STATE REPORT FOR UTAH

From the Research Project Entitled

WILDLIFE VALUES IN THE WEST



A Project of the Human Dimensions Committee of the Western Association of Fish and Wildlife Agencies

Produced by the Human Dimensions in Natural Resources Unit Colorado State University

In cooperation with the Utah Division of Wildlife Resources



Knowledge to Go Places

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Report Authors

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EXECUTIVE SUMMARY

This report documents results of a study that assessed the Utah public's values and attitudes toward wildlife. Findings are part of the larger research program *Wildlife Values in the West*.

Data were collected using a mail-back survey administered to residents in Utah. Six hundred and eight completed surveys were returned, and the response rate for the mail-back survey was 22%. A telephone nonresponse survey was completed, and tests for differences between mail survey respondents and nonrespondents were conducted. Based on these tests, data were weighted to correct for age and wildlife-related recreation participation.

Key findings include:

• There are diverse types of people, based on wildlife value orientations, in Utah.

The four wildlife value orientation types include Utilitarian, Mutualist, Pluralist, and Distanced. Utilitarians believe that wildlife should be used by humans and strongly support hunting. Mutualists consider wildlife to be like part of an extended family and express an emotional attachment to wildlife. Pluralists hold both utilitarian and mutualism wildlife value orientations, and the situation or context determines which of these orientations plays a role in their thinking. Distanced individuals have less interest in wildlife compared to others in the public. The distribution of these wildlife value orientation types in Utah is: Utilitarian (48%), Mutualist (20%), Pluralist (21%), and Distanced (11%).

• The public's preferred funding and programming approach for the Utah Division of Wildlife Resources (UDWR) differed from what was perceived to be the agency's current approach.

Thirty-seven percent of the public perceived that hunting and fishing licenses *and* taxes fund the agency with programs that benefit all members of the public. Sixty-three percent of the public desired this to be the agency's approach. Overall, 59% indicated that the current approach did not match their desired approach.

• The majority of people did not believe their opinions and interests are heard and adequately considered in fish and wildlife management decisions.

Just under half of respondents expressed trust in the UDWR to make decisions without their input. In addition, less than half felt that if they provide input it will make a difference or that the UDWR makes a good effort to obtain input. Slightly less than one-third thought their interests are adequately taken into account, while approximately a quarter of respondents believed their opinions are heard by decision-makers.

• The public expressed greater trust in the UDWR than in the state or federal governments.

Sixty-eight percent of the public indicated that they trust the UDWR to do what is right for fish and wildlife management in the state. Sixty-three percent indicated that they trust the state government to do what is right for the state, while fifty-three percent indicated that they trust the federal government to do what is right for the country.

• While only a relatively small segment of the Utah public reported recent participation in wildlife management decision-making, the majority of people expressed interest in becoming involved in the future.

Overall, 24% of the public participated in wildlife management decision-making in Utah in the past year. Popular activities included "talking with a UDWR employee" and "attending a meeting hosted by groups other than the UDWR" to hear about a particular wildlife-related issue. Approximately 60% of the public expressed an interest in providing input in the future. Most preferred ways of doing so included "attending a public meeting or open house hosted by the UDWR", "sending a letter or email to the UDWR", and "talking with a UDWR employee".

• In bear-human conflict situations, the public was most accepting of conducting controlled hunts using trained agency staff among a series of population-level control techniques.

A majority of the public (more than 80%) found "doing nothing" to be unacceptable in situations where bears are either a nuisance or a human safety threat. Approximately half of the public supported "providing more recreational opportunities to hunt bears" in a nuisance situation, while just over 60% felt it was acceptable when bears are a threat to human safety. "Conducting controlled hunts using trained agency staff" was acceptable to nearly 70% of the public in a nuisance situation and over 80% in a safety threat situation.

• In deer-human conflict situations, the public was generally accepting of increasing recreational hunting opportunities, conducting controlled hunts by trained agency staff, and distributing short-term contraception.

In nuisance and disease situations, the majority of the public (more than 60%) did not accept "doing nothing" or "distributing pellets with permanent contraceptives", but over 50% did accept "providing more recreational hunting opportunities", "conducting controlled hunts", and "distributing pellets with short-term contraceptives." The public was more accepting of "conducting controlled hunts using trained agency staff" and "distributing pellets with contraceptives" in a disease situation as compared to a nuisance situation.

• *Given limited funds to allocate to conservation, the public favored game, native, and declining species.*

In public preference for conservation funding, species use (i.e., whether a species is considered a game species or not) was more important than species origin (i.e., whether a species is native or not) or species status (i.e., whether a species is common, declining, or extirpated). Game species tended to be prioritized over nongame species across a range of paired comparisons, and native species tended to be prioritized over non-native species. Declining and extirpated species were more likely to receive priority over common species.

• The public indicated that protecting species of concern in Utah is important but felt that other priorities also deserved consideration in how public lands in the state are managed.

A majority of the public felt it was important for the state to take action to prevent species of concern from becoming federally classified as threatened or endangered. In addition, 71% agreed that they should be responsible to help pay for actions to benefit these species in Utah. Sixty-four percent agreed that public lands should be managed to benefit species of concern

"even if it means providing fewer economic development opportunities". However, the public tended not to agree with management of public lands to benefit species of concern if it means decreasing common species of wildlife or decreasing game species. Programs to benefit species of concern that received the highest overall ratings of importance were "distributing information to inform landowners, developers, and industries on applying best land use practices" and "offering educational programs to outdoor recreationists". Preferred funding mechanisms to benefit these species included "reallocation of funds from the sale of fishing, hunting, and trapping licenses" and "charging special transaction fees on developers and industries".

• Hunters and anglers differed little from those who did not hunt or fish in the past 12 months on attitudes toward key issues measured in the survey.

Differences between those who hunted or fished as compared to those who did not were only noted on the following issues: interest in providing input to UDWR decisions, acceptability of providing more recreational opportunities to hunt as a population-level control technique to address human-wildlife conflict situations, responsibility to help pay for game species in Utah, importance of benefiting species of concern in the context of competing priorities for public lands management, and acceptability of alternative sources of funding for Utah species of concern.

• Comparison of responses by wildlife value orientation types allowed for greater understanding of public attitudes toward key issues measured in the survey.

Wildlife value orientation types proved useful in more thoroughly understanding the basis for diverse attitudes among the public, especially on issues related to public involvement, trust in government, addressing human-wildlife conflict, and managing to benefit species of concern in Utah. Typically, Utilitarians and Mutualists differed most from one another, while Pluralists and Distanced individuals were often somewhere in between.

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SECTION I. INTRODUCTION AND OVERVIEW

This report is one of a series derived from a research program entitled *Wildlife Values in the West*. The research project was a collaboration of the Western Association of Fish and Wildlife Agencies (WAFWA) Human Dimensions Committee with Colorado State University and 19 WAFWA-member state fish and wildlife agencies. The overall purpose of the study was to take the first step in acquiring scientific information to address critical questions regarding changes in public thought related to wildlife management.

Wildlife Values in the West is a unique research program due to its regional *and* state-specific focus. The participation of 19 western states allowed for comparisons among states' publics regarding their values and attitudes toward wildlife management issues of importance to the region. These comparisons at the regional level can be found in the regional report (Teel, Dayer, Manfredo, & Bright, 2005). Data were collected in such a way as to allow for states to delve more deeply into their public's responses to the regional issues. Additionally, states were able to examine public responses to pressing state-specific issues. The focus of this report is to provide results specific to the Utah public's values and attitudes toward regional and state-specific issues assessed through the research program.

A. OBJECTIVES

This report offers findings from *Wildlife Values in the West* for Utah in line with the following objectives:

- 1. To provide information about the distribution of wildlife value orientations and basic beliefs about wildlife and wildlife management among the Utah public
- 2. To assess the Utah public's attitudes (and, in some cases, their behaviors) regarding various issues, including:
 - Funding and programming approaches
 - Public involvement and participation in wildlife management decisions
 - Trust in government
 - Acceptability of population-level techniques to address human-wildlife conflict
 - Managing for biodiversity and species of concern
- 3. To determine differences in the Utah public's attitudes on the above topics by:
 - Wildlife value orientation type
 - Participation in hunting and fishing

B. ORGANIZATION OF THIS REPORT

The body of this report presents results in the order of the objectives listed above. Supporting tables for the results presented in figures throughout the report can be found in Appendix A. Project methods are reported in Appendix B.

C. GUIDE FOR READING THE RESULTS

Participation in Hunting and Fishing

Throughout this report, differences are explored between hunters/anglers and nonhunters/anglers in their responses to survey items. Hunters/anglers are defined as those who reported that they had participated in hunting, fishing, or both recreational activities in the past 12 months. Non-hunters/anglers are defined as those who did not report participation in hunting or fishing in the past 12 months. In Utah, 69% of the public were classified as nonhunters/anglers and 31% were classified as hunters/anglers.

Margin of Error

When reporting results for the entire sample of Utah residents (n = 608) assuming maximum possible variance on a dichotomous (i.e., two category) variable, the margin of error is $\pm 3.9\%$ at the 95% confidence interval and $\pm 3.3\%$ at the 90% confidence interval. When we report information obtained from analyses of specific groups within the Utah sample, the margin of error increases (Table I.C.1). The margin of error estimates take into account unweighted samples sizes, the population size for the state, and estimated population sizes for the groups based on the proportions that the groups represent in the weighted sample.

Group	Margin of Error
Value types	
Utilitarian	<u>+</u> 4.8 %
Pluralist	<u>+</u> 6.7 %
Mutualist	<u>+</u> 8.2 %
Distanced	<u>+</u> 10.9 %
Recreation Participation	
Hunters/anglers	<u>+</u> 4.8 %
Non-hunters/anglers	<u>+</u> 4.7 %

Table I.C.1. Margin of error for subgroups at the 90% confidence level.

Conflict Indices

For some items, findings are presented using Potential for Conflict Indices (PCI; Manfredo, Vaske, & Teel, 2003). The conflict indices are displayed graphically as bubbles. The bubbles depict the extent to which conflict exists within a group of respondents (e.g., the public, hunters, or a value orientation type) regarding their attitudes or their acceptance of a management strategy. These bubbles are centered on the mean response for the group for the survey item, which is plotted on the y-axis. The size of the bubble represents the PCI, or the amount of variation (dispersion) in responses. A larger bubble indicates more potential for conflict, or less consensus, among members of the group. A smaller bubble indicates less potential for conflict, or more consensus. PCI values range from 0 (no potential for conflict) to 1 (greatest potential for

conflict when 50% of respondents strongly oppose and 50% of respondents strongly support an action or issue).

The formula to compute the PCI (as reported in Manfredo et al., 2003) is below:

$$PCI = \left[1 - \frac{\left|\sum_{i=1}^{n_a} |X_a|}{Xt} - \frac{\sum_{i=1}^{n_u} |X_u|}{Xt}\right] * \frac{Xt}{Z}$$

where:

PCI = Potential for Conflict Index

 X_a = an individual's "acceptable" (or "agreement") score (e.g., 5, 6, or 7 on a 1-7 scale, recoded for calculations as 1, 2, 3)

na = all individuals with "acceptable" (or "agreement") scores

 X_u = an individual's "unacceptable" (or "disagreement") score (e.g., 1, 2, or 3 on a 1-7 scale, recoded for calculations as -1, -2, -3)

 n_u = all individuals with "unacceptable" (or "disagreement") scores

$$Xt = \sum_{i=1}^{n_a} \left| X_a \right| + \sum_{i=1}^{n_u} \left| X_u \right|$$

Z = the maximum possible sum of all scores = n*extreme score (e.g., Z = 3n), where n = total number of subjects

SECTION II. WILDLIFE VALUE ORIENTATIONS

The concept of wildlife value orientations has emerged as a way of capturing the diversity of values that people hold toward wildlife. Because wildlife value orientations provide a foundation for more specific cognitions like attitudes and behaviors, identification of wildlife value orientations allows us to anticipate how people will react to a host of wildlife-related topics. In addition, an examination of how wildlife value orientations are changing at a societal level provides direction in planning for the future of wildlife management.

Three of the primary objectives guiding the regional study Wildlife Values in the West were:

- 1. To describe the current array of public values toward wildlife and identify their distribution across states.
- 2. To segment publics on the basis of their values toward wildlife and understand their sociodemographic and lifestyle characteristics.
- 3. To begin to understand how and why wildlife values are changing and determine the possible implications of value shift for wildlife management.

Findings related to these objectives are reported by Teel et al. (2005). Further, the regional report provides a thorough description of the history and utility of understanding wildlife values, the development of the concept of wildlife value orientations, and more information about Utah's place in the regional distribution of wildlife value orientations. This state report addresses these objectives only briefly—as they specifically relate to Utah—and gives an overview of wildlife value orientations and segmentation of the public based upon the concept. This segmentation scheme—wildlife value orientation types—is used in other sections throughout the report to better explain Utah residents' wildlife-related attitudes.

A. CONCEPTUAL BACKGROUND: A THEORY ON WILDLIFE VALUE ORIENTATIONS¹

Wildlife value orientations are a component of an individual's hierarchical belief structure. They are an expression of one's values and are revealed through the pattern and direction of basic beliefs held by an individual (Fulton, Manfredo, & Lipscomb, 1996). Value orientations provide the foundation for an individual's attitudes and norms, which in turn guide their behavior. Prior research has shown that wildlife value orientations are effective in predicting participation in wildlife-related recreation (Fulton et al., 1996) as well as support for wildlife management actions (Bright, Manfredo, & Fulton, 2000; Manfredo, Zinn, Sikorowski, & Jones, 1998; Manfredo, Pierce, Fulton, Pate, & Gill, 1999; Manfredo & Fulton, 1997; Manfredo & Zinn, 1996; Whittaker, 2000; Zinn, Manfredo, Vaske, & Wittman, 1998).

Wildlife value orientations can be viewed as *expressions of fundamental values*. A classic definition states that values are enduring beliefs about desired end states and modes of conduct (Rokeach, 1973). They are "goals for living" that define how we want the world to be (i.e., a "worldview") and principles that guide our behavior. In extending this idea to how people relate to wildlife, we have identified two "classes" or categories of thought (Figure II.A.1).

¹ Text and figures for this section have been extracted from Teel et al. (2005).

Worldview captures the notion of "desired end states" in the values definition – an ideal view of what one would want the world to be regarding wildlife. Principles for wildlife treatment represent the idea of "desired modes of conduct" – guiding principles for how an individual perceives we should interact with and treat wildlife.



Figure II.A.1. Conceptual model for wildlife value orientations.

As described by Fulton et al. (1996), wildlife value orientations are composed of "dimensions", or sets, of basic beliefs about wildlife and wildlife management. They are revealed through the pattern of direction and intensity among these beliefs. Our recent work has revealed two main orientations toward wildlife that can be classified along what is known as the "**mutualism-utilitarian**" *value orientation dimension*. The latter can be viewed as a broader category of thought about wildlife that is made up of more specific belief sets. Below is a detailed description of the components of this broad dimension.

1. Utilitarian Wildlife Value Orientation

The utilitarian wildlife value orientation is one involving a view that wildlife should be used and managed for human benefit. It is linked to the "use" orientation previously identified by Fulton et al. (1996) and is believed to be the orientation that society is moving away from (Manfredo & Zinn, 1996).

	Ideal World		Principles for Wildlife Treatment
0	Wildlife exists for human use and enjoyment.	0	Manage wildlife so that humans benefit.
0	There is an abundance of wildlife for hunting and fishing.	0	Prioritize the needs of humans over wildlife.

Basic Belief Dimensions

A. Utilitarian Belief Dimension

B. Hunting Belief Dimension

Philosophy regarding utilization of wildlife for human benefit.

Philosophy regarding hunting as a humane and positive activity.

2. Mutualism Wildlife Value Orientation

This orientation is a refinement of the protection orientation identified by Fulton et al. (1996). It is associated with a desire for humans and wildlife to be able to co-exist or live in harmony. It is linked to a perception that humans and animals depend upon each other and that they benefit one another in their relationship – thus the term mutualism. This orientation is believed to be one that society is moving more toward in terms of people's perceptions of wildlife and how wildlife should be treated.

Ideal World

- Humans and wildlife are able to live side by side without fear.
- All living things are seen as part of one big family.
- Emotional bonding and companionship with animals is part of human experience.
- There is no animal suffering.

Basic Belief Dimensions

A. Mutualism Belief Dimension

B. Caring Belief Dimension

Philosophy regarding co-existence of humans and wildlife as if they were family.

Philosophy regarding a desire to care for animals and prevent them from suffering.

Exploration of Other Dimensions of Thought about Wildlife

To contribute to furthering our understanding of the *diversity* of orientations that exist among the public, two additional dimensions of thought about wildlife were identified and explored in this study:

1. Attraction Belief Dimension

This set of beliefs is associated with an interest in and desire to know more about wildlife. It is grounded in the feeling that wildlife enhances human life experiences. This belief dimension is a refinement of the wildlife appreciation orientation identified by Fulton et al. (1996).

Principles for Wildlife Treatment

• Assign animals rights like humans.

- Take care of wildlife.
- Prevent cruelty to animals.

2. Concern for Safety Belief Dimension

This set of beliefs centers around concerns related to interacting with wildlife due to possibility of such things as harm (e.g., due to attacks by wildlife) or disease contraction. Individuals scoring high on this dimension are worried about encountering wildlife while in the outdoors.

Information regarding the distribution of wildlife value orientations and belief dimensions in Utah is provided below.

B. SEGMENTATION OF PUBLICS ON THE BASIS OF THEIR WILDLIFE VALUE ORIENTATIONS $^{\rm 2}$

A useful way of summarizing information about wildlife value orientations is to identify different "types" of people on the basis of their orientations (Bright et al., 2000). Characterizing segments of the public in this manner allows for a better understanding of the diversity of publics that exists as well as anticipation of how different groups of people will respond to proposed management strategies and programs.

Four unique value orientation types were identified in the current study using the utilitarian and mutualism value orientation scales (see Teel et al., 2005). Respondents were assigned a score on the two wildlife value orientation scales (utilitarian and mutualism) and then compared on both orientations simultaneously through a crosstabulation procedure. A visual display of how each value orientation type was identified in this context is shown in Figure II.B.1.

Figure II.B.1. Four types of people identified on the basis of their wildlife value orientations.



UTILITARIAN

² Text and figures describing the wildlife value orientation types have been extracted from Teel et al. (2005).

Below is a more detailed description of each value orientation type, including how people were classified on the basis of scoring on the two wildlife value orientations.

1. Utilitarian Wildlife Value Orientation Type

Utilitarians were classified as those who scored greater than 4.50 ("high") on the utilitarian value orientation scale and less than or equal to 4.50 ("low") on the mutualism value orientation scale. These individuals possess beliefs about wildlife that society is purportedly moving away from. Specifically, they believe that wildlife should be used and managed for human benefit.

2. Mutualist Wildlife Value Orientation Type

Mutualists were classified as those who scored greater than 4.50 ("high") on the mutualism value orientation scale and less than or equal to 4.50 ("low") on the utilitarian value orientation scale. These individuals are believed to represent a less traditional view of the wildlife resource, one in which humans and wildlife are meant to co-exist or live in harmony.

3. Pluralist Wildlife Value Orientation Type

Pluralists hold both a mutualism and a utilitarian value orientation toward wildlife (i.e., they score "high" on both scales). This may appear confusing but can be explained by how these orientations likely manifest themselves in day-to-day situations. The name for this group was taken from Tetlock's (1986) Value Pluralism Model which describes how people can endorse values that have conflicting evaluative implications for specific issues. Drawing upon this model, the influence of the two value orientations is believed to be situationally-contingent. In other words, which of the orientations plays a role is dependent upon the given situation. As an illustration, consider a woman whose husband is a hunter. She finds hunting to be an acceptable practice – it supplies food for her family, and she supports others' participation in the sport. At the same time, however, she can't stand the thought of killing an animal and therefore will not hunt. Her utilitarian orientation manifests itself in the first situation while her mutualism orientation prevails in the other.

The Pluralists as a group are believed to be an indication of our society in transition given that they hold both a utilitarian orientation toward wildlife that society is purportedly moving away from, as well as a mutualism orientation that we may be moving toward.

4. Distanced Wildlife Value Orientation Type

The Distanced individuals appear to be just that – distanced from the issue of wildlife. They do not hold either a mutualism or a utilitarian orientation toward wildlife (i.e., they score "low" on both scales). This could mean that they are less *interested* in wildlife-related issues and that wildlife-related issues are therefore less salient to them. It may also mean that, for whatever reason, their values may not be oriented very strongly toward wildlife.

Figure II.B.2 displays the distribution of each wildlife value orientation type in Utah. The largest percentage was represented by Utilitarians (47.6%), followed by Pluralists (20.8%) and Mutualists (20.5%), and finally by Distanced (11.2%).



Figure II.B.2. Distribution of wildlife value orientation types in Utah.

Teel et al. (2005) report that across all 19 states Utilitarians and Pluralists possess certain similar sociodemographic and lifestyle characteristics, which differ from those of Mutualists and Distanced individuals. Utilitarians and Pluralists are more likely than the other two groups of people to be male and also tend to be slightly older on average and to have lived in the state for a longer period of time. Mutualists and Distanced individuals are less likely to indicate past and current involvement in hunting and are also less likely than the other two groups to express interest in participating in this activity in the future.

Similar trends are also noted in Utah. Males are more likely than females, for example, to score high on the utilitarian value orientation scale, while females are more likely than males to score high on the mutualism value orientation scale (Figure II.B.3; Table A-2). Additionally, hunters/anglers are more likely than non-hunters/anglers to score high on the utilitarian value orientation scale (Figure II.B.4; Table A-2).

Figure II.B.3. Percent scoring "high"¹ on mutualism value orientation scale compared to utilitarian value orientation scale by gender.



¹"High" defined by score of > 4.5 on mean composite value orientation scale.

Figure II.B.4. Percent scoring "high"¹ on mutualism value orientation scale compared to utilitarian value orientation scale by hunting and fishing participation.



¹"High" defined by score of > 4.5 on mean composite value orientation scale.

Teel et al. (2005) also note a difference in how the value orientation types score on the attraction belief dimension, which is similarly found in analyses of only Utah respondents (Figure II.B.5; Table A-3). Distanced individuals, for example, are less likely than the other value orientation types to score high on the attraction dimension. This suggests that Distanced individuals are less interested in wildlife and wildlife-related issues. The groups do not appear to differ significantly in Utah with respect to scoring on the concern for safety belief dimension.

An exploration of the characteristics of those scoring high on the attraction and concern for safety belief dimensions in Utah highlights other sociodemographic and lifestyle differences by basic wildlife belief dimensions. In general, only a small proportion (7%) of the Utah public scored high on the concern for safety dimension, while 73% scored high on the attraction dimension. Females were more likely than males to score high on the concern for safety dimension, while males were more likely to score high on the attraction dimension (Figure II.B.6; Table A-3). Hunters/anglers were less likely than non-hunters/anglers to score high on the attraction dimension (Figure II.B.7; Table A-3).

Figure II.B.5. Percent scoring "high"¹ on attraction basic wildlife belief dimension compared to concern for safety basic wildlife belief dimension by wildlife value orientation type.



¹"High" defined by score of > 4.5 on mean composite belief dimension scale.

Figure II.B.6. Percent scoring "high"¹ on attraction basic wildlife belief dimension compared to concern for safety basic wildlife belief dimension by gender.



¹"High" defined by score of > 4.5 on mean composite belief dimension scale.

Figure II.B.7. Percent scoring "high"¹ on attraction basic wildlife belief dimension compared to concern for safety basic wildlife belief dimension by hunting and fishing participation.



¹ "High" defined by score of > 4.5 on mean composite belief dimension scale.

SECTION III. PHILOSOPHY FOR SERVING AND INVOLVING THE PUBLIC IN WILDLIFE MANAGEMENT³

Questions presented in this section examine the public's perceptions of the agency's philosophy for serving and involving the public in wildlife management. Four components of the topic are addressed:

- 1. current and desired funding and programming approaches;
- 2. public involvement philosophy;
- 3. trust in government; and
- 4. past participation in decision-making and preferred methods for future involvement.

The survey items and results for each of these components are presented in order below. Supporting tables for the items are located in Appendix A (Tables A-4 to A-50). Additionally, results placing Utah in the context of the western region for many for these items are reported by Teel et al. (2005).

A. CURRENT AND DESIRED FUNDING AND PROGRAMMING APPROACHES

This issue, explored in the regional portion of the survey, involves an examination of philosophical orientations toward paying for wildlife management. Specifically, it explores approaches for who pays for wildlife management as compared to who "benefits" through programs provided by the agency. As shown on the next page, respondents were presented with four hypothetical approaches. The four approaches included all combinations of two options for funding and two options for recipients of programming benefits. The options for funding were *almost entirely by hunting and fishing license dollars* or *substantially funded by both hunting and fishing license dollars* and *public taxes*. The options for recipients of programming benefits were *primarily those who hunt and/or fish* or *all members of the public*. Following the approaches, respondents were asked to select 1) their perceived current approach in their state and 2) their desired approach for their state.

³ Text describing regional issues in this section has been extracted from Teel et al. (2005).

State fish and wildlife agencies hear from many different groups of people about their interests, making decisions and priorities difficult. Below is a series of hypothetical approaches that describe how priorities *could* be directed. *Please read about each approach. Then tell us how you think things are now and how they should be in your state based on these approaches by answering the 2 questions that follow.*

APPROACH 1	 State agencies develop programs that meet the needs <u>primarily of those who hunt and/or fish</u>. Fish and wildlife management is almost entirely funded by hunting and fishing license dollars.
APPROACH 2	 State agencies develop programs that meet the needs <u>primarily of those who hunt and/or fish</u>. Fish and wildlife management is substantially funded by both hunting and fishing license dollars and public taxes.
APPROACH 3	 State agencies develop programs that meet the needs <u>of all members of the public</u> regardless of their level of interest in wildlife. Fish and wildlife management is almost entirely funded by hunting and fishing license dollars.
APPROACH 4	 State agencies develop programs that meet the needs <u>of all members of the public</u> regardless of their level of interest in wildlife. Fish and wildlife management is substantially funded by both hunting and fishing license dollars <i>and</i> public taxes.

1. Of the above approaches, which approach do you think best resembles <u>how things are now</u> in your state? *Check only one* (*D*).

□ Approach 1 □ Approach 2 □ Approach 3 □ Approach 4

2. Which approach best represents your opinion of how things should be in your state? Check only one (D).

□ Approach 1 □ Approach 2 □ Approach 3 □ Approach 4

Perceived current approach results. As shown in Figure III.A.1, when considering "how things are now", 37% of the public selected the approach that *meets the needs of all members of the public and is substantially funded by hunting and fishing licenses and public taxes* (Approach 4). The next most frequently selected response was one that *meets the needs of hunters/anglers and is substantially funded by hunting and fishing licenses and public taxes* (27%; Approach 2). The two approaches selected by smaller proportions of people included the funding option of *almost entirely by hunting and fishing licenses*. They were Approach 3 with the benefits option of *meets the needs of all members of the public* (18%), and Approach 1 with the benefits option of *meets the needs of hunters/anglers* (19%).



Figure III.A.1. Percent of respondents indicating each approach¹ as their perceived current approach.

¹Approach 1- Programs meet the needs primarily of those who hunt and/or fish. Funded almost entirely by hunting and fishing license dollars.

Approach 2 - Programs meet the needs primarily of those who hunt and/or fish. Funded substantially by both hunting and fishing license dollars *and* public taxes.

Approach 3 - Programs meet the needs of all members of the public. Funded almost entirely by hunting and fishing license dollars.

Approach 4 - Programs meet the needs of all members of the public. Funded substantially by both hunting and fishing license dollars *and* public taxes.

Desired approach results. When considering "how things should be", 63% of the public selected the approach that *meets the needs of all members of the public and is substantially funded by hunting and fishing licenses and public taxes* (Approach 4; Figure III.A.2). The second most frequently selected response was the approach that *meets the needs of all members of the public and is funded almost entirely by hunting and fishing licenses* (20%; Approach 3). These two approaches both included the recipients for programming benefits option of *all members of the public*. The two approaches least desired included the benefits option of *meets the needs of hunters/anglers*. They were Approach 2 with the funding option of *almost entirely by hunting and fishing licenses and public taxes* (7%), and Approach 1 with the funding option of *almost entirely by hunting and fishing licenses* (10%).
Figure III.A.2. Percent of respondents indicating each approach¹ as their desired approach.



¹Approach 1- Programs meet the needs primarily of those who hunt and/or fish. Funded almost entirely by hunting and fishing license dollars.

Approach 2 - Programs meet the needs primarily of those who hunt and/or fish. Funded substantially by both hunting and fishing license dollars *and* public taxes.

Approach 3 - Programs meet the needs of all members of the public. Funded almost entirely by hunting and fishing license dollars.

Approach 4 - Programs meet the needs of all members of the public. Funded substantially by both hunting and fishing license dollars *and* public taxes.

Comparison of results. A comparison of Figures III.A.1 and III.A.2 highlights that there was much greater consensus within the state on the desired approach than on the perceived current approach. Evaluation of Table III.A.1 reveals how the increased consensus on the desired approach was attained. This table displays a cross-tabulation of the percent of respondents who selected each approach as the perceived current approach as compared to their selection for their desired approach. For example, 27% of the respondents selected Approach 4 as their perceived current approach and also their desired approach. In other words, just under one-half of those with this desired approach (i.e., 27% of the 63% total selecting it) already perceived it to be the approach. The remainder of respondents who desired Approach 4 had selected Approaches 1-3 as their perceived approach.

The table also shows how much consistency individuals had in selection of the perceived current approach and the desired approach. The cells for the same approach for perceived current approach and desired approach (along the diagonal—shaded in yellow) sum to the percent of respondents who showed consistency with their perceived current and desired funding approaches. More specifically, for Approach 1, 4.5% of all of the respondents selected it for their perceived current approach and desired approach and desired approach 2, 6.8% for Approach

3, and 27.3% for Approach 4. Thus, 41% of the respondents in Utah selected the same approach for perceived current and desired approaches.

upprouen :								
			Total					
		Approach 1	Approach 2	Approach 3	Approach 4	(perceived)		
Perceived current approach	Approach 1	<mark>4.5</mark>	2.1	2.3	9.7	18.6		
	Approach 2	2.1	<mark>2.8</mark>	4.9	17.0	26.7		
	Approach 3	1.6	0.9	<mark>6.8</mark>	8.9	18.1		
	Approach 4	1.4	1.6	6.4	<mark>27.3</mark>	36.6		
Total (desired)		9.5	7.3	20.3	62.8	100.0		

Table III.A.1. Funding approach cross-tabulation of perceived current approach by desired approach¹.

¹Approach 1- Programs meet the needs primarily of those who hunt and/or fish. Funded almost entirely by hunting and fishing license dollars.

Approach 2 - Programs meet the needs primarily of those who hunt and/or fish. Funded substantially by both hunting and fishing license dollars *and* public taxes.

Approach 3 - Programs meet the needs of all members of the public. Funded almost entirely by hunting and fishing license dollars.

Approach 4 - Programs meet the needs of all members of the public. Funded substantially by both hunting and fishing license dollars *and* public taxes.

Additional analyses were conducted to explore sociodemographic, lifestyle, and cognitive (i.e., values or beliefs) characteristics of those who selected the same approach for perceived current approach and desired approach. Correlations (phi and point biserial—depending on the characteristics of the variables) were conducted with participation in hunting, fishing, and viewing in the past 12 months; gender, age, number of children, education, and income; concern for safety belief dimension, attraction belief dimension, utilitarian wildlife value orientation. The only statistically significant correlations were with the utilitarian ($r_p = .216$, p < .001) and mutualism ($r_p = .226$, p < .001) value orientations and with the attraction ($r_p = .147$, p < .001) and concern for safety scales were more likely to have chosen the same current and desired approach, while those who scored higher on the mutualism and attraction scales were less likely to have chosen the same approach. The effect size for these relationships (represented in the strength of association), however, was relatively "small" (Cohen, 1988).

Results by wildlife value orientation type. As Figure III.A.3 shows, respondents differed to some extent by value orientation type in choosing the perceived current approach. Utilitarians and Pluralists were more likely than the other two groups to believe that Approach 3, which *meets the needs of all members of the public and is funded almost entirely by hunting and fishing licenses*, was the current approach. Mutualists and Distanced individuals, on the other hand, were more likely to believe that Approach 2, which *meets the needs primarily of those who hunt and/or fish and is funded by hunting and fishing licenses and public taxes*, was the current approach. Between 30% and 41% of all value orientation types selected Approach 4, which *meets the needs of all members of the public and is substantially funded by hunting and fishing licenses and public funded by hunting and fishing meets the needs of all members of the public and is substantially funded by hunting and fishing meets the needs of all members of the public and is substantially funded by hunting and fishing meets the needs of all members of the public and is substantially funded by hunting and fishing meets the needs of all members of the public and is substantially funded by hunting and fishing meets the needs of all members of the public and is substantially funded by hunting and fishing meets the needs of all members of the public and is substantially funded by hunting and fishing meets the needs of all members of the public and is substantially funded by hunting and fishing meets the needs of all members of the public and is substantially funded by hunting and fishing meets the needs of all members of the public and is substantially funded by hunting and fishing meets the needs of all members of the public and is substantially funded by hunting and fishing meets the needs of all members of the public and is substantially funded by hunting and fishing hunting and fishing hunting and fishing hunting and fishing hunting hunting hunting hunting*

licenses and public taxes. A relatively low percentage across all groups selected the remaining approach (Approach 1) as their perceived current approach.



Figure III.A.3. Percent of wildlife value orientation type indicating each approach as their perceived current approach.

There was greater agreement among and within each value orientation type as to the desired approach, as shown in Figure III.A.4. Approach 4 was chosen by the majority of respondents within each type, followed by Approach 3. Both approaches focus on *meeting the needs of all members of the public*, though the funding for Approach 4 would come from *hunting and fishing licenses and public taxes* while the funding for Approach 3 would come only from *hunting and fishing licenses*.

Figure III.A.5 reports the percent of each wildlife value orientation type selecting the same response for both desired and perceived current approaches. It shows that Utilitarians and Distanced individuals were more likely than the other two value orientation types to select the same approach.





Figure III.A.5. Percent of wildlife value orientation type selecting same approach for perceived current approach and desired approach.



Results by participation in hunting and fishing. As Figure III.A.6 shows, hunters/anglers and non-hunters/anglers differed somewhat in choosing their perceived current approach. More hunters/anglers felt that Approach 3 (*meeting the needs of all members of the public and funded by hunting and fishing license dollars*) was the current approach, and fewer from this group thought that Approach 2 (*meeting the needs primarily of those who hunt and/or fish and funded by hunting and fishing licenses and public taxes*) was the current approach compared to non-hunters/anglers. The majority of both groups chose Approach 4 as their desired approach (Figure III.A.7). A lower percentage of hunters/anglers selected Approach 3 for this purpose as compared to non-hunters/anglers. Approximately 42% of the latter group and 40% of the former chose the same option for their current and desired approachs (Figure III.A.8).

Figure III.A.6. Percent of hunters/anglers and non-hunters/anglers indicating each approach as their perceived current approach.



Figure III.A.7. Percent of hunters/anglers and non-hunters/anglers indicating each approach as their desired approach.



Figure III.A.8. Percent of hunters/anglers and non-hunters/anglers selecting same approach for perceived current approach and desired approach.



B. PUBLIC INVOLVEMENT PHILOSOPHY

This issue, explored on the regional portion of the survey, measures the public's involvement in fish and wildlife decision-making at the state level. It covers the extent to which people feel their opinions, interests, and input are heard and adequately considered in decisions. It also determines whether or not people have an interest in providing input and if they feel that input will make a difference. Respondents were asked to indicate their level of agreement with each of the six statements listed below.

We would like to know how you feel about the extent to which your state fish and wildlife agency listens to and considers your opinions in fish and wildlife decision-making. Please indicate how strongly you disagree or agree with each of the following statements. *Circle one number for each statement*.

		Strongly Disagree	Moderately <u>Disagree</u>	Slightly Disagree	Neither	Slightly Agree	Moderately <u>Agree</u>	Strongly Agree
1.	I feel that <u>my opinions are heard</u> by fish and wildlife decision-makers in my state.	1	2	3	4	5	б	7
2.	I feel that <u>my interests are adequately</u> <u>taken into account</u> by fish and wildlife decision-makers in my state.	1	2	3	4	5	б	7
3.	I feel that if I provide input, it will make a difference in fish and wildlife decisions in my state.	1	2	3	4	5	6	7
4.	I feel that my state fish and wildlife agency makes a good effort to obtain input from the public as a whole.	1	2	3	4	5	6	7
5.	I don't have an interest in providing input to fish and wildlife decisions in my state.	1	2	3	4	5	6	7
6.	I trust my state fish and wildlife agency to make good decisions without my input.	1	2	3	4	5	6	7

Summary of results. Figure III.B.1 displays the percent of respondents who agreed with each statement (i.e., those who selected "slightly agree", "moderately agree", or "strongly agree"). It is important to note that "neither" had a high percent of response on some items. For example, for statement 1, "neither" was selected by 38% of the respondents. The range across other statements was 14% to 32% (Table A-12).

Approximately a quarter of respondents felt that *their opinions are heard*, while just under onethird believed that *their interests are adequately taken into account by fish and wildlife decisionmakers*. A greater percentage of respondents (over 35%) felt that *if they provide input, it makes a difference* and that *the agency makes a good effort to obtain input from the public*. Twentyeight percent had *no interest in providing input to fish and wildlife decisions*, and just under half of the respondents *trust the agency to make good decisions without their input*.



Figure III.B.1. Percent of respondents agreeing with the public involvement statements.

Results by wildlife value orientation type. Figures III.B.2 to III.B.7 display PCI graphs for each of the public involvement philosophy statements, showing a PCI bubble for each of the value orientation types and for the entire public. Several trends can be identified in these graphs. For the statements, my opinions are heard (Figure III.B.2), my interests are taken into account (Figure III.B.3), if I provide input it will make a difference (Figure III.B.4), and my agency makes a good effort to obtain input (Figure III.B.5), Mutualists differed slightly from the pattern that was evident across the other three groups. They were slightly more in consensus for many of these statements compared to the other groups, and they were likely to disagree with the statements more. Both the Mutualist and Pluralist groups were in greater disagreement on average and more in consensus than their counterparts with regard to not having an interest in providing input (Figure III.B.6). Distanced individuals were, on average, in agreement with this notion, meaning that they were less interested than the other value orientation types in having a say in wildlife decisions. Distanced individuals were also more likely to *trust the agency to make* good decisions without their input (Figure III.B.7). Pluralists and Mutualists were less likely to agree with this statement, although there was not a lot of consensus among individuals in these groups.

Figure III.B.2. Potential for conflict indices for the statement "I feel that *my opinions are heard* by fish and wildlife decision-makers in my state" by wildlife value orientation type.



Figure III.B.3. Potential for conflict indices for the statement "I feel that *my interests are adequately taken into account* by fish and wildlife decision-makers in my state" by wildlife value orientation type.



Figure III.B.4. Potential for conflict indices for the statement "I feel that *if I provide input, it will make a difference* in fish and wildlife decisions in my state" by wildlife value orientation type.



Figure III.B.5. Potential for conflict indices for the statement "I feel that my state fish and wildlife agency makes a good effort to obtain *input from the public as a whole*" by wildlife value orientation type.



Figure III.B.6. Potential for conflict indices for the statement "*I don't have an interest* in providing input to fish and wildlife decisions in my state" by wildlife value orientation type.



Figure III.B.7. Potential for conflict indices for the statement "I trust my state fish and wildlife agency to *make good decisions without my input*" by wildlife value orientation type.



Results by participation in hunting and fishing. Hunters/anglers and non-hunters/anglers did not differ much on level of agreement or amount of within-group consensus on most statements in this section (Figure III.B.8). On average, hunters/anglers disagreed more than the non-hunters/anglers that they *do not have an interest in providing input*, and hunters/anglers showed more within-group consensus than non-hunters/anglers for this statement.



Figure III.B.8. Potential for conflict indices for public involvement items by participation in hunting and fishing.

	My	My	If I	My state	I don't	I trust my
	opinions	interests	provide	agency	have an	agency to
	are heard	are	input, it	makes an	interest in	make good
		taken	will make	effort to	providing	decisions
		into	а	obtain input	input	
		account	difference	from the		
				public		
			.			
	H	unters/anglers	U Non	-Hunters/anglers		

C. TRUST IN GOVERNMENT

This issue, examined on the regional portion of the survey, explores the public's level of trust in three forms of government: federal, state, and the state fish and wildlife agency. It complements the public involvement philosophy statement *I trust my state fish and wildlife agency to make good decisions without my input* by broadly asking about trust in the agency, and it puts the responses in the context of other forms of government. Respondents were asked to respond to the statements listed below.

Please respond to the following questions about the extent to which you trust certain forms of government. Circle one number for each statement.

Overall, to what extent do you trust			Only Some of the Time	Most of <u>the Time</u>	Almost <u>Always</u>
1.	your federal government to do what is right for your country?	1	2	3	4
2.	your state government to do what is right for your state?	1	2	3	4
3.	your <u>state fish and wildlife agency</u> to do what is right for fish and wildlife management in your state?	1	2	3	4

Summary of results. Figure III.C.1 displays the percent of respondents who trust the given government body to do what is right. The percent includes those who selected "most of the time" or "almost always." The federal government was trusted by just over half (53%) of respondents, while 63% expressed trust in state government. With 68% of the respondents expressing trust, the Utah Division of Wildlife Resources (UDWR) was the most trusted form of government.

Figure III.C.1. Percent of respondents expressing trust in different forms of government.



Additional analyses were conducted to explore sociodemographic, lifestyle, and cognitive (i.e., values or beliefs) characteristics of those who were more trusting of the UDWR. Correlations (point biserial and Pearson's—depending on the characteristics of the variables involved in each correlation) were conducted with participation in hunting, fishing, and viewing in the past 12 months; gender, age, number of children, education, and income; concern for safety belief dimension, attraction belief dimension, utilitarian wildlife value orientation, and mutualism wildlife value orientation. Trust in the agency was statistically significantly correlated with number of children living in the household (r = .099; p = .02), the mutualism (r = .110; p = .01), and utilitarian (r = .107; p = .01) value orientation scales, and the concern for safety (r = .114; p = .01) and attraction (r = .094; p = .02) belief dimensions. These relationships show that those with a greater number of children living at home, a lower score on the mutualism value orientation scale, a higher score on the utilitarian scale, greater concern for safety, and a lower score on the attraction scale are likely to be more trusting of the UDWR. The effect size for each of these relationships (represented in the strength of association) is considered "small" (Cohen, 1988).

Results by wildlife value orientation type. As Figure III.C.2 shows, trust increases from federal government to state government for all value orientation types except Mutualists. In addition, with the exception of Utilitarians who were only slightly less likely to trust the UDWR compared to state government, the value orientation types indicated greater trust in the agency over federal and state governments. While Mutualists were more trusting of the UDWR than of other forms of government, they were the least trusting of each government entity compared to the other value orientation types. Utilitarians, in contrast, were most trusting of each form of government relative to the other groups.



Figure III.C.2. Percent of wildlife value orientation type expressing trust in different forms of government.

Results by participation in hunting and fishing. Trust increased slightly for both groups from federal government to state government, and for non-hunters/anglers from the latter to the agency (Figure III.C.3). There was almost no difference between hunters/anglers and non-hunters/anglers in trust at all levels of government.





D. PAST PARTICIPATION IN DECISION-MAKING AND PREFERRED METHODS FOR FUTURE INVOLVEMENT

This issue, explored on the state-specific portion of the survey, examines the public's past involvement in wildlife management decision-making in Utah and preferred methods for participation in future decisions. Respondents were asked to indicate their prior involvement by checking which activities listed below they had participated in and then to indicate which of these methods were preferred for purposes of future involvement.

8. During the past 12 months, how have you participated in fish and wildlife management decision-making in Utah? Check (\overrightarrow{w}) all that apply.

- A) Talked (by telephone or in person) with a Regional Advisory Council or Utah Wildlife Board member
- B) Talked (by telephone or in person) with a DWR employee, for example, a Conservation Officer or biologist
- C) Sent a letter or an e-mail on a specific fish or wildlife management issue to the DWR (for example, about an enforcement situation, wildlife nuisance complaint, or management plan)
- D) Attended a Regional Advisory Council or Utah Wildlife Board meeting
- E) Attended another type of public meeting or open house hosted by the DWR (not a Regional Advisory Council or Board Meeting)
- F) Attended a meeting hosted by a group other than the DWR to hear about or discuss a fish or wildlife or associated habitat issue
- G) Other (please describe).
- H) I did not provide any input into fish and wildlife management this past year.

9. Now we're interested in finding out how you would prefer to participate in fish and wildlife management decisionmaking in Utah in the future. From the list above (question #8), please list the letters (A - H) for the top three most preferred ways for how you would like to participate OR check the box (\square) indicating that you are not interested.

In the future, I would prefer to use the following methods: _____, ____, and _____.

OR

□ I am not interested in providing input into fish and wildlife management in the future.

Summary of results. Figure III.D.1 displays the percent of respondents who indicated participation in each form of wildlife management decision-making. Overall, 24% of Utah residents participated in decision-making in the past year. The most popular activity among participants was *talking with a UDWR employee* (e.g., a Conservation Officer or biologist), followed by *other forms of participation* listed by respondents and *attending a meeting hosted by groups other than the UDWR* to hear about a particular wildlife-related issue. Table A-45 lists the decision-making activities provided by respondents as *other forms of participation*. Common responses included voting, donating to wildlife conservation organizations, and participating in public surveys. Approximately 60% of the public expressed an interest in providing input in the future. Most preferred ways of doing so included *attending a public meeting or open house hosted by the UDWR* (excluding Regional Advisory Council and Wildlife Board meetings), *sending a letter or email to the UDWR*, and *talking with a UDWR employee* (Figure III.D.2).

Figure III.D.1. Percent of respondents indicating participation in wildlife management decisionmaking in Utah in the past 12 months.



Figure III.D.2. Percent of respondents selecting methods as their top three most preferred ways for future participation in wildlife management decision-making in Utah.



Results by wildlife value orientation type. As Figure III.D.3 shows, Mutualists and Pluralists were more active than Utilitarians and Distanced individuals in wildlife management decision-making in the past year. The value orientation types also differed with respect to the kinds of activities they participated in. Pluralists were more likely than the other groups to indicate having *talked with a UDWR employee* or *with a Regional Advisory Council or Wildlife Board member* and having *attended a meeting hosted by a group other than the UDWR to hear about a specific wildlife-related issue*. Mutualists were most likely of the groups to report participation in some *other form of wildlife management decision-making* not already specified on the survey.

Utilitarians and Distanced individuals expressed less interest in providing input to wildlife decisions in the future compared to Mutualists and Pluralists (Figure III.D.4). Distanced were by far the least interested of all value orientation types in becoming involved. Among Utilitarians, the most preferred method for future involvement (defined by having the greatest percentage of people selecting it among their top three) was *sending a letter or email to the UDWR*, while the most preferred strategy for the other value orientation types was *attending a public meeting or open house hosted by the UDWR* (excluding Regional Advisory Council and Wildlife Board meetings; Figure III.D.5).

Figure III.D.3. Percent of wildlife value orientation type indicating participation in wildlife management decision-making in Utah in the past 12 months.



Figure III.D.4. Percent of wildlife value orientation type expressing interest in providing future input to wildlife management decision-making in Utah.



Figure III.D.5. Percent of wildlife value orientation type selecting methods as their top three most preferred ways for future participation in wildlife management decision-making in Utah.



Results by participation in hunting and fishing. Hunters/anglers were more active in wildlife management decision-making in the past year compared to non-hunters/anglers (Figure III.D.6). They were much more likely than their counterparts to have *talked with a UDWR employee* or *with a Regional Advisory Council or Wildlife Board member* and to have *attended a public meeting held by the UDWR* (including Regional Advisory Council and Wildlife Board meetings). Hunters/anglers were also more likely than non-hunters/anglers to express an interest in becoming involved in decision-making in the future (Figure III.D.7). The former group expressed greater preference for activities that involved certain kinds of interaction with the UDWR. For example, hunters/anglers were more likely than non-hunters/anglers to prefer to *talk with a UDWR employee* or *with a Regional Advisory Council or Wildlife Board member* or to attend a Regional Advisory Council or Board Meeting (Figure III.D.8).

Figure III.D.6. Percent of hunters/anglers and non-hunters/anglers indicating participation in wildlife management decision-making in Utah in the past 12 months.



Figure III.D.7. Percent of hunters/anglers and non-hunters/anglers expressing interest in providing future input to wildlife management decision-making in Utah.



Figure III.D.8. Percent of hunters/anglers and non-hunters/anglers selecting methods as their top three most preferred ways for future participation in wildlife management decision-making in Utah.



SECTION IV. MANAGEMENT OF HUMAN-WILDLIFE CONFLICT⁴

This section examines the public's perceptions of population-level techniques to address humanwildlife conflict, specifically incidents involving black bears and deer. The issue, explored on the regional portion of the survey, was organized into two conflict situations: the severity increased from nuisance in the first situation to safety threat in the second situation. Following the description of the situations, respondents were asked for each situation to indicate whether specific population-level management actions were acceptable. Supporting tables for the results reported in this section are located in Appendix A (Tables A-51 to A-60). In addition, comparisons of Utah residents' responses with those of publics in other parts of the western region for this issue are reported by Teel et al. (2005).

A. ACCEPTABILITY OF POPULATION-LEVEL TECHNIQUES TO MANAGE BEARS

Respondents were asked to evaluate the acceptability of three management actions for each of two human-wildlife conflict situations (i.e., nuisance and safety threat) concerning black bears. The survey items for these situations are listed below.

Fish and wildlife agencies want to know how the public thinks the agencies should respond to human-wildlife conflict situations. Below are two <u>IMAGINARY situations involving black bears</u>. We would like to know how you feel about certain management actions that could be directed at <u>bear populations</u> to address these situations. *Even though it may seem unlikely that these things could occur where you live, we are still interested in your opinions.*

(PLEASE TELL US HOW YOU FEEL ABOUT THE ACTIONS LISTED BELOW FOR EACH SITUATION)	2222				
	SITUATION 1		SITUATION 2		
ACTIONS:	Bears are wandering into areas where humans live in search of food. Bears are getting into trash and pet food containers.		Bears are wandering into areas where humans live in search of food. <u>Human</u> <u>deaths from bear attacks</u> have occurred.		
Is it unacceptable or acceptable to	Unacceptable	Acceptable	Unacceptable	Acceptable	
1do nothing to control bear populations?			0		
2 provide more recreational opportunities to hunt bears?					
3 conduct controlled hunts using trained agency staff?					

Summary of results. Figure IV.A.1 shows that, generally, the public found it unacceptable to *do nothing to control bear populations* but acceptable to *conduct controlled hunts using trained agency staff* in both situations. The public was more divided with respect to the acceptability of *providing more recreational opportunities to hunt bears*. Just over 60% of respondents felt that *recreational hunting* was an acceptable technique for dealing with a situation involving a threat to human safety (situation 2), while approximately half believed it to be an acceptable approach under nuisance circumstances (situation 1). *Doing nothing* was slightly more acceptable when the bears were simply a nuisance compared to when they were a threat to human safety. *Using controlled hunts* was more acceptable in the latter situation.

⁴ Text describing regional issues in this section has been extracted from Teel et al. (2005).



Figure IV.A.1. Percent of respondents finding management actions acceptable when bears are getting into trash and pet food containers (situation 1) and when human deaths from bear attacks have occurred (situation 2).

Results by wildlife value orientation type. Figures IV.A.2 and IV.A.3 reveal very similar trends for both situations. A majority (over 65%) of respondents in all value orientation types felt that *doing nothing* was unacceptable in both situations. Alternatively, most respondents (at least 54%) across all types were supportive of *conducting controlled hunts using trained agency staff.* The acceptability of *providing more opportunities for recreational hunting* was much less agreed upon. While over 50% of Utilitarians and Pluralists in both situations felt this to be an acceptable practice, the majority of Mutualists and Distanced individuals felt it was unacceptable.

Figure IV.A.2. Percent of wildlife value orientation type finding management actions acceptable when bears are getting into trash and pet food containers (situation 1).



Figure IV.A.3. Percent of wildlife value orientation type finding management actions acceptable when human deaths from bear attacks have occurred (situation 2).



Results by participation in hunting and fishing. Figures IV.A.4 and IV.A.5 reveal a consistent pattern across situations. Overall, both hunters/anglers and non-hunters/anglers felt that *doing nothing* was unacceptable, and a majority in each group felt that *conducting controlled hunts* was acceptable across situations. The groups differed with respect to their acceptance of *recreational hunting*. In both situations, most hunters/anglers found it to be acceptable, while only in a human safety threat situation (situation 2) did a majority of non-hunters/anglers indicate it was an acceptable practice.

Figure IV.A.4. Percent of hunters/anglers and non-hunters/anglers finding management actions acceptable when bears are getting into trash and pet food containers (situation 1).





Figure IV.A.5. Percent of hunters/anglers and non-hunters/anglers finding management actions acceptable when human deaths from bear attacks have occurred (situation 2).

B. ACCEPTABILITY OF POPULATION-LEVEL TECHNIQUES TO MANAGE DEER

Respondents were asked to evaluate the acceptability of five management actions for each of two situations concerning deer. Unlike in the bear situations, the second situation posed a threat to domestic animals and livestock, rather than humans. The survey items for these situations are listed below.

Below are two <u>IMAGINARY situations involving deer</u>. We would like to know how you feel about certain management actions that could be directed at <u>deer populations</u> to address these situations. *Even though it may seem unlikely that these things could occur where you live, we are still interested in your opinions.*

(PLEASE TELL US HOW YOU FEEL ABOUT THE ACTIONS LISTED BELOW FOR EACH SITUATION)		5	2	2
	SITUA	TION 1	SITUATION 2	
ACTIONS:	Deer numbers are in complaints abo people's yards and garden	ncreasing. There are ut deer entering l eating shrubs and plants.	Deer numbers are increasing. Authorities are concerned because deer are carrying a disease that is <u>transmissible to some domestic</u> <u>animals and livestock</u> .	
Is it unacceptable or acceptable to	Unacceptable	Acceptable	Unacceptable	Acceptable
1do nothing to control deer populations?				
2 provide more recreational opportunities to hunt deer?				
3 conduct controlled hunts using trained agency staff?				
 distribute pellets containing contraceptives, causing deer to be unable to produce offspring <u>permanently</u>? 				
 distribute pellets containing contraceptives, causing deer to be unable to produce offspring <u>for only a few</u> <u>breeding seasons</u>? 		0		

Summary of results. As Figure IV.B.1 shows, the public generally found it acceptable to *provide more recreational opportunities to hunt deer* and to *conduct controlled hunts* regardless of the situation. They tended to find it unacceptable to *do nothing* or to *distribute pellets containing permanent contraceptives*. The public was somewhat split with regard to *distributing pellets containing temporary contraceptives*. Just over 50% of respondents found this to be acceptable under nuisance circumstances (situation 1), while a majority expressed support for the action under conditions posing a threat to domestic animals and livestock (situation 2). It was less acceptable to *do nothing* when deer carried a transmissible disease than when they were merely a nuisance. There was no difference in acceptability between situations for *providing more recreational hunting opportunities*. As was the case for *contraceptive techniques, controlled hunts* were more acceptable when deer carried a transmissible disease than when they were a nuisance.

Figure IV.B.1. Percent of respondents finding management actions acceptable when deer are eating shrubs and garden plants (situation 1) and when deer are carrying a disease transmissible to domestic animals and livestock (situation 2).



Results by wildlife value orientation type. As shown in Figures IV.B.2 and IV.B.3, with a few exceptions the value orientation types conformed to a similar pattern in their evaluations of management actions across situations. In situation 1, permanent contraception was the least acceptable action for all types. Also in situation 1, *doing nothing* was found to be unacceptable for the majority of respondents in all types except Mutualists who, as a group, expressed just over 50% support for this management strategy. While still controversial, as indicated by low levels of support (i.e., less than 50%), the acceptability of *permanent contraceptives* increased across all value orientation types for the situation involving a threat to domestic animals and livestock (situation 2). Alternatively, doing nothing garnered less than 20% support in the second situation across all types. Providing more opportunities for recreational hunting was the most acceptable action for Pluralists and Utilitarians in situation 1, while Mutualists expressed greater preference as a group for *temporary contraception*, and Distanced individuals tended to prefer controlled hunts. In situation 2, the actions preferred most by Utilitarians and Pluralists were the two hunting techniques (i.e., *recreational* and *controlled hunts*). Preference for Mutualists and Distanced individuals tended toward *controlled hunts* and *use of temporary* contraceptives in this situation.

Figure IV.B.2. Percent of wildlife value orientation type finding management actions acceptable when deer are eating shrubs and garden plants (situation 1).



Figure IV.B.3. Percent of wildlife value orientation type finding management actions acceptable when deer are carrying a disease transmissible to domestic animals and livestock (situation 2).



Results by participation in hunting and fishing. Hunters/anglers and non-hunters/anglers differed very little in their acceptance of management actions in each deer situation (Figures IV.B.4 and IV.B.5). The only notable distinctions are in how the two groups evaluated *providing more recreational opportunities to hunt deer* and *distributing pellets containing temporary contraceptives*. In both situations, hunters/anglers were more likely than non-hunters/anglers to find recreational hunting acceptable and less likely than their counterparts to indicate that temporary contraception was a feasible solution.

Figure IV.B.4. Percent of hunters/anglers and non-hunters/anglers finding management actions acceptable when deer are eating shrubs and garden plants (situation 1).





Figure IV.B.5. Percent of hunters/anglers and non-hunters/anglers finding management actions acceptable when deer are carrying a disease transmissible to domestic animals and livestock (situation 2).

SECTION V. MANAGING FOR BIODIVERSITY AND SPECIES OF CONCERN⁵

This section provides information useful to the development of state Comprehensive Wildlife Conservation Strategies (CWCS). Data from the *Wildlife Values in the West* project can contribute in a number of ways to states' CWCS processes (Teel, Manfredo, Bright, & Dayer, 2004). The information collected from the "Biodiversity" portion of the survey – part of the regional section – was designed specifically *to identify public priorities of conservation need and perceptions of biodiversity*. To complement this area of investigation and further inform CWCS delivery, many of the state agencies involved in the study chose to include questions on the state-specific portion of the survey relevant to managing for biodiversity and species of concern (see Section VI for more information on state-specific questioning).

Survey items discussed in this section and examined on the regional portion of the survey were developed to address basic questions relevant to CWCS: How do people prioritize biodiversity relative to other guiding management philosophies? Do people think that the agencies should manage primarily for game species to provide hunting and fishing opportunities, or should the focus be more on sustaining a broad array of species? Is managing for native species preferred by people, or is it acceptable to allow non-native species to thrive in an area? Is restoration of native species acceptable even if it means that non-native species commonly hunted or fished may suffer? Through discussions of these questions, state agency personnel and researchers from Colorado State University identified "categories of difficult choices" related to the topic of managing for biodiversity and species of concern. These categories reflect the types of choices that management attention. Survey questions were developed to address the following categories of "difficult choices":

- 1. Species status (common, declining, and extirpated)
- 2. Species origin (native and non-native)
- 3. Species use (game and nongame)

A. METHODS

The Survey Questions. The biodiversity and species of concern section presented respondents with a series of eight hypothetical choices between species for prioritization for conservation funding. These choices included two "example species" with given characteristics. Each characteristic was represented by a statement describing a particular level (e.g., native or non-native) of each of the three species factors (i.e., status, origin, use). Based on the number of species factors and their levels, the orthogonal design function in SPSS[®] 13.0 (SPSS, Inc., 2004) determined both the appropriate number (8) and nature of hypothetical scenarios necessary to effectively examine the effects of each species factor and factor level on species choice. Six subregional versions of the eight scenarios were developed. Each version included **example species** appropriate for the subregion. An effort was made to choose those species with similar characteristics in multiple states in the subregion and to avoid those species with highly conflicting characterizations in several states. Utah was part of a subregion with Arizona,

⁵ Text describing the issue and portions of the methods (Section V.A) and application of the model section (V.C) have been extracted from Teel et al. (2005).
Colorado, New Mexico, and Nevada. The version of the survey sent to respondents in Utah is shown below. Table V.A.1 summarizes the example species given for each characteristic.

A fish and wildlife agency manager of <u>a particular area</u> may have limited funds to spend on conservation programs for fish and wildlife. As a result, difficult choices must be made about what type of fish or wildlife deserves the greatest priority. This often involves evaluating different combinations of characteristics of the fish or wildlife. Below is a series of <u>hypothetical</u> comparisons that illustrate the kinds of choices that might be made for an area. For each comparison please select the choice with the characteristics you think the manager should spend funds on to maintain or enhance the fish or wildlife population.

These are hypothetical comparisons. Even though some of these fish or wildlife may not be present where you live, we are still interested in your opinions.

1. Which should the manager spend funds on? (Check one D)



2. Which should the manager spend funds on? (Check one 🗹)



3. Which should the manager spend funds on? (Check one \square)



4. Which should the manager spend funds on? (Check one 🗹)



5. Which should the manager spend funds on? (Check one 🗹)



6. Which should the manager spend funds on? (Check one \square)



7. Which should the manager spend funds on? (Check one 🗹)



8. Which should the manager spend funds on? (Check one \square)



Species Origin			Species Status	Species Use		
Native	Non-native	Common	Declining	Extirpated	Game	Nongame
Cutthroat Trout	Mosquitofish	Mosquitofish	Cutthroat Trout	-	Cutthroat Trout	Mosquitofish
Black-chinned Hummingbird	Coho Salmon	Black-chinned Hummingbird	-	Coho Salmon	Coho Salmon	Black-chinned Hummingbird
Roundtail Chub	Brown Trout	Brown Trout	-	Roundtail Chub	Brown Trout	Roundtail Chub
Gambel's Quail	European Ferret	Gambel's Quail	European Ferret	-	Gambel's Quail	European Ferret
Blue Grouse	Monk Parakeet	-	Blue Grouse	Monk Parakeet	Blue Grouse	Monk Parakeet
Colorado Pikeminnow	Black Tetra	-	Black Tetra	Colorado Pikeminnow	Colorado Pikeminnow	Black Tetra
Great Horned Owl	Mountain Goat	Great Horned Owl	Mountain Goat	-	Mountain Goat	Great Horned Owl
River Otter	Rainbow Trout	Rainbow Trout	River Otter	-	Rainbow Trout	River Otter

Table V.A.1. Summary of example species for subregion.

Justification of the Method. A common approach to analyzing responses to the eight scenarios is to present the percent of respondents that supported each species. While this provides basic information about preferences of one wildlife species over another, it does not assess the relative impacts of each of the characteristics of those species. If respondents preferred that conservation funding be allocated to an owl species over a deer species, how much of this preference is due to the status of the species (common, declining, or extirpated), its origin (native or non-native), or its use (game or nongame)? To answer this, a more complex statistical analysis was necessary.

The eight "paired comparisons" (i.e., scenarios) were analyzed using *stated choice modeling* following procedures described in *Stated Choice Methods: Analysis and Application* (Louviere, Hensher, & Swait, 2003). Stated choice modeling allowed us to (a) combine the responses, or choices, generated for each comparison and (b) obtain estimates of the relative effects of each species factor and species factor level on species choice. This type of approach can provide more information about factors that influence choices than the descriptive approach described above. For example, while the public may prefer that managers allocate conservation funding to the management of the Cutthroat Trout (a native species) over the Mosquitofish (a non-native species), this preference may be due primarily to the fact that the Cutthroat Trout is a game animal and the Mosquitofish is not – not whether it is a native or non-native species. Stated choice modeling allows us to determine this.

Research Goals. Our approach to analyzing the biodiversity scenarios was designed to understand how the three species factors (status, origin, and use) and the levels of each of those factors influence support for a particular wildlife species for conservation funding. There were two primary goals and corresponding research questions (RQ) for this analysis:

Goal 1. To understand what <u>factors</u> influence public preferences for committing agency resources to the maintenance or enhancement of a wildlife species.

RQ1. Which species factor is most important in influencing public preferences for funding the conservation of a species: status, origin, or use?

Goal 2. To understand what specific characteristics of wildlife species (i.e., <u>factor levels</u>) drive what species the public feels should be emphasized in wildlife conservation decisions.

RQ2. What is the likelihood that an individual would prefer, for conservation funding, a "common" species versus a "declining" species versus an "extirpated" species? [species status]

RQ3. What is the likelihood that an individual would prefer, for conservation funding, a "native" species versus a "non-native" species? [species origin]

RQ4. What is the likelihood that an individual would prefer, for conservation funding, a "game" species versus a "nongame" species? [species use]

These research questions are analyzed by state within the subregion with emphasis on Utah in this report. For analyses by subregion within the western region, wildlife value orientation type, and participation, see the regional report (Teel et al., 2005).

Statistical Analysis. Research questions were analyzed using logistic regression within the stated choice model. The choice between two wildlife species across the eight hypothetical scenarios was a dichotomous dependent variable. The independent variables were the factor levels that apply to each species. The analysis determined what the relative effects of each species factor level were on species choice. The following statistics were generated by this analysis:

Estimated coefficient (utility score) – This statistic measures strength of association between a species factor level (the independent variable) and species choice (the dependent variable). This statistic is used to compute average importance of a species factor and the odds ratio for specific factor characteristics or levels.

Average importance – This statistic estimates the relative importance of the overall species factor in influencing public preference of a species for conservation funding. The sum of the average importance of each species factor in an analysis totals 100. This statistic was used to answer RQ1.

Odds ratio – This statistic estimates the likelihood that a wildlife species with a specific factor level would be selected over a species with another factor level, controlling for the effects of other species factors. Stated choice modeling identifies one factor level within a species factor as a "reference" level and the other level(s) as "nonreference". The odds ratio compares the likelihood that a wildlife species with a nonreference characteristic would be supported over one with the reference characteristic, controlling for the presence of the other species factors within the scenarios. The table below shows the reference and nonreference factor levels for each species factor. As an example, for species status, logistic regression created an odds ratio comparing a "declining" species with a "common" species and an "extirpated" species with a "common" species origin and species use. An odds ratio of

1.35 for a "declining" species means that it is 1.35 times more likely to be supported for conservation funding than a "common" species controlling for the fact that species also differ on origin and use. The odds ratio was used to answer RQ2, RQ3, and RQ4.

Species factor	Reference level	Nonreference level(s)			
Species status	Common	Declining; Extirpated			
Species origin	Non-native	Native			
Species use	Nongame	Game			

Table V.A.2. Reference and nonreference species factor levels.

B. RESULTS

A full display of the results for Utah and the subregion are found in Tables A-61 and A-62.

RQ1. Which species factor is most important in influencing public preferences for funding the conservation of a species: species status, species origin, or species use?

Figure V.B.1 compares the average importance of species factors in conservation funding for the subregion and each of its states. In Utah, species use was the most important factor (AI = 44.5) followed by species origin (AI = 34.6) and species status (AI = 20.9). As compared to the subregion, Utah placed a similar level of importance on species status but slightly more importance on species use and slightly less importance on species origin. Overall, there were no major differences among the states in the subregion on the average importance of these factors; yet, the relative importance of species use and species origin differed in Nevada and Utah from the other states in the subregion.



Figure V.B.1. Average importance of species factors by state within the subregion.



RQ2. What is the likelihood that an individual would prefer, for conservation funding, a "common" species versus a "declining" species versus an "extirpated" species? [species status]

Figure V.B.2 compares the subregion and each of its states on the species status odds ratios. Controlling for (holding constant) species origin and use, conservation funding support for "declining" species was more likely than for "common" species in Utah. The odds of preferring a declining species over a common species was 1.32. "Extirpated" species were only slightly more likely to be supported than "common" species. The odds of preferring an "extirpated" species over a "common" species was 1.04. The results in Utah were very similar to those found across the subregion except in New Mexico where "extirpated" species were slightly less likely to be supported than "common" species (odds ratio = 0.94).

Figure V.B.2. Odds ratios of species status levels by state within the subregion.



RQ3. What is the likelihood that an individual would prefer, for conservation funding, a "native" species versus a "non-native" species? [species origin]

Controlling for species status and use, "native" species were more likely to be supported for conservation funding than were "non-native" species in Utah (Figure V.B.3.). The odds of preferring a "native" over a "non-native" was 1.70. Although all states in the subregion preferred "native species" over "non-native" species, the odds ratio in Colorado was slightly higher than that for other states.

Figure V.B.3. Odds ratios of species origin levels by state within the subregion.



RQ4. What is the likelihood that an individual would prefer, for conservation funding, a "game" species versus a "nongame" species? [species use]

Controlling for species status and origin, "game" species were more likely to be supported for conservation funding than were "nongame" species in Utah (Figure V.B.4). The odds of preferring a "game" species over a "nongame" species was 1.98, the highest out of all states in the subregion. Results did not differ much across states in the subregion, although there was slight variation in the magnitude of the odds ratio.



Figure V.B.4. Odds ratios of species use levels by state within the subregion.

Conclusions. There were limited differences between Utah and the other states in its subregion on the relative importance of the species factors (origin, use, and status) and on the prioritization of factor levels (e.g., native vs. non-native). Species use (followed by species origin and species status) is most important in influencing public preferences for funding the conservation of a species in Utah. People are more likely to prioritize game species over nongame species; declining species over common species and extirpated species over common species; and native species over non-native species.

When considering these findings, it is important to keep in mind that analyses across all states with different subregional versions of this item (that varied on "example species") suggested that support for conservation funding is likely also a result of additional variables. These factors include wildlife value orientation type, participation in hunting and/or fishing, and unmeasured characteristics of species (e.g., whether human-wildlife conflict with the species is prevalent in a state; Teel et al., 2005).

C. AN APPLICATION OF THE MODEL

We adapted a technology from research in consumer marketing and parks and protected area management that represents a practical application of the approach to predicting support for conservation funding for wildlife species described in this study. This technology takes the form of a *calculator* that estimates the proportion of Utah's population that would support funding for a particular species given specific characteristics based on species status, species origin, and species use. The mathematical formulas within the calculator are based on the estimated coefficients (utility scores) derived from logistic regression analyses described above. As a result, the information provided by the calculator takes into account the odds that the public would support a species at one factor level (e.g., declining) over another (e.g., common) as well as the average importance of all the species factors (i.e., species status versus species origin versus species use).

The calculator presents two wildlife species for which the user is provided instructions to input three characteristics. An estimate of the percentage of the public that would support each species is then given based on those characteristics. Changing the characteristics within a specific species comparison will change the estimated percentages.

As an example, consider a situation where a wildlife manager is considering allocation of funds between the management of two wildlife species. One question he or she may have is "which species would the public prefer?" Species 1 is a declining wildlife species that is not native to the region and is a game species. Species 2 is also a declining species but is native to the area and is not a game species. The wildlife manager would input those characteristics into the calculator, which would then provide an estimate of public support for each species given a choice between the two. Example A in Figure V.C.1 provides the results for this comparison. In this situation, species 1 would be supported for conservation funding by approximately 57% of the public, while species 2 would be supported by about 43%.

Now consider Example B where species 1 is a common species that is native to the state and is a game species. On the other hand, species 2 is a declining species, not native to the state, and is also a game species. In this scenario, approximately 61% of the public would support conservation funding for species 1 while almost 39% would support conservation funding for species 2.

Figure V.C.1. Utah's species of concern calculator.

Calculator – Example A					
	Input Level of Species Attribute				
Species Factor	Species 1	Species 2			
Species Status Level 1 This species is COMMON in the area and numbers are stable.					
Level 2 Numbers are <i>LOW</i> ; you don't see this species very often anymore.	2	2			
Level 3 This species is NO LONGER PRESENT in the area.					
Species Origin					
Level 1 This species DOES NOT OCCUR NATURALLY in the area.					
Level 2 This species NATURALLY OCCURS in the area.	1	2			
Species Use					
Level 1 This species is NOT HUNTED OR FISHED .					
Level 2 This species IS HUNTED OR FISHED.	2	1			
Percent of Public Support for Conservation Program	57.44	42.56			

Calculator – Example B				
	Input Level of Species Attribute			
Species Factor	Species 1	Species 2		
Species Status Level 1 This species is COMMON in the area and numbers are stable.				
Level 2 Numbers are <i>LOW</i> ; you don't see this species very often anymore.	1	2		
Level 3 This species is NO LONGER PRESENT in the area.				
Species Origin				
Level 1 This species DOES NOT OCCUR NATURALLY in the area.				
Level 2 This species NATURALLY OCCURS in the area.	2	1		
Species Use				
Level 1 This species is NOT HUNTED OR FISHED .				
Level 2 This species IS HUNTED OR FISHED.	2	2		
Percent of Public Support for Conservation Program	61.28	38.72		

SECTION VI. MORE ON MANAGING FOR SPECIES OF CONCERN IN UTAH

In addition to exploring the issue of managing for biodiversity and species of concern on the regional portion of the survey (see Section V), Utah's state-specific survey section allowed for a more in-depth examination of public perceptions related to this topic. The Utah Division of Wildlife Resources (UDWR), like many of the state agencies involved in the *Wildlife Values in the West* study, chose to include questions pertaining to managing for species of concern in the state to help guide delivery of its Comprehensive Wildlife Conservation Strategy (CWCS). Specifically, Utah's entire state-specific section was devoted to the following three components of this topic to help inform the CWCS process:

- 1. overall importance of managing for species of concern in Utah;
- 2. preference for programs to benefit species of concern; and
- 3. acceptability of alternative funding sources to benefit species of concern.

The survey items and results for each of these components are presented in order below. Supporting tables for the items are located in Appendix A (Tables A-63 to A-132).

A. IMPORTANCE OF MANAGING FOR SPECIES OF CONCERN IN UTAH

This issue measures public perceptions of the importance of managing for species of concern in the state. First, respondents were asked to indicate how important they think it is to prevent species of concern from becoming federally classified as threatened or endangered. They were later asked to rate their level of agreement with a series of statements gauging the extent to which they felt species of concern should receive priority over other "competing uses" for public lands management. Survey items for this issue are presented below.

The DWR is concerned about **populations** of certain **fish and wildlife** species in Utah known as "species of concern" that are **at risk** of being listed under the federal Endangered Species Act. Your input will help guide the DWR toward benefiting these populations and the places where they live (known as "habitats") in Utah.

1. How important do you think it is for Utah to take action to prevent species of concern from becoming federally classified as threatened or endangered? Circle one number or check the box (D) for "no opinion".

Not at all Important	Slightly Important	Moderately Important	<u>Quite Important</u>	Extremely Important	<u>No Opinion</u>
1	2	3	4	5	

4. DWR must make decisions about how to manage for fish and wildlife on public lands. We are interested in how you think public lands should be managed in Utah. *Circle one number for each statement.*

Do you disagree or agree that public lands should be managed to	Strongly Disagree	Moderately <u>Disagree</u>	Slightly Disagree	<u>Neither</u>	Slightly <u>Agree</u>	Moderately <u>Agree</u>	Strongly <u>Agree</u>
Benefit species of concern even if it means decreasing the populations of common species of fish and wildlife.	1	2	3	4	5	6	7
Benefit species of concern even if it means decreasing the populations of species of fish and wildlife that can be legally hunted, trapped or fished.	1	2	3	4	5	6	7
Benefit species of concern even if it means providing fewer opportunities for outdoor recreation on those lands.	1	2	3	4	5	6	7
Benefit species of concern even if it means providing fewer opportunities for economic development on those lands.	1	2	3	4	5	6	7

Summary of results. As shown in Figure VI.A.1, the majority of Utah residents placed a high priority on managing for species of concern in the state. Sixty-four percent of respondents felt it was either "quite" or "extremely" important for the state to *take action to prevent species of concern from becoming federally classified as threatened or endangered*. While respondents recognized the importance of protecting these species, they felt that other priorities also deserved consideration in how public lands are managed. Figure VI.A.2 reports respondents' evaluations of trade-offs between managing for species of concern and these other competing priorities. Respondents tended to agree that public lands should be managed to benefit species of concern *even if it means providing fewer economic development opportunities*. However, they tended to disagree on average with management of public lands to benefit species of concern *if it means decreasing common species of wildlife* or *decreasing game species*. The public was divided on whether species of concern should receive priority over *provision of outdoor recreation opportunities* on public lands.

Figure VI.A.1. Percent of respondents indicating the importance of taking action to prevent species of concern from becoming federally classified as threatened or endangered.



Figure VI.A.2. Potential for conflict indices for statements about benefiting species of concern in the context of competing priorities for public lands management.



Results by wildlife value orientation type. As shown in Figure VI.A.3, the value orientation types differed with respect to the importance they placed on managing for species of concern in Utah. With over 50% selecting "extremely important" as their response, Mutualists tended to place greater emphasis than other groups on *taking action to prevent species of concern from becoming federally classified as threatened or endangered*. Distanced individuals were less likely to assign high ratings of importance and were more likely than the other value orientation types to select "no opinion" as a response. Figures VI.A.4 to VI.A.7 display PCI graphs for each of the public lands management statements, showing a PCI bubble for each of the value orientation types and for the entire public. As these graphs indicate, Mutualists were more likely

to agree with managing lands to benefit species of concern, *even if it means decreasing game species, providing fewer opportunities for outdoor recreation*, and *limiting economic development opportunities*. Individuals within the Mutualist group were in high consensus with regard to the latter two uses of public lands. Utilitarians tended toward greater disagreement (and in most cases relatively high consensus), compared to the other value orientation types, with regard to managing public lands to benefit species of concern if it means limiting other uses and opportunities.

Figure VI.A.3. Percent of wildlife value orientation type indicating the importance of taking action to prevent species of concern from becoming federally classified as threatened or endangered.



Figure VI.A.4. Potential for conflict indices for the statement, "Do you disagree or agree that public lands should be managed to benefit species of concern even if it means decreasing the populations of common species of fish and wildlife?" by wildlife value orientation type.



Figure VI.A.5. Potential for conflict indices for the statement, "Do you disagree or agree that public lands should be managed to benefit species of concern even if it means decreasing the populations of species of fish and wildlife that can be legally hunted, trapped, or fished?" by wildlife value orientation type.



Figure VI.A.6. Potential for conflict indices for the statement, "Do you disagree or agree that public lands should be managed to benefit species of concern even if it means providing fewer opportunities for outdoor recreation on those lands?" by wildlife value orientation type.



Figure VI.A.7. Potential for conflict indices for the statement, "Do you disagree or agree that public lands should be managed to benefit species of concern even if it means providing fewer opportunities for economic development on those lands?" by wildlife value orientation type.



Results by participation in hunting and fishing. Hunters/anglers and non-hunters/anglers differed very little in the importance they placed on *taking action to prevent species of concern from becoming federally classified as threatened or endangered* (Figure VI.A.8). Non-hunters/anglers were slightly more likely to select "no opinion" as a response for this statement. Hunters/anglers tended to express greater levels of disagreement than non-hunters/anglers with statements suggesting public lands should be managed to benefit species of concern even if it means limiting other uses or opportunities (Figure VI.A.9). The groups did not differ much on managing for species of concern in the context of limiting economic development. They both tended to agree with assigning priority to species of concern in this situation, although hunters/anglers were slightly less in consensus as a group on the issue.

Figure VI.A.8. Percent of hunters/anglers and non-hunters/anglers indicating the importance of taking action to prevent species of concern from becoming federally classified as threatened or endangered.



Figure VI.A.9. Potential for conflict indices for statements about benefiting species of concern in the context of competing priorities for public lands management by participation in hunting and fishing.



B. PREFERENCE FOR PROGRAMS TO BENEFIT SPECIES OF CONCERN

This issue measures public perceptions of the importance of specific program options to benefit species of concern in Utah. Respondents were first asked to indicate how important they think each of the programs is and then to indicate their top three most preferred program options for the UDWR to pursue. Survey items for this issue are presented below.

5. To benefit species of concern in Utah, the DWR will be considering a variety of **program options**. The programs chosen will be funded with new federal grant monies. We are interested in knowing **how important** you feel the options listed below would be. *Circle one number for each statement*.

How important is it to benefit fish and wildlife species of concern (sensitive species) by	Not at all <u>Important</u>	Slightly <u>Important</u>	Moderately <u>Important</u>	Quite <u>Important</u>	Extremely Important
A) \ldots offering nongovernmental organizations a competitive, matching small grant program for cooperative sensitive species habitat enhancement projects?	1	2	3	4	5
B) distributing information to inform landowners, developers and industries on effectively applying best land use practices to minimize impacts on sensitive species habitat?	1	2	3	4	5
C) \ldots offering those who recreate outdoors educational programs on how to minimize their impacts on sensitive species habitat?	1	2	3	4	5
D) buying conservation easements from willing private landowners to protect sensitive species habitat?	1	2	3	4	5
E) offering private landowners a competitive, matching small grant program for sensitive species habitat enhancement projects?	1	2	3	4	5
F) hiring more DWR staff to enhance sensitive species habitat and conduct sensitive species research and surveys?	1	2	3	4	5

6. From the above list, please indicate your **top three most preferred program options** for DWR **to pursue** to help benefit species of concern in Utah. *List three program options. Write the letter (A-F) that corresponds with the program.*

I prefer program options _____, ____, and _____

Summary of results. Programs to benefit species of concern that received the highest overall ratings of importance were *distributing information to inform landowners, developers, and industries on applying best land use practices* and *offering educational programs to outdoor recreationists*. These program options achieved the highest mean ratings of importance on the 1 to 5 response scale (Figure VI.B.1) and also had the highest percentages of respondents designating them as "extremely important" (Figure VI.B.2). While all programs were perceived to be at least "slightly important" on average, the option with the least support among Utah residents was *hiring more UDWR staff to enhance habitat and conduct research and surveys*. These findings are consistent with respondents' selections of the top three most preferred programs for the UDWR to pursue to benefit species of concern (Figure VI.B.3). Over 50% of respondents selected the following programs to be among their top three: *distributing information to inform landowners, developers, and industries on applying best land use practices, offering educational programs to outdoor recreationists*, and *buying conservation easements from willing landowners*.



Figure VI.B.1. Mean ratings of importance for programs to benefit species of concern.

Figure VI.B.2. Percent of respondents rating programs to benefit species of concern as *"extremely important"*.



Figure VI.B.3. Percent of respondents selecting programs to benefit species of concern as the *top three most preferred program options*.



Results by wildlife value orientation type. Differences were noted across value orientation types in overall ratings of importance for programs aimed at benefiting species of concern. As shown in Figure VI.B.4, Mutualists tended on average to assign higher ratings than other value orientation types to the majority of the programs under consideration. Utilitarians and Distanced individuals had lower average importance ratings for program options. Slight differences were also noted in group preferences for the top three programs the UDWR should pursue for species of concern (Figure VI.B.5). A greater percentage of Pluralists, for example, preferred *offering NGOs a small grants program* compared to the other value orientation types. In addition, they were less likely than other groups to prefer that the agency *distribute information on best land use practices to landowners, developers, and industries.* Utilitarians expressed greater preference relative to the other value orientation types to select *offering landowners a small grants program* as one of their top three preferred options. All groups seemed to be in agreement with regard to their perception of *hiring more UDWR staff.* They tended to see it as a lesser priority for the agency to focus on in the future compared to other program options.



Figure VI.B.4. Mean ratings of importance by wildlife value orientation type for programs¹ to benefit species of concern.

¹Abbreviated descriptions of programs are as follows:

Program A: offering NGOs small grants program

Program B: distributing information to landowners, developers, and industries

Program C: offering recreationists education programs

Program D: buying conservation easements from willing landowners

Program E: offering landowners small grants program

Program F: hiring more DWR staff

Figure VI.B.5. Percent of wildlife value orientation type selecting programs to benefit species of concern as the *top three most preferred program options*.



Results by participation in hunting and fishing. Hunters/anglers and non-hunters/anglers did not differ on average ratings of importance for programs to benefit species of concern (Figure VI.B.6). In addition, no major differences were noted between the two groups in their overall preferences for the program options (Figure VI.B.7).



Figure VI.B.6. Mean ratings of importance by participation in hunting and fishing for programs¹ to benefit species of concern.

¹Abbreviated descriptions of programs are as follows:

Program A: offering NGOs small grants program

Program B: distributing information to landowners, developers, and industries

Program C: offering recreationists education programs

Program D: buying conservation easements from willing landowners

Program E: offering landowners small grants program

Program F: hiring more DWR staff

Figure VI.B.7. Percent of hunters/anglers and non-hunters/anglers selecting programs to benefit species of concern as the *top three most preferred program options*.



C. ACCEPTABILITY OF ALTERNATIVE FUNDING SOURCES TO BENEFIT SPECIES OF CONCERN

This issue measures public perceptions of alternative funding sources to benefit species of concern. Respondents were first asked to rate their level of agreement with a series of statements capturing the extent to which they feel responsible for helping to pay for management of certain types of wildlife, including species of concern, in Utah. They were then asked to rate the acceptability of and indicate their preference for specific sources of funding that could be used to benefit species of concern in the state. Survey items for this issue are presented below.

7. DWR has limited funds for fish and wildlife management in Utah. Some people feel that the public should be required to help pay for actions that benefit all fish and wildlife. Others believe that people should only help pay for actions that benefit fish and wildlife that directly benefit humans (for example, those that are hunted, fished, or trapped). We are interested in what types of wildlife you believe that <u>you</u> should be responsible to help pay for. *Circle one number for each statement*.

Do you disagree or agree that you should be responsible to help pay for	Strongly <u>Disagree</u>	Moderately <u>Disagree</u>	Slightly <u>Disagree</u>	<u>Neither</u>	Slightly <u>Agree</u>	Moderately <u>Agree</u>	Strongly <u>Agree</u>
federally threatened and endangered fish and wildlife in Utah.	1	2	3	4	5	6	7
State of Utah species of concern.	1	2	3	4	5	6	7
fish or wildlife that can NOT be legally hunted, trapped or fished.	1	2	3	4	5	6	7
fish or wildlife that can be legally hunted, trapped or fished.	1	2	3	4	5	6	7

2. DWR must find <u>alternative funding sources</u> to match new federal grant monies to pay for programs and services that would <u>benefit species of concern</u> in Utah. Please indicate your level of **acceptance** for using each of the alternative funding sources listed below. *Circle one number for each alternative*.

Is unacceptable or acceptable to	Highly <u>Unacceptable</u>	Moderately <u>Unacceptable</u>	Slightly <u>Unacceptable</u>	<u>Neither</u>	Slightly <u>Acceptable</u>	Moderately <u>Acceptable</u>	Highly <u>Acceptable</u>
A) reallocate State of Utah general tax (fund) revenues?	1	2	3	4	5	6	7
B) create a special tax on outdoor recreation equipment?	1	2	3	4	5	6	7
C)charge special transaction fees on developers and industries?	1	2	3	4	5	6	7
D) reallocate funds from the sale of fishing, hunting, and trapping licenses?	1	2	3	4	5	6	7

3. Now we are interested in your level of **preference** for each of these funding sources for programs and services that would <u>benefit species of concern</u>. Please distribute 100 points among these 4 alternatives to show how much <u>you</u> think each source should contribute to the funding for species of concern.

Points

100 Points Total

Summary of results. Overall, respondents tended to agree that they have a responsibility to help pay for the management of different types of wildlife species in Utah (Figure VI.C.1). They were slightly more in consensus with regard to funding for species of concern and game species (i.e., wildlife that can be legally hunted, trapped, or fished). A clear pattern emerged for public acceptability of and preference for alternative sources of funding to benefit species of concern. Respondents tended to agree that the *reallocation of funds from the sale of fishing, hunting, and trapping licenses* was acceptable (Figure VI.C.2). This funding mechanism was also by far the most preferred as indicated by the average number of points respondents assigned out of a possible 100 (Figure VI.C.3). The next most preferred options that also were perceived, on average, as acceptable were *charging special transaction fees on developers and industries* and *creating a special tax on outdoor recreation equipment*. The public was more divided on its support for *reallocation of Utah's general tax revenue* to benefit species of concern. The latter option was also the least preferred among the alternative sources for funding.

Figure VI.C.1. Potential for conflict indices for agreement with statements about the responsibility to help pay for certain types of wildlife in Utah.



Figure VI.C.2. Potential for conflict indices for acceptability of alternative sources of funding to benefit species of concern.





Figure VI.C.3. Mean number of points assigned to indicate preference for alternative sources of funding to benefit species of concern.

Results by wildlife value orientation type. Figures VI.C.4 through VI.C.7 display the potential for conflict indices for the wildlife value orientation types on items capturing perceptions of responsibility to pay for the management of different species of wildlife in Utah. As these graphs indicate, Mutualists were more in consensus and more likely to agree that they have a responsibility to help pay for all types of wildlife. Utilitarians were more divided as a group and tended toward neutral or slight disagreement with respect to their responsibility to help manage the different species. They were more likely to disagree, compared to the other value orientation types, regarding their responsibility to help pay for management of nongame species. Distanced individuals were more neutral than other segments of the public on their responsibility to pay for game species of wildlife. Figures VI.C.8 through VI.C.11 display the potential for conflict indices across value orientation types for the acceptability of alternative funding sources to benefit species of concern in Utah. The groups displayed relatively high consensus regarding the acceptability of *reallocating funds from the sale of fishing, hunting, and trapping licenses*. While there was more disagreement among members of each group for *charging special transaction* fees on developers and industries and creating a special tax on outdoor recreation equipment, there was a tendency toward acceptance of these funding sources. The most notable difference among the types was on the *reallocation of the state's general tax*. Utilitarians, on average, found this funding mechanism to be unacceptable, while Distanced individuals were more neutral, and Mutualists and Pluralists indicated that it was an acceptable option to benefit species of concern. The value orientation types differed slightly in their overall preferences for the different funding mechanisms (Figure VI.C.12). While all groups tended to prefer the reallocation of funds from the sale of fishing, hunting, and trapping licenses, Utilitarians and

Distanced individuals assigned the highest average number of points to this funding source. And while *reallocation of the state's general tax* was one of the least preferred options across groups, Pluralists and Mutualists assigned higher mean rankings to this source of funding than the other value orientation types.

Figure VI.C.4. Potential for conflict indices for the statement, "Do you disagree or agree that you should be responsible to help pay for federally threatened and endangered fish and wildlife in Utah?"





Figure VI.C.5. Potential for conflict indices for the statement, "Do you disagree or agree that you should be responsible to help pay for State of Utah species of concern?"



Figure VI.C.6. Potential for conflict indices for the statement, "Do you disagree or agree that you should be responsible to help pay for fish or wildlife that can NOT be legally hunted, trapped or fished?"


Figure VI.C.7. Potential for conflict indices for the statement, "Do you disagree or agree that you should be responsible to help pay for fish or wildlife that can be legally hunted, trapped or fished?"



Figure VI.C.8. Potential for conflict indices for the statement, "Is it unacceptable or acceptable to reallocate State of Utah general tax (fund) revenues to benefit species of concern?"



Figure VI.C.9. Potential for conflict indices for the statement, "Is it unacceptable or acceptable to create a special tax on outdoor recreation equipment to benefit species of concern?"



Figure VI.C.10. Potential for conflict indices for the statement, "Is it unacceptable or acceptable to charge special transaction fees on developers and industries to benefit species of concern?"



Figure VI.C.11. Potential for conflict indices for the statement, "Is it unacceptable or acceptable to reallocate funds from the sale of fishing, hunting, and trapping licenses to benefit species of concern?"



Figure VI.C.12. Mean number of points assigned to indicate preference for alternative sources of funding to benefit species of concern by wildlife value orientation type.



Results by participation in hunting and fishing. Hunters/anglers and non-hunters/anglers were in agreement with respect to their responsibility to help pay for different types of wildlife species with one exception (Figure VI.C.13). Hunters/anglers were more likely than their counterparts to feel responsible for paying to help manage game species. Slight differences were noted between the two groups on items measuring the acceptability of and preference for alternative sources of funding to benefit species of concern (Figure VI.C.14 and VI.C.15). Hunters/anglers were slightly more likely than non-hunters/anglers to view the reallocation of the state's general tax and charging special transaction fees on developers and industries as acceptable options. Non-hunters/anglers alternatively assigned a slightly higher rating of acceptance overall to creating a special tax on outdoor recreation equipment and reallocating funds from the sale of fishing, hunting, and trapping licenses, although both groups tended to agree that the latter was an acceptable strategy. This funding option was most preferred, on average, by both segments of the public, but non-hunters/anglers expressed greater preference than hunters/anglers. The latter group was slightly more likely than the former to indicate preference for reallocating the state's general tax and charging special transaction fees on developers and industries to benefit species of concern in Utah.

Figure VI.C.13. Potential for conflict indices for agreement with statements about the responsibility to help pay for certain types of wildlife in Utah by participation in hunting and fishing.



Figure VI.C.14. Potential for conflict indices for acceptability of alternative sources of funding to benefit species of concern by participation in hunting and fishing.





Figure VI.C.15. Mean number of points assigned to indicate preference for alternative sources of funding to benefit species of concern by participation in hunting and fishing.

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APPENDIX A. SUPPORTING TABLES

Respondent Characteristics	Percent Distribution of each Wildlife Value Orientation Type
Utilitarian	47.6
Pluralist	20.8
Mutualist	20.5
Distanced	11.2

Table A-1. Percent distribution of wildlife value orientation types in Utah.

Table A-2. Percent scoring "high"¹ on mutualism wildlife value orientation scale compared to utilitarian wildlife value orientation scale by respondent characteristics.

Respondent characteristics	High on mutualism wildlife value orientation scale	High on utilitarian wildlife value orientation scale
Males	35.5	81.3
Females	48.3	52.1
Hunters/anglers	44.9	86.1
Non-hunters/anglers	39.1	60.3

¹"High" defined by score of > 4.5 on mean composite wildlife value orientation scale.

Table A-3. Percent scoring "high"¹ on attraction basic wildlife belief dimension compared to concern for safety basic wildlife belief dimension by respondent characteristics.

Respondent characteristics	High on attraction belief dimension	High on concern for safety belief dimension
Utilitarian	66.7	5.9
Pluralist	91.2	6.5
Mutualist	84.4	7.4
Distanced	49.3	7.5
Males	82.5	2.7
Females	61.1	12.1
Hunters/anglers	89.3	2.7
Non-hunters/anglers	65.9	8.1

¹"High" defined by score of > 4.5 on mean composite belief dimension scale.

Perceived Funding Approaches	Percent respondents indicating each approach as perceived current
Approach 1	18.5
Approach 2	26.6
Approach 3	18.1
Approach 4	36.8

Table A-4. Percent of respondents indicating each approach as their perceived current approach in the state.

Table A-5 P	Percent of resi	ondents i	ndicating	each annroa	ch as the	ir desired	lannroach
Table A-J. F	cicciii of ies	Jonuents n	nuicating	cach appiùa	ch as the	in desired	i appioacii

Desired Funding Approaches	Percent respondents indicating each approach as desired
Approach 1	9.8
Approach 2	7.3
Approach 3	20.1
Approach 4	62.8

Table A-6. Percent of wildlife value orientation type indicating each approach as their perceived current approach in the state.

Value type	Approach 1	Approach 2	Approach 3	Approach 4
Utilitarian	18.9	21.4	18.5	41.3
Pluralist	17.1	24.4	26.0	32.5
Mutualist	20.0	40.0	10.4	29.6
Distanced	16.1	30.6	16.1	37.1

Table A-7. Percent of wildlife value orientation type indicating each approach as their desired approach.

Value type	Approach 1	Approach 2	Approach 3	Approach 4
Utilitarian	11.7	9.5	21.9	56.9
Pluralist	7.3	8.1	21.0	63.7
Mutualist	5.0	2.5	12.6	79.8
Distanced	15.4	6.2	24.6	53.8

Table A-8. Percent of wildlife value orientation type selecting same approaches for perceived current approach and desired approach in the state.

Value type	Selecting Same Approaches
Utilitarian	50.7
Pluralist	31.7
Mutualist	27.7
Distanced	41.0

Table A-9. Percent of hunters/anglers and non-hunters/anglers indicating each approach as their perceived current approach in the state.

Participation	Approach 1	Approach 2	Approach 3	Approach 4
Hunters/anglers	19.0	17.9	25.0	38.0
Non- hunters/anglers	18.2	31.2	14.8	35.8

Table A-10. Percent of hunters/anglers and non-hunters/anglers indicating each approach as their desired approach.

Participation	Approach 1	Approach 2	Approach 3	Approach 4
Hunters/anglers	8.1	11.4	14.1	66.5
Non- hunters/anglers	10.9	5.3	22.8	61.0

Table A-11. Percent of hunters/anglers and non-hunters/anglers selecting same approaches for perceived current approach and desired approach in the state.

Participation	Selecting Same Approaches
Hunters/anglers	40.2
Non-hunters/anglers	41.6

Involvement statement ¹	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
My opinions are heard	13.3	12.7	12.0	38.2	15.5	7.2	1.1
My interests are adequately taken into account	11.4	14.4	12.4	32.0	20.0	8.5	1.4
If I provide input, it will make a difference	11.1	15.3	17.7	20.0	27.3	6.9	1.8
My agency makes a good effort to obtain input	7.6	14.5	16.6	21.4	24.5	12.1	3.2
I don't have an interest in providing input	20.7	15.5	20.7	15.5	13.6	8.8	5.1
I trust agency to make good decisions without my input	12.1	10.5	15.4	13.9	25.1	15.8	7.2

Table A-12. Percent of respondents agreeing with the public involvement statements.

¹Shortened versions of the statements are provided in each row of the table. The complete statements are below:

1. "I feel that my opinions are heard by fish and wildlife decision-makers in my state."

2. "I feel that my interests are adequately taken into account by fish and wildlife decision makers in my state."

3. "I feel that if I provide input, it will make a difference in fish and wildlife decisions in my state."

4. "I feel that my state fish and wildlife agency makes a good effort to obtain *input from the public as a whole.*"

5. "I don't have an interest in providing input to fish and wildlife decisions in my state."

6. "I trust my state fish and wildlife agency to make good decisions without my input."

Table A-13. Percent of wildlife value orientation type agreeing with the statement "I feel that my opinions are heard by fish and wildlife decision-makers in my state."

Value type	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Utilitarian	11.2	12.2	10.8	42.7	13.6	8.4	1.0
Pluralist	14.5	11.3	12.1	29.0	21.8	8.1	3.2
Mutualist	17.5	16.7	16.7	30.8	12.5	5.8	0.0
Distanced	12.5	10.9	7.8	50.0	17.2	1.6	0.0

Table A-14. Percent of wildlife value orientation type agreeing with the statement "I feel that my interests are adequately taken into account by fish and wildlife decision-makers in my state."

Value type	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Utilitarian	10.1	12.2	10.5	35.2	20.2	11.1	.7
Pluralist	13.6	12.8	12.8	23.2	23.2	12.8	1.6
Mutualist	14.8	20.5	18.0	29.5	12.3	1.6	3.3
Distanced	7.6	15.2	10.6	39.4	25.8	1.5	0.0

Table A-15. Percent of wildlife value orientation type agreeing with the statement "I feel that if I provide input, it will make a difference in fish and wildlife decisions in my state."

Value type	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Utilitarian	9.0	12.2	19.1	19.8	30.9	6.6	2.4
Pluralist	11.4	14.6	13.8	21.1	28.5	9.8	.8
Mutualist	15.6	22.1	18.9	16.4	20.5	5.7	.8
Distanced	12.1	16.7	16.7	25.8	21.2	6.1	1.5

Table A-16. Percent of wildlife value orientation type agreeing with the statement "I feel that my state fish and wildlife agency makes a good effort to obtain input from the public as a whole."

Value type	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Utilitarian	5.9	12.2	12.9	25.1	27.9	12.9	3.1
Pluralist	6.5	13.0	22.0	17.9	19.5	15.4	5.7
Mutualist	13.9	24.6	16.4	12.3	21.3	8.2	3.3
Distanced	6.0	9.0	23.9	28.4	23.9	9.0	0.0

Table A-17. Percent of wildlife value orientation type agreeing with the statement "I don't have an interest in providing input to fish and wildlife decisions in my state."

Value type	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Utilitarian	16.7	14.3	22.0	17.1	14.6	8.7	6.6
Pluralist	32.5	15.4	20.3	13.0	6.5	7.3	4.9
Mutualist	26.4	22.3	18.2	10.7	14.0	5.8	2.5
Distanced	6.1	7.6	21.2	22.7	21.2	16.7	4.5

Table A-18. Percent of wildlife value orientation type agreeing with the statement "I trust my state fish and wildlife agency to make good decisions without my input."

Value type	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Utilitarian	9.1	9.4	14.3	14.3	28.3	17.8	6.6
Pluralist	17.9	10.6	18.7	9.8	19.5	16.3	7.3
Mutualist	18.5	15.1	14.3	11.8	21.8	10.9	7.6
Distanced	3.0	6.0	16.4	23.9	28.4	14.9	7.5

Value type	Mean	PCI value
Public	3.56	0.22
Utilitarian	3.65	0.22
Pluralist	3.70	0.32
Mutualist	3.22	0.16
Distanced	3.52	0.14

Table A-19. PCI means and values for the statement "I feel that my opinions are heard by fish and wildlife decision-makers in my state" by wildlife value orientation type.

Table A-20. PCI means and values for the statement "I feel that my interests are adequately taken into account by fish and wildlife decision makers in my state" by wildlife value orientation type.

Value type	Mean	PCI value
Public	3.66	.27
Utilitarian	3.80	.30
Pluralist	3.76	.36
Mutualist	3.23	.17
Distanced	3.63	.19

Table A-21. PCI means and values for the statement "I feel that if I provide input, it will make a difference in fish and wildlife decisions in my state" by wildlife value orientation type.

Value type	Mean	PCI value
Public	3.65	.31
Utilitarian	3.81	.34
Pluralist	3.73	.34
Mutualist	3.27	.23
Distanced	3.52	.25

Value type	Mean	PCI value
Public	3.90	.39
Utilitarian	4.08	.37
Pluralist	4.01	.45
Mutualist	3.39	.32
Distanced	3.84	.28

Table A-22. PCI means and values for the statement "I feel that my state fish and wildlife agency makes a good effort to obtain input from the public as a whole" by wildlife value orientation type.

Table A-23. PCI means and values for the statement "I don't have an interest in providing input to fish and wildlife decisions in my state" by wildlife value orientation type.

Value type	Mean	PCI value
Public	3.33	.31
Utilitarian	3.51	.35
Pluralist	2.86	.24
Mutualist	2.89	.22
Distanced	4.19	.36

Table A-24. PCI means and values for the statement "I trust my state fish and wildlife agency to make good decisions without my input" by wildlife value orientation type.

Value type	Mean	PCI value
Public	4.05	.48
Utilitarian	4.23	.40
Pluralist	3.79	.49
Mutualist	3.68	.44
Distanced	4.45	.25

Table A-25. Percent of hunters/anglers and non-hunters/anglers agreeing with the statement "I feel that my opinions are heard by fish and wildlife decision-makers in my state."

Participation	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Hunters/anglers	15.6	14.0	12.9	27.4	20.4	8.1	1.6
Non-Hunters/anglers	12.5	12.3	10.8	43.0	13.5	7.0	1.0

Table A-26. Percent of hunters/anglers and non-hunters/anglers agreeing with the statement "I feel that my interests are adequately taken into account by fish and wildlife decision-makers in my state."

Participation	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Hunters/anglers	15.0	13.9	11.8	21.4	26.2	10.7	1.1
Non-Hunters/anglers	10.0	14.7	12.2	37.3	16.9	7.2	1.7

Table A-27. Percent of hunters/anglers and non-hunters/anglers agreeing with the statement "I feel that if I provide input, it will make a difference in fish and wildlife decisions in my state."

Participation	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Hunters/anglers	15.6	14.5	16.7	14.0	28.5	9.1	1.6
Non-Hunters/anglers	9.4	15.6	18.1	22.5	27.0	5.7	1.7

Table A-28. Percent of hunters/anglers and non-hunters/anglers agreeing with the statement "I feel that my state fish and wildlife agency makes a good effort to obtain input from the public as a whole."

Participation	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Hunters/anglers	10.8	12.9	18.3	12.9	24.7	14.5	5.9
Non-Hunters/anglers	6.2	15.5	16.2	24.9	24.2	11.0	2.0

Table A-29. Percent of hunters/anglers and non-hunters/anglers agreeing with the statement "I don't have an interest in providing input to fish and wildlife decisions in my state."

Participation	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Hunters/anglers	33.5	20.5	20.0	9.2	9.7	5.4	1.6
Non-Hunters/anglers	15.3	13.3	20.5	19.0	15.3	10.0	6.8

Table A-30. Percent of hunters/anglers and non-hunters/anglers agreeing with the statement "I trust my state fish and wildlife agency to make good decisions without my input."

Participation	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Hunters/anglers	16.1	10.2	16.7	8.1	26.3	16.7	5.9
Non-Hunters/anglers	10.4	10.4	15.4	16.4	24.4	15.2	7.7

Table A-31. PCI means and values for the statement "I feel that my opinions are heard by fish and wildlife decision-makers in my state" by participation in hunting and fishing.

Participation	Mean	PCI value
Hunters/anglers	3.52	.28
Non-hunters/anglers	3.58	.20

Table A-32. PCI means and values for the statement "I feel that my interests are adequately taken into account by fish and wildlife decision-makers in my state" by participation in hunting and fishing.

Participation	Mean	PCI value
Hunters/anglers	3.64	.34
Non-hunters/anglers	3.65	.24

Table A-33. PCI means and values for the statement "I feel that if I provide input, it will make a difference in fish and wildlife decisions in my state" by participation in hunting and fishing.

Participation	Mean	PCI value
Hunters/anglers	3.6	.34
Non-hunters/anglers	3.66	.29

Table A-34. PCI means and values for the statement "I feel that my state fish and wildlife agency makes a good effort to obtain input from the public as a whole" by participation in hunting and fishing.

Participation	Mean	PCI value
Hunters/anglers	3.96	.48
Non-hunters/anglers	3.87	.35

Table A-35. PCI means and values for the statement "I don't have an interest in providing input to fish and wildlife decisions in my state" "by participation in hunting and fishing.

Participation	Mean	PCI value
Hunters/anglers	2.65	.17
Non-hunters/anglers	3.63	.37

Table A-36. PCI means and values for the statement "I trust my state fish and wildlife agency to make good decisions without my input" by participation in hunting and fishing.

Participation	Mean	PCI value
Hunters/anglers	3.92	.52
Non-hunters/anglers	4.10	.45

Туре	Almost never	Only some of the time	Most of the time	Almost always
Federal government	6.9	40.2	47.9	5.1
State government	5.4	31.7	54.6	8.3
Utah Division of Wildlife Resources	5.2	27.2	58.2	9.5

Table A-37. Percent of respondents that trust their government to do what is right.

Table A-38. Percent of wildlife value orientation type that trust their federal government to do what is right for the country.

Value type	Almost never	Only some of the time	Most of the time	Almost always
Utilitarian	3.5	36.4	54.2	5.9
Pluralist	7.3	39.5	47.6	5.6
Mutualist	13.1	48.4	35.2	3.3
Distanced	8.8	42.6	45.6	2.9

Table A-39. Percent of wildlife value orientation type that trust their state government to do what is right for Utah.

Value type	Almost never	Only some of the time	Most of the time	Almost always
Utilitarian	2.4	22.0	66.2	9.4
Pluralist	4.8	31.2	54.4	9.6
Mutualist	12.5	54.2	27.5	5.8
Distanced	7.5	32.8	55.2	4.5

Table A-40. Percent of wildlife value orientation type that trust the Utah Division of Wildlife Resources to do what is right for fish and wildlife management.

Value type	Almost never	Only some of the time	Most of the time	Almost always
Utilitarian	4.2	22.1	64.6	9.1
Pluralist	6.5	27.4	54.8	11.3
Mutualist	6.6	40.2	44.3	9.0
Distanced	5.9	25.0	60.3	8.8

Table A-41.	Percent of hunters	s/anglers and	non-hunters/an	glers that tr	ust their federa	1
government	to do what is right	t for the coun	try.			

Participation	Almost never	Only some of the time	Most of the time	Almost always
Hunters/anglers	4.9	38.9	49.7	6.5
Non-Hunters/anglers	7.4	41.1	46.8	4.7

Table A-42. Percent of hunters/anglers and non-hunters/anglers that trust their state government to do what is right for Utah.

Participation	Almost never	Only some of the time	Most of the time	Almost always
Hunters/anglers	4.3	31.4	54.1	10.3
Non-Hunters/anglers	5.7	31.9	54.7	7.7

Table A-43. Percent of hunters/anglers and non-hunters/anglers that trust the Utah Division of Wildlife Resources to do what is right for fish and wildlife management.

Participation	Almost never	Only some of the time	Most of the time	Almost always
Hunters/anglers	8.1	26.5	53.5	11.9
Non-Hunters/anglers	4.0	27.9	59.5	8.6

Table A-44. Percent of respondents indicating participation in wildlife management decisionmaking in Utah in past 12 months.

Participation	Percent
Talked (by telephone or in person) with a Regional Advisory Council	2.5
or Utah Wildlife Board member	3.5
Talked (by telephone or in person) with a DWR employee, for	10.2
example, a Conservation Officer or biologist	12.3
Sent a letter or email on a specific fish or wildlife management issue	
to the DWR	3.6
Attended a Regional Advisory Council or Utah Wildlife Board	
meeting	2.7
Attended another type of public meeting or open house hosted by the	
DWR (not a Regional Advisory Council or Board Meeting)	2.8
Attended a meeting hosted by a group other than the DWR to hear	
about or discuss a fish or wildlife or associated habitat issue	7.0
Other	7.6
I did not provide any input into fish and wildlife management this	
past year	75.9

Table A-45. List of activities provided by respondents under "other" category for participation in wildlife management decision-making in Utah in past 12 months.

California Fishing Trip
Called legislator
Can't hunt or fish here, too many people
Cleaning up and preservation of our canyons and streams
Donated money to help save southern Utah
Donated to conservation groups
Ducks unlimited member - Attended fundraiser
DWR website
Educational field trips
Federal Migratory bird survey & HIP program
Funded environmental and wildlife organizations
Keep informed through action groups
Legislative survey
Local paper, radio 890 AM
Portion of tax refund to non-game species (2 responses)
Reported Poaching
Responded to public notice in newspaper so everyone can/will see and those interested can respond
Searching for officer to teach cub scouts respect for wildlife
Sierra Club and SVWA
Sierra Club Petition
Survey (8 responses)
Through magazine and circular in distribution
Utah Herpetological Association (2 responses)
Voiced my opinions in the DWR wildlife forum
Voted (4 responses)
Voted on open space initiative (5 responses)
Worked as temporary secretary for DWR

Participation	Percent Selecting in Top 3
Talking (by telephone or in person) with a Regional Advisory Council or Ltab Wildlife Board member	30.0
	30.0
Talking (by telephone or in person) with a DWR employee, for	
example, a Conservation Officer or biologist	48.0
Sending a letter or email on a specific fish or wildlife management	
issue is the DWR	54.8
Attending a Regional Advisory Council or Utah Wildlife Board	
meeting	40.3
Attending another type of public meeting or open house hosted by the	
DWR (not a Regional Advisory Council or Board Meeting)	55.4
Attending a meeting hosted by a group other than the DWR to hear	
about or discuss a fish or wildlife or associated habitat issue	38.6
Other	8.9
I am not interested in providing future input	40.2

Table A-46. Percent of respondents selecting methods as their top three most preferred ways for future participation in wildlife management decision-making in Utah.

Table A-47. Percent of wildlife value orientation type indicating participation in wildlife management decision-making in Utah in past 12 months.

Participation	Utilitarian	Pluralist	Mutualist	Distanced
Talked (by telephone or in person) with a Regional				
Advisory Council or Utah Wildlife Board member	2.9	7.4	1.7	1.5
Talked (by telephone or in person) with a DWR employee,				
for example, a Conservation Officer or biologist	11.2	23.8	5.9	7.6
Sent a letter or email on a specific fish or wildlife				
management issue to the DWR	2.9	4.1	5.9	3.0
Attended a Regional Advisory Council or Utah Wildlife				
Board meeting	1.8	5.7	2.5	1.5
Attended another type of public meeting or open house				
hosted by the DWR (not a Regional Advisory Council or	3.3	2.5	3.4	1.5
Board Meeting)				
Attended a meeting hosted by a group other than the DWR				
to hear about or discuss a fish or wildlife or associated	4.7	12.3	8.4	4.5
habitat issue				
Other	3.3	9.8	16.1	4.5
I did not provide any input into fish and wildlife				
management this past year	82.6	64.5	68.6	83.3

Table A-48. Percent of wildlife value orientation type selecting methods as their top three most preferred ways for future participation in wildlife management decision-making in Utah.

Participation	Utilitarian	Pluralist	Mutualist	Distanced
Talking (by telephone or in person) with a Regional				
Advisory Council or Utah Wildlife Board member	35.1	27.7	27.7	17.4
Talking (by telephone or in person) with a DWR				
employee, for example, a Conservation Officer or biologist	53.6	50.0	41.0	34.8
Sending a letter or email on a specific fish or wildlife				
management issue to the DWR	61.6	54.2	50.0	27.3
Attending a Regional Advisory Council or Utah Wildlife				
Board meeting	37.7	44.6	41.7	40.9
Attending another type of public meeting or open house				
hosted by the DWR (not a Regional Advisory Council or	55.6	54.9	50.6	72.7
Board Meeting)				
Attending a meeting hosted by a group other than the				
DWR to hear about or discuss a fish or wildlife or	27.2	43.9	47.0	59.1
associated habitat issue				
Other	4.6	9.6	13.3	18.2
I am not interested in providing future input	44.3	30.3	26.7	66.7

Table A-49. Percent of hunters/anglers and non-hunters/anglers indicating participation in wildlife management decision-making in Utah in past 12 months.

Participation	Hunters/Anglers	Non- Hunters/Anglers
	Tunters/Anglers	Tunicis/Angiers
Talked (by telephone or in person) with a Regional Advisory Council or Utah		
Wildlife Board member	7.0	1.8
Talked (by telephone or in person) with a DWR employee, for example, a		
Conservation Officer or biologist	27.7	5.1
Sent a letter or email on a specific fish or wildlife management issue to the DWR	5.4	2.8
Attended a Regional Advisory Council or Utah Wildlife Board meeting	7.0	0.8
Attended another type of public meeting or open house hosted by the DWR (not a		
Regional Advisory Council or Board Meeting)	7.0	1.0
Attended a meeting hosted by a group other than the DWR to hear about or discuss a		
fish or wildlife or associated habitat issue	12.4	4.5
Other	8.1	7.3
I did not provide any input into fish and wildlife management in this past year	58.9	83.8

Table A-50. Percent of hunters/anglers and non-hunters/anglers selecting methods as their top three most preferred ways for future participation in wildlife management decision-making in Utah.

		Non-
Participation	Hunters/Anglers	Hunters/Anglers
Talking (by telephone or in person) with a Regional Advisory Council or Utah		
Wildlife Board member	38.6	24.4
Talking (by telephone or in person) with a DWR employee, for example, a		
Conservation Officer or biologist	55.7	42.6
Sending a letter or email on a specific fish or wildlife management issue to the DWR	52.1	56.7
Attending a Regional Advisory Council or Utah Wildlife Board meeting	46.4	35.8
Attending another type of public meeting or open house hosted by the DWR (not a		
Regional Advisory Council or Board Meeting)	49.6	59.4
Attending a meeting hosted by a group other than the DWR to hear about or discuss a		
fish or wildlife or associated habitat issue	32.9	42.8
Other	6.4	10.4
I am not interested in providing future input	22.7	48.1

Bear situation ¹	Do nothing	Provide more hunting	Conduct controlled hunts
Getting into trash and pet food containers	17.0	50.8	68.9
Human deaths from bear attacks occurred	6.7	61.7	84.3

Table A-51. Percent of respondents finding actions to address bear situations acceptable.

¹Shortened versions of the statements are provided in each row of the table. The complete statements are below: 1. Bears are wandering into areas where humans live in search of food. Bears are <u>getting into trash and pet food containers</u>.

2. Bears are wandering into areas where humans live in search of food. <u>Human deaths from bear attacks</u> have occurred.

Table A-52. Percent of wildlife value orientation type finding actions to address bear situation 1 acceptable¹.

Value type	Do nothing	Provide more hunting	Conduct controlled hunts
Utilitarian	10.9	67.6	72.9
Pluralist	13.8	59.7	73.8
Mutualist	34.5	12.9	54.2
Distanced	18.2	30.9	67.2

¹Bears are wandering into areas where humans live in search of food. Bears are <u>getting into trash and pet food</u> <u>containers</u>.

Table A-53. Percent of wildlife value orientation type finding actions to address bear situation 2 acceptable¹.

Value type	Do nothing	Provide more hunting	Conduct controlled hunts
Utilitarian	3.9	81.1	87.2
Pluralist	8.2	63.9	88.5
Mutualist	12.9	25.9	74.4
Distanced	5.9	39.4	82.8

¹Bears are wandering into areas where humans live in search of food. <u>Human deaths from bear attacks</u> have occurred.

Table A-54. Percent of hunters/anglers and non-hunters/anglers finding actions to address bear situation 1 acceptable¹.

Participation	Do nothing	Provide more hunting	Conduct controlled hunts
Hunters/anglers	15.3	68.1	66.3
Non-hunters/anglers	18.2	43.1	70.0

¹Bears are wandering into areas where humans live in search of food. Bears are <u>getting into trash and pet food</u> <u>containers</u>.

Table A-55.	Percent of	hunters/anglers	and non-h	unters/anglers	finding	actions t	o address	bear
situation 2 a	cceptable ¹ .							

Participation	Do nothing	Provide more hunting	Conduct controlled hunts
Hunters/anglers	7.2	73.5	83.2
Non-hunters/anglers	6.5	56.5	85.6

¹Bears are wandering into areas where humans live in search of food. <u>Human deaths from bear attacks</u> have occurred.

Table A-56. Percent of respondents finding actions to address deer situations acceptable.

Deer situation ¹	Do nothing	Provide more hunting	Conduct controlled hunts	Permanent contraceptives	Short-term contraceptives
Eating shrubs and garden plants	35.9	69.3	64.9	10.9	52.2
Carrying transmissible disease	10.1	72.0	83.4	30.7	62.6

¹Shortened versions of the statements are provided in each row of the table. The complete statements are below:
1. Deer numbers are increasing. There are complaints about deer entering people's yards and <u>eating shrubs and garden plants</u>.
2. Deer numbers are increasing. Authorities are concerned because deer are <u>carrying a disease that is transmissible to some</u> domestic animals and livestock.

Table A-57. Percent of wildlife value orientation type finding actions to address deer situation 1 acceptable¹.

Value type	Do nothing	Provide more hunting	Conduct controlled hunts	Permanent contraceptives	Short-term contraceptives
Utilitarian	26.4	83.8	67.4	10.2	46.2
Pluralist	35.5	83.9	68.3	6.5	44.8
Mutualist	56.2	34.2	55.6	20.2	73.1
Distanced	38.8	45.5	66.2	5.9	54.4

¹Deer numbers are increasing. There are complaints about deer entering people's yards and <u>eating shrubs and</u> garden plants.

Value type	Do nothing	Provide more hunting	Conduct controlled hunts	Permanent contraceptives	Short-term contraceptives
Utilitarian	7.5	84.7	86.4	31.1	60.6
Pluralist	11.8	80.2	84.1	23.3	54.3
Mutualist	13.3	46.2	76.1	35.4	78.3
Distanced	13.6	48.4	82.8	32.3	57.8

Table A-58. Percent of wildlife value orientation type finding actions to address deer situation 2 acceptable¹.

¹Deer numbers are increasing. Authorities are concerned because deer are <u>carrying a disease that is transmissible to</u> <u>some domestic animals and livestock</u>.

Table A-59. Percent of hunters/anglers and non-hunters/anglers finding actions to address deer situation 1 acceptable¹.

	Do	Provide	Conduct	Permanent	Short-term
Participation	nothing	more	controlled	contra-	contra-
	notining	hunting	hunts	ceptives	ceptives
Hunters/anglers	35.5	82.5	56.4	7.6	38.6
Non-hunters/anglers	36.7	64.1	69.3	12.9	58.3

¹Deer numbers are increasing. There are complaints about deer entering people's yards and <u>eating shrubs and</u> garden plants.

Table A-60. Percent hunters/anglers and non-hunters/anglers finding actions to address deer situation 2 acceptable¹.

Participation	Do nothing	Provide more hunting	Conduct controlled hunts	Permanent contra- ceptives	Short-term contra- ceptives
Hunters/anglers	10.0	82.9	78.7	25.8	53.9
Non-hunters/anglers	10.5	67.9	85.3	32.8	66.3

¹Deer numbers are increasing. Authorities are concerned because deer are <u>carrying a disease that is transmissible to</u> <u>some domestic animals and livestock</u>.

Attribute (variable)	Tier of Importance ²	Average Importance ³	Coefficient (Utility Score) ^{1,4}	p-value	Odds Ratio⁵
Status	3	20.9			
Common			32	-	-
Declining/Endangered			.28	<.001	1.32
Extirpated			.04	.331	1.04
Origin	2	34.6			
Native			.53	< .001	1.70
Non-Native			53	-	-
Use	1	44.5			
Game			.68	< .001	1.98
Non-Game			68	-	-
Proportion of choices correctly 77.8%					

Table A-61. Biodiversity stated choice results for Utah.

predicted

¹ Estimated coefficients represent the utility associated with the corresponding level of the attribute. They are represented by the unstandardized regression coefficients calculated in a logistic regression in which respondent choice (species A = 1, or species B = 0) is the dependent variable, and the independent variables are the vector of differences between each attribute of the adjacent paired comparison. The absolute magnitude of the coefficients reflects the relative importance of the corresponding level of the attribute to respondents' choices. A large positive score indicates that the level substantially *increases* respondents' utility (i.e., preference) associated with the choice. A large negative coefficient indicates that the level substantially *detracts* from the overall utility of respondents.

²Tier of importance determined by the magnitude of the range in coefficients across levels of the attribute (e.g., -.53 to .53 for origin).

³ Averaged importance is computed by dividing the range for each attribute by the total ranges of the 3 attributes (e.g., .64 + (.64 + 1.06 + 1.36) for status. The averaged importance for the 3 attributes will total 100.

⁴To prevent the model from being underestimated, each attribute was represented by a number of variables equal to one less than the number of levels for the attribute (utilizing a procedure known as effects coding, similar to dummy coding for categorical variables). Coefficients for the excluded level of the attribute were not estimated by the statistical model. They were calculated as the negative sum of the coefficients on the other levels of the corresponding attribute.

⁵Odds ratio, defining the factor by which the odds of selecting the species (A = 1) increases with a one-unit increase in the attribute level. An odds ratio score less than one indicates a negative relationship (odds decrease), while a score greater than one indicates a positive relationship (odds increase).

Attribute (variable)	Tier of Importance ²	Average Importance ³	Coefficient (Utility Score) ^{1,4}	p-value	Odds Ratio⁵
Status	3	22.4			
Common			34	-	-
Declining/Endangered			.33	< .001	1.39
Extirpated			.01	.416	1.01
Origin	1	40.1			
Native			.61	< .001	1.83
Non-Native			61	-	-
Use	2	37.5			
Game			.57	<.001	1.77
Non-Game			57	-	-
Proportion of choices correpredicted	ectly 75	.5%			

Table A-62. Biodiversity stated choice results for subregion 4 (Arizona, Colorado, New Mexico, Nevada, Utah).

¹ Estimated coefficients represent the utility associated with the corresponding level of the attribute. They are represented by the unstandardized regression coefficients calculated in a logistic regression in which respondent choice (species A = 1, or species B = 0) is the dependent variable, and the independent variables are the vector of differences between each attribute of the adjacent paired comparison. The absolute magnitude of the coefficients reflects the relative importance of the corresponding level of the attribute to respondents' choices. A large positive score indicates that the level substantially *increases* respondents' utility (i.e., preference) associated with the choice. A large negative coefficient indicates that the level substantially *detracts* from the overall utility of respondents.

²Tier of importance determined by the magnitude of the range in coefficients across levels of the attribute (e.g., -.61 to .61 for origin).

³ Averaged importance is computed by dividing the range for each attribute by the total ranges of the 3 attributes (e.g., .68 / (.68 + 1.22 + 1.14)) for status. The averaged importance for the 3 attributes will total 100.

⁴To prevent the model from being underestimated, each attribute was represented by a number of variables equal to one less than the number of levels for the attribute (utilizing a procedure known as effects coding, similar to dummy coding for categorical variables). Coefficients for the excluded level of the attribute were not estimated by the statistical model. They were calculated as the negative sum of the coefficients on the other levels of the corresponding attribute.

⁵Odds ratio, defining the factor by which the odds of selecting the species (A = 1) increases with a one-unit increase in the attribute level. An odds ratio score less than one indicates a negative relationship (odds decrease), while a score greater than one indicates a positive relationship (odds increase).
Table A-63. Percent of respondents indicating the importance of taking action to prevent species of concern from becoming federally classified as threatened or endangered.

Importance Level	Percent
Not at all Important	3.4
Slightly Important	5.0
Moderately Important	19.8
Quite Important	34.0
Extremely Important	30.0
No Opinion	7.8

Table A-64. Percent respondents agreeing with statements concerning management of species of concern on public lands.

Statement	Strongly	Moderately	Slightly	Neither	Slightly	Moderately	Strongly
	Disagree	Disagree	Disagree		Agree	Agree	Agree
Benefit species of concern even if it means decreasing populations of common species of fish and wildlife.	9.7	16.1	23.5	11.1	28.7	10.2	0.6
Benefit species of concern even if it means decreasing the populations of species of fish and wildlife that can be legally hunted, trapped, or fished.	10.7	16.8	17.8	10.4	28.4	12.5	3.2
Benefit species of concern even if it means providing fewer opportunities for outdoor recreation on those lands.	12.5	13.7	16.3	8.8	26.6	13.5	8.6
Benefit species of concern even if it means providing fewer opportunities for economic development on those lands.	7.2	9.0	13.2	7.5	23.7	18.6	20.9

		PCI
Statement	Mean	Value
Benefit species of concern even if it means decreasing the populations of		
common species of fish and wildlife	3.66	0.34
Benefit species of concern even if it means decreasing the populations of		
species and wildlife that can be legally hunted, trapped, or fished	3.80	0.42
Benefit species of concern even if it means providing fewer opportunities		
for outdoor recreation on those lands.	3.98	0.53
Benefit species of concern even if it means providing fewer opportunities		
for economic development on those lands.	4.71	0.35

Table A-65. PCI means and values for statements concerning management of species of concern on public lands.

Table A-66. Percent of wildlife value orientation type indicating the importance of taking action to prevent species of concern from becoming federally classified as threatened or endangered.

	Not at All	Slightly	Moderately	Quite	Extremely	
Value Type	Important	Important	Important	Important	Important	No Opinion
Utilitarian	1.8	6.2	22.6	37.6	23.7	8.0
Pluralist	2.7	3.6	24.3	36.0	28.8	4.5
Mutualist	8.7	4.3	3.5	27.0	51.3	5.2
Distanced	1.6	4.7	29.7	25.0	21.9	17.2

Table A-67. Percent of wildlife value orientation type agreeing with the statement "Benefit species of concern even if it means decreasing the populations of common species of fish and wildlife".

Value type	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Utilitarian	11.3	17.3	26.1	9.5	29.7	5.7	0.4
Pluralist	7.3	17.9	19.5	17.9	22.0	13.8	1.6
Mutualist	10.7	15.6	17.2	6.6	36.1	13.1	0.8
Distanced	4.5	7.6	31.8	13.6	18.2	18.2	0.0

Table A-68. Percent of wildlife value orientation type agreeing with the statement "Benefit species of concern even if it means decreasing the populations of species of fish and wildlife that can be legally hunted, trapped, or fished".

Value type	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Utilitarian	12.7	21.2	21.9	11.7	25.1	6.0	1.4
Pluralist	10.6	20.3	10.6	8.9	26.0	21.1	2.4
Mutualist	9.0	9.8	13.9	4.9	32.8	20.5	9.0
Distanced	4.6	4.6	23.1	16.9	38.5	9.2	3.1

Table A-69. Percent of wildlife value orientation type agreeing with the statement "Benefit species of concern even if it means providing fewer opportunities for outdoor recreation on those lands".

Value type	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Utilitarian	17.4	18.1	20.6	10.6	24.1	5.3	3.9
Pluralist	12.1	16.9	19.4	4.0	28.2	12.9	6.5
Mutualist	4.9	4.9	1.6	2.5	27.0	35.2	23.8
Distanced	7.6	3.0	19.7	21.2	33.3	9.1	6.1

Table A-70. Percent of wildlife value orientation type agreeing with the statement "Benefit species of concern even if it means providing fewer opportunities for economic development on those lands".

Value type	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Utilitarian	12.0	14.5	17.3	11.0	23.3	13.8	8.1
Pluralist	4.0	6.4	14.4	6.4	20.8	25.6	22.4
Mutualist	1.6	0.8	2.5	0.8	22.1	23.8	48.4
Distanced	3.1	4.6	13.8	7.7	32.3	15.4	23.1

Value Type	Mean	PCI Value
Utilitarian	3.48	0.28
Pluralist	3.78	0.36
Mutualist	3.83	0.43
Distanced	3.99	0.40
Total	3.67	0.34

Table A-71. PCI means and values for the statement, "Benefit species of concern even if it means decreasing the populations of common species of fish and wildlife" by wildlife value orientation type.

Table A-72. PCI means and values for the statement, "Benefit species of concern even if it means decreasing the populations of species of fish and wildlife that can be legally hunted, trapped, or fished" by wildlife value orientation type.

Value Type	Mean	PCI Value
Utilitarian	3.39	0.28
Pluralist	3.92	0.50
Mutualist	4.42	0.40
Distanced	4.20	0.31
Total	3.80	0.42

Table A-73. PCI means and values for the statement, "Benefit species of concern even if it means providing fewer opportunities for outdoor recreation on those lands" by wildlife value orientation type.

Value Type	Mean	PCI Value
Utilitarian	3.37	0.31
Pluralist	3.85	0.49
Mutualist	5.45	0.17
Distanced	4.21	0.32
Total	3.99	0.53

Table A-74. PCI means and values for the statement, "Benefit species of concern even if it means providing fewer opportunities for economic development on those lands" by wildlife value orientation type.

Value Type	Mean	PCI Value
Utilitarian	3.93	0.50
Pluralist	5.00	0.26
Mutualist	6.05	0.06
Distanced	5.00	0.22
Total	4.71	0.35

Table A-75. Percent of hunters/anglers and non-hunters/anglers indicating the importance of taking action to prevent species of concern from becoming federally classified as threatened or endangered.

	Not at All	Slightly	Moderately	Quite	Extremely	
Participation	Important	Important	Important	Important	Important	No Opinion
Hunters/anglers	3.4	5.6	22.0	35.0	28.8	5.1
Non-Hunters/anglers	3.2	4.7	18.7	34.0	30.3	9.0

Table A-76. Percent of hunters/anglers and non-hunters/anglers agreeing with the statement "Benefit species of concern even if it means decreasing the populations of common species of fish and wildlife".

Participation	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Hunters/anglers	15.0	20.3	21.4	9.1	24.1	9.6	0.5
Non-Hunters/anglers	7.0	14.1	24.9	12.1	30.7	10.8	0.5

Table A-77. Percent of hunters/anglers and non-hunters/anglers agreeing with the statement "Benefit species of concern even if it means decreasing the populations of species of fish and wildlife that can be legally hunted, trapped, or fished".

Participation	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Hunters/anglers	19.4	22.6	17.7	5.4	22.0	11.3	1.6
Non-Hunters/anglers	6.5	14.4	18.4	12.6	31.2	12.8	4.0

Table A-78. Percent of hunters/anglers and non-hunters/anglers agreeing with the statement "Benefit species of concern even if it means providing fewer opportunities for outdoor recreation on those lands".

Participation	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Hunters/anglers	21.4	17.1	16.0	3.7	26.2	9.6	5.9
Non-Hunters/anglers	8.5	12.5	16.5	10.5	27.0	15.3	9.8

Table A-79. Percent of hunters/anglers and non-hunters/anglers agreeing with the statement "Benefit species of concern even if it means providing fewer opportunities for economic development on those lands".

Participation	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Hunters/anglers	10.8	9.7	14.0	2.7	19.9	19.9	23.1
Non-Hunters/anglers	5.5	8.8	13.0	9.5	25.5	18.0	19.8

Table A-80. PCI means and values for the statement, "Benefit species of concern even if it means decreasing the populations of common species of fish and wildlife" by participation in hunting and fishing.

Participation	Mean	PCI Value
Hunters/Anglers	3.37	0.30
Non-Hunters/Anglers	3.80	0.36

Table A-81. PCI means and values for the statement, "Benefit species of concern even if it means decreasing the populations of species of fish and wildlife that can be legally hunted, trapped, or fished" by participation in hunting and fishing.

Participation	Mean	PCI Value
Hunters/Anglers	3.30	0.33
Non-Hunters/Anglers	4.03	0.45

Table A-82. PCI means and values for the statement, "Benefit species of concern even if it means providing fewer opportunities for outdoor recreation on those lands" by participation in hunting and fishing.

Participation	Mean	PCI Value
Hunters/Anglers	3.48	0.42
Non-Hunters/Anglers	4.20	0.45

Table A-83. PCI means and values for the statement, "Benefit species of concern even if it means providing fewer opportunities for economic development on those lands" by participation in hunting and fishing.

Participation	Mean	PCI Value
Hunters/Anglers	4.63	0.44
Non-Hunters/Anglers	4.74	0.31

	Not all	Slightly	Moderately	Quite	Extremely	
Program Option	Important	Important	Important	Important	Important	Mean
Offering nongovernmental organizations a competitive,						
matching small grant program for cooperative sensitive						
species habitat enhancement projects	5.2	21.6	35.4	29.6	8.2	3.14
Distributing information to inform landowners,						
developers, and industries on effectively applying best						
land use practices to minimize impacts on sensitive						
species habitat	2.7	12.2	21.9	37.0	26.2	3.72
Offering those who recreate outdoors educational						
programs on how to minimize their impacts on sensitive						
species habitat	2.0	11.0	20.5	38.0	28.6	3.80
Buying conservation easements from willing private						
landowners to protect sensitive species habitat	7.5	13.1	27.0	32.4	20.0	3.45
Offering private landowners a competitive, matching						
small grant program for sensitive species habitat						
enhancement projects	6.4	17.6	29.3	34.2	12.5	3.29
Hiring more DWR staff to enhance sensitive species						
habitat and conduct sensitive species research and						
surveys	13.1	29.5	31.9	18.3	7.3	2.77

Table A-84. Percents and overall means for ratings of importance for programs to benefit species of concern.

Table A-85. Percent of respondents selecting programs to benefit species of concern as the *top three most preferred program options*.

Program Action	Percent
Offering nongovernmental organizations a competitive, matching small grant program	
for cooperative sensitive species habitat enhancement	46.9
Distributing information to inform landowners, developers, and industries on	
effectively applying best land use practices to minimize impacts on sensitive species	
habitat	64.4
Offering those who recreate outdoors educational programs on how to minimize their	
impacts on sensitive species habitat	64.9
Buying conservation easements from willing private landowners to protect sensitive	
species habitat	54.5
Offering private landowners a competitive, matching small grant program for sensitive	
species habitat enhancement projects	45.3
Hiring more DWR staff to enhance sensitive species habitat and conduct sensitive	
species research and surveys	23.0

Program Option	Utilitarian	Pluralist	Mutualist	Distanced
Offering nongovernmental organizations a competitive, matching				
small grant program for cooperative sensitive species habitat				
enhancement	2.89	3.31	3.63	2.96
Distributing information to inform landowners, developers, and				
industries on effectively applying best land use practices to				
minimize impacts on sensitive species habitat	3.52	3.93	4.00	3.59
Offering those who recreate outdoors educational programs on how				
to minimize their impacts on sensitive species habitat	3.61	3.93	4.10	3.79
Buying conservation easements from willing private landowners to				
protect sensitive species habitat	3.09	3.62	4.06	3.51
Offering private landowners a competitive, matching small grant				
program for sensitive species habitat enhancement projects	3.08	3.56	3.56	3.16
Hiring more DWR staff to enhance sensitive species habitat and				
conduct sensitive species research and surveys	2.38	3.02	3.42	2.79

Table A-86. Mean ratings of importance by wildlife value orientation type for programs to benefit species of concern.

Table A-87. Percent of wildlife value orientation type selecting programs to benefit species of concern as the *top three most preferred program options*.

Program Option	Utilitarian	Pluralist	Mutualist	Distanced
Offering nongovernmental organizations a competitive, matching				
small grant program for cooperative sensitive species habitat				
enhancement	46.0	45.0	54.8	40.7
Distributing information to inform landowners, developers, and				
industries on effectively applying best land use practices to				
minimize impacts on sensitive species habitat	69.9	67.2	46.6	67.8
Offering those who recreate outdoors educational programs on how				
to minimize their impacts on sensitive species habitat	67.6	60.5	59.5	71.2
Buying conservation easements from willing private landowners to				
protect sensitive species habitat	47.6	57.1	64.3	64.4
Offering private landowners a competitive, matching small grant				
program for sensitive species habitat enhancement projects	47.1	45.4	47.4	33.9
Hiring more DWR staff to enhance sensitive species habitat and				
conduct sensitive species research and surveys	21.4	23.5	26.7	22.0

Program Option	Hunters/anglers	Non-Hunters/anglers
Offering nongovernmental organizations a competitive, matching small grant		
program for cooperative sensitive species habitat enhancement	3.18	3.10
Distributing information to inform landowners, developers, and industries on		
effectively applying best land use practices to minimize impacts on sensitive		
species habitat	3.77	3.69
Offering those who recreate outdoors educational programs on how to		
minimize their impacts on sensitive species habitat	3.85	3.77
Buying conservation easements from willing private landowners to protect		
sensitive species habitat	3.44	3.44
Offering private landowners a competitive, matching small grant program for		
sensitive species habitat enhancement projects	3.34	3.25
Hiring more DWR staff to enhance sensitive species habitat and conduct		
sensitive species research and surveys	2.69	2.80

Table A-88. Mean ratings of importance by participation in hunting and fishing for programs to benefit species of concern.

Table A-89. Percent of hunters/anglers and non-hunters/anglers selecting programs to benefit species of concern as the *top three most preferred program options*.

Program Option	Hunters/anglers	Non-Hunters/anglers
Offering nongovernmental organizations a competitive, matching small grant		
program for cooperative sensitive species habitat enhancement	47.2	46.2
Distributing information to inform landowners, developers, and industries on		
effectively applying best land use practices to minimize impacts on sensitive		
species habitat	64.6	65.0
Offering those who recreate outdoors educational programs on how to minimize		
their impacts on sensitive species habitat	63.5	66.6
Buying conservation easements from willing private landowners to protect		
sensitive species habitat	52.2	55.2
Offering private landowners a competitive, matching small grant program for		
sensitive species habitat enhancement projects	49.4	42.4
Hiring more DWR staff to enhance sensitive species habitat and conduct		
sensitive species research and surveys	22.1	23.9

Table A-90. Percent of respondents agreeing that they should be responsible to help pay for certain types of wildlife in Utah.

Type of Wildlife	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Federally threatened and endangered							
fish and wildlife in Utah	10.8	8.9	7.4	9.8	28.8	22.6	11.6
State of Utah species of concern	7.8	7.0	5.9	8.2	31.7	27.2	12.1
Fish or wildlife that can NOT be							
legally hunted, trapped, or fished	10.4	8.7	8.7	10.0	29.3	20.9	12.0
Fish or wildlife that can be legally							
hunted, trapped, or fished	7.1	7.5	11.1	11.0	24.2	23.2	15.8

Type of Wildlife	Mean	PCI Value
Federally threatened and endangered fish and wildlife in Utah	4.51	0.39
State of Utah species of concern	4.79	0.29
Fish or wildlife that can NOT be legally hunted, trapped, or fished.	4.50	0.38
Fish or wildlife that can be legally hunted, trapped, or fished	4.71	0.32

Table A-91. PCI means and values for statements representing a responsibility to help pay for certain types of wildlife in Utah.

Table A-92. Percent of respondents finding alternative sources of funding acceptable to benefit species of concern in Utah.

	Highly	Moderately	Slightly		Slightly	Moderately	Highly
Funding Source	Unacceptable	Unacceptable	Unacceptable	Neither	Acceptable	Acceptable	Acceptable
reallocate State of Utah							
general tax (fund) revenues	11.7	12.7	13.7	9.9	29.3	15.8	6.8
create a special tax on outdoor							
recreation equipment	14.0	8.8	9.8	6.9	22.4	24.3	13.8
charge special transaction fees							
on developers and industries	10.6	5.8	8.4	8.7	23.2	22.7	20.6
reallocate funds from the sale							
of fishing, hunting, and trapping							
licenses	5.5	4.1	2.6	5.1	16.8	34.8	31.1

Table A-93. PCI means and values for acceptability of alternative sources of funding to benefit species of concern.

Funding Source	Mean	PCI Value
reallocate State of Utah general tax (fund) revenues	4.07	0.49
create a special tax on outdoor recreation equipment	4.43	0.46
charge special transaction fees on developers and industries	4.79	0.35
reallocate funds from the sale of fishing, hunting, and trapping		
licenses	5.52	0.18

Table A-94. Mean number of points out of 100 assigned to indicate preference for alternative sources of funding to benefit species of concern.

Funding Source	Ν	Range	Minimum	Maximum	Mean	Std. Dev.
Reallocate State of Utah general tax revenues	552	100	0	100	15.47	16.881
Create a special tax on outdoor recreation						
equipment	552	90	0	90	20.01	16.058
Charge special transaction fees on developers						
and industries	552	100	0	100	25.48	20.551
Reallocate funds from the sale of fishing,						
hunting, and trapping licenses	552	100	0	100	39.04	24.944

Number of Points	Percent
0	22.6
1	1.4
2	0.3
3	0.7
4	0.6
5	7.4
6	0.3
8	0.4
10	26.5
12	0.3
13	0.3
15	4.2
16	0.1
20	9.9
25	9.4
26	0.1
30	3.5
33	0.1
35	1.1
40	3.6
45	0.2
50	3.9
60	1.2
65	0.1
70	0.4
75	0.4
80	0.3
97	0.1
100	0.7

Table A-95. Percent of respondents assigning a certain number of points out of 100 to indicate preference for "reallocation of State of Utah general tax revenues" as a source of funds to benefit species of concern.

Number of Points	Percent
0	16.1
1	0.5
2	0.7
3	0.8
4	0.3
5	4.8
10	15.2
12	0.7
14	0.2
15	4.7
18	0.3
20	16.0
23	0.1
24	0.3
25	11.3
26	0.1
30	10.8
34	0.6
35	1.5
36	0.2
40	6.7
45	0.4
49	0.3
50	5.3
60	0.1
70	0.2
75	0.5
80	0.4
90	0.3

Table A-96. Percent of respondents assigning a certain number of points out of 100 to indicate preference for "creating a special tax on outdoor recreation equipment" as a source of funds to benefit species of concern.

Table A-97. Percent of respondents assigning a certain number of points out of 100 to indicate preference for "charging special transaction fees on developers and industries" as a source of funds to benefit species of concern.

Number of Points	Percent
0	13.5
1	0.9
2	0.6
4	0.3
5	3.3
7	0.5
10	11.5
13	0.2
15	4.9
19	0.2
20	14.8
23	0.1
25	10.9
28	0.2
30	11.6
33	0.6
35	2.3
37	0.1
40	7.7
45	0.1
50	8.3
55	0.2
60	0.9
66	0.1
68	0.2
70	1.5
75	2.1
80	1.5
90	0.2
100	0.9

	±
Number of Points	Percent
0	5.6
1	0.1
3	0.2
5	2.3
7	0.3
8	0.7
10	7.8
15	1.7
20	8.1
25	10.6
28	0.1
30	10.8
33	0.5
35	1.7
37	0.1
40	9.7
44	0.2
45	0.6
49	0.3
50	15.8
55	0.3
60	5.7
65	1.1
70	3.5
75	3.2
78	0.3
79	0.2
80	3.7
85	0.2
90	1.2
95	0.2
96	.3
100	3.1

Table A-98. Percent of respondents assigning a certain number of points out of 100 to indicate preference for "reallocation of funds from the sale of fishing, hunting, and trapping licenses" as a source of funds to benefit species of concern.

Table A-99. Percent of wildlife value orientation type agreeing they should be responsible to help pay for "federally threatened and endangered fish and wildlife in Utah".

Value type	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Utilitarian	15.8	12.9	6.5	10.8	32.7	17.6	3.6
Pluralist	7.3	7.3	5.6	10.5	29.8	25.8	13.7
Mutualist	4.2	1.7	5.0	5.9	25.2	31.1	26.9
Distanced	7.6	7.6	19.7	13.6	16.7	21.2	13.6

Table A-100. Percent of wildlife value orientation type agreeing they should be responsible to help pay for "State of Utah species of concern".

Value type	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Utilitarian	10.8	9.3	6.1	10.0	37.3	21.9	4.7
Pluralist	5.0	5.8	5.8	7.4	32.2	28.1	15.7
Mutualist	4.1	1.7	2.5	4.1	23.1	36.4	28.1
Distanced	4.5	7.6	12.1	9.1	24.2	33.3	9.1

Table A-101. Percent of wildlife value orientation type agreeing they should be responsible to help pay for "fish or wildlife that can NOT be legally hunted, trapped, or fished".

Value type	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Utilitarian	16.8	11.1	12.9	11.1	30.7	15.4	2.1
Pluralist	7.2	10.4	5.6	12.8	28.8	20.8	14.4
Mutualist	0.8	3.3	3.3	5.0	22.5	35.0	30.0
Distanced	6.2	6.2	6.2	9.2	36.9	18.5	16.9

Table A-102. Percent of wildlife value orientation type agreeing they should be responsible to help pay for "fish or wildlife that can be legally hunted, trapped, or fished".

Value type	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Utilitarian	9.0	5.8	9.7	9.7	25.9	24.1	15.8
Pluralist	4.1	4.1	8.2	7.4	26.2	28.7	21.3
Mutualist	5.1	11.0	11.0	12.7	24.6	21.2	14.4
Distanced	6.1	15.2	22.7	19.7	13.6	15.2	7.6

Table A-103. PCI means and values for the statement, "Do you disagree or agree that you should be responsible to help pay for federally threatened and endangered fish and wildlife in Utah?" by wildlife value orientation type.

Value Type	Mean	PCI Value
Utilitarian	3.99	0.53
Pluralist	4.83	0.28
Mutualist	5.46	0.14
Distanced	4.40	0.38
Total	4.52	0.38

Table A-104. PCI means and values for the statement, "Do you disagree or agree that you should
be responsible to help pay for State of Utah species of concern?" by wildlife value orientation
type.

Value Type	Mean	PCI Value
Utilitarian	4.37	0.38
Pluralist	5.01	0.21
Mutualist	5.62	0.12
Distanced	4.73	0.27
Total	4.80	0.28

Table A-105. PCI means and values for the statement, "Do you disagree or agree that you should be responsible to help pay for fish or wildlife that can NOT be legally hunted, trapped, or fished?" by wildlife value orientation type.

Value Type	Mean	PCI Value
Utilitarian	3.83	0.45
Pluralist	4.68	0.32
Mutualist	5.68	0.08
Distanced	4.86	0.25
Total	4.50	0.38

Table A-106. PCI means and values for the statement, "Do you disagree or agree that you should be responsible to help pay for fish or wildlife that can be legally hunted, trapped, or fished?" by wildlife value orientation type.

Value Type	Mean	PCI Value
Utilitarian	4.73	0.32
Pluralist	5.16	0.19
Mutualist	4.62	0.32
Distanced	3.97	0.44
Total	4.71	0.31

Table A-107. Percent of wildlife value orientation type finding the funding source, "reallocate State of Utah general tax (fund) revenues" acceptable to benefit species of concern.

Value type	Highly Unacceptable	Moderately Unacceptable	Slightly Unacceptable	Neither	Slightly Acceptable	Moderately Acceptable	Highly Acceptable
Utilitarian	15.4	17.1	14.6	10.4	27.5	13.2	1.8
Pluralist	6.6	6.6	15.6	7.4	30.3	20.5	13.1
Mutualist	9.2	9.2	8.4	9.2	30.3	20.2	13.4
Distanced	9.0	13.4	14.9	13.4	32.8	11.9	4.5

Table A-108. Percent of wildlife value orientation type finding the funding source, "create a special tax on outdoor recreation equipment" acceptable to benefit species of concern.

Value type	Highly Unacceptable	Moderately Unacceptable	Slightly Unacceptable	Neither	Slightly Acceptable	Moderately Acceptable	Highly Acceptable
Utilitarian	17.4	9.6	11.7	5.7	21.3	25.5	8.9
Pluralist	9.8	13.9	10.7	9.0	23.0	16.4	17.2
Mutualist	14.2	3.3	5.0	6.7	25.8	26.7	18.3
Distanced	4.5	6.1	9.1	9.1	21.2	30.3	19.7

Table A-109. Percent of wildlife value orientation type finding the funding source, "charge special transaction fees on developers and industries" acceptable to benefit species of concern.

Value type	Highly Unacceptable	Moderately Unacceptable	Slightly Unacceptable	Neither	Slightly Acceptable	Moderately Acceptable	Highly Acceptable
Utilitarian	11.3	10.3	10.6	8.2	26.2	17.7	15.6
Pluralist	11.7	2.5	6.7	11.7	18.3	27.5	21.7
Mutualist	11.7	0.0	4.2	5.8	18.3	26.7	33.3
Distanced	3.0	3.0	10.6	10.6	25.8	28.8	18.2

Table A-110. Percent of wildlife value orientation type finding the funding source, "reallocate funds from the sale of fishing, hunting, and licenses" acceptable to benefit species of concern.

Value type	Highly Unacceptable	Moderately Unacceptable	Slightly Unacceptable	Neither	Slightly Acceptable	Moderately Acceptable	Highly Acceptable
Utilitarian	5.7	4.3	3.2	4.3	18.3	36.9	27.2
Pluralist	4.1	5.7	2.5	2.5	18.0	33.6	33.6
Mutualist	8.2	2.5	2.5	4.9	11.5	31.1	39.3
Distanced	0.0	4.5	0.0	13.4	17.9	35.8	28.4

Table A-111. PCI means and values for the statement "Is it unacceptable or acceptable to reallocate State of Utah general tax (fund) revenues to benefit species of concern?" by wildlife value orientation type

Value Type	Mean	PCI Value
Utilitarian	3.65	0.40
Pluralist	4.61	0.32
Mutualist	4.56	0.36
Distanced	4.01	0.46
Total	4.07	0.49

Table A-112. PCI means and values for the statement "Is it unacceptable or acceptable to create a special tax on outdoor recreation equipment to benefit species of concern?" by wildlife value orientation type.

Value Type	Mean	PCI Value
Utilitarian	4.15	0.55
Pluralist	4.42	0.45
Mutualist	4.81	0.36
Distanced	5.00	0.23
Total	4.44	0.46

Value Type	Mean	PCI Value
Utilitarian	4.43	0.43
Pluralist	4.93	0.31
Mutualist	5.32	0.26
Distanced	5.08	0.17
Total	4.79	0.34

Table A-113. PCI means and values for the statement, "Is it unacceptable or acceptable to charge special transaction fees on developers and industries to benefit species of concern?" by wildlife value orientation type.

Table A-114. PCI means and values for the statement, "Is it unacceptable or acceptable to reallocate funds from the sale of fishing, <u>hunting</u>, and trapping licenses to benefit species of concern?" by wildlife value orientation type.

Value Type	Mean	PCI Value
Utilitarian	5.44	0.19
Pluralist	5.61	0.17
Mutualist	5.60	0.21
Distanced	5.69	0.06
Total	5.54	0.18

Table A-115. Mean number of points out of 100 assigned to indicate preference for alternative sources of funding to benefit species o	f
concern by wildlife value orientation type.	

Funding Source	Utilitarian	Pluralist	Mutualist	Distanced
Reallocate State of Utah general tax revenues	14.29	19.34	16.70	10.87
Create a special tax on outdoor recreation equipment	20.37	18.95	19.63	21.04
Charge special transaction fees on developers and industries	22.73	27.58	29.52	26.12
Reallocate funds from sale of fishing, hunting, trapping licenses	42.61	34.14	34.14	41.97

Table A-116. Percent of hunters/anglers and non-hunters/anglers agreeing they should be responsible to help pay for "federally threatened and endangered fish and wildlife in Utah".

Participation	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Hunters/anglers	9.6	10.7	7.5	8.6	33.2	19.3	11.2
Non-hunters/anglers	11.4	8.2	7.2	10.2	26.6	24.4	11.9

Table A-117. Percent of hunters/anglers and non-hunters/anglers agreeing they should be responsible to help pay for "State of Utah species of concern".

Participation	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Hunters/anglers	5.3	7.4	5.9	7.4	37.8	24.5	11.7
Non-hunters/anglers	9.0	7.0	6.0	8.5	29.0	28.0	12.5

Table A-118. Percent of hunters/anglers and non-hunters/anglers agreeing they should be responsible to help pay for "fish or wildlife that can NOT be legally hunted, trapped, or fished".

Participation	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Hunters/anglers	9.1	8.6	9.1	11.8	34.4	17.7	9.1
Non-hunters/anglers	11.0	8.8	8.5	9.0	27.0	22.3	13.5

Table A-119. Percent of hunters/anglers and non-hunters/anglers agreeing they should be responsible to help pay for "fish or wildlife that can be legally hunted, trapped, or fished".

Participation	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Hunters/anglers	2.7	3.8	7.5	5.9	24.2	29.6	26.3
Non-hunters/anglers	9.3	9.3	12.6	13.1	24.4	20.4	11.1

Table A-120. PCI means and values for the statement, "Do you disagree or agree that you should be responsible to help pay for federally threatened and endangered fish and wildlife in Utah?" by participation in hunting and fishing.

Participation	Mean	PCI Value
Hunters/anglers	4.46	0.39
Non-Hunters/anglers	4.53	0.39

Table A-121. PCI means and values for the statement, "Do you disagree or agree that you should be responsible to help pay for State of Utah species of concern?" by participation in hunting and fishing.

Participation	Mean	PCI Value
Hunters/anglers	4.87	0.24
Non-Hunters/anglers	4.75	0.31

Table A-122. PCI means and values for the statement, "Do you disagree or agree that you should be responsible to help pay for fish or wildlife that can NOT be legally hunted, trapped, or fished?" by participation in hunting and fishing.

Participation	Mean	PCI Value
Hunters/anglers	4.42	0.36
Non-Hunters/anglers	4.53	0.39

Table A-123. PCI means and values for the statement, "Do you disagree or agree that you should be responsible to help pay for fish or wildlife that can be legally hunted, trapped, or fished?" by participation in hunting and fishing.

Participation	Mean	PCI Value
Hunters/anglers	5.40	0.15
Non-Hunters/anglers	4.39	0.39

Table A-124. Percent of hunters/anglers and non-hunters/anglers finding the funding source, "reallocate State of Utah general tax (fund) revenues" acceptable to benefit species of concern.

Participation	Highly Unacceptable	Moderately Unacceptable	Slightly Unacceptable	Neither	Slightly Acceptable	Moderately Acceptable	Highly Acceptable
Hunters/anglers	10.2	8.1	11.8	9.7	29.6	20.4	10.2
Non-Hunters/anglers	12.3	15.4	14.6	9.6	29.0	14.1	5.0

Table A-125. Percent of hunters/anglers and non-hunters/anglers finding the funding source, "create a special tax on outdoor recreation equipment" acceptable to benefit species of concern.

Participation	Highly Unacceptable	Moderately Unacceptable	Slightly Unacceptable	Neither	Slightly Acceptable	Moderately Acceptable	Highly Acceptable
Hunters/anglers	17.4	12.0	13.0	5.4	22.8	21.2	8.2
Non-Hunters/anglers	12.1	7.6	8.1	7.6	22.7	25.7	16.4

Table A-126. Percent of hunters/anglers and non-hunters/anglers finding the funding source, "charge special transaction fees on developers and industries" acceptable to benefit species of concern.

Participation	Highly Unacceptable	Moderately Unacceptable	Slightly Unacceptable	Neither	Slightly Acceptable	Moderately Acceptable	Highly Acceptable
Hunters/anglers	9.2	4.3	7.1	5.4	23.4	28.8	21.7
Non-Hunters/anglers	11.4	6.6	9.4	9.6	23.3	20.0	19.7

Table A-127. Percent of hunters/anglers and non-hunters/anglers finding the funding source, "reallocate funds from the sale of fishing, hunting, and licenses" acceptable to benefit species of concern.

Participation	Highly Unacceptable	Moderately Unacceptable	Slightly Unacceptable	Neither	Slightly Acceptable	Moderately Acceptable	Highly Acceptable
Hunters/anglers	7.6	6.0	2.7	4.3	14.9	32.6	26.6
Non-Hunters/anglers	4.0	3.3	2.8	5.3	20.1	36.1	33.6

Table A-128. PCI means and values for the statement "Is it unacceptable or acceptable to reallocate State of Utah general tax (fund) revenues to benefit species of concern?" by participation in hunting and fishing.

Participation	Mean	PCI Value
Hunters/anglers	4.44	0.39
Non-Hunters/anglers	3.90	0.48

Table A-129. PCI means and values for the statement, "It is unacceptable or acceptable to create a special tax on outdoor recreation equipment to benefit species of concern?" by participation in hunting and fishing.

Participation	Mean	PCI Value
Hunters/anglers	4.01	0.59
Non-Hunters/anglers	4.63	0.40

Table A-130. PCI means and values for the statement, "It is unacceptable or acceptable to charge special transaction fees on developers and industries to benefit species of concern?" by participation in hunting and fishing.

Participation	Mean	PCI Value
Hunters/anglers	5.04	0.29
Non-Hunters/anglers	4.67	0.38

Table A-131. PCI means and values for the statement, "It is unacceptable or acceptable to reallocate funds from the sale of fishing, hunting, and trapping licenses to benefit species of concern?" by participation in hunting and fishing.

Participation	Mean	PCI Value
Hunters/anglers	5.28	0.25
Non-Hunters/anglers	5.66	0.14

Table A-132. Mean number of points out of 100 assigned to indicate preference for alternative sources of funding to benefit species of concern by participation in hunting and fishing.

Funding Source	Hunters/Anglers	Non-Hunters/Anglers
Reallocate State of Utah general tax revenues	19.70	13.53
Create a special tax on outdoor recreation equipment	17.05	21.52
Charge special transaction fees on developers and industries	30.52	22.6
Reallocate funds from sale of fishing, hunting, trapping licenses	32.73	42.35

APPENDIX B. METHODS

A full reporting of the project background and methods for *Wildlife Values in the West* is reported in the regional report (Teel, Dayer, Manfredo, & Bright, 2005). Methods specifically relevant to Utah are presented below.

The Survey

Data reported here were collected via mail-back surveys administered by Colorado State University (CSU) in the Fall of 2004. This final survey administration followed a pretest of the survey instrument and methodology in the Summer of 2004 (see Teel et al., 2005).

The survey instrument for this project (see Appendix C) was divided into two parts: 1) a regional section, and 2) a state-specific section. The focus of this report is on providing results specific to Utah from both sections of the survey. Findings related to the responses of all states' samples to the regional section are found in the regional report (Teel et al., 2005).

Regional Section

The purpose of the regional section of the survey, which was the same across all states, was to measure public values and wildlife value orientations, socio-demographic characteristics, and participation in wildlife-related recreation activities among residents of each state. The regional section also contained questions addressing public reactions to key "regional" wildlife management issues deemed important across a majority of participating states. Criteria for issue selection were not geared toward development of a comprehensive list of regional issues but rather were based more on an intention to provide meaningful information in the context of broad study goals. Issues were selected largely on the basis of their ability to provide information about how changes in public values could affect responses to management issues and decisions. Thus, while not all issues were expected to have immediate and direct relevance to every state, they were intended to allow for generalizations to be made about how different publics might react to wildlife management strategies. Questions appearing in the regional section were developed by CSU in cooperation with participating state agency representatives.

State-Specific Section

The state-specific section provided an opportunity to gather information about key, timely management issues affecting Utah. The questions appearing in this part of the survey were developed by the Utah Division of Wildlife Resources (UDWR), with input and suggestions from CSU and other members of the project work group.

Sampling

A sample of 3000 people from Utah was purchased from Survey Sampling, Inc. Information about response rates obtained from the pretest (see Teel et al., 2005) allowed a determination of this sampling size on the basis of approximately how many surveys would need to be mailed out

to target for a minimum of 400 completed surveys per state. This number of surveys allows for population estimates within + or -5% at the 95% confidence level.

As was the case for the pretest, samples were stratified on the basis of age (3 age groups: 18-34, 35-54, 55+) to ensure adequate representation of population subgroups as compared to state census information. Based on pretest findings (see Teel et al., 2005) regarding the underrepresentation of younger age groups, the decision was made to oversample in the 18-34 age category by 5% (i.e., increase the sample of the 18-34 age category by 5% of the total sample) and to undersample in the 55+ group by this amount. Information to identify representation of age groups was based on U.S. Census 2000 (U.S. Census Bureau, 2002) projections to the year 2003 that were formulated by Scan/US, Inc. and provided to Survey Sampling, Inc.

Timing and Methods of Data Collection

Data collection occurred via administration of a mail-back survey to a sample of Utah residents in October-November 2004. All survey administration, including preparation of mailings (e.g., addressing and envelope stuffing), occurred from CSU. A modified Dillman (2000) approach, consisting of multiple mailings (i.e., survey and cover letter followed by postcard reminder and then a 2^{nd} copy of the survey and cover letter), was used to maximize response to the mail survey.

The survey and cover letter (see Appendix C) were designed to portray the project as a joint effort among the Western Association of Fish and Wildlife Agencies (WAFWA), the UDWR, and CSU. To attempt to ensure relatively equal representation across gender, half of the first mailing cover letters sent to residents in each state requested participation by a female in the household, and half requested participation by a male in the household. An attempt was also made to encourage those who do not participate in wildlife-related recreation and/or who are not actively involved in wildlife-related issues to complete the survey. Specifically, we attached a yellow "post-it" note to the front of each survey containing the following message: "Even if you know little about wildlife, your opinions are needed." This message was re-stated on the cover of the survey and prefaced with the statement, "this survey is for <u>all</u> citizens of your state." Cover letters also emphasized the desire to involve non-participants by stating that even if a potential respondent did not hunt or fish, his or her input was still important to us.

Surveys were returned to CSU where data were then entered into Microsoft Excel files which were in turn converted for analysis and reporting into SPSS[®] 13.0 (SPSS, Inc., 2004) files. In total, 608 completed surveys were received from Utah residents. The response rate for Utah was 22%.

Nonresponse Check via Telephone Survey

A sample of Utah residents who did not respond to the mail survey was contacted by phone following data collection. Calls were made by PhoneBase Research, Inc. (a telephone interviewing firm in Fort Collins, Colorado) in December, 2004 and January, 2005, with a break to account for holidays. The purpose of this effort was to obtain responses to a few key

questions from the mail survey, including selected items designed to assess basic beliefs about wildlife, recent participation in wildlife-related recreation, and socio-demographic characteristics (see Appendix D). The phone survey allowed for comparisons to determine if differences existed between respondents and nonrespondents to the mail survey on key variables of interest to the study. The phone survey also provided information useful to developing an in-depth understanding of nonrespondent characteristics and factors affecting nonresponse to the mail survey.

In the context of certain comparisons between respondents and nonrespondents to the mail survey, differences in age and participation were noted and were addressed through weighting procedures described in the regional report (Teel et al., 2005). More detailed information regarding the phone survey (e.g., response rates), findings from respondent-nonrespondent comparisons, and representativeness of the data can also be found in the regional report.

References

- Dillman, D. A. (2000). *Mail and internet surveys: The Tailored Design Method*, 2nd Edition. New York, NY: John Wiley & Sons.
- SPSS, Inc. (2004). SPSS Base 13.0 for Windows User's Guide. Chicago, IL: SPSS, Inc.
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 Project Report for the Western Association of Fish and Wildlife Agencies. Fort Collins, CO: Colorado State University, Human Dimensions in Natural Resources Unit.
- U.S. Census Bureau. (2002). 2000 Census of Population and Housing. Washington, DC: U.S. Census Bureau.

APPENDIX C. MAIL SURVEY INSTRUMENT





Knowledge to Go Places Human Dimensions in Natural Resources Unit College of Natural Resources Colorado State University Ft. Collins, CO 80523-1480

1594 West North Temple, Ste. 2110 P.O. Box 146301 Salt Lake City, UT 84114-6301

Dear Utah Resident,

The Utah Division of Wildlife Resources, in cooperation with Colorado State University and the Western Association of Fish and Wildlife Agencies, is conducting a study entitled "Wildlife Values in the West" to examine public perceptions of issues concerning the management of fish and wildlife in Utah and throughout the western region of the United States. We are interested in the opinions of <u>all residents</u> of your state, so even if you do not hunt or fish, your input is still important to us.

Your household is one of *a small number* chosen at random to participate in this research project. In order to ensure that the results will truly represent people in your area, it is important that your questionnaire be completed and returned. The survey will take approximately 20-30 minutes to complete. Please return the completed survey in the enclosed self-addressed, postage-paid envelope.

We are attempting to obtain the same number of men and women to participate in this study. Your household has been selected to have an <u>adult male</u> (at least 18 years of age) complete the survey. If an adult male is not present, then the survey should be completed by an <u>adult female</u>.

The Colorado State University Human Research Committee has reviewed and approved this study. There are no known risks or direct personal benefits associated with your participation. Consistent with University research requirements, your participation in this study is voluntary and will remain completely confidential. The questionnaire has an identification number so we can check your name off the mailing list when your questionnaire is returned. Your name will never be placed on the questionnaire, nor ever associated with your responses. Record of your participation in this study will be destroyed as soon as data collection is completed.

We would be happy to answer any questions you might have. Please feel free to contact us by writing to either of the above addresses or by calling or emailing us (details provided below). If you have questions about your rights as a participant in this research, you may contact Celia Walker of the CSU Human Research Committee at (970) 491-1563. Thank you very much for your assistance.

Sincerely,

1.1

Tara Teel Colorado State University (970) 491-7729 tteel@lamar.colostate.edu

Dana E. Dolsen Utah Division of Wildlife Resources (801) 538-4790 danadolsen@utah.gov





Knowledge to Go Places Human Dimensions in Natural Resources Unit College of Natural Resources Colorado State University Ft. Collins, CO 80523-1480

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Tara Teel Colorado State University (970) 491-7729 tteel@lamar.colostate.edu

Dana E. Dolsen Utah Division of Wildlife Resources (801) 538-4790 danadolsen@utah.gov
Management of Fish and Wildlife in the West

A study conducted cooperatively by:





Knowledge to Go Places

WESTERN ASSOCIATION OF FISH AND WILDLIFE AGENCIES

This survey is for <u>all</u> citizens of your state! Even if you know little about wildlife, your opinions are needed!

Fall 2004

PLEASE READ BEFORE COMPLETING THIS SURVEY:

This survey is being sent to people residing in states throughout the West. Please note that, while some of the questions in this survey may not be relevant to <u>your state specifically</u>, we are still interested in your opinions because they are relevant to other states in the western region.

Section I.

We begind ifferen 1 = the g 2 = the 2	in this survey by asking you about the goals for our co tly. <i>For each group, rank the 4 goals in order of importe</i> goal most important to YOU 2 nd most important goal	untry. Below are 3 groups of goals that peopl ance to you. That is: 3 = the 3 rd most important goal 4 = the least important goal	e might prioritize
<u>Group 1</u> DO NO	Rank these 4 goals from most important (1) to least T GIVE ANY OF THESE ITEMS THE SAME RANK	important (4). Please no ties (meaning, .).	Group 1 Rank
٠	Maintain a high level of economic growth.		
٠	See that people have more to say about how things are d	lone at their jobs and in their communities.	
•	Make sure this country has strong defense forces.		
•	Try to make our cities and countryside more beautiful.		
<u>Group 2</u> (meanin	2. Repeat now for this next set of goals (1=most imporing, DO NOT GIVE ANY OF THESE ITEMS THE SA	tant, 4=least important). Please no ties ME RANK).	Group 2 Rank
•	Maintain order in the nation.		
•	Give people more to say in important government decisi	ions.	
•	Fight rising prices.		
•	Protect freedom of speech.		
<u>Group 3</u> ties (me	<u>3.</u> Repeat again for this final set of goals (1=most impo aning, DO NOT GIVE ANY OF THESE ITEMS THE	rtant, 4=least important). Please no SAME RANK).	Group 3 Rank
•	Maintain a stable economy.		
•	Progress toward a less impersonal and more humane soo	ziety.	
٠	Fight crime.		

• Progress toward a society in which ideas count more than money.

Below are statements that represent a variety of ways people feel about fish and wildlife and the natural environment. Please indicate the extent to which you disagree or agree with each statement. *Circle one number for each statement*.

	neare the extent to which you assure of ag	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
1.	Humans should manage fish and wildlife populations so that humans benefit.	1	2	3	4	5	6	7
2.	We should strive for a world where humans and fish and wildlife can live side by side without fear.	1	2	3	4	5	6	7
3.	We should strive for a world where there's an abundance of fish and wildlife for hunting and fishing.	1	2	3	4	5	6	7
4.	The needs of humans should take priority over fish and wildlife protection.	1	2	3	4	5	6	7
5.	I view all living things as part of one big family.	1	2	3	4	5	6	7
6.	Animals should have rights similar to the rights of humans.	1	2	3	4	5	6	7
7.	Wildlife are like my family and I want to protect them.	1	2	3	4	5	6	7
8.	People should never be allowed to use any fish or wildlife for any reason.	1	2	3	4	5	6	7

		Strongly <u>Disagree</u>	Moderately <u>Disagree</u>	Slightly <u>Disagree</u>	<u>Neither</u>	Slightly <u>Agree</u>	Moderately <u>Agree</u>	Strongly <u>Agree</u>
9.	It is acceptable for people to kill wildlife if they think it poses a threat to their life.	1	2	3	4	5	6	7
10.	It is acceptable for people to kill wildlife if they think it poses a threat to their property.	1	2	3	4	5	6	7
11.	If I had to walk in the outdoors, I would be worried about encountering a wild animal.	1	2	3	4	5	6	7
12.	It is acceptable to use fish and wildlife in research even if it may harm or kill some animals.	1	2	3	4	5	6	7
13.	Fish and wildlife are on earth primarily for people to use.	1	2	3	4	5	6	7
14.	If I were around wildlife in the outdoors I would be uncomfortable.	1	2	3	4	5	6	7
15.	Hunting is cruel and inhumane to the animals.	1	2	3	4	5	6	7
16.	I have concerns about being around wildlife because they may carry a disease.	1	2	3	4	5	6	7
17.	I am not interested in knowing anything more about fish and wildlife.	1	2	3	4	5	6	7
18.	It would be more rewarding to me to help animals rather than people.	1	2	3	4	5	6	7
19.	I have concerns about being around wildlife because they may hurt me.	1	2	3	4	5	6	7
20.	I am really not that interested in fish and wildlife.	1	2	3	4	5	6	7
21.	Advances in technology will eventually provide							
22	a solution to our environmental problems.	1	2	3	4	5	6	7
22.	people.	1	2	3	4	5	6	7
23.	People who want to hunt should be provided the opportunity to do so.	1	2	3	4	5	6	7
24.	I take great comfort in the relationships I have with animals.	1	2	3	4	5	6	7
25.	I value the sense of companionship I receive from animals.	1	2	3	4	5	6	7
26.	The natural environment should be protected for its own sake rather than simply to meet our needs.	1	2	3	4	5	6	7
27.	Hunting does not respect the lives of animals.	1	2	3	4	5	6	7
28.	I feel a strong emotional bond with animals.	1	2	3	4	5	6	7
29.	We should strive for a society that emphasizes environmental protection over economic growth.	1	2	3	4	5	6	7
30.	Science can provide answers to any problems that we encounter in nature.	1	2	3	4	5	6	7
31.	Protecting the natural environment should be this country's top priority.	1	2	3	4	5	6	7
32.	We can find solutions to environmental problems through science and technology.	1	2	3	4	5	6	7

Section II.

This section asks your opinion about key regional issues that are important in one or more western states. Some of these issues may not be present in <u>your state specifically</u>. However, your opinion is still important to us. *For each set of questions, please follow the directions that are provided.*

State fish and wildlife agencies hear from many different groups of people about their interests, making decisions and priorities difficult. Below is a series of hypothetical approaches that describe how priorities *could* be directed. *Please read about each approach. Then tell us how you think things are now and how they should be in your state based on these approaches by answering the 2 questions that follow.*

APPROACH 1	 State agencies develop programs that meet the needs <u>primarily of those who hunt and/or fish</u>. Fish and wildlife management is almost entirely funded by hunting and fishing license dollars.
APPROACH 2	 State agencies develop programs that meet the needs <u>primarily of those who hunt and/or fish</u>. Fish and wildlife management is substantially funded by both hunting and fishing license dollars <i>and</i> public taxes.
APPROACH 3	 State agencies develop programs that meet the needs <u>of all members of the public</u> regardless of their level of interest in wildlife. Fish and wildlife management is almost entirely funded by hunting and fishing license dollars.
APPROACH 4	 State agencies develop programs that meet the needs <u>of all members of the public</u> regardless of their level of interest in wildlife. Fish and wildlife management is substantially funded by both hunting and fishing license dollars <i>and</i> public taxes.

1. Of the above approaches, which approach do you think best resembles <u>how things are now</u> in your state? *Check only one* (Δ) .

□ Approach 1 □ Approach 2 □ Approach 3 □ Approach 4

2. Which approach best represents your opinion of how things should be in your state? Check only one (Z).

□ Approach 1 □ Approach 2 □ Approach 3 □ Approach 4

We would like to know how you feel about the extent to which your state fish and wildlife agency listens to and considers your opinions in fish and wildlife decision-making. Please indicate how strongly you disagree or agree with each of the following statements. *Circle one number for each statement*.

		Strongly Disagree	Moderately <u>Disagree</u>	Slightly <u>Disagree</u>	Neither	Slightly <u>Agree</u>	Moderately <u>Agree</u>	Strongly <u>Agree</u>
1.	I feel that <u>my opinions are heard</u> by fish and wildlife decision-makers in my state.	1	2	3	4	5	6	7
2.	I feel that <u>my interests are adequately</u> <u>taken into account</u> by fish and wildlife decision-makers in my state.	1	2	3	4	5	6	7
3.	I feel that <u>if I provide input, it will make a</u> <u>difference</u> in fish and wildlife decisions in my state.	1	2	3	4	5	6	7
4.	I feel that my state fish and wildlife agency makes a good effort to obtain <u>input from</u> the public as a whole.	1	2	3	4	5	6	7
5.	<u>I don't have an interest</u> in providing input to fish and wildlife decisions in my state.	1	2	3	4	5	6	7
6.	I trust my state fish and wildlife agency to make good decisions without my input.	1	2	3	4	5	6	7

Please respond to the following questions about the extent to which you trust certain forms of government. Circle one number for each statement.

0	Overall, to what extent do you trust		Only Some of the Time	Most of <u>the Time</u>	Almost <u>Always</u>
1.	your <u>federal government</u> to do what is right for your country?	1	2	3	4
2.	your state government to do what is right for your state?	1	2	3	4
3.	your <u>state fish and wildlife agency</u> to do what is right for fish and wildlife management in your state?	1	2	3	4

Fish and wildlife agencies want to know how the public thinks the agencies should respond to human-wildlife conflict situations. Below are two IMAGINARY situations involving black bears. We would like to know how you feel about certain management actions that could be directed at bear populations to address these situations. *Even* though it may seem unlikely that these things could occur where you live, we are still interested in your opinions.

(PLEASE TELL US HOW YOU FEEL ABOUT THE ACTIONS LISTED BELOW FOR EACH **SITUATION**)

	SITUAT	FION 1	SITUATION 2				
<u>ACTIONS:</u>	Bears are wanderin humans live in sear are <u>getting into tr</u> <u>contai</u>	g into areas where rch of food. Bears <u>ash and pet food</u> <u>iners</u> .	Bears are wandering into areas where humans live in search of food. <u>Human</u> <u>deaths from bear attacks</u> have occurred.				
Is it unacceptable or acceptable to	<u>Unacceptable</u>	Acceptable	<u>Unacceptable</u>	Acceptable			
1do nothing to control bear populations?							
2 provide more recreational opportunities to hunt bears?							
3conduct controlled hunts using trained agency staff?	0	0					

Below are two IMAGINARY situations involving deer. We would like to know how you feel about certain management actions that could be directed at deer populations to address these situations. Even though it may seem unlikely that these things could occur where you live, we are still interested in your opinions.

Г

(PLEASE TELL US HOW YOU FEEL ABOUT THE ACTIONS LISTED BELOW FOR EACH **SITUATION**)

1.

2.

3.

		SITUA		SITUATION 2		
<u>A(</u>	CTIONS:	Deer numbers are increasing. There are complaints about deer entering people's yards and <u>eating shrubs and</u> <u>garden plants</u> .		Deer numbers a Authorities are conc are <u>carrying a</u> <u>transmissible to</u> <u>animals and</u>	are increasing. erned because deer <u>disease that is</u> <u>some domestic</u> <u>l livestock</u> .	
Is it unacceptable or acceptable to		<u>Unacceptable</u>	Acceptable	<u>Unacceptable</u>	<u>Acceptable</u>	
1.	do nothing to control deer populations?					
2.	provide more recreational opportunities to hunt deer?					
3.	conduct controlled hunts using trained agency staff?					
4.	distribute pellets containing contraceptives, causing deer to be unable to produce offspring permanently?					
5.	distribute pellets containing contraceptives, causing deer to be unable to produce offspring for only a few breeding seasons?					

CITUATION 1

SITUATION 2

A fish and wildlife agency manager of <u>a particular area</u> may have limited funds to spend on conservation programs for fish and wildlife. As a result, difficult choices must be made about what type of fish or wildlife deserves the greatest priority. This often involves evaluating different combinations of characteristics of the fish or wildlife. Below is a series of <u>hypothetical</u> comparisons that illustrate the kinds of choices that might be made for an area. For each comparison please select the choice with the characteristics you think the manager should spend funds on to maintain or enhance the fish or wildlife population.

These are hypothetical comparisons. Even though some of these fish or wildlife may not be present <u>where you live</u>, we are still interested in your opinions.

1. Which should the manager spend funds on? (Check one **D**.)



2. Which should the manager spend funds on? (Check one Ø.)



3. Which should the manager spend funds on? (Check one Z.)



4. Which should the manager spend funds on? (Check one **D**.)



5. Which should the manager spend funds on? (Check one \square .)





7. Which should the manager spend funds on? (Check one **D**.)



8. Which should the manager spend funds on? (Check one Z.)



Section III.

Next, we would like your input on fish and wildlife management <u>in Utah</u>. The information you provide will help the Utah Division of Wildlife Resources (DWR) understand how people from Utah feel about these issues and improve their ability to manage fish and wildlife populations and habitats in Utah. *Please respond to each of the following questions according to the directions provided*.

The DWR is concerned about **populations** of certain **fish and wildlife** species in Utah known as "**species of concern**" that are **at risk** of being listed under the federal Endangered Species Act. Your input will help guide the DWR toward benefiting these populations and the places where they live (known as "habitats") in Utah.

1. How important do you think it is for Utah to take action to prevent species of concern from becoming federally classified as threatened or endangered? *Circle one number or check the box (\square) for "no opinion"*.

<u>Not at all Important</u>	<u>Slightly Important</u>	Moderately Important	<u>Quite Important</u>	Extremely Important	No Opinion
1	2	3	4	5	

2. DWR must find <u>alternative funding sources</u> to match new federal grant monies to pay for programs and services that would <u>benefit species of concern</u> in Utah. Please indicate your level of **acceptance** for using each of the alternative funding sources listed below. *Circle one number for each alternative*.

Is unacceptable or acceptable to	Highly <u>Unacceptable</u>	Moderately <u>Unacceptable</u>	Slightly <u>Unacceptable</u>	<u>Neither</u>	Slightly <u>Acceptable</u>	Moderately <u>Acceptable</u>	Highly <u>Acceptable</u>
A) reallocate State of Utah general tax (fund) revenues?	1	2	3	4	5	6	7
B) create a special tax on outdoor recreation equipment?	1	2	3	4	5	6	7
C) charge special transaction fees on developers and industries?	1	2	3	4	5	6	7
D) reallocate funds from the sale of fishing, hunting, and trapping licenses?	1	2	3	4	5	6	7

3. Now we are interested in your level of **preference** for each of these funding sources for programs and services that would <u>benefit species of concern</u>. *Please distribute 100 points among these 4 alternatives to show how much <u>you</u> think each source should contribute to the funding for species of concern.*

	Points
Reallocation of State of Utah general tax revenues	
New special tax on outdoor recreation equipment	
New special fees on developers and industries	
Reallocation of funds from sale of fishing, hunting, trapping licenses	

100 Points Total

4. DWR must make decisions about how to manage for fish and wildlife on public lands. We are interested in how you think public lands should be managed in Utah. *Circle one number for each statement*.

Do you disagree or agree that public lands should be managed to	Strongly <u>Disagree</u>	Moderately <u>Disagree</u>	Slightly <u>Disagree</u>	<u>Neither</u>	Slightly <u>Agree</u>	Moderately <u>Agree</u>	Strongly <u>Agree</u>
Benefit species of concern even if it means decreasing the populations of common species of fish and wildlife.	1	2	3	4	5	6	7
Benefit species of concern even if it means decreasing the populations of species of fish and wildlife that can be legally hunted, trapped or fished.	1	2	3	4	5	6	7
Benefit species of concern even if it means providing fewer opportunities for outdoor recreation on those lands.	1	2	3	4	5	6	7
Benefit species of concern even if it means providing fewer opportunities for economic development on those lands.	1	2	3	4	5	6	7

5. To benefit species of concern in Utah, the DWR will be considering a variety of **program options.** The programs chosen will be funded with new federal grant monies. We are interested in knowing **how important** you feel the options listed below would be. *Circle one number for each statement*.

How important is it to benefit fish and wildlife species of concern (sensitive species) by	Not at all <u>Important</u>	Slightly <u>Important</u>	Moderately <u>Important</u>	Quite <u>Important</u>	Extremely <u>Important</u>	
A) offering nongovernmental organizations a competitive, matching small grant program for cooperative sensitive species habitat enhancement projects?	1	2	3	4	5	
B) distributing information to inform landowners, developers and industries on effectively applying best land use practices to minimize impacts on sensitive species habitat?	1	2	3	4	5	
C) offering those who recreate outdoors educational programs on how to minimize their impacts on sensitive species habitat?	1	2	3	4	5	
D) buying conservation easements from willing private landowners to protect sensitive species habitat?	1	2	3	4	5	
E) offering private landowners a competitive, matching small grant program for sensitive species habitat enhancement projects?	1	2	3	4	5	
F) hiring more DWR staff to enhance sensitive species habitat and conduct sensitive species research and surveys?	1	2	3	4	5	

6. From the above list, please indicate your **top three most preferred program options** for DWR **to pursue** to help benefit species of concern in Utah. *List three program options. Write the letter (A-F) that corresponds with the program.*

I prefer program options _____, ____, and _____.

7. DWR has limited funds for fish and wildlife management in Utah. Some people feel that the public should be required to help pay for actions that benefit all fish and wildlife. Others believe that people should only help pay for actions that benefit fish and wildlife that directly benefit humans (for example, those that are hunted, fished, or trapped). We are interested in what types of wildlife you believe that <u>you</u> should be responsible to help pay for. *Circle one number for each statement*.

Do you disagree or agree that you should be responsible to help pay for	Strongly <u>Disagree</u>	Moderately <u>Disagree</u>	Slightly <u>Disagree</u>	<u>Neither</u>	Slightly <u>Agree</u>	Moderately <u>Agree</u>	Strongly <u>Agree</u>
federally threatened and endangered fish and wildlife in Utah.	1	2	3	4	5	6	7
State of Utah species of concern.	1	2	3	4	5	6	7
fish or wildlife that can NOT be legally hunted, trapped or fished.	1	2	3	4	5	6	7
fish or wildlife that can be legally hunted, trapped or fished.	1	2	3	4	5	6	7

8. <u>During the past 12 months</u>, how have you participated in fish and wildlife management decision-making in Utah? *Check (D) all that apply.*

- A) Talked (by telephone or in person) with a Regional Advisory Council or Utah Wildlife Board member
- B) Talked (by telephone or in person) with a DWR employee, for example, a Conservation Officer or biologist
- C) Sent a letter or an e-mail on a specific fish or wildlife management issue to the DWR (for example, about an enforcement situation, wildlife nuisance complaint, or management plan)
- D) Attended a Regional Advisory Council or Utah Wildlife Board meeting
- E) Attended another type of public meeting or open house hosted by the DWR (not a Regional Advisory Council or Board Meeting)
- **F**) Attended a meeting hosted by a group other than the DWR to hear about or discuss a fish or wildlife or associated habitat issue
- G) Other (please describe)
- H) I did not provide any input into fish and wildlife management this past year.

9. Now we're interested in finding out how you would **prefer to participate** in fish and wildlife management decisionmaking in Utah **in the future**. From the list above (question #8), please list the letters (A - H) for the **top three most preferred ways** for how you would like to participate **OR** check the box (\square) indicating that you are not interested.

In the future, I would prefer to use the following methods: _____, ____, and _____.

OR

□ I am not interested in providing input into fish and wildlife management in the future.

Section IV.

We would like to learn about your fish- and wildlife-related recreation activities. *Please check your response (D)*.

1.	Have you ever participated in recreational (non-commercial) fishing?	🗖 Yes	🗖 No
2.	Did you participate in recreational (non-commercial) fishing during the past 12 months (1 year)?	🗖 Yes	🗖 No
3.	Have you ever participated in recreational (non-commercial) hunting?	🗖 Yes	🗖 No
4.	Did you participate in recreational (non-commercial) hunting during the past 12 months (1 year)?	🗖 Yes	🗖 No
5.	Have you ever taken any recreational trips for which fish or wildlife viewing was the primary purpose of the trip?	□ Yes	🗖 No
6.	Did you take any recreational trips in the past 12 months (1 year) for which fish or wildlife viewing was the primary purpose of the trip?	□ Yes	🗖 No

Please respond to the following 3 questions about your interest in participating in fish- and wildlife-related recreation in the future. *Circle one number for each statement*.

		Not at an Interested	Interested	Interested	Strongly Interested
1.	How interested are you in taking recreational fishing trips in the future?	1	2	3	4
2.	How interested are you in taking recreational hunting trips in the future?	1	2	3	4
3.	How interested are you in taking recreational trips in the future for which fish or wildlife viewing is the primary purpose of the trip?	1	2	3	4

Now we would like to know more about your interest in taking specific trips to view wildlife.

Ho	How likely is it that you would consider taking one of the following trips in the future? <i>Circle one number for each statement.</i>							
		Not at all <u>Likely</u>	Slightly <u>Likely</u>	Moderately <u>Likely</u>	Extremely <u>Likely</u>			
1.	a trip to Africa to go on a safari to view wildlife?	1	2	3	4			
2.	a trip to a remote area of Alaska to view wildlife?	1	2	3	4			

The following demographic information will be used to help make general conclusions about the residents of this state. Your responses will remain completely confidential.

1.	Are you?	□ Male	□ Female				
2.	What is your age? (Write response.) Years						
3.	3. How many people <u>under 18 years of age</u> are currently living in your household? (<i>Write response</i> .) Person(s)						
4.	What is the <u>highest</u> level of	Less than high school	ol diploma	□ 4-year college degree			
	achieved? (<i>Check only one</i>	☐ High school diplomatic example, GED)	a or equivalent (for	□ Advanced degree beyond 4-year college degree			
		□ 2-year associates de	tes degree or trade school				

5.	What is your approximate	□ Less than \$10,000	\$ 70,000 - \$89,999		
	annual <u>household</u> income before taxes? (<i>Check one</i> ☑.)	□ \$10,000 - \$29,999	□ \$90,000 - \$109,999		
		□ \$30,000 - \$49,999	□ \$110,000 - \$129,999		
		□ \$50,000 - \$69,999	□ \$130,000 - \$149,999		
			□ \$150,000 or more		
6.	About how long have you li indicating less than one yea	ved in Utah? (<i>Write response or check bo:</i> r.)	\square Years, OR \square Less than one year.		
7.	How would you describe	□ Large city with 250,000 or more peopl	e		
	your <u>current</u> residence or community? (<i>Check one</i>	City with 100,000 to 249,999 people	□ Town with 5,000 to 9,999 people		
	$(\underline{C}$	City with 50,000 to 99,999 people	□ Small town / village with less than 5,000 people		
		□ Small city with 25,000 to 49,999 people	e 🗖 A farm or rural area		
8.	Would you consider your <u>cu</u> larger city or metropolitan a	$\frac{1}{1} residence a suburb of a \qquad \Box Ye$ rea? (<i>Check one</i> \square .)	s 🗖 No		
9.	How would you describe	□ Large city with 250,000 or more peopl	e		
	the community <u>in which</u>	City with 100,000 to 249,999 people	□ Town with 5,000 to 9,999 people		
	one \square .) If more than one	City with 50,000 to 99,999 people	□ Small town / village with less than 5,000 people		
	area, check the place where you lived the longest	□ Small city with 25,000 to 49,999 peopl	e \Box A farm or rural area		
10.	Would you consider the contraised a suburb of a larger of one $\mathbf{\Delta}$.)	nmunity <u>in which you were</u>	s 🗖 No		
11.	Are you? (Check one	□ White, NOT of Hispanic origin	□ Asian		
	or more categories to indicate what you consider yourself to be)	Black or African American, NOT of Hispanic origin	□ Native Hawaiian		
		Spanish, Hispanic, or Latino	□ Other Pacific Islander		
		D Native American or Alaska Native	□ Other (<i>Please print on line below.</i>)		

12. While many people in America view themselves as "Americans", we are interested in finding out more about how you would define <u>your ethnic background</u>. What is **the primary ethnic origin with which you identify yourself**? (*for example, Italian, Jamaican, Norwegian, Dominican, Korean, Mexican, Taiwanese, Ukrainian, and so on*)

(Please write your ethnic origin.)

13. Your state fish and wildlife agency is periodically interested in gathering input from the public on a variety of fish and wildlife issues. Toward this end, we would like to know <u>if you would be interested in providing input</u> in the future by way of email. If so, and if you have an email address, **please print your name and email on a separate sheet of paper** and return it along with your completed survey. Based upon how you respond to a subset of questions on this survey, your state fish and wildlife agency <u>may decide to contact you</u> for input.

Thank you for participating in this study. Your input is very important!

Please return the completed survey as soon as possible in the

enclosed addressed and postage-paid envelope.

APPENDIX D. NON-RESPONSE CHECK TELEPHONE SURVEY

Hello, my name is ______. I'm calling from Colorado State University. Your household has been selected to participate in a very short survey about wildlife. Even if wildlife is not very important to you, we are interested in your opinions. The goal of this study, entitled "Wildlife Values in the West", is to determine how people in the West feel about fish and wildlife and their management and how often they have participated in wildlife-related recreation. Would you be willing to take a minute or two to answer a few questions for me?

Please keep in mind that your participation in this study is voluntary and would remain completely confidential. Additionally, please be aware that there are no known risks or direct personal benefits associated with participation in this study. Feel free to contact Tara Teel at (970) 491-7729 with questions. If you have questions about your rights as a participant in this research, you may contact Celia Walker of the CSU Human Research Committee at (970) 491-1563.

[*If yes, begin asking questions listed below*]

[If no] Sorry to disturb you, have a good evening / day.

Before we begin, can I verify that you are at least 18 years of age? [if no, ask to speak to someone else in the household that is]

Questions:

First, I will read several statements that represent a variety of ways people feel about fish and wildlife. After I read each one, please tell me if you agree or disagree that the statement describes how you feel. I will then ask you to what extent you agree or disagree. That is, do you strongly, moderately, or slightly agree or disagree?

		Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
1.	The needs of humans should take priority over fish and wildlife protection.	1	2	3	4	5	6	7
2.	People who want to hunt should be provided the opportunity to do so.	1	2	3	4	5	6	7
3.	Animals should have rights similar to the rights of humans.	1	2	3	4	5	6	7
4.	If I were around wildlife in the outdoors I would be uncomfortable.	1	2	3	4	5	6	7
5.	I am really not that interested in fish and wildlife.	1	2	3	4	5	6	7
6.	I take great comfort in the relationships I have with animals.	1	2	3	4	5	6	7

OK, now just a few quick questions about you and your participation in wildlife recreation.

7. Did you participate in recreational fishing during the past 12 months? _____Yes _____No

8. Did you participate in recreational hunting during the past 12 months? _____Yes _____No

9. Did you take any recreational trips in the past 12 months for which fish or wildlife viewing was the primary purpose of the trip?

____Yes ____No

10. What is your age? _____ Years

11. [Record respondent sex:] _____ Male _____ Female

That's all. Thank you very much for your participation!