exist (28%).

Respondents to this survey were also asked to indicate what factors are related to the decline in salmon runs. Table 5 indicates the responses for each group. All groups rated foreign trawlers and drift nets, water pollution, and dams as the top three factors that are definitely or probably a threat to salmon. Habitat destruction on public and private forest lands was indicated as a threat by 70 to 85 percent of the respondents and 64 to 76 percent identified a threat from habitat destruction on public and private rangelands.

2. Additional Survey Information

Samples of Oregon and Idaho populations were also asked questions about declining salmon runs (Idaho Forest Products Commission, 1992; Moore Information, Inc., 1993). Because of differences in question wording it is difficult to directly compare responses from the three surveys. The threat/factors that were mentioned by high proportions of respondents to each survey were dams and fishing.

Several other studies offer more general information about public knowledge levels on environmental and natural resource issues. According to the Roper Organization (1991) knowledge about environmental facts is limited. The study surveyed a

representative sample of 2000 adults in the continental United States. Respondents were asked to respond to a series of 10 questions that were developed and refined in consultation with leading environmental groups, industry and the Federal government. The percent of respondents giving the correct answer to each question ranged from 10% to 53%. The highest correct responses were given for natural resource related issues:

-53% of the respondents correctly answered "About 50% of the world's wild plant, animal, and insect species live in rain forests";

-51% correctly answered "Loss of wilderness habitat is primary cause of declining duck & geese populations in the u.s.; and

-25% correctly answered "Fish in New England streams are the most affected by acid rain (of four listed items)".

Another study by the Science Advisory Board to the U.S. EPA (1990) identified a mismatch between public perceptions of environmental risks and the views of scientific experts using the most recent scientific data. Roper (1992) summarized the conclusions of this study, "...this dichotomy between public perceptions and expert opinion means that the public is highly concerned about certain environmental risks which the experts feel pose only moderate or low risks. But perhaps more important, it means that there are certain environmental problems which the experts feel pose serious risks but which the public views as less serious. In particular, the report concludes that in focusing attention on risk to human health, the nation has neglected the care of natural ecological systems."

In a study by Steel et. al. (1992), a variety of publics (random samples of residents of Portland, OR, Vancouver, WA, the rural public in four Washington counties (Clark, Cowlitz, Skamania and Klickitat counties), Gifford Pinchot National Forest Siouxon Valley visitors and Siouxon Valley Forest Plan participants) were asked if they were familiar with a variety of resource related terms. At least 70% of the members of each subsample were familiar with the terms clearcutting, ecosystem, conifer, selective cutting and watershed, and half were also familiar with managed stand, visual corridor and sustained yield. Familiarity with the following terms varied a great deal among the subgroups: biodiversity, riparian zone, biomass, indicator species, even-age stand, and sustained yield. Generally, the visitors/participants were much more familiar with the terms than were the random public samples.

3. Conclusions

Respondents to the survey conducted for this project indicate serious environmental problems already exist in the Western U.S.; they are less certain that serious problems already exist in the CRB.

This information suggests that while the general public may have relatively low knowledge levels about natural resource issues, those more involved with the process, such as the public participants, have higher knowledge levels. Kellert (1994) has some interesting observations about land management agencies and use of knowledge, "A naive response to opposing value differences

TABLE 5

FACTORS THAT THREATEN PACIFIC SALMON RUNS IN THE COLUMBIA BASIN AND ITS TRIBUTARIES EAST OF THE CASCADE MOUNTAINS*

	EASTSIDE CRB (%)	WESTSIDE CRB (%)	PARTICIPANTS (%)
Foreign Trawlers and Drift Nets	89	95	94
Water Pollution	87	94	86
Dams	82	87	91
Native American Gill Nets	72	72	73
Habitat Destruction on Public and Private Forest Lands	70	85	70
Habitat Destruction on Public and Private Range Lands	64	76	67
Predators; Such As Seals	57	76	68
Irrigation	53	68	70
Ocean Warming	48	57	67

Source: Brunson, Shindler, Schreckhise, Steel & Tennert, (1994)

Percent respondents indicating factor is a definite or probable threat to salmon.

among competing constituencies has been the presumption that supplying more information will resolve these differences, presumably in the direction desired by the agencies. The intransigence of underlying value differences has rarely been appreciated, however; nor has the related tendency of most groups to use additional information to reinforce and rationalize their prevailing perspectives."

D. Management Activities

1. Mail Survey of Natural Resource Issues on Public Lands In The West (Brunson, Shindler, Schreckhise, Steel & Tennent, 1994)

(Note: See Appendix AI.C for descriptions of the survey methods and respondent groups.)

Survey respondents were asked to assess their attitudes toward nine potential approaches for improving the conditions of public lands in the Columbia River Basin. Table 6 indicates levels of support for the different approaches. The majority of respondents in each group supported selective logging methods in general and in specific situations such as bum or insect infested areas or to prevent forest diseases and infestation. Less support was evident for clearcutting in bum or insect infested areas, particularly among the Participants.

Nearly half of all respondents in the different groups supported increased regulations to protect fish and wildlife habitat and increased regulation of livestock grazing. Eastside CRB Publics and Participants were more like1y to oppose increased regulations. Support for road closures in ecologically sensitive areas where recreation occurs ranged from 52 percent for the Eastside CRB Public to 63 percent for the Participants. Again, Eastside CRB Publics and Participants were more likely to oppose road closures. These are also the respondents who are most likely to use the area for recreation.

The use of chemical insecticides and herbicides had the least support of any management alternative. Participants and Eastside CRB respondents were most likely to support their use. Support for the use of organic insecticides and herbicides was much higher. Support ranged from 60 percent among the Participants to 74 percent for the Eastside CRB Public.

Some questions concerning land management "tools" to accomplish broad scale ecological objectives were only asked of Participants. The "tools" most preferred by the Participants were "Harvest trees in ways that mimic natural disturbances", and "Use prescribed fire to reduce forest diseases, insects, and excessive fuel levels". The least preferred "tool" was "Do nothing, wait for time and natural processes to accomplish ecological outcomes".

Respondents to the survey developed for this project were asked about the use of fire in federal forest lands. The most common response from each group was to suppress wildfires in federal forests managed for timber and use controlled fire to protect forest health. Support for this option ranged from 34 percent among participants to 42 percent for the Eastside CRB Public. The next most popular choice for each group (ranging from 21 to 28%) was to suppress wildfires in federal forests only if they threaten human.lives or property; otherwise fire should resume its natural

role in forests. Less than twenty-five percent of the respondents from each group indicated fire should be suppressed in all federal forests or fire should be suppressed in all federal forests managed for timber, and pesticides or salvage logging used if forest health is endangered.

Participants were also asked how long they would be willing to put up with decreased air quality during prescribed burning for short periods of time to accomplish certain ecological objectives. Seventy-five percent of the Participants indicated they were "very willing" or "somewhat willing" to put up with decreased air quality at home and where they go for recreation.

2. Additional Survey Information

The American Forest survey (Frederick/Schneiders, 1994) also offers some information on attitudes toward fire policies. In this survey, 55 percent of the respondents indicated authorities, like the Forest Service, should try to extinguish all fires in order to preserve as much of the forests as possible. Thirty-six percent felt fires should be allowed to bum themselves out because fires are a part of the forest's life cycle. Northwesterners favored extinguishing fires by a narrow 46 to 39 percent margin while residents of the Inland West were evenly split on the issue. The use of controlled fire by federal authorities to thin the forests so that wildfires are less damaging is favored by 49 percent, while 42 percent oppose this practice because of the possibility that the fire will spread, and because smoke from controlled fire causes air pollution. Support for this practice is stronger in the west. In the Inland West the practice is favored by 67 to 23 percent and in the Pacific Northwest it is favored by 54 to 38 percent. In another question, 40 percent favored building more roads in order to increase access for fighting fires, to allow the forest to be thinned, and for recreational uses while 55 percent do not favor building roads because roads create soil erosion and destroy the wild nature of the forest.

3. Conclusions

Selective logging practices and use of organic insecticides and herbicides received the most support in the project survey. Participants indicated that trees should be harvested in ways that mimic natural disturbances; however, they did not favor doing nothing and waiting for time and natural processes to accomplish ecological outcomes. Respondents also indicated that wildfires should be suppressed but that controlled fire should be used to protect forest health. Road closures in ecologically sensitive areas where recreation occurs were supported by more than half of the respondents.

See also Appendix AV for a discussion of the concept of acceptability as it applies to management activities.

TABLE 6
LEVEL OF SUPPORT FOR MANAGEMENT ACTIVITIES

A. Selective logging practices.

	OPPOSE (%)	NEUTRAL (%)	SUPPORT (%)
EASTSIDE CRB	'7	11	82
WESTSIDE CRB	8	19	73
PARTICIPANTS	8	9	83

B. Clearcutting in bum or insect infested areas.

	OPPOSE (%)	NEUTRAL (%)	SUPPORT (%)
EASTSIDE CRB	31	20	49
WESTSIDE CRB	35	23	42
PARTICIPANTS	44	11	45

C. Selective cutting in bum or insect infested areas.

	OPPOSE (%)	NEUTRAL (%)	SUPPORT (%)
EASTSIDE CRB	10	18	72
WESTSIDE CRB	13	23	64
PARTICIPANTS	16	16	68

D. Selective harvesting to prevent forest diseases and infestations.

	OPPOSE (%)	NEUTRAL (%)	SUPPORT (%)
EASTSIDE CRB	3	7	90
WESTSIDE CRB	4	12	84
PARTICIPANTS	14	9	77

E. Increased regulation to protect fish and wildlife habitat.

	OPPOSE (%)	NEUTRAL (%)	SUPPORT (%)
EASTSIDE CRB	35	20	45
WESTSIDE CRB	22	16	62
PARTICIPANTS	42	10	48

TABLE 6 (CONTINUED)
LEVEL OF SUPPORT FOR MANAGEMENT ACTIVITIES

F. Increased regulation of livestock grazing.

	OPPOSE (%)	NEUTRAL (%)	SUPPORT (%)
EASTSIDE CRB	24	30	46
WESTSIDE CRB	19	30	51
PARTICIPANTS	35	10	55

G. Use of chemical insecticides and herbicides.

	OPPOSE (%)	NEUTRAL (%)	SUPPORT (%)
EASTSIDE CRB	45	26	29
WESTSIDE CRB	54	29	17
PARTICIPANTS	46	17	37

H. Use of organic insecticides and herbicides.

	OPPOSE (%)	NEUTRAL (%)	SUPPORT (%)
EASTSIDE CRB	6	20	74
WESTSIDE CRB	7	22	71
PARTICIPANTS	16	24	60

I. Road closures in ecologically sensitive areas where recreation occurs.

	OPPOSE (%)	NEUTRAL (%)	SUPPORT (%)
EASTSIDE CRB	27	21	52
WESTSIDE CRB	17	23	60
PARTICIPANTS	26	11	63

Source: Brunson, Shindler, Schreckhise, Steel, and Tennet (1994)

Note: Strongly oppose and oppose have been combined.
Strongly support and support have been combined.

E. Environmental/Economic Trade-Offs

(Note : See Appendix AI.C for descriptions of the survey methods and respondent groups.)

1. Mail Survey of Natural Resource Issues on Public Lands In The West (Brunson, Shindler, Schreckhise, Steel & Tennent, 1994)

One of the most frequently asked environmental survey questions concerns trade-offs between economics and the environment. Respondents were asked to place themselves on a 7 point scale with "the highest priority should be given to salmon recovery even If there are negative socioeconomic consequences" at one end and "the highest priority should be given to socioeconomic considerations even if there are negative consequences for salmon" at the other end. Responses were well distributed across the 7 point scale with the largest numbers of respondents in each group (except the Participants) falling in the middle category (where salmon recovery and socioeconomic factors are given equal priority).

Among the Eastside CRB Public respondents, 30 percent indicated the highest priority should be given to salmon and 30 percent indicated the highest priority should be given to socioeconomic considerations. Near1y 50 percent of the Westside CRB respondents indicated the highest priority should be given to salmon; only 16 percent indicated it should be given to socioeconomic considerations. The Participants were the most polarized group with 48 percent indicating salmon should be given the highest priority and 36 percent indicating socioeconomic considerations should be given the highest priority.

2. Additional Survey Information

The above results are similar to those obtained from a survey of the nation and Oregon on forestry issues (Shindler, List & Steel, 1993). In this survey the largest number of respondents in both the national and Oregon samples (47% and 44% respectively) indicated both environmental and economic factors should be given equal priority in forest management policy. Nearly as many indicated the highest priority should be given to maintaining natural environmental conditions (42% in the national sample and 37% in the Oregon sample).

These responses are supplemented by survey results obtained from the 1994 Roper Starch survey. Two thirds of the respondents indicated environmental protection and economic development can go hand in hand while 25 percent disagreed. People living in the West, those with a high school education or less, people 65 years and older and those with a household income under $20,000 were less likely to agree. Sixty percent of these respondents went on to indicate that environmental protection is more important than economic development when a compromise cannot be found; 22 percent said economic development was more important. Respondents to this survey were also likely to indicate that technology will find a way of solving environmental problems. Fifty-nine percent agreed with this statement, while 38 percent disagreed.

In a study by Hannigan (1994) of three counties in northeastern Oregon more respondents indicated "the quality of our region's natural environment should be protected even if this means that some local people will have to change jobs'" than "the quality of our region's natural environment should be sacrificed if this

helps local people keep their current jobs". The longer a respondent had lived in his community, the more likely he was to agree with the latter, rather than the former, statement.

3. Conclusions

Information gathered for this project and other surveys indicate that respondents feel environmental and economic concerns can go hand and hand and should be given equal weight, if possible. If this is not possible, the environment is considered more important.

F. Willingness to Pay and Willingness to Act

1. Mail Survey of Natural Resource Issues on Public Lands In The West (Brunson, Shindler, Schreckhise, Steel & Tennent, 1994)

No information collected on this topic.

2. Additional Survey Information

The link between attitudes and behavior is tenuous at best. This section will discuss this issue both from the behavioral/lifestyle changes people have been willing to make and from a conceptual framework. Some studies indicate the public has done quite a lot in this area while others indicate they have not done much at all.

Dunlap & Scarce's article on trends in attitudes toward the environment examined pro-environmental behaviors. Over 75 percent of the respondents in surveys conducted in 1971 and 1990 reported they would be willing to give up convenience products and services they now enjoy if it meant helping preserve natural resources. In another survey conducted in 1990, 75 percent said they had made changes in day-to-day behavior because of concerns about the environment. Respondents indicated they had done the following things in recent years to try to improve the quality of the environment:

-voluntarily recycled (78%)
-cut household's use of energy by improving insulation or changing heating system or air conditioning system (76%)
-replaced auto with one that is more fuel efficient (66%)
-cut household's use of water (65%)
-cut down on the use of a car by carpooling or taking public transportation (42%)
-boycotted a company's products because of its record on the environment (29%)
-did volunteer work for an environmental, conservation, or wildlife preservation group (16%)
-no steps taken (2%)

Steel, List & Shindler (1992) asked national and Oregon samples about their participation in recycling and other environmentally related behavior. In the national sample, people who said they recycled at home ranged from 77% for cans and metals to 51% for plastics. In the Oregon sample, people who said they recycled at home ranged from 82% for newspapers to 58% for plastics. People who did not recycle cited lack of opportunity and the amount of time it takes as reasons why they did not participate. Majorities of people in the nation and Oregon also reported participating in following activities:

Avoiding pesticides
nationwide 64%
Oregon 56%
Buying environmentally sound products
nationwide 67%
Oregon 69%
Reducing water usage
nationwide 75%
Oregon 75%
Reducing energy consumption
nationwide 83%
Oregon 84%
Restricting family size
nationwide 51%
Oregon 52%

In 1990, Roper asked respondents how much individuals could do about various environmental problems. The percentages of respondents saying individuals could do "a lot" were as follows:

Litter 79%
Indoor pollution 68%
Solid waste from the disposal of garbage and trash 49%
Air pollution from auto exhaust 38%
Pesticide residues on food 36%
Destruction of the ozone layer 32%
Contaminated drinking water 29%
Water pollution from disposal of waste by manufacturing plants 24%
Environmental contamination from chemical waste 23%
The "greenhouse effect" 21%

Respondents also indicated the main reason they did not do more about the environment was that "companies, not people like me, should solve the problems."

According to Roper, in reference to the above information, "Americans' preferred response to environmental problems is, in general, government action to mandate a change in business practices. Individual initiative, whether in personal lifestyles or purchase behavior, is decidedly less desirable--even if not less important. And a major reason for this general preference centers of the issue of efficacy. . . Americans may not feel powerless in the face of every kind of environmental problem. But they do feel that the most serious problems are largely beyond their personal control, and hence that the solutions' must come from organizations of sufficient size to cope with them."

The 1994 Roper Starch survey asked respondents how much difference personal efforts to benefit the environment could make. The majority of the respondents (56%) indicated individuals could make a small difference, one third indicated individuals could make a large difference and 8 percent indicated individuals could make not difference. Those respondents less likely to say personal efforts would make a large difference included persons aged 45 to 64, those with household incomes of $50,000 or more and residents of the West.

Sia et al (1985-86) examined the contribution of eight variables in predicting responsible environmental behavior. The variables found to have the highest predictive values had both personal and

knowledge level components. They were: level of environmental sensitivity, perceived knowledge of environmental action strategies, and perceived skill in using environmental action strategies.

Other studies have looked at responsible environmental behavior and moral norms. Van Liere and Dunlap (1978) indicate "the possibility that established moral norms, such as respect for the health of others, may influence environmental behaviors." However, for such norms to be activated and influence decision making the following much be clear: the negative consequences of the behavior (that needs to be changed) for people, an awareness of personal responsibility for the behavior, and reasonable alternatives to the behaviors.

Kempton (1993) examined the public response to different environmental problems. He found that public environmental concern has occasionally led to dramatic successes. Examples of this are recycling and use of CFCs in spray cans. However, these examples are exceptions. In many cases, such as global warming, barriers to consumer and political action occur. These barriers include: infrastructural restrictions, lack of consumer control, prior mental models applied inappropriately to new problems, lack of response knowledge and lack of association of environmental problems with an appropriate solution. In the examples he looked at, none of the following emerged as the sole barriers to public response: economic cost, discomfort or convenience.

Dunlap and Scarce (1991) summarized trends in willingness to pay for environmental protection. The information they used was asked in a variety of ways from a variety of different sources, and suggests that the percent of the population that indicates it is willing to pay more for environmental protection has increased steadily since 1970. For example, the percent of respondents agreeing with the statement "Government regulations and requirements to protect the environment are worth the extra cost added to the products and services the average person buys" increased from 58 percent in 1981 to 71 percent in 1990. Agreement with the statement "I would be willing to pay as much as 10% more a week for grocery items if I could be sure that they would not harm the environment increased from 47% in 1971 to 64% in 1990. And, in response to the question, "Sometimes the laws that are designed to protect the environment cause industries to spend more money and raise their prices. Which do you think is more important: protecting the environment or keeping prices down?", the proportion indicating "protect the environment" rose from 57 percent in 1975 to 80 percent in 1990. The proportion indicating "keep prices down" dropped from 33 percent in 1975 to 13 percent in 1990.

The 1994 Roper Starch survey also asked a variety of questions about how environmental programs should be paid for. Over one third of the respondents (37%) indicated taxes should be increased with proceeds targeted to environmental programs, 59 percent were unwilling to have taxes increased for environmental programs. However, 63 percent of the respondents agreed with the idea that "Federal spending should be shifted to environmental programs from other areas." These figures are similar to the results of the 1992 Roper survey where 34 percent of the respondents indicated taxes should be increased and 61 percent were unwilling. At that time 66 percent of the respondents indicated federal spending should be shifted to environmental programs from other areas.

Nearly half of the respondents (48%) indicated a willingness to pay an extra 25 cents per gallon of gasoline if that money went to protecting or preserving the environment; an almost equal number (45%) indicated they were unwilling. People who were more likely to say they were willing to pay the extra money included: those aged 18 to 34, those living in the west, and those with a household income under $29,000. People less likely to agree include those living in rural areas, those living in the midwest, and those aged 45 and over.

In the 1992 Roper survey, 80 percent of the respondents indicated a willingness to pay higher consumer prices in order to limit coastal commercial fishing to protect fishing grounds; 15 percent disagreed. However, only 42 percent indicated a willingness to pay higher electricity bills to save endangered salmon by tearing down large dams; 49 percent indicated this was not worth doing.

A 1990 Roper survey asked respondents how much they were willing to pay directly for products that would cause less pollution such as recycled paper products, one-third less polluting cars, one-third less polluting gasoline. The responses were relatively low, ranging from 6.0 to 7.4 percent.

3. Conclusions

Environmentally responsible behavior is extremely complex. With some activities such as recycling, where the benefits are clearcut, large numbers of people engage in these behaviors. However, for many areas of environmental concern, barriers to effective action are very high.

The evidence regarding willingness to pay to protect the environment is unclear. However, it is very clear that people are unwilling to pay more in taxes to protect the environment, although they are willing for taxes to be shifted from other programs.

G. Attitudes Toward Agencies/Decision Processes

1. Mail Survey of Natural Resource Issues on Public Lands In The West (Brunson, Shindler, Schreckhise, Steel & Tennent, 1994)

(Note : See Appendix AI.C for descriptions of the survey methods and respondent groups.)

Table 7 shows respondents' level of trust in agencies, publics and other entities. (See Table 7.) Levels of trust in government agencies were low for each group. Ratings for the USDI Fish and Wildlife Service were generally higher than for the Forest Service, BLM or the Army Corp of Engineers. Congress had the lowest ratings of any entity on the list. University scientists were trusted by about 50 percent of the respondents within each group. Trust in national public opinion was consistently low (about 20% for each group). Trust in Western U.S. Public Opinion was higher ranging from 34 percent among the Participants to 50 percent among the Eastside CRB Public. Trust in the urban communities in the CRB ranged from 25 percent among the Participants to 35 percent among the Eastside and Westside CRB Publics. Trust in the rural communities ranged from 44 percent among the Westside CRB Public to 55 percent among the Eastside CRB Public. Overall, among all the groups, trust was highest in university research scientists, USDI Fish and Wildlife Service,

Western U.S. public opinion. and the rural communities in the Columbia River Basin.

The survey for this project also asked respondents to indicate the amount of influence the same agencies, publics and others should have in public lands management. (See Table 8.) About half of the respondents indicated BLM, the Forest Service, and university research scientists should have a moderate to a great deal of influence. Figures were higher for the Fish and Wildlife Service, ranging from 56 percent among the Eastside CRB respondents to 82 percent among the Participants. Respondents in all groups indicated that Western U.S. Public Opinion should have more influence than national public opinion. The proportion saying Western U.S. public opinion should have a moderate to a great deal of influence ranged from 47 percent Participants to 61 percent for the Eastside CRB Public. Higher proportions of all groups also indicated that rural communities in the CRB should have more influence than urban communities. Overall, among all groups, the entities the highest proportions said should have a moderate to a great deal of influence were rural communities in the CRB, western U.S. public opinion, university research scientists, and Fish and Wildlife Service, Forest Service and BLM employees.

Two questions that were asked only of Participants concern the respondent's level of trust in agency ability and motive (Tennert, Schreckhise, Briney, 1994). The percent of Participants indicating they had "no trust" or "limited trust" in BLM's ability was 46 percent. The same figure was 42 percent for the Forest Service. The percent of Participants indicating they had "no trust" or "limited trust" 'in BLM's motives were 54 percent. The same figure was 52 percent for the Forest Service.

The survey for this project also asked respondents what role the public should play in federal lands management concerning the Columbia River Basin. Responses were fairly consistent among the different respondent groups. Thirty-two to thirty-nine percent indicated the public should act as a full and equal partner in making management decisions. Members of the Eastside CRB Public were more likely to say this. Another third (30 to 32%) of each group indicated the public should serve on advisory boards that review and comment on decisions. Fewer than 4 percent of the respondents in each group indicated the public should not play a role and should let resource professionals decide how to manage.

2. Additional Survey Information

A study for American Forests (Frederick/Schneiders, 1994) asked a national sample more specific questions about trust in scientists. Respondents to their survey indicated scientists employed by universities were rated as "most respected" by 43 percent of the respondents, followed by scientists employed by environmental groups at 21 percent, scientists employed by federal forest agencies at 16 percent and scientists employed by timber companies at 7 percent. In the Pacific Northwest, however, scientists employed by timber companies were twice as likely to be rated "most respected" as scientists employed by environmental groups. This same survey also asked respondents about their impressions of the Forest Service and BLM. It is interestine to note that 43 percent of the national public either recognized the name BLM but did not know enough to rate the agency or did not recognize the name at all. For the Forest Service, the same figure was 19

TABLE 7
LEVEL OF TRUST IN AGENCIES, PUBLICS, OTHERS

	EASTSIDE CRB (%)	WESTSIDE'CRB (%)	PARTICIPANTS (%)
USDI BLM	31	26	27
USDA Forest Service	42	37	31
USDI Fish and Wildlife Service	47	46	29
U.S. Congress	8	7	6
Native American Government	20	25	28
Army Corps of Engineers	21	28	11
Bonneville Power Administration	22	15	12
University Research Scientists	47	52	53
Federal Courts	19	21	30
National Public Ooinion	22	20	18
Western U.S. Public Opinion	50	42	34
Urban Communities in the CRB	35	35	25
Rural Communities in the CRB	55	44	50

Source: Brunson, Shindler, Schreckhise, Steel, and Tennet (1994)

Note: Percent saying moderate to great trust.

TABLE 8
AMOUNT OF INFLUENCE AGENCIES, PUBLICS, OTHERS SHOULD HAVE

	EASTSIDE CRB (%)	WESTSIDE CRB (%)	PARTICIPANTS (%)
USDI BLM	50	46	50
USDA Forest Service	53	55	56
USDI Fish and Wildlife Service	56	62	82
U.S. Congress	20	19	29
Native American Government	25	31	38
Army Corps of Engineers	24	27	15
Bonneville Power Administration	24	16	16
University Research Scientists	45	50	53
Federal Courts	24	21	33
National Public Opinion	27	25	29
Western U.S. Public Opinion	61	53	47
Urban Communities in the CRB	45	50	39
Rural Communities in the CRB	63	55	61

Source: Brunson, Shindler, Schreckhise, Steel, and Tennet (1994)

Note: Percent saying moderate to a great deal of influence.

percent. Of the respondents that offered a rating, over 90 percent of the respondents were very or somewhat favorable toward the Forest Service and 58 percent were very or somewhat favorable toward BLM.

In a study of attitudes toward rangelands with a national and Oregon sample, Steel & Brunson (1993), asked who government officials should be most responsive to when making decisions about federal range lands. Both the national and Oregon samples ranked local affected communities as the entity government officials should be most responsive to. The national respondents ranked the remaining entities in the following order from high to low: national public opinion, government natural resource agencies, environmental interest groups, local affected industry, state public opinion, and global/international opinion. In contrast, the Oregon sample ranked state public opinion and local affected industry as second and third above national public opinion, government natural resource agencies, and environmental interest groups.

A similar question is reported in a survey about federal forests conducted by Shindler, List & Steel (1993). This question asked who government officials should be most responsive to when making decisions about federal forests. The rankings by the respondents in this survey are identical to those for the rangeland survey for both the national and Oregon samples.

The national/state differences are supported by a study conducted in three northeastern Oregon counties by Hannigan (1994). When asked "How much do you trust the following groups to manage our region's natural resources", responses ranged from "some" to "a lot" for community residents, local land owners and locally owned businesses to "a little" to some" for county commissioners, the Forest Service, BLM, State Departments of Fish and Wildlife and scientists, to "no" to "a little" for trade unions, non-profit environmental organizations and out of state corporations. The same respondents also strongly agreed with the statement "National forests lands belong to all Americans, but local people living near the forests should have the most say in the management of the forests."

3. Conclusions

Overall, the entities which the respondents trust and feel should influence management decisions are local rural communities, Western U.S. public opinion, university research scientists and the USDI Fish and Wildlife Service. Entities respondents felt should have influence but in whom they do not have a great deal of trust include the Forest Service and BLM. Respondents also indicated the public should play an active role in public land management.

IV. Summary & Implications

A. Implications for the Eastside Assessment

The attitude information collected here provides some very straightforeword points:

1. Strong support exists for protection of fish and wildlife on public lands. The public generally supports a multiple benefits mode of management which emphasizes a long-term balance between human and ecological concerns.

2. Although the public still supports endangered species management, concern about costs is increasing. The most persuasive argument for saving endangered species may be their potential benefit to man.

3. The Columbia River Basin is viewed as a very good place to live and that the rural qualities of the area including outdoor recreation opportunities are part of the attraction.

4. The public believes serious environmental problems already exist in the Western U.S.; they are less ceratin that serious problems already exist in the CRB.

5. While the general public may have relatively low knowledge levels. about natural resource issues, those more involved with the process, such as public involvement participants, have higher knowledge levels.

6. The following management practices receive support: selective logging practices, use of organic insecticides and herbicides receive support, harvesting trees in ways that mimic natural disturbances, suppressing wildfires but using controlled fire to protect forest health all receive support.

7. The public feels environmental and economic concerns can go hand and hand and should be given equal weight, if possible. If this is not possible, the environment is considered more important.

8. Environmentally responsible.behavior is extremely complex. With some activities where the benefits are clear (such as recycling), large numbers of people engage in these behaviors. However, for many areas of environmental concern, barriers to effective action are very high.

9. The evidence regarding willingness to pay to protect the environment is unclear. However, it is very clear that people are unwilling to pay more in taxes to protect the environment, although they are willing for taxes to be shifted from other programs.

10. The entities which the public trusts and feels should influence management decisions are local rural communities, Western U.S. public opinion, university research scientists and the USDI Fish and Wildlife Service. Entities the public feels should have influence but in whom they do not have a great deal of trust include the Forest Service and BLM. The public also feels it should play an active role in public land management.

11. The following groups are likely to exhibit high levels of environmental concern: younger people, women, liberals, those with higher levels of education, those raised and currently living in urban areas, and those employed outside of primary industries.

12. The concept of "acceptability" and its implications for alternative development and selecting management practices need to be explored.

13. There is considerable agreement among the different publics about land management issues.

14. The strength of attitudes toward environmental issues may increase as environmental and/or resource problems become more evident. This depends, in part, on the seriousness of the other issues our society is called upon to address in the future. Increasing economic problems may direct people's attention to more immediate problems and away from environmental issues. It is not clear whether the fall 1994 elections signal such a change in attitudes toward environmental issues.

15. The public's desire for involvement in the decision making process and unwillingness to accept professional authority will probably continue in the future. As the public becomes even more involved, knowledge levels may increase.

16. It is not clear how the conflict over natural resource management will play itself out in the future. One factor that may mitigate the conflict is the trend for local community groups to try to work with the different people involved to resolve problems at the local level.

Other lessons learned include:

1. awareness of an issue does not necessary translate into an understanding of the complexities surrounding an issue

2. attitude information is often inconsistent

3. survey questions may simplify very complex questions and results may change if more context is supplied or context is changed

Implications of the information:

1. the complexity of these issues needs to be communicated to the public; however more knowledge about the issues will not necessarily result in agreement about issues

2. the concept of acceptability can be used to frame alternatives/scenarios and to assess management activities

B. Future Research Needs

Recommendations for future research fall not so much in the category of what specific information is collected as how it is collected. Land management activities can be extremely complicated and ABV research needs to address the complexities inherent in these issues. It would also be interesting to assess how ABVs are affected by knowledge levels and issue complexity, how people deal with inconsistencies within their attitudes, and the roles learning/discussions with others of similar or dissimilar mind could play in developing or changing ABVs.

Specific issues include to be examined include:

-examining acceptability in terms of goals and management practices for this particular assessment,

-strength of ABVs relating to the types of issues examined in this

paper.

It also may be worthwhile to examine attitudes as dependent variables by measuring changes in attitudes after the project is implemented as a part of monitoring

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Appendices

AI. Methods

A. General

1. Definitions

ATTITUDES, PERCEPTIONS, OPINIONS, FEELINGS

Each of these words is encountered frequently in social science literature and the popular press. Varying definitions are attributed to these words. According to B. Hennessey as discussed by Miller (1983):

"...opinions are lightly held reactions to non- salient stimuli and are usually unorganized and subject to easy change. Attitudes are more organized and strongly held views of salient issues. Attitudes are usually stable and are often the basis for specific behaviors -- like voting or contacting an official. Belief systems are totally structured and organized set of attitudes -- like Marxism, Liberalism, or conservatism."

Some definitions are quite complex. For instance, Triandus (1971). indicates attitudes have three components: a cognitive component (the idea), an affective component (the emotion which charges the idea) and a behavioral component (a predisposition to act). Other definitions are quite simple such as those attributed to Dillman by Conn (1983) which describe attitudes as "what people say they want", beliefs as "what people think is true", and behavior as "what people do".

Dunlap, Grieneeks & Rokeach (1975) describe the interrelationships between attitudes, values and behaviors (actions) which may be helpful in interpreting the information in this paper. They attribute this quote to S. J. Ball-Rokeach:

1) a person may have thousands of attitudes toward specific objects and situations, but relatively few values; 2) values occupy a more central position than attitudes because they are generalized internal standards that transcend specific objects or situations; 3) values determine attitudes and action, so that a change in values should lead to a change in attitudes and actions; 4) values are hierarchically organized by their relative importance to one another; and 5) a person's value system and variations in value priorities account, in large part,, for variations in attitude and action."

According to Albrecht and Thompson (1988) "Most social impact researchers have used all four of these concepts (i.e. attitudes, beliefs, values and opinions) almost interchangeably, and certainly their use in the literature has been highly inconsistent."

2. How ABVs fit into Social Assessment

Much of the guidance for social assessment (BLM's Guide to Social Assessment, for example) discusses the importance of attitudes, However, most guides are community based with all impacts and attitudes at the community level. Many social assessment documents currently being prepared represent a much more complex situation with the examination of larger geographic areas and the

addition of concepts such as communities of interest (i.e. communities defined by a shared sense of identity based on common concerns about a particular issue regardless of geographic location). The Forest Service Handbook and the newly developed Guidelines and Principles for Social Impact Assessment discuss the importance of attitudes in a broader context than just the immediately affected communities. However, neither document is clear about how this attitudinal information is to be used in the assessment process (for example to assist in developing alternatives or informing managers about how people may react to the proposals).

Albrecht and Thompson (1988) reviewed the use of attitudes and perceptual measures in the literature on the social assessment process and concluded that the use of these variables is not systematic and ignores some critical issues. These critical issues include the place of the attitudes in the models (should they be treated as independent, dependent or intervening variables), the problem of attitude-behavior predictability, exploration of personal and situational variables associated with attitudes and behavior, and attitude measurement problems. "Attitudes as independent variables" are those attitudes that exist prior to proposal implementation. "Attitudes as intervening variables" means examining how attitudes will affect proposal implementation and/or using attitudes during the decision-making process to modify the proposal. "Attitudes as dependent variables" means examining changes in attitudes that occur after the proposal is implemented. This paper will provide information that can be used as independent and/or intervening variables, and propose data collection of dependent attitude variables.

B. Limitations Of Survey Data

According to Farhar-Pilgrim (1983), survey data can provide accurate descriptions of: attitudes toward the idea of an object in the abstract or general, attitudes toward or evaluation of a specific object, perceptions of reality, levels of knowledge, preferences and wishes, fears and concerns, and certain sociodemographic information. Survey data can provide somewhat less accurately the importance (salience) of an object, more sensitive sociodemographic information (such as income), actual behavior, needs, and reasons for opinions. Survey data cannot tell how a given individual will behave in many situations or how attitudes will change in the future.

Survey data can provide the above information assuming sound methods. A variety of things can interfere with sound methods including poor question wording, and inadequate data collection strategies. Problems of particular importance for this report include the inability of surveys to adequately measure the importance or depth of feeling regarding an issue, low response rates, and difficulties gathering information on complex issues. Even with sound methods, surveys necessarily simplify what can be very complex issues. Lack of adequate context and constraining the range of responses a respondent can give are examples of the problems that can occur. In addition, certain groups tend to be underrepresented in surveys. For example, samples drawn from telephone directories tend to underrepresent racial minorities, lower income groups, the young, and highly mobile individuals (Brunson et al, 1994).

A variety of sources are used in this report. Surveys whose

methods are unsound are *not* included. Several ways of looking at the same issue may be included to present a more complete picture. Efforts are made to compare results from similar surveys to see if the results are consistent. Consistencies and inconsistencies are noted where it is possible to compare survey results. When consistencies in ABVs are found among different surveys, more confidence can be placed in the information.

This section was prepared to make the reader aware that survey data should be viewed with caution. However, used in conjunction with other information, it can offer insights into how the public views particular issues.

C. Mail Survey Of Natural Resource Issues On Public Lands In The West

Much of the information in this paper was collected via a mail survey conducted during the summer of 1994 for this project (Brunson, Shindler, Schreckhise, Steel, Tennert, 1994; Tennert, Schreckhise and Briney, 1994). The questionnaire was developed by the Eastside Ecosystem Social Assessment Team members and university social scientists familiar with natural resource issues and surveys. Questionnaire design followed Dillman's Total Design Method (Dillman, 1978).

Four data sets were collected:

- a random sample of 1211 citizens living in counties located totally or partly within the Columbia River Basin east of the Cascade Mountains (413 citizens responded for a response rate of 34%), these respondents are described in this report as the Eastside CRB Public;

- a random sample of 1207 citizens living in counties located totally or partly within the Columbia River Basin west of the Cascade Mountains, and citizens from Seattle, WA (376 citizens responded for a response rate of 31%), these respondents are described in this report as the Westside CRB Public;

- a national random sample of 1773 citizens (318 citizens responded for a response rate of 18%), these respondents are described in this report as the National Public;

- all 2094 Eastside Assessment public involvement participants received a survey (797 responded for a response rate of 38%), these respondents are described in this report as the Participants.

The low response rates for this survey are due to several reasons: the survey was conducted in the summer when many people are occupied with other concerns, the topics being addressed *were* narrow and complex, and nonrespondent follow-up did not occur. These problems were due to project time and financial constraints.

Demographic comparisons indicate older respondents are overrepresented and non-white respondents are underrepresented in this survey. Caution must be used in generalizing the results of the survey to the populations they are supposed to represent due to the low response rates. This is a special concern with the national sample, where female respondents are also underrepresented. Fortunately, some survey data with similar questions has recently been collected on national populations

(Brunson & Steel, 1994; Steel, List & Shindler, 1992). The national level data from the survey described above will only be reported where responses from other national level surveys with much higher response rates are available for comparison purposes.

Respondents from each sample were asked to describe their political and interest group affiliations. Respondents in each group were most likely to describe themselves as moderate on domestic issues. The percentage of respondents describing themselves as liberal was 10 percent for the Eastside CRB Public, 19 percent for the Westside CRB Public and 26 percent for Participants. The proportion of respondents describing themselves as conservative ranged from 34 percent for the Westside CRB Public to 40 percent among Participants.

Respondents indicated they were members of environmentalist groups in the following proportions: Eastside CRB Public (9%), Westside CRB Public (17%), and Participants (16%). Nine percent of the Participants indicated they belonged to a recreation group while 15 percent of the Eastside and Westside CRB Publics indicated they belonged. Wise use group membership ranged from 7 percent for the Participants to 9 percent for the Eastside CRB Public.

Among the different groups, the proportion of respondents whose family depend upon the timber, ranching, agriculture, hydro-electric, tourism or fishing industry for their economic livelihood ranged from 22 percent for the Westside CRB Public to 60 percent for the Participants. Participants were also the most likely to visit public lands in the Columbia River Basin for recreation with 56 percent saying they visited the area at least once a month on average. According to the survey responses, Participants were most likely to be directly involved with the Basin as measured by livelihood and recreation participation. In addition, Participants tended to be better educated than the general public.

AII. Context

A. Where Have We Come From

1. Trends in Attitudes Toward Environmental Issues

Changes in attitudes toward the environment have been documented by Dunlap and Scarce (1991). They examined trends in responses to questions from the early 1970s until 1990. These questions included the relative importance of environmental problems, perceived seriousness of environmental problems, degree of threat posed by environmental problems, support for government actions, business and the environment, environment versus the economy, willingness to pay for environmental protection and environmental activism and pro-environmental behaviors. In all areas but relative importance of environmental problems, the trends clearly show that support for environmental issues is increasing. In examining the relative importance of environmental problems, the percent of the respondents volunteering the "environment" has remained relatively low at about 20 percent. (This is based on a question that asked each person to name the two most important problems facing the United States today.) The authors conclude that "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."

In a recent survey conducted by Roper Starch (1994), over half (52%) of the respondents indicated "the 1990s is the last decade when humans will have a chance to save the Earth from environmental catastrophe". Forty-two percent disagreed. Nearly one quarter of the respondents (23%) described themselves as active environmentalists, 56 percent described themselves as sympathetic toward environmental concerns but not active, 16 percent considered themselves neutral on environmental matters and 2 percent said they were unsympathetic toward environmental matters. Nearly three-fourths (74%) of these same respondents indicated their opinion of environmental groups is favorable while 23% said their opinion of environmental groups is unfavorable. Residents of the west, those living in rural areas, and those over 65 years of age were less favorable toward environmental groups.

In the same survey, respondents indicate regulatory action has not gone far enough. A majority (53%) indicate environmental laws and regulations have not gone far enough, 23 percent indicate they have struck about the right balance, and 16 percent indicate they have gone too far. When the same question is asked about specific issues, majorities of the respondents say laws and regulations have not gone far enough for water pollution (76%), air pollution (66%), wild or natural areas (54%), wetlands (52%) and endangered species (51%).

These environmentally oriented attitudes are not just found in the United States. A study by the George H. Gallup International Institute (1992) conducted surveys in 22 nations around the world. Majorities in twelve of the countries rated environmental problems as very serious in their nation. This was found in high income countries (i.e. Canada, West Germany) as well as low income countries (i.e. Mexico, India). In fifteen countries, over SO% of the respondents indicated loss of plant and animal species is a very serious world problem. When asked to choose between protecting the environment and economic growth, majorities in all

of the countries (except India and Turkey) chose protecting the environment. These findings led the authors of the survey to conclude, . . .(T)hese results clearly challenge the view that being concerned about the environment'is a 'luxury' that only those in the rich nations can afford to pursue. . . . The results not only document widespread citizen awareness and concern, but highlight the existence of a more worldwide consensus about environmental problems than is widely assumed."

In describing the environmental movement, Dunlap and Mertig (1992) say, "The second half of the twentieth century has seen the emergence of numerous social movements in the United States. Most of these movements have faded away with little discernible impact, but history will surely record the environmental movement as among the few that significantly changed our society. . . Although environmentalism has clearly endured over the past two decades, with unintentional aid from its opposition, it nonetheless has changed substantially. The major change appears to be its vastly increased diversity . . .Although this diversity may lead to fragmentation, . . .we believe that it may prove to be an. important strength of contemporary environmentalism."

2. What Is Causing These Trends

Steel (1994) discusses how the rise of environmentalism may be related to other changes that occurred in industrial nations following World War II.

" .(E)conomic growth in the 1950s and 1960s was so rapid that f&&mental structures of society were altered, and social commentators began to note a new stage of development. This new stage of socioeconomic development in advanced industrial society has been labelled 'postindustrial.' . . . Postindustrial societies are characterized by:

- -economic dominance of the service sector over that of manufacturing and resource extraction,
- -complex nationwide and international communication networks,
- -a high degree of economic activity based upon an educated work force employing scientific knowledge and technology in their work,
- -a high level of public mobilization in society (including the rise of new social movements such as the environmental movement),
- -increasing population growth and employment in urban areas and subsequent depopulation of rural areas, and-historically unprecedented affluence associated with suburban living.

Correlated with the advent of postindustrial society were individual value structures, particularly among younger individuals, that placed emphasis on 'higher order needs.' These supplanted more fundamental subsistence needs as motivators for much societal behavior."

The argument is made that adoption of these higher order (Maslowian) needs may lead to less materialism and lifestyles that are less threatening to the environment (Dunlap, Grieneeks & Rokeach, 1975). However, the Maslowian perspective suggests that higher order needs appear only after security needs are met. The need for economic security may affect the emergence of higher order needs, and ultimately the environmental movement.

Dunlap & Van Liere (1978) describe a new value orientation which challenges traditional approaches to resource management as the "new environmental paradigm." This new paradigm is an alternative to American society's "dominant social paradigm" which includes "our belief in abundance and progress, our devotion to growth and prosperity, our faith in science and technology, and our commitment to a laissez-faire economy, limited governmental planning and private property rights (which) all contribute to environmental degradation and/or hinder efforts to improve the quality of the environment." Conversely, the new paradigm includes "the inevitability of 'limits to growth,' the necessity of achieving a *steady-state' economy, the importance of preserving the 'balance of nature' and the need to reject the anthropocentric notion that nature exists solely for human use." These same authors later tested the assumption that commitment to the dominant social paradigm leads to a lack of concern for environmental issues and their findings supported this contention (Dunlap & Van Liere, 1982).

Several surveys (Steel , List, Shindler & Smith, 1994; Brunson & Steel, 1995; Steel, List 6 Shindler, 1992) have examined the public's acceptance of the new environmental paradigm. These surveys contain two national samples, and two statewide Oregon samples. Substantial agreement with statements associated with the new environmental paradigm was found. However, the results also show agreement with the dominant social paradigm. For example, over half of the national and Oregon respondents (52.5 to 56%) disagreed with the statement, "Plants and animals exist primarily for human use." Conversely, about a third of the national and Oregon respondents agreed with the statement. At least 75% of the respondents in each sample agreed that "Humans have an ethical obligation to protect plant and animal species." Disagreement with this statement ranged was 10% or lower for each sample. It is reassuring to note that the results of the two national samples from different surveys were very close, indicating the representativeness of the samples. The same is true of the two Oregon samples.

Hendee (1989) offers additional information on trends that raise questions for natural resource managers. He defines four social trends that are driving changes in the public's demands for natural resources and the way the public interacts with land managers. These trends are outgrowths of the changes in society described above and include:

--the urbanization of the American public resulting in less dependence on nature and less understanding of natural processes,

--growth in the appreciation of the noncomodity values of natural resources,

--the public's desire to be involved in protecting the natural values they cherish,

--a growing unwillingness to accept professional authority.

All of these trends are reflected in the attitude information in the following sections.

The document Forest Ecosystem Management: An Ecological, Economic and Social Assessment (USDA Forest Service, 1993) provides a

typology to describe the different forms social values of natural resources can take. These include:

-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 - medicine
-Security - sense of social continuity and heritage

In the past commodity values have dominated natural resource management. As we have seen, the interest in noncommodity values is increasing. The above document concludes "As these values play out in a world of change -- changing conceptions of resources and importance, changing constituencies, changing distributions of those who pay and those who benefit, and changing institutions -- the conflict escalates, the decisionmaking space shrinks, and risks to people and resources grow."

B. Where We Are Headed (With the Current Trajectory) OR If We "Stay the Course", Where Will We End Up

It is very difficult to predict future changes in environmental ABVS. However, the trends that have driven the changes in ABVs will continue into the future. There was very little speculation in the literature on ABVs as to what would happen in the future. However, Steel (1993) concludes "(C)onventional wisdom suggests that public consciousness and biocentric orientations will not subside and may even grow in the future with generational replacement."

Information on the strength of environmental attitudes is unclear making it difficult to predict what will happen in this area in the future. However, it is possible the strength of attitudes toward environmental issues will increase as environmental and/or resource problems become more evident. This depends, in part, on the seriousness of the other issues our society is called upon to address in the future. Increasing economic problems may direct people's attention to more immediate problems and away from environmental issues. It is not clear whether the fall 1994 elections signal a change in attitudes toward environmental issues.

It is also not clear what will happen in the future to knowledge levels regarding environmental issues. Knowledge levels about these issues among the general public are currently fairly low. Increases in awareness of environmental problems have not translated into high knowledge levels about these problems. However, involvement is the planning process for public lands is associated with higher knowledge levels. The public's desire for involvement in the decision making process and the unwillingness to accept professional authority will probably continue in the future. As the public becomes more involved, knowledge levels may increase.

It is also unclear how the conflict over natural resource management will play itself out in the future. One factor that may mitigate the conflict is the trend for local community groups to try to work with the different people involved to resolve problems at the local level.

Another implication of the increase in environmental values is played

out in the desire of people to relocate into high amenity areas. This may result in more people moving into small communities in the Columbia Basin in search of a high quality lifestyle.

AIII. Some Demographic Comparisons -- The Effects of Gender, Rural/Urban Residence, Ethnicity & Region

The effects of gender, rural/urban residence, ethnicity and region have been discussed in a variety of studies. Steel, List and Shindler (1994) examined conflicting values about federal forests based on national and Oregon survey samples. They examined respondents' value orientations toward forests and federal forest policy preferences by developing a forestry value scale with three categories of orientation: anthropomorphic (human centered), biocentric (nature centered), and intermediate between anthropomorphic and biocentric. The values of both the national and Oregon samples tended to be biocentric rather than anthropocentric; however, the biocentric values were stronger in the national sample. That may be due to the reliance of Oregon residents on the timber industry or the Western identification with natural resource extraction.

The above findings suggest the following groups are more likely to have biocentric orientations toward forests: younger respondents, women, members of environmental organizations and liberals. The following groups are less likely to have biocentric orientations: older respondents, men, those who are economically dependent upon the forestry industry, and conservatives. The authors also examined the relationship between forest values and management practices. They found that respondents with biocentric orientations were much more likely to oppose traditional forestry practices and respondents with anthropocentric orientations were more likely to support preservation of timber jobs and local communities over the protection of endangered species and old growth forests.

An early study that reviewed the social bases of environmental concern provides additional information (Van Liere & Dunlap, (1980). The authors examined five hypothesis and found "Age, education, and political ideology are consistently (albeit moderately) associated with environmental concern, and thus we have confidence in concluding that younger, well-educated, and politically liberal persons tend to be more concerned about environmental quality than their older, less educated, and politically conservative counterparts." They indicate the evidence is less conclusive that urban residents are more likely to be environmentally concerned than rural residents and that women are more likely to be concerned than men.

A later study that updated the social bases of environmental concern (Jones & Dunlap, 1992) examines two hypotheses. These include the "broadening base" and the "economic contingency" hypotheses. The "broadening base" hypothesis predicts that environmental concern will spread throughout the population resulting in a broader base of support for environmental protection. The "economic contingency" hypothesis predicts that the economically disadvantaged will withdraw their support for environmental protection during poor economic conditions. The examination of the available data from the last 18 years failed to clearly support either hypothesis. However, the authors did find that the social bases for environmental concern have been very stable over nearly two decades of fluctuating economic, political and environmental conditions. They found, "Younger adults, the well-educated, political liberals, Democrats, those raised and currently living in urban areas, and those employed outside of primary industries were . . . consistently more supportive of environmental protection than were their respective counterparts." They indicate that race and gender are poor indicators of environmental concern. When differences between whites and non-whites emerged, it was the non-whites who were found to be more environmentally concerned. When significant differences between men and

women emerged, it was the women who were found to be more environmentally concerned.

A study by Fortmann and Kusel (1990) examined rural/urban differences where "rural conflict over natural resources is often attributed to environmental attitudes of new residents from rural areas". They found support for a "new-voice" thesis where the new residents "provide not new attitudes, but a new voice for attitudes already held by many local residents."

Jones and Carter (1994) examined concern for the environment among Black Americans and caution that how environmental concern is measured will effect what is found. Their literature review indicates that Blacks are very concerned about the state of the environment. One reason this may not have been evident is "Blacks . . are less likely than Whites to be actively involved in environmental organizations although even this may be changing as a result of rising Black participation in grass-roots organizations that address the impacts of race, poverty and pollution in the local community." The authors conclude that "Concern for environmental quality is not just confined to suburban White communities, but can be found in rural communities, inner-city neighborhoods, ethnic enclaves, barrios, ghettos, migrant-labor camps and on Indian reservations."

These studies indicate the following groups are more likely to exhibit environmental concern: younger people, women, liberals, those with higher levels of education, those raised and currently living in urban areas, and those employed outside of primary industries.

AIV. How Agency Employees View Themselves & Their Agencies

This section is included because the ABVs of agency employees can influence how they behave with the public and can influence the types of decisions that are made. As Kellert (1994) indicates, "A . . . problem has been the failure of most resource managers to be appreciate the attitudinal biases and ideological orientations of the management agencies themselves, and the relationship of these orientations to the bias of major client groups."

Magi11 (1988) indicates "Natural resource professionals have been shown to be self-reliant, materialistic or thing-oriented persons who love the outdoors but eschew the public. . . . During training we succumb to peer pressures and absorb a straight-line scientific philosophy which strengthens our belief that we know best how to manage natural resources. Once we align ourselves with the professional corps and regard scientific theory as the only acceptable basis for opinions and judgements about natural resources, we begin to sell our utilitarian philosophy in an almost unconscious effort to overcome the public's, desire for a different utility." Magi.11 then goes on to say that natural resource professionals have viewed public information programs more as a way to educate the public to agency views rather than to identify the views of the public.

Several surveys of US Forest Service employees have been conducted recently. One study conducted in Illinois (Vining & Ebreo, 1991) examined the views of Forest Service employees, and members of public and environmental groups. One interesting result of this study was that members of the public and the environmental groups predicted that Forest Service managers would place higher value on forest amenity goals than they actual1y did. The authors conclude, "Given the common notion that environmental group members view resource managers as overly inclined toward development, it is noteworthy that they underestimated managers' rating of the importance of commodity and local economic issues (i.e., water, employment, energy, and timber."

A series of studies have examined value orientations among Forest Service employees. Cramer et. al. (1994) examined data collected from 1,900 employees in 1991 and summarized the results, ". . . 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." Respondents strongly agree with the Forest Service agency vision statement, "Caring for the Land and Serving People" and that the agency priorities are slowly falling in line with the ecosystem values held by employees and the public.

A survey of Forest Service-line officers'and staff conducted in 1992 (Mohai et. al., 1994), presents results that substantiate the findings of Cramer et. al. above. In this study, respondents were asked what were the most important positive changes in the Forest Service in the past 10 years. Line managers indicated the following to be the most important:

- -increased responsiveness to the public/increased use of public involvement (39.9%)
- -increased emphasis on non-commodity uses; decreased emphasis on commodity uses (30.1%)
- -diversification of the work force (17.6%)
- -better work conditions, better communications; more openness (17.3%)

-increased environmental awareness/sensitivity (10.0%)
-increased emphasis on ecosystem/biological diversity (10.5)

The most frequently mentioned responses by employees in staff positions were similar:

-increased emphasis on non-commodity uses; decreased emphasis on commodity uses (31.0%)
-increased responsiveness to the public/increased use of public involvement (29.0%)
-diversification of the work force (15.6%)
-increased environmental awareness/sensitivity (14.9%)
-better work conditions, better communications; more'openness (12.6%)

In response to the single most important change that still needs to be made, the most frequent response given by both line management and staff was "increase emphasis on non-commodity uses/decrease emphasis on commodities."

In summary, Mohai et. al. state ". . .(T)he 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."

AV. Acceptability

W. Firey (1960) in Man, Mind and band says three conditions are necessary for any resource management program to succeed:

1) the program must be ecologically sustainable or possible,
2) the program must be economically feasible, and
3) the program must be socially acceptable.

Attitudes, beliefs and values are intimately connected to the third condition.

The USDA Forest Service (1993) states "Acceptability judgements can be influenced by public beliefs about ecological processes, agency motives, the importance of aesthetics, or the feasibility of achieving alternative forest conditions. It is important to understand the conditions under which acceptability judgements are formed and the factors that affect such judgments. (T)he concept of acceptability is complex. Even the definition is problematic; for example, that which is acceptable is not necessarily desirable. What is considered acceptable could be defined as a goal that managers strive for or, alternatively, a threshold of tolerance that they dare not fall below."

Brunson (1993) studied acceptability in natural resource situations; he offers seven propositions to define the dimensions of acceptability:

1. Acceptability may apply to conditions, but it is a function of causes. (People judge natural settings not only by what is there, but also why it is there.)

2. Conditions that arise as a result of "natural' causes are virtually always acceptable.

3. Acceptability of a condition can only be questioned if there are feasible alternatives to that condition.

4. In the presence of feasible alternatives, acceptability is a function of the perceived desirability, equitability and feasibility of those alternatives.

5. Acceptability is a function of the perceived risk associated with a condition or practice. "The greater the risk, or the greater the uncertainty about risk potential, the less acceptable a practice or condition will be." .

6. Acceptability is judged within a geographic context. "Practices and conditions that are acceptable in one setting may not be acceptable in another."

7. Acceptability is judged within a social context. "Individual judgments are tempered by the judgments of others in one's reference group."