Utah Division of Wildlife Resources

Wildlife Values in the West

Regional Survey Results[1]

Utah-related Highlights

[1] *From:* ***"Wildlife Values in the West."*** (Project Rep. No. 58). Project Report for the Western Association of Fish and Wildlife Agencies. Ft. Collins, CO: Colorado State University, Human Dimensions in Natural Resources Unit.

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Wildlife Values in the West Regional Survey Results[2]
Utah-related Highlights

Introduction

The primary purpose of this study was to determine wildlife value orientations among publics in the western United States and to identify factors influencing their presence. Additional objectives were to determine public attitudes toward population-level management techniques, alternative funding and programming approaches, public involvement efforts, trust in government, and characteristics of species that should receive conservation funding support. It is intended that this study serve as a foundation for comparisons with future studies to establish attitude and value trends.

Furthermore, the Utah specific data have been described and emphasized herein, often in relationship to the other western states' findings for comparative purposes. A companion descriptive summary of findings (Teel et al. 2005) on the Utah defined issues that were asked of Utahns in a separate section of the survey is also available upon request from the Utah Division of Wildlife Resources (UDWR) Wildlife Planning Manager. A separate report based on the analysis of the combined, relational aspects of this research specific to Utah is being considered for funding at this time and, if authorized, may be forthcoming by July 2006.

Findings of Significance

For the purposes of reporting Utah-related findings, the general regional results are typically described first, and then are followed with relevant Utah-specific information.

Wildlife value orientations

Wildlife value orientations in the western U.S. can be characterized along several distinct dimensions including mutualism-utilitarian and attraction-concern for safety. Of these, the mutualism-utilitarian dimension has a dominating effect on thought about wildlife because it forms the basis for evaluating actions or issues that involve treatment of wildlife.

Using mutualism and utilitarian wildlife value orientations responses, we identified four "wildlife value orientation types" among members of the public.

- *Utilitarians* hold a philosophy that wildlife are for human use and are strongly positive toward hunting and fishing.
- *Mutualists* are those who consider wildlife as part of an extended family and believe in an ideal world where people and wildlife live side-by-side without fear.
- *Pluralists* are those who have both utilitarian *and* mutualism value orientations. For these individuals, the wildlife value orientation that becomes salient is very dependent on the specific situation a person is in.
- *Distanced* are those individuals who do not have either a utilitarian or a mutualism value orientation. They tend to score lower on the wildlife belief dimension measuring attraction toward wildlife and higher on the belief dimension measuring concern for safety when around wildlife.

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[2] Full Citation: Teel, T. L., Dayer, A. A., Manfredo, M. J., & Bright, A. D. (2005). *Regional results from the research project entitled* ***"Wildlife Values in the West."*** (Project Rep. No. 58). Project Report for the Western Association of Fish and Wildlife Agencies. Fort Collins, CO: Colorado State University, Human Dimensions in Natural Resources Unit.

When compared with the other two groups, Utilitarians and Pluralists are older, more likely to hunt, more likely to have lived in a state for a longer period of time, and more likely to be male.

States vary greatly in the composition of these wildlife value orientation types. See the proportionate distribution of Utahns across these types in Table 1; in addition, Utah's ranking is given, as are similar/disparate states. Across all 19 states surveyed, citizens had average classifications of: Utilitarian - 34% (14% less than Utah), Mutualist - 33% (13% more than Utah), Pluralist - 20% (1% less than Utah), and Distanced - 13% (2% more than Utah).

Table 1. Utah's Wildlife Value Orientation Types - Rankings among 19 western states

Utilitarian:	**48%**	**5th highest state** (Montana was closest while Hawaii was the least Utilitarian at 25% and Alaska was the most (50%);
Mutualist:	**20%**	**7th lowest state** (Oklahoma was closest while Alaska was the least Mutualist at 15% and Hawaii was the most (41%);
Pluralist:	**21%**	**4th lowest state** (Oregon was the closest while California was the least Pluralist at 15% and Wyoming was the most (31%),
Distanced:	**11%**	**6th highest state** (Nevada was the closest while South Dakota was the Least Distanced at 6% and California was the most (19%).

Although Utah is not that much off the average percentages of Pluralists and Distanced value orientation types represented across all western states, it is markedly different in its 13-14% shift of percentages from Mutualists to Utilitarians than the respective averages for Western states.

Relationship to a Broader Societal Value Shift

This study examined whether or not wildlife value orientation shift is associated with broader societal value shift. Broad societal shift has been described empirically as shifting from Materialist values (focused on safety and economic well-being) to Post-Materialist values (focused on belongingness, self-actualization, environmentalism, and distrust of government). Utah has slightly over 70% of its sample identifiable as Materialists and less than a fourth (~23%) identifiable as Post-Materialists.

The percentage of respondents who were classified as identifying with environmentalism across all 19 states ranged from 65% (highest - Hawai'i) to 39% (lowest - Utah). Other states with a high representation of environmentalism include Washington (62%), Oregon (57%) and Colorado (56%); states having the lowest environmentalism representation included Alaska (46%), Oklahoma (45%) and Idaho (43%).

Results from this study show that states with higher proportions of Utilitarians have higher percentages of Materialists and that states with higher proportions of Mutualists also have higher percentages of Post-Materialists. Utilitarian representation in Utah is fairly high (~ 47%), fifth highest in all. Utah had the lowest level of environmentalism of any western state, and had a lower representation of Mutualists (8th lowest state with ~ 21%) and has fewer Post-Materialists. Idaho is the state most like Utah in this regard, while Hawai'i is least similar. Alaska and South Dakota have the lowest proportions of Mutualists (~ 15% each) and also have the 4th and 9th lowest level of environmentalism, respectively.

In addition, results show a negative relationship between the percent of Mutualists and trust in government (at both federal and state levels) in a state. Utah's degree of Mutualism (8th lowest state) contrasts with the degree of trust Utah citizens have in their federal and state governments 8th highest – see below). As well, it was reported that 50-

80% of the citizens responding expressed that they had the most trust in their state fish and wildlife agency among all forms of government in their states. Utah was 8th highest among all states in their trust of their own fish and wildlife agency, the Utah Division of Wildlife Resources. These overall findings provide support for the proposal that wildlife value orientation shift is part of a broader societal shift. Although Utah is among the states that least fit this pattern, it still is impacted and in all likelihood will eventually follow suit as its population changes over time. In the 30 years from 2000 to 2030, the U.S. Census Bureau has projected a population growth increase of 56% (U.S. Census Bureau. 2005.)

Value shift--of broad societal values and wildlife value orientations—is proposed to be the result of basic changes in the mode of economic production and demography in society. Tests in this study support that overall conclusion. More specifically, results show a strong inverse relationship between the percent of Utilitarians in a state and variables measuring income, education, and urbanization. The opposite relationship is found when considering the percent of Mutualists in a state. Although Utah is about in the middle of the western states on these three variables, this trend will probably apply in Utah eventually as its projected population growth increases over the next two decades and especially as socio-cultural change continues. Here is one example of a trend affecting Utah: "*Within the next three years, the Mormon share of Utah's population is expected to hit its lowest level since The Church of Jesus Christ of Latter-day Saints …"* (Canham. 2005.) emigrants first arrived in the Salt Lake valley.

The percent of active hunters in a state (i.e., those who participated in the past 12 months out of those who ever hunted) is strongly related to the composition of wildlife value orientation types in a state. More specifically, states with higher percentages of Utilitarians have higher percentages of active hunters. Utah's sample reflects that 23% are active hunters, 11th highest rate of participation in the 19 western states. As mentioned earlier, five other states have the same or more Utilitarians represented in their populations than does Utah. This reinforces the notion that the decline in hunting is rooted in value shift and that broad sociocultural factors are driving that shift. It is apparent that compounding factors are making Utah's profile different as our rate of hunting participation is below the modal percentage of all western states even though we have the fifth highest percentage of Utilitarians.

Relationship to Socio-economic and Demographic Characteristics

Differences in wildlife value orientation types are associated strongly with differences in income, education and urbanization. States with populations that are more rural, have lower income, and less education have higher proportions of Utilitarians. States that are more urban, have higher income, and higher education generally have higher percentages of Mutualists (with the exception of Utah). These wildlife value orientation types differ on a variety of descriptive variables and their attitudes toward wildlife management issues.

In Utah, we tend to be about the middle of the range of 19 western states in both income and education, and are among those states that are least urbanized. Fifty-two percent of Utahns earn above the modal income ($30,000-49,999.00), 60% reside in a city or large city and 22% have earned a high school education or less.

- *Income*: 18% of Utahns earn a household income of $90,000 or more, tied as 10th highest state of 19;
- *Education*: 51% of Utahns have a 4 year degree or more, 10th highest state of 19); and
- *Urbanization*: 19% of Utahns live in a large city with 250,000 or more people, 8th lowest state of 19).

Regarding Utah's percent Utilitarians and Mutualists by education, our state is an evident outlier or exception to virtually all others. Those other states that typically have a high proportion (~45% or more) of Utilitarians, have approximately 30% or more that have a high school education or less; these states include: AK, SD, OK, ID, MT and ND. In contrast, Utah has about 8% less with that level of less educated respondents even though it has a comparable Utilitarian representation (i.e., 46%) which is a substantively, if not a statistically significant, different amount. Similarly, states that typically have greater than 30% of their respondents who are Mutualists, have fewer folk with less education (LTE high school diploma); these states include: HI, CA, WA, CO, OR, AZ, NV and NM. In contrast, Utah has about 10% less with that level of Mutualist representation even though it has a comparable amount (i.e., 21%) of less educated respondents which is a substantively, if not a statistically significant, different amount.

In broader terms, 31% of Utahns (tied for 8th highest with Oregon) live in cities with 100,000 people or more, compared to a high of 49% of Arizonans and a low of 11% of North Dakotans. Only 11% of Utahns live on a farm or in a rural area, 6th lowest among all western states (ND: 31% - highest; CA: 7% - lowest). The same outlier relationship exists with the interplay of Utilitarians represented in Utah (~48%), which is similar to such states as AK, SD, OK, ID and MT, yet over three-fifths of Utahns (60% +) reside in a city or large city, like the states of AZ, NV, CO, CA, TX, WA, and NM. As well, although most Utahns reside in these more urban areas, their level of Mutualist representation is quite similar to states like OK, MT, WY, ID in contrast. These are at least substantive, if not statistically significant, differences.

When asked about whether they perceived their residence (both current and childhood ones) as suburban, 56% of Utahns perceived that their current residence was suburban (highest percent among all 19 states) and 45% felt that their childhood residence was as well (second highest, next to Hawai'i (51%). Similar portions of Arizonans (55%), Hawai'ians (54%) and Californians (52%) also felt their current residences were suburban as well as their childhood residences (CA: 43% and AZ: 42%). Respondents from North and South Dakota as well as Wyoming perceived themselves as residing in the least suburban communities, both current (ND: 8.3%, WY: 7.8%) and childhood (ND: 9.1%, SD: 8.4%) residences.

Utah respondents had the youngest mean age (43.65 years old) of all states surveyed; 15 of the 19 states had a mean respondent age of 46-47 years. Utah also had the largest average number of children per household of any state at 1.25, followed by Idaho (0.92) and Wyoming (0.81). Oregon had the lowest average number of children per household at 0.54 children. More Utah men were represented in the respondents by state than any other at 56%, followed in turn by Montana (55%) and Nebraska (54%). Oregon had the highest proportion of women represented in states sampled at 54%. Utahns' average number of years of residency, at 30.08 years, was ninth highest (North Dakota was highest at 35.6 years and Nevada was lowest at 15.02 years).

As far as the proportion of hunters active in western states, Montana, North Dakota and Alaska led all others with 39%, 38% and 32% respectively. Those states with the least proportions of active hunters were California, Nevada and Arizona (6%, 9% and 9% respectively). Utah's hunters were 11th highest among states at 23%.

Perspectives on Government/Agency Trust and Agency Decision-making

<u>Trusting Government/Agency</u>

Overall, trust in state fish and wildlife agencies was higher than that for state government, which was in turn higher than that for the federal government. Results varied moderately by state, with Utah often being one of those states found at the high or low percentiles.

States trust ["most of the time" and "always" categories combined] their federal government to do what is right for the country in varying degrees. They range in their trust from a minimum of slightly less than one-third of citizens in one state to a maximum of slightly more than one-half in another state [across the 19 western states surveyed]. Utah (53% - highest), North Dakota (52%) and Oklahoma (51%) were the states with high trust in the federal government (most of the time to almost always) to do what is right for the country. States that least trust (almost never to only some of the time) the federal government include Oregon (70%), Washington (67%) and California (63%).

Expressing trust in their state government was easiest for South and North Dakotans (70% & 69% respectively), closely followed in turn by respondents from the states of Wyoming (63.1%) and Utah (62.9% - 4th highest). Those respondents least trustful were from the states of New Mexico (36%), California (38%) and Alaska (43%).

Regarding respondents expressing trust in their state fish and wildlife agency, the states with the highest support were North Dakota (81%), South Dakota and Nebraska (tied at 74%). Those states with the lowest support expressed for their fish and wildlife agencies (still a majority) were California (54%), followed by Washington and New Mexico (tied at 56%). Over two-thirds (68%) of Utah's respondent sample indicated that they expressed trust in the Utah Division of Wildlife Resources (8th highest level of trust).

Agency Processes for Public Input and Making Decisions

About a third to one-half of states agreed that their state fish and wildlife agency makes a good effort to obtain input from the public as a whole. The highest level of agreement on their agency efforts to obtain broad public input came from Alaska (61%), while the lowest level of agreement was by Californians, at 32%. In Utah 40% agreed, the 4th lowest rating of 19 states (closest AZ, OK & KS). As far as the percent of respondents agreeing that they do not have an interest in providing input to decisions on fish and wildlife, Oklahoma at 32% was the state with the highest agreement, New Mexico had the lowest agreement (20%), and Utah was seventh highest at 28% (closest to AZ & CA).

An average of approximately one-half of the public across all states expressed trust in state agencies to make decision without their input (48% of Utahns agree, 7th highest (closest AZ, NV & TX); ND highest - 61%; NM lowest - 37%). However, an average of less than half felt their:

1) opinions are heard (24% of Utahns agree, 5th lowest (closest AZ. KS & NV); AK highest – 40%; CA lowest – 19%),
2) interests are taken into account (30% of Utahns agree, 4th lowest (closest AZ & KS); ND highest – 42%; CA lowest – 27%),
3) input would make a difference if given (36.0% of Utahns agree, 2nd lowest (closest WA & AZ); ND highest – 46.9%; WA lowest – 35.8%).

Such findings for Utah bring into question the apparent perceived utility and effectiveness of the current system of public involvement (i.e., the Regional Advisory Council and Utah Wildlife Board) processes. Such findings may prompt the assessment and revision by the Utah State Legislature of such a lowly rated public input and decision making mechanism.

Perspectives on Issue-Relevant Human-Wildlife Conflict Scenarios

This study explored public attitudes regarding deer and bear population-level management techniques in two situations of human-wildlife conflict: the animals are a "nuisance" and the animals are a "safety threat". Among the three control strategies presented, a majority of the public found "doing nothing" to be unacceptable in both situations for both species. Hunts conducted by agency staff or by recreational hunters were favored techniques for both deer situations. For bear situations, agency hunts were far more favorable than recreational hunts. Only in states with a higher proportion of Utilitarians and Pluralists did a majority favor recreational hunts.

Utah scored fourth lowest (7%) among all states in their proportion that found the action "do nothing to control bear populations" acceptable when human deaths have occurred from bear attacks. Utah's support was among the middle of the pack in states regarding the: 1) do nothing to control bears when getting into trash and pet food containers (8th lowest in support – 17%), and 2) provide more recreational opportunities to hunt bears (9th lowest – 51%). Utah had the 7th lowest level of support (84%) among all states when asked if they found conducting controlled hunts using trained agency staff acceptable when human fatalities occurred. Utah was the 10th highest state finding the conduct of controlled hunts using trained agency staff acceptable when bears get into trash and food containers. Utah was 8th highest in its acceptance of providing more recreational opportunities to hunt bears when humans have died from attacking bears.

The use of permanent contraceptive techniques as a means for controlling deer populations were not supported by the public whether the situation involves species as a nuisance or spread of disease. Temporary contraceptives effecting deer reproduction for only a few breeding seasons were supported by much higher proportions of people but public opinion was still divided on that technique.

Asked about the level of support for doing nothing to control deer populations when: 1) deer eat shrubs and garden plants, Utah was the 6th highest state (36%); 2) deer carry a transmissible disease to domestic animals/livestock, Utah was tied for the 9th lowest state (10%). Asked about the level of support for providing more recreational deer hunting opportunities when: 1) deer eat shrubs and garden plants, Utah was tied for 8th lowest (70%); 2) deer carry a transmissible disease to domestic animals/livestock, Utah was 10th highest (83%). Asked about the level of support for conducting controlled deer hunts using trained agency staff when: 1) deer eat shrubs and garden plants, Utah was 9th lowest (65%); 2) deer carry a transmissible disease to domestic animals/livestock, Utah was 9th highest (83%).

Asked about the level of support for distributing contraceptive pellets with permanent effect when: 1) deer eat shrubs and garden plants, Utah was 2nd lowest (11%) after Idaho (10%); 2) deer carry a transmissible disease to domestic animals/livestock, Utah was tied with Texas for 6th highest (31%). Asked about the level of support for distributing contraceptive pellets with temporary effect when: 1) deer eat shrubs and garden plants, Utah was 5th lowest (52%); 2) deer carry a transmissible disease to domestic animals/livestock, Utah was 3rd lowest (63%).

Perspectives on Conservation Funding and Programming Approaches

<u>Perspectives on Conservation Funding and Programming</u>

Approximately one-half of the public in most states felt that the funding and programming approach that they perceive exists within their state (i.e., how things are

now") is different than the one they would prefer. The approaches were comprised of source of funding (hunter and angler licenses and/or general public tax dollars) and who benefits from agency programs (hunters and anglers and/or all members of the public).

Overall, the public favored an approach (identified as Approach 4) in which licenses *and* taxes fund management and with programming that benefits all members of the public. When considering "how things are now", the most common response for all states was 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). California (56%), Hawai'i (53%), and Oregon (50%) had the highest percent selecting this approach, which was at least twice the number of respondents selecting the next most selected response in those states. Utah had 37% who selected Approach 4. The one state that was an exception was Oklahoma, which had 29% of its respondents select Approach 1[3].

The second most selected response in most states for how current programs and funding are configured, including Utah at 27%, was the approach that *meets the needs of hunters and anglers and is substantially funded by hunting and fishing licenses and public taxes* (Approach 2). The exceptions included Wyoming and Montana respondents who elected Approach 3[4] (26% & 25% respectively) and Idaho, which selected Approach 1 (26%). In these latter three states the distribution of responses across all four approaches on how things currently are was nearly the same.

When considering "how things should be", the most common response for all states was 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). Half or more of every state selected this approach. Sixty-three percent of Utah respondents selected this approach. The second most selected response in all states was Approach 3, the one that meets the needs of all members of the public regardless of their level of wildlife interest, but is funded almost entirely by hunting and fishing license dollars. Utahns' second choice at 20% was that the state should take Approach 3.

In summary, there was a much greater consensus within each state and among states on the desired approach than on the perceived approach. In fact, the perceived approach differed from the desired approach for over 45% of the respondents in each state.

Perspectives on Conservation Funding and Biodiversity Characteristics

Questions were asked to determine the characteristics of species that would be preferred for conservation funding. A contingent choice modeling approach was used. Results examined three species factors and choices within those factors--i.e., origin (native; nonnative), use (game; nongame), and status (extirpated; declining; common). This analysis provided predictive modeling that allows states to estimate public preference when species are described by these factors.

<u>Overall</u>
Findings indicated that within these factors declining and extirpated species are generally prioritized for conservation funding over common; native species are prioritized over nonnative species; and game species are prioritized over nongame species. The order of

[3] Approach 1 described programs primarily meeting the needs of hunters and anglers, funded almost entirely by hunting and fishing license dollars.

[4] Approach 3 described programs meeting the needs of all members of the public regardless of their level of wildlife interest, funded almost entirely by hunting and fishing license dollars.

the importance of factors included in the choices (i.e., origin, use, and status) provided varied by subregion within the western U.S. and by state.

Utah was included within Subregion 4 along with Arizona, Colorado, Nevada and New Mexico.

Which <u>species factor</u> is most important in influencing public preferences for funding the conservation of a species: species status, species origin, or species use?

For Subregion 4 species origin and species use were the two most important factors while species status was the least important. For Utah, the average importance for Status was 21%, Origin was 35% and Use was 44%.

<u>Species Status</u>
What is the likelihood that an individual would prefer, for conservation funding, a "common" species versus a "declining" species versus an "extirpated" species?

Controlling for species origin and use, conservation funding support for "declining" species was much more likely than for "common" species in Subregion 4. "Extirpated" species were only slightly more likely to be supported than "common" species in Subregion 4. For Utah, there was a slightly greater chance of declining species being chosen over common species (odds ratio = 1.32) although extirpated had virtually the same chance of being chosen (odds ratio = 1.04) as common species.

<u>Species Origin</u>
What is the likelihood that an individual would prefer, for conservation funding, a "native" species, versus a "nonnative" species?

Controlling for species status and use, "native" species were more likely to be supported for conservation funding than were "nonnative" species for all subregions (including Subregion 4). For Subregion 4, the odds of native species being chosen over nonnative species approached 2:1. For Utah, the odds of native species being chosen over nonnative was virtually the same as the subregional response (odds ratio = 1.98).

<u>Species Use</u>
What is the likelihood that an individual would prefer, for conservation funding, a "game" species, versus a "nongame" species?

Controlling for species status and origin, "game" species were more likely to be supported for conservation funding than were "nongame" species in all subregions. Odds were higher of preferring funding for a game species in Subregion 4. For Utah, the odds of game species being chosen over nongame species approached 2:1 (odds ratio = 1.98).

<u>Wildlife Value Orientation Type</u>

<u>Overall</u>
Which <u>species factor</u> is most important in influencing public preferences for funding the conservation of a species: species status, species origin or species use?

Species status was the most important factor determining preference for conservation funding for all value orientation types. While species status was ranked first for Utilitarians and Pluralists, the relative importance of species origin and species use was very similar to the rank of species status for these two orientation types. In contrast, the average importance of species use was quite low for both the Mutualists and Distanced.

Species Status: *What is the likelihood that an individual would prefer, for conservation funding, a "common" species versus a "declining" species versus an "extirpated" species?*

A declining species was at least 1.6 times more likely to be supported for conservation funding than a common species, taking into account origin and use. For Utilitarians and Distanced, the odds of declining over common species approached 1.8. While extirpated species were more likely to be supported for conservation funding than common species for all value orientation types, odds ratios were much lower (odds ratios = 1.04 to 1.16).

The unity of all constituencies in Utah on the importance of providing conservation funding for declining species could and probably should be underscored when communicating with the full array of audiences affected. This is a commonly shared priority that needs to play a prominent role in conveying the vital necessity of implementing the Strategy across Utah.

Species Origin: *What is the likelihood that an individual would prefer, for conservation funding, a "native" species, versus a "nonnative" species?*

Controlling for species status and use, "native" species were more likely to be supported for conservation funding than were "nonnative" species (odds ratios = 1.57 to 1.99). For Mutualists, the odds of preferring native over nonnative approached 2.0.

In Utah, although the proportion of Mutualists is fairly low in comparison to other states, the importance of providing conservation funding for nonnative species is what messages to this community of interest could and probably should focus upon for developing more effective relationships with this constituency.

Species Use: *What is the likelihood that an individual would prefer, for conservation funding, a "game" species, versus a "nongame" species?*

The odds of preferring a game species over a nongame species was more than 1.4 times for Utilitarians (odds ratio = 1.61), Pluralists (odds ration = 1.59), and Distanced (odds ratio = 1.45) taking into account the effects of species status and origin. While support for game over nongame species was positive for Mutualists, the odds of this support were less than for the other value orientation types (odds ratio = 1.24). In conclusion, species use was a much more important factor influencing preference for conservation funding for the Utilitarians and Pluralists than for the Mutualists.

In Utah, the importance of providing conservation funding for game species should be the factor used for focused messages to sportsmen and women and their associated communities, both formal and informal.

Hunters and Anglers versus Non-Hunters and Non-Anglers[5]

Overall

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

All species factors had equal importance in influencing hunter and angler preferences for conservation funding. This pattern differs for non-hunters and non-anglers (i.e., nonparticipants). Species status and species origins were the most important factors, respectively, while species use was the least important factor determining conservation funding for non-hunters and non-anglers.

Although the hunter and angler worldview isn't necessarily great news for the nonparticipant publics, it is no surprise for the UDWR. A good approach will be to try to downplay the differences and promote the commonalities.

Species Status: *What is the likelihood that an individual would prefer, for conservation funding, a "common" species versus a "declining" species versus an "extirpated" species?*

Declining and extirpated species were both more likely to be supported for conservation funding than common species, taking into account the effects of species origins and use. While declining species were more than 1.5 times more likely to be supported than common species (odds ratio = 1.51 and 1.66 respectively), the odds that the extirpated species would be selected over common, while greater than one (odds ratio = 1.09 and 1.09) were smaller.

A definite mandate is evident for the UDWR's pursuit of conservation funding for primarily declining species in Utah. No real weight was behind the provision of conservation funding for extirpated species, but the lack of priority for conservation funding for common species was apparent.

Species Origin: *What is the likelihood that an individual would prefer, for conservation funding, a "native" species, versus a "nonnative" species?*

Native species were at least 1.5 times more likely to be preferred (odds ratio = 1.63 and 1.72) over nonnative, controlling for status and use.

A high value placement in Utah on conservation funding for native species emerges, which is encouraging for most UDWR policy-setting direction. The exception where the nonparticipant public might be more concerned might be the stocking of waters with nonnative species of sportfish produced through our fish hatchery system.

Species Use: *What is the likelihood that an individual would prefer, for conservation funding, a "game" species, versus a "nongame" species?*

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[5] Current hunters and anglers are defined as those who reported they had participated in hunting, fishing, or both recreational activities in the past 12 months. Non-hunters and non-anglers (or nonparticpants) are defined as those who did not hunt, fish or do both in the past 12 months.

The odds that hunters/anglers preferred game species were over 1.5 to 1 (odds ratio = 1.64) controlling for status and origin. While positive for non-hunters and non-anglers, the odds of supporting game species over nongame species were just under 1.5 (odds ratio = 1.41).

Some communities of interest may be surprised at the level of support among non-participant respondents for the provision of conservation funding for game over nongame species. In actuality, the support levels are much closer than envisioned and promise a broader societal approval of conservation funding for game and sportfish species. The consumptive interests would be very pleased to see that the degree of support that nonparticipant respondents have for game over nongame is as high as it actually is, and in Utah this would be a unifying message that could be used to bring people together around a rallying point.

In conclusion, the use of species was a more important factor in influencing preferences for conservation funding for hunters and anglers. This is significant because the ratio of hunters and anglers to non-hunters and non-anglers differed a great deal in Subregion 4 and was even more so in Utah. The differences that were found emphasize the notion that states may differ in their responses to wildlife species due to differences in characteristics of the public (e.g., wildlife value orientations, like Utah's higher representation of Utilitarians and lower representation of Mutualists; and varying participation in wildlife-related recreation) and the context in which those species exist in a state. Thus, as in any process of wildlife decision-making, managers must consider the unique characteristics of their constituents and how constituency values, beliefs, attitudes and behaviors affect successful wildlife management.

Philosophy for Serving and Involving the Public in Wildlife Management

As to the perceived current scenario across the majority of western states, the most common response for both anglers/hunters as well as nonparticipants was that a funding approach that meets the need of all members of the public and is funded by hunting and fishing licenses and taxes (Approach 4) is now in place. The desired approach of most states' anglers/hunters was the same response (Approach 4), but on average, a higher number of non-hunters and non-anglers supported this approach (Utah was an exception: consumptive, 38%; nonparticipant, 36%).

In most western states, hunters and anglers were more likely than nonparticipant respondents to believe the current approach meets the needs of all members of the public and is almost entirely funded by hunting and fishing licenses (Approach 3). Utah was no exception, having one-fourth of hunters/anglers supporting Approach 3, while 10% fewer nonparticipant respondents (15%) felt that way. Most states' anglers/hunters were also more likely to desire Approaches 1 and 2 than nonparticipant respondents – both of which primarily meet the needs of anglers and hunters. However, in Utah, Approach 1 was marginally favored by the nonparticipant versus the angling/hunting (> 3%) respondents, and Approach 2 ended up being favored by anglers/hunters by more than a 2:1 margin over nonparticipant respondents (11.4% vs. 5.3%, respectively).

Regarding whether anglers/hunters and nonparticipants felt that their opinions were heard by the state fish and wildlife decision-makers in Utah, although two-fifths (43%) of the former disagreed that they were heard, 30% agreed that they were heard and one-fifth neither agreed nor disagreed. The latter were evenly divided (approximately a third each) between being in disagreement and neutral, and 26% agreed that their opinions had been heard by the decision-makers. Confidence in the state fish and wildlife decision makers that their interests were adequately taken into account the anglers/hunters were almost equally divided, with just under two-fifths agreeing (38%) and slightly over two-fifths (41%) disagreeing (16% were neutral). In contrast, while over one-third of nonparticipant respondents (37%) disagreed, slightly more than one-fourth agreed (26%) and almost a third (32%) neither agreed nor disagreed (twice that of anglers/hunters) regarding their interests being adequately taken into account.

Almost half (46%) of Utah anglers/hunters disagreed that if they provided input that it would make a difference in state fish and wildlife decisions, although two-fifths (39%) agreed. Nonparticipant respondents varied slightly, in that 43% disagreed that if they provided input that it would make a difference in state fish and wildlife decisions, and 34% agreed, almost one-fourth were neutral.

Similarly, about 45% of anglers/hunters in Utah agreed that UDWR makes a good effort to obtain input from the public as a whole, whereas almost as many disagreed (43%). Nonparticipants differed somewhat as 36% agreed and 38% disagreed and 18% were neutral. Two-thirds of Utah anglers and hunters disagreed that they didn't have an interest in providing input to fish and wildlife decisions in the state, 17% agreed and 11% were neutral (meaning that over a fourth of consumptive users were neutral or not interested). Almost half of nonparticipants disagreed (49%), almost a third (32%) agreed and 19% were neutral.

Half of Utah's angling and hunting participants agreed that they trust UDWR to make good decisions without their input, while six percent less disagreed (43%). Slightly less than half (48%) of nonparticpants agreed that they trust UDWR to make good decisions on their behalf, whereas 36% did not agree, and about 18% were neutral.

Twice as many anglers/hunters (8%) as nonparticipants (4%) almost never trusted the UDWR to do what is right for fish and wildlife management, yet 12% of anglers/hunters almost always trusted UDWR versus 9% of nonparticipants. Two-fifths of the nonparticipants (60%) trusted UDWR to do what is right for fish and wildlife management most of the time, while six percent fewer anglers/hunters did (54%). In general, Utah anglers and hunters tended to trust the state and federal levels of government to do what is right slightly more so than did nonparticipants.

Current Wildlife Recreation Participation and Future Demand

Analysis of current participation as compared to those expressing interest in participation indicates high latent demand for wildlife viewing and fishing, with more modest latent demand for hunting participation. In addition to table 2 (below) other current and latent demand info is available for perceived suburban residence, size of community of childhood residence, perceived suburban residence of childhood, past participation in the

activity, consideration of taking a trip to Africa to go on a safari to view wildlife, and consideration of taking a trip to a remote area in Alaska to view wildlife.

Table 2. Current Participation and Future Wildlife Recreation Demand

Characteristic	Current Participation			Latent Demand		
	Fishing	*Hunting*	*Viewing*	*Fishing*	*Hunting*	*Viewing*
% Distribution	28.4	12.1	37.8	41.0	27.7	45.8
GENDER						
Male	74.0	90.3	59.7	59.6	70.6	55.2
Female	26.0	9.7	40.3	40.4	29.4	44.8
AGE (avg yrs)	41.7	40.2	40.6	41.6	42.2	42.8
KIDS (avg #)	1.65	1.71	1.27	1.28	1.68	1.28
EDUCATION						
LT Hi Sch %	1.2	1.4	0.5	0.8	0.6	0.4
HS or GED %	16.6	21.9	18.5	22.7	19.5	21.2
2 yr Diplm %	27.2	28.8	27.5	24.8	28.9	24.2
4 yr Dgree %	32.0	26.0	35.1	33.98	37.1	33.1
Adv. Dgree %	23.1	21.9	18.5	17.8	13.8	21.2
INCOME						
LT $10K	0.6	0	4.3	4.1	2.6	0.4
$10-29.9K	7.0	10.6	13.5	20.5	17.1	17.0
$30-49.9K	27.2	22.7	27.4	29.7	28.9	27.5
$50-69.9K	27.8	21.2	22.1	16.0	24.3	20.6
$70-89.9K	17.1	21.2	13.9	13.2	11.8	15.4
$90-109.9K	7.6	7.6	8.2	5.9	7.2	6.9
$110-129.9K	5.1	7.6	1.4	2.3	2.6	5.3
$130-149.9K	2.5	1.5	3.4	3.2	2.6	2.0
GTE $150K	5.1	7.6	5.8	5.0	2.6	4.9
RESIDENCY						
# yrs (mean)	29.9	32.3	27.4	27.8	30.4	29.6
COMMUNITY SIZE						
LTE 250K pp	25.8	22.1	23.1	21.1	19.5	23.1
100-249.9K p	11.9	4.4	17.5	18.4	16.2	19.2
50-99.9K ppl	17.0	14.7	21.2	18.8	18.2	16.9
25-49.9K ppl.	13.8	16.2	9.9	11.2	8.4	12.2
10-24.9K ppl.	14.5	19.1	14.2	15.2	16.9	12.5
5-9.9K ppl.	10.1	8.8	9.0	8.5	11.7	7.8
LT 5K ppl.	3.8	11.8	3.8	5.4	4.5	6.3
Farm/Rural	3.1	2.9	1.4	1.3	4.5	2.0

Appendix

I. Methods

Data for this study were collected using a mail-back survey administered to residents in 19 participating states. The survey was comprised of state-specific questions and regional (the same questions for all 19 states) questions. Only results of regional questions are provided in this report. Sample sizes were obtained to provide estimates within + 5% at the 95% confidence level for each state. Over 12,000 completed surveys were returned, and the overall response rate for the mail-out survey was 21%.

A telephone nonresponse survey of 7,600 people was completed, and tests for respondent/nonrespondent differences were conducted. Based on these tests, data were weighted to correct for age and wildlife-related recreation participation. Minorities, lower income and lower education publics may still be slightly underrepresented in the study results. Analysis, however, indicated that this would have minimal impact on the variables of key importance in this study—wildlife value orientations and responses to wildlife management-related issues. Additional analysis using independent data sources showed strong convergent validity for study findings.

II. Citations

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