

Public Opinion Survey
on the
Gunnison Sage-grouse
Final Report & Executive Summary



Conducted by:

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Executive Summary

This survey was conducted to provide information about the public's opinion concerning the Gunnison Sage-grouse. The survey was conceptualized with five specific goals including demographics of respondents, familiarity with the Gunnison Sage-grouse, knowledge of the Gunnison Sage-grouse, values that are held towards the bird, and willingness to help with conservation efforts. A random sample was taken of residents with listed phone numbers in Gunnison County. A total of 310 survey respondents completed the survey, yielding a margin of error of $\pm 3\%$.

Demographics:

Respondents were asked to provide information about their sex, age, occupation, level of education and a specific location of residence in Gunnison County. The survey demographic results were compared to statistics from the 2000 US Census and the results indicated that our sample of respondents was representative of the Gunnison County population. Of the 310 respondents almost half (48%) had bachelor's degree or higher.

Familiarity with Gunnison Sage-grouse:

Most of the respondents (82%) knew of the Gunnison Sage-grouse, and 70% had seen at least one. Interestingly, 47% of respondents were very confident in their ability to identify a Gunnison Sage-grouse, and 87% were at least somewhat confident in identification. A large percentage of the respondents knew of the grouse because they have or had grouse living on their land or were former hunters. The local newspapers are a key source of information about the grouse for the community. Thirty-nine percent of respondents had a general interest in the Gunnison Sage-grouse, 15.6% labeled themselves as former hunters, 11.4% were landowners with grouse habitat, and 9.3% of respondents were grouse viewers (bird watchers).

Knowledge of the Gunnison Sage-grouse:

On average, 47% of the Gunnison County population answered basic questions about the grouse correctly. Conversely, over half the community did not answer basic questions about population and habitat correctly. The community ranked threats to the Gunnison Sage-grouse as follows: 1) habitat loss, 2) natural processes, 3) predators, 4) livestock grazing, 5) recreation, and 6) competing wildlife.

Values Toward the Gunnison Sage-grouse:

Almost $\frac{3}{4}$ of respondents (72%) associate a positive value on the existence of the Gunnison Sage-grouse and on its presence in Gunnison County. While $\frac{1}{4}$ of respondents did not have a positive image of the grouse, most of these respondents were neutral. Only 12% of respondents associated a negative value with the Gunnison Sage-grouse. Nearly 70% of respondents thought the Gunnison Sage-grouse was an important part of Gunnison County's identity. Two-thirds of the respondents thought the Gunnison Sage-grouse should be protected under the Endangered Species Act.

Willingness to Contribute to Conservation Efforts:

Over two-thirds of respondents (68%) were willing to personally contribute financially (at least \$1) to Gunnison Sage-grouse conservation efforts and about 50% were willing to donate their personal time. Three-fourths were willing to change their behavior (avoid use of hiking or biking trail) on behalf of the Gunnison Sage-grouse. The high willingness to pay for conservation is somewhat tempered by the fact that only 5% of respondents were willing to pay more than \$100. There may be a gap in the community's "love" for the Gunnison Sage-grouse and their willingness to significantly contribute to its conservation. Our sample of the community indicated that private donations were the most popular source of funding for grouse conservation efforts. There may be a gap in the identification of funds (private sources) and willingness to contribute funds personally. State and federal agencies were also popular sources for grouse conservation funding.

Respondent's Desire to Obtain More Information About Gunnison Sage-grouse:

About half of the respondents were interested in learning more about the Gunnison Sage-grouse. The best way for those interested in the issue to learn more about the biology and conservation status of the grouse was through a pamphlet, video or DVD, or a newsletter.

Acknowledgements

The Gunnison Sage-grouse Public Opinion Survey was conducted by Western State College faculty and staff and Sisk-a-dee. Survey design was facilitated by the following technical advisers: Darrel Jury, Sisk-a-dee Board of Directors; Chris Dickey, Sisk-a-dee Board of Directors, Sue Navy, Gunnison Sage-grouse Working Group Information and Education Subcommittee; and Jessica Young, Associate Professor of Biology at Western State College.

The project was funded by Sisk-a-dee, the WSC Environmental Studies Council through the Ralph Clark Fund, and the Information and Education Sub-committee of the Gunnison Sage-grouse Working Group. Further, numerous students either volunteered or worked on the project through state, federal or WSC work study.

Collecting data via phone interviews required an enormous effort by an army of volunteers. Cara Scannell and Keith Hefley coordinated this effort. Leia Hill, Travis White, Jackie Levy, Alex Clayton, Natosha Quinn, Katie Williams, Mandi Lacey, Jasmin Hill, Katherine Bourgeois, Kristen Morse, Eric Kiklovich, and Brooke Bigbie comprised this team of surveyors.

Cindy McKee, Director of Alumni Relations at WSC supported our efforts by providing campus space to conduct the phone interviews and by providing phones and computers. Nancy Gauss and Beth Avery at the WSC library also generously lent their laptop computers to the project.

We especially thank all the residents of Gunnison County who participated in the survey. We appreciated the time and thoughtfulness of the respondents.

Introduction

In 2003, a public opinion survey was conducted to gather information about public awareness concerning the Gunnison Sage-grouse. The aim of the survey was to quantify and describe the attitudes and values of the local Gunnison human population toward Gunnison Sage-grouse. Gauging the level of community understanding and support for local wildlife populations is important in developing conservation strategies.

The purposes of the survey were to gain a better understanding of the need to provide education to the local human population about grouse conservation and the ecological and economic importance of grouse, and to help build momentum for implementation of recovery programs.

The survey was written with five specific goals:

- to define the survey respondent's familiarity with the Gunnison Sage-grouse and to determine how respondents characterized their relationship to the Gunnison Sage-grouse,
- to explore levels of public knowledge about the Gunnison Sage-grouse,
- to examine values held towards the Gunnison Sage-grouse,
- to determine the willingness of individuals to contribute to conservation efforts on behalf of the Gunnison Sage-grouse, and
- to gather demographic data on the sample of Gunnison County residents who completed the survey.

The project was a partnership between Western State College of Colorado (WSC), Sisk-a-dee (a local conservation group), and the Information and Education Subcommittee of the Gunnison Sage-grouse Working Group.

The survey was constructed through efforts by WSC professor Darla DeRuiter, Sisk-a-dee Director and WSC faculty member Patrick Magee, WSC students Keith Hefley and Cara Scannell and helpful input from Jessica Young (WSC), Darrel Jury (Sisk-a-dee), Sue Navy (Gunnison Sage-grouse Working Group), and Chris Dickey (Sisk-a-dee).

Methodology

Survey Development

A panel of experts was solicited via e-mail to help develop the survey content. This group included biologists and sage-grouse experts from the Colorado Division of Wildlife, Western State College, Colorado Audubon, members of the Information & Education Sub-Committee of the Gunnison Sage-Grouse Working Group, and Sisk-a-dee's Board of Directors. The experts were asked for specific input on themes of the survey in hopes of enhancing the content and lessening bias associated with survey responses.

The core survey team (DeRuiter, Magee, Scannell, and Hefley) then developed specific survey wording and format, which was circulated to the experts for further input. After several such iterations, the survey was finalized for pre-testing.

Questionnaire and Audience

The final questionnaire consisted of 29 questions categorized into five sections (as explained above; e.g., knowledge, values). The survey was designed to take 10-15 minutes to complete. We chose a phone survey as our medium to reduce paper use and costs associated with mailings. Responses were recorded onto computers using Excel database software, to avoid time consuming data entry after mailed surveys were returned.

The survey targeted residents of Gunnison County via a random sample of telephone numbers.

Pre-Test

On 6 October 2003, the survey was pre-tested with randomly selected phone numbers from the Gunnison County phone book. A total of 30 pre-tests were completed, and minor revisions to improve flow and comprehension of the survey items were made.

Sample Acquisition

A sample of Gunnison County residents' phone numbers was purchased from Survey Sampling Inc., Fairfield, CT. The sample was purged of business addresses and included 2,500 random-digit phone numbers from Gunnison County's prefix. The sample was demographically representative of the population in every way including age, income, and ethnicity (see Demographics section in Results).

Survey Administration

The survey was administered by telephone with the help of trained work-study and volunteer students and the cooperation of the WSC Alumni Office and Copy Center. The data were gathered over a two week period from 13-16 and 20-23 October 2003. Interviews were conducted between 1700 and 2030 only. Survey data were recorded directly on computers into an Excel database and all files were merged into the statistical package SPSS for analysis. Data were analyzed by determining frequencies of responses to each question. Further, a demographic analysis was conducted using Pearson's R Correlation statistic to determine the relationship between sex, age, occupation, education status, duration of residency in Gunnison County, and place of residency within Gunnison County and responses to survey questions. We used an alpha level of 0.05 to reject all hypotheses of no correlation between demographic status and responses to the questionnaire.

How to Read Report

Results from the survey are displayed in graphic form in the body of the report, with brief captions interpreting the findings. Each graph includes the size of the sample that responded to that item (e.g. $n = 308$). Sample size varies because some questions targeted only respondents who had heard of or seen Gunnison Sage-grouse, or because some people chose not to respond to particular items.

The survey instrument is provided in Appendix A, and includes results expressed in percentages for each item. Appendix B provides a list of responses if respondents chose "other" when asked where they had first heard of the Gunnison Sage-grouse, and Appendix C provides the list of "other" responses for where people get information about the bird. "Other" responses to the question, "How would you describe yourself in relation to the Sage-grouse?" can be found in Appendix D. Appendix E lists "other" threats to the grouse. Appendix F lists "other" information formats respondents preferred to learn more about the bird. Appendix G provides a complete list of respondents' occupations, and H includes any additional comments that respondents provided.

Results

The total number of respondents for the survey was 310, yielding a margin of error of $\pm 3\%$. The total number of successful phone connections (i.e., caller spoke directly to a person) was 341. Of the total 31 non-respondents, 22 were willing to answer a few questions to test for non-response bias. The questions and results of non-respondents are listed in part 7 below.

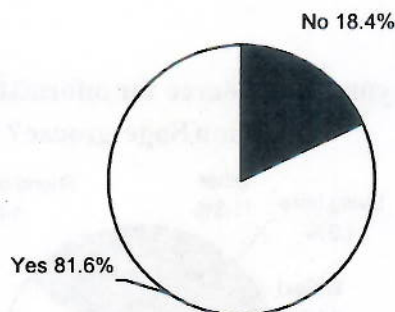
Part 1:

Respondent's Familiarity with the Gunnison Sage-grouse

This section of the survey was designed to gauge respondents' level of experience with and awareness about the Gunnison Sage-grouse. A series of questions was asked to find out if respondents had heard of the bird and where, if they had ever seen the grouse and how many times, and how confident they felt about correctly identifying a Gunnison Sage-grouse. Respondents were also asked to describe themselves in relation to the Gunnison Sage-grouse.

The data show that the majority of Gunnison County residents had heard of the Gunnison Sage-Grouse and had also seen the bird. Most respondents described their relationship to the bird through either general interest, being a former hunter or by being a landowner with grouse on their property.

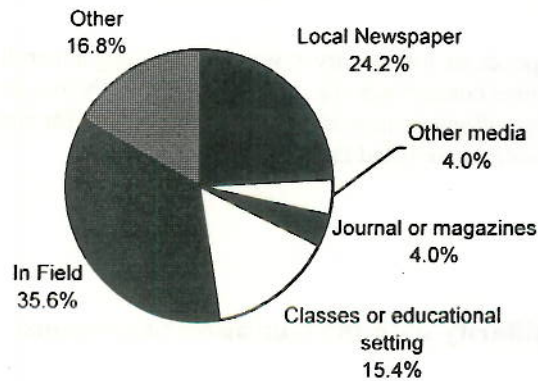
Have you ever heard of the Gunnison Sage-grouse?



n=310

Public awareness regarding the existence of the Gunnison Sage-grouse is high, as 81.6% responded positively when asked if they had ever heard of the bird before the survey phone call. More than 4/5 of the adult human population of Gunnison County knows that the Gunnison Sage-grouse exists; conversely, one of every five residents is totally unfamiliar with the Gunnison Sage-grouse.

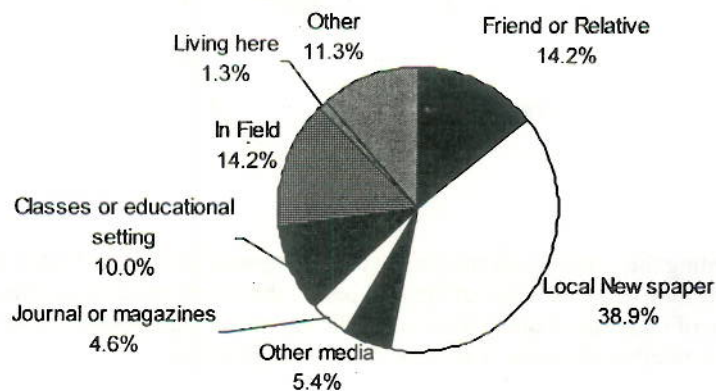
Where did you first hear about the Gunnison Sage-grouse?



n=245

To determine where respondents first heard about the Gunnison Sage-grouse, a series of response categories was provided, along with an open-ended "other" option. The number one reply was "In the Field" which meant that over one third of the respondents who had heard of the Gunnison Sage-grouse knew of the bird as former hunters or by having or had the birds on their privately owned land. The local newspapers served as the second most popular source for introducing residents to the Gunnison Sage-grouse. Of the 17% who selected "other", most heard of the Gunnison Sage-grouse from organizations such as the Colorado Division of Wildlife, High Country Citizens' Alliance, Sisk-a-dee and from Western State College sage-grouse expert Jessica Young. See Appendix B for a complete list of "other" category responses.

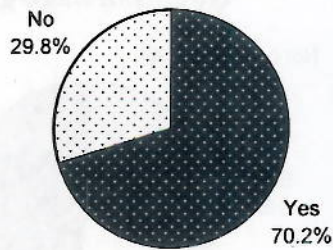
What is your main source for information about the Gunnison Sage-grouse?



n=239

As shown, the highest number of respondents (39%) received their information about the Gunnison Sage-grouse from the local newspapers. Of the 11% who selected the "other" category, most got current information from organizations such as High Country Citizens' Alliance, Colorado Division of Wildlife, and Sisk-a-dee. For a complete list of "other" category responses see Appendix C.

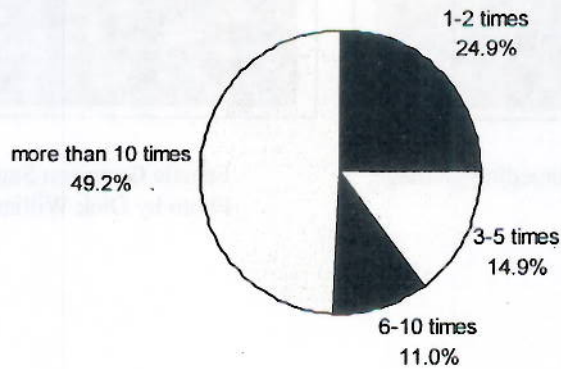
Have you ever seen a Gunnison Sage-grouse?



n= 248

Over 80% of Gunnison County residents had heard of the Gunnison Sage-grouse, and 70% of those respondents had seen at least one.

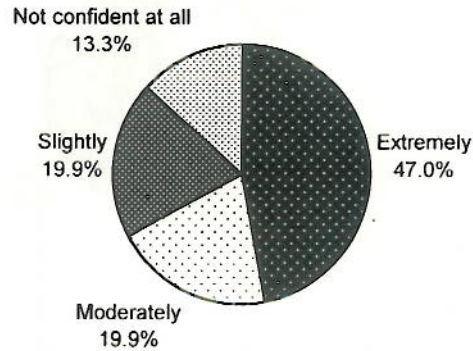
How many times have you seen a Gunnison Sage-grouse?



n=181

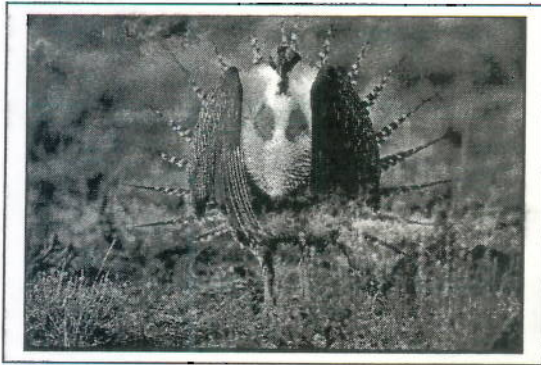
Of the respondents who had seen a Gunnison Sage-grouse at least once, approximately 51% had seen the species less than ten times, and 49% of respondents had seen a Gunnison Sage-grouse more than ten times.

**How confident are you that you can correctly identify a
Gunnison Sage-grouse?**



n=181

When asked how confident they would be in correctly identifying a Gunnison Sage-grouse, 87% of respondents said they were confident to some degree. Twenty-four respondents, 13%, said they were not confident at all.

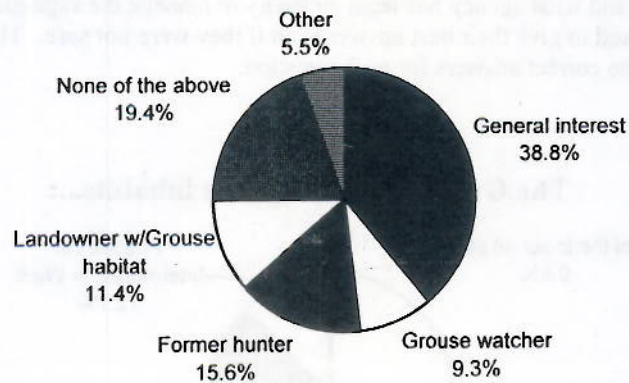


Male Gunnison Sage-grouse in breeding plumage.
Photo by Dick Williams.



Female Gunnison Sage-grouse in sagebrush.
Photo by Dick Williams.

How would you describe yourself in relation to the Gunnison Sage-grouse?



n=237

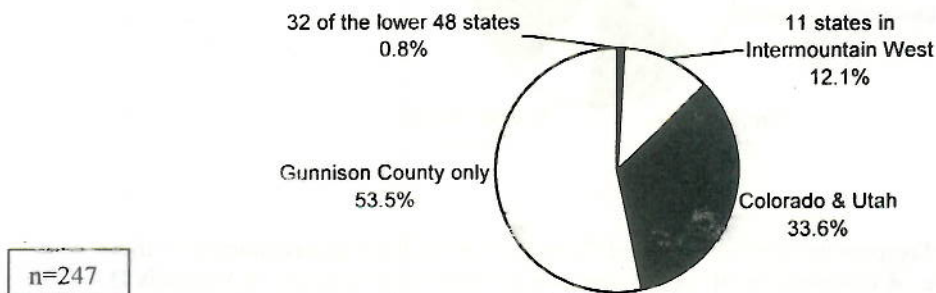
The highest number of respondents (39%) described themselves as having a general interest in the Gunnison Sage-grouse. A complete list of "other" category responses can be found in Appendix D.

Part 2:

Respondent's Knowledge of the Biology and Conservation of the Gunnison Sage-grouse

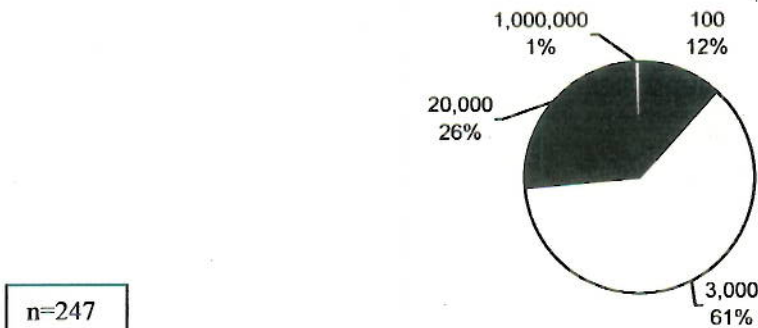
Another series of questions contained more specific knowledge questions regarding the current distribution of the Gunnison Sage-Grouse and what agency has legal authority to manage the sage-grouse in this county. Respondents were asked to give their best answer even if they were not sure. The narrative following the graphs reveals the correct answers for each question.

The Gunnison Sage-grouse inhabits...:



The correct answer is Colorado and Utah. Over half of respondents (53.5%) thought the birds lived in Gunnison County only. Despite its name, the Gunnison Sage-grouse resides not only in Gunnison County, but also the species occurs in 6 counties in southwestern Colorado and in one county in southeastern Utah. Historically, the Gunnison Sage-grouse occurred in approximately 19 counties in Colorado and in five states (Colorado, Utah, Arizona, New Mexico, and Oklahoma).

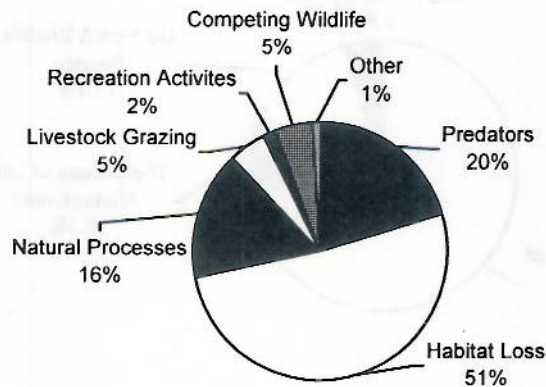
How many Gunnison Sage-grouse are alive today?



The correct answer is approximately 3,000. Of the 3,000 Gunnison Sage-grouse, approximately 2,000 of the birds live in Gunnison County. Sixty-one percent of the respondents answered correctly and 26% thought there were about 20,000 Gunnison Sage-grouse still alive. Two people thought there were a million Gunnison Sage-grouse alive today.

Historically numbers were much higher. Average number of males per lek (mating ground) was greater than 100 in the 1950s; today the average number of males per lek is 21. The long-term population decline is 80%. In the Gunnison Basin, the sage-grouse population has declined from 2,847 in 2001 to 2,000 birds in 2003 (Pedersen and Masden 2003).

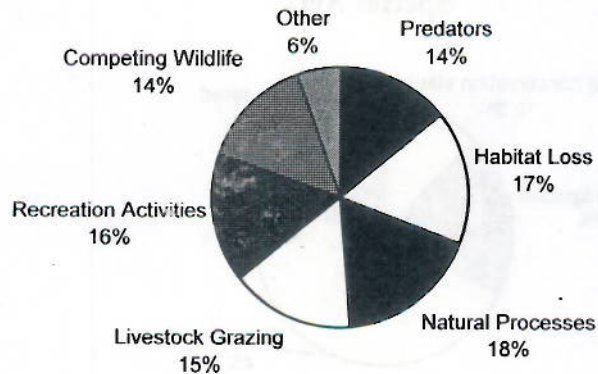
What is the top threat to the Gunnison Sage-grouse?



n=241

Respondents were provided a list of possible answers to this question and asked to select the top two threats to the sage-grouse. There is no right or wrong answer for this question, as research has not been conclusive. Over half of respondents (51%) felt habitat loss was a top threat to the Gunnison Sage-grouse. Twenty percent thought predators represented the top threat and 16% felt natural processes were the most important factor.

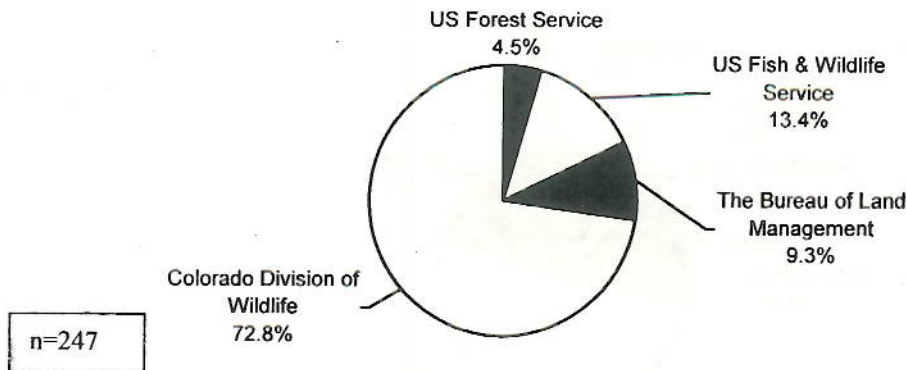
Name the second top threat to the Gunnison Sage-grouse.



n=234

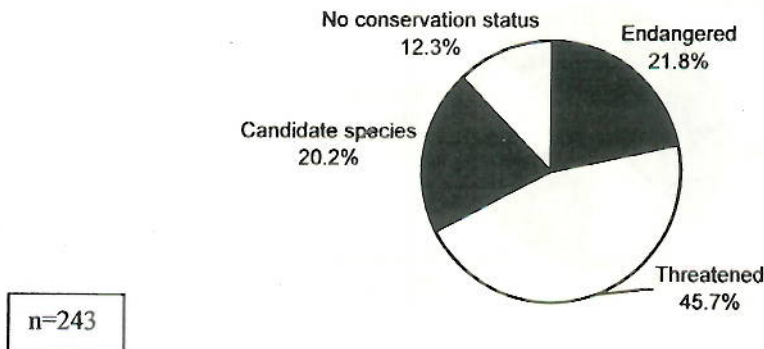
Respondents were asked to identify a second threat they felt was contributing to the decline of the Gunnison Sage-grouse; again there was no "right" answer. This chart shows the answers were more evenly distributed throughout the possible choices. The responses for the 6% that chose "other" are included in Appendix E, along with the "other" threats that 1% of respondents identified in the previous threat question.

What agency has legal authority to manage the Gunnison Sage-grouse in this county?



The Colorado Division of Wildlife has legal authority to manage the Gunnison Sage-grouse in this county. About ¾ of respondents (73%) answered correctly. The US Fish and Wildlife Service has legal management authority for species listed under the Endangered Species Act.

How is the Gunnison Sage-grouse classified under the Endangered Species Act?



The correct answer is candidate species. Almost half of the respondents (46%) thought the Gunnison Sage-grouse was a threatened species and 22% thought the bird was listed as endangered. Therefore, 2/3 of respondents thought the grouse was currently protected by federal legislation.

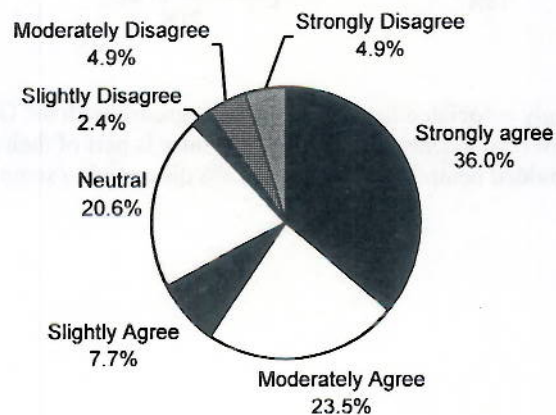
A candidate species has no legal federal protection under the Endangered Species Act which is administered by the U.S. Fish and Wildlife Service (Department of Interior). The USFWS conducts annual reviews and seeks public input on the status of and threats to the candidate species. Candidate species warrant listing due to low populations or lack of sustainable habitat, but are precluded from listing due to funding and administrative limitations and priorities within the USFWS.

Part 3:

Respondent's Values Held Toward the Gunnison Sage-grouse

The next section of the survey was developed to explore the values held toward the Gunnison Sage-grouse by the people in Gunnison County. Each item used a 7-point Likert scale, where 1 was strongly agree or extremely important, 4 was neutral and 7 was strongly disagree or not important at all.

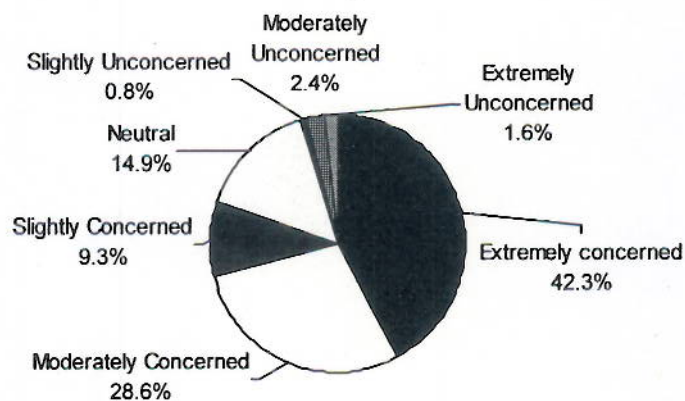
I think the Gunnison Sage-grouse should be listed and federally protected under the Endangered Species Act.



n=248

Approximately 68% agreed with this statement to some degree. Of the respondents who agreed, 36% felt strongly about the statement. Twelve percent disagreed to some degree and 21% were neutral.

Would you be concerned if the Gunnison Sage-grouse went extinct today?



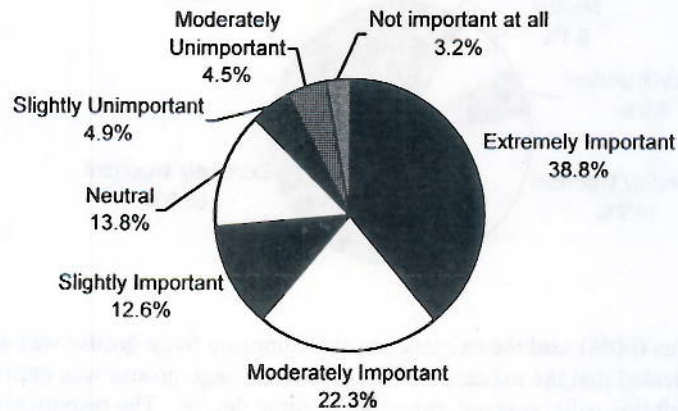
n=248

The highest number of respondents (42%) would be extremely concerned if the Gunnison Sage-grouse went extinct and 80% were concerned to some degree. Only 5% were unconcerned to some degree.

Values Respondents Associated with the Gunnison Sage-grouse

The next item included a list of values the Gunnison Sage-grouse may have for the respondent. Respondents were asked to use a 7-point Likert scale to identify how important that value was to them.

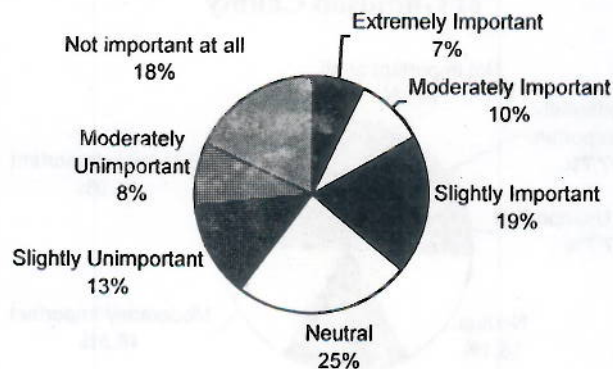
Beauty of the Gunnison Sage-grouse



n=248

A majority of respondents (74%) felt the beauty of the species was important to some degree, whereas 26% thought the beauty of the species was either unimportant to some degree or these respondents had a neutral opinion.

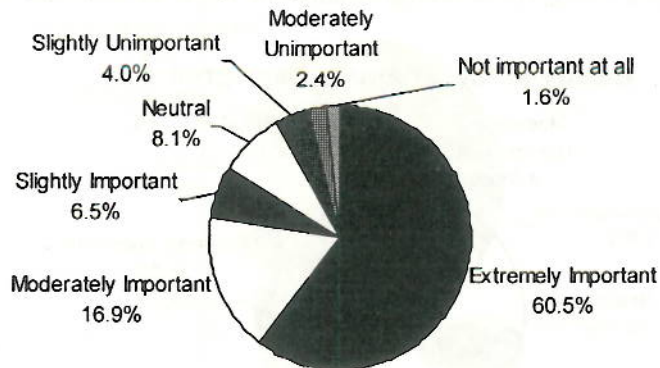
Economic value of Gunnison Sage-grouse for tourism



n=248

Thirty-six percent felt the economic value for tourism was important to some degree, whereas 39% felt it was unimportant to some degree. This question suggests that the Gunnison Sage-grouse may have a positive impact on the local tourism economy.

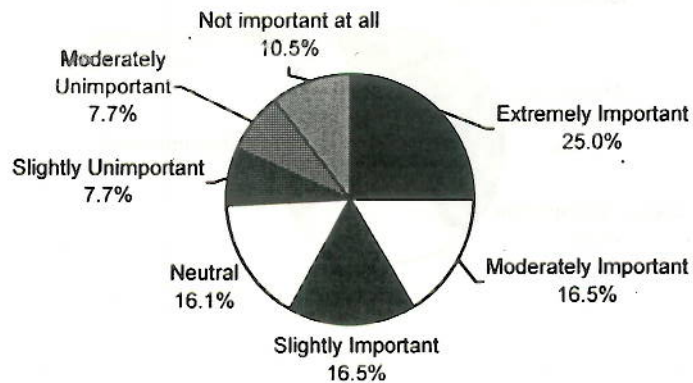
**Glad the Gunnison Sage-grouse exists regardless
of whether I see one**



n=248

A majority of respondents (60%) said the existence of the Gunnison Sage-grouse was extremely important to them. Over 80% indicated that the existence of the Gunnison Sage-grouse was important to some degree. Eight percent felt this value was not important to some degree. The responses to this question suggest that the grouse holds intrinsic value to many local residents.

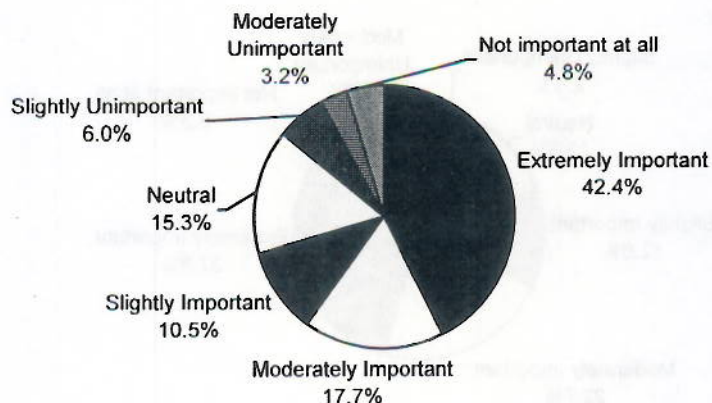
**The Gunnison Sage-grouse is a symbol
of Gunnison County**



n=248

Many respondents (57%) identified the symbolic value of the grouse to the local sense of place as important to some degree, whereas 27% felt it was unimportant to some degree.

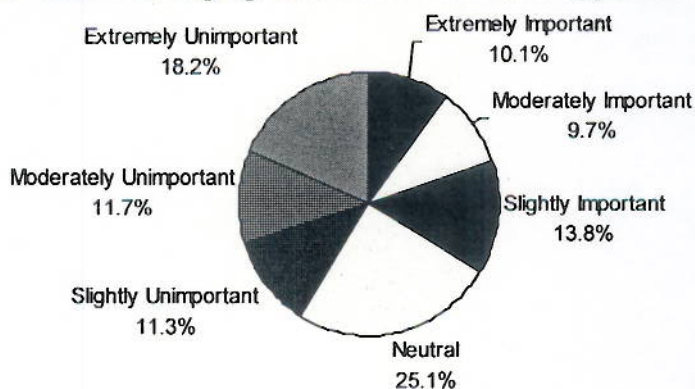
The Gunnison Sage-grouse is an indicator of sagebrush ecosystem health



n=247

A fairly large percentage of respondents (42%) felt the Gunnison Sage-grouse was an extremely important indicator of sagebrush ecosystem health, with 71% of respondents identifying this value as important to some degree. Fourteen percent felt the Gunnison Sage-grouse was not an important indicator of sagebrush ecosystem health to some degree, and 15% were neutral.

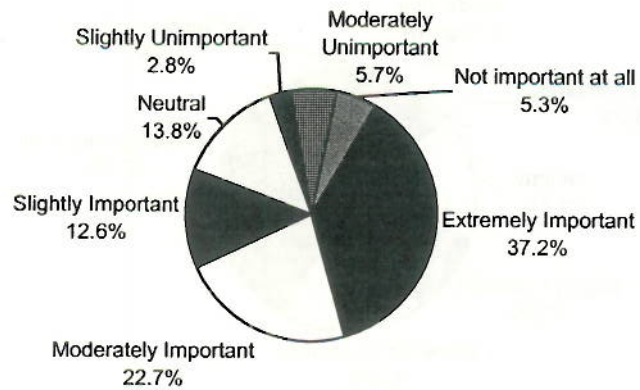
The Gunnison Sage-grouse has recreational opportunity value



n=248

More respondents felt the Gunnison Sage-grouse did not have recreational value than did. Approximately 41% of respondents felt recreational opportunity value was unimportant to some degree. Thirty-four percent felt it was important to some degree and 25% were neutral. These results may indicate the proportion of the population with interest in hunting or bird watching. Hunting has been prohibited since 2000, and bird watching is challenging because the birds are only predictably visible for one month a year (April) at or before sunrise.

Scientific value of Gunnison Sage-grouse for research



n=248

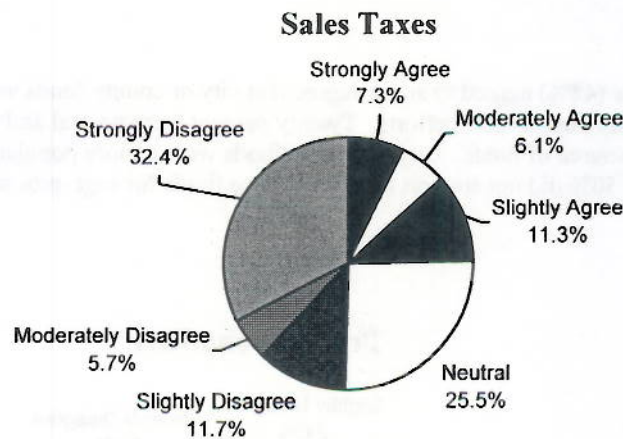
About 36% of respondents felt scientific value for research was important to some degree and 40% felt it was unimportant to some degree.

Part 4:

Respondent's Willingness to Contribute to Conservation Efforts on Behalf of the Gunnison Sage-grouse

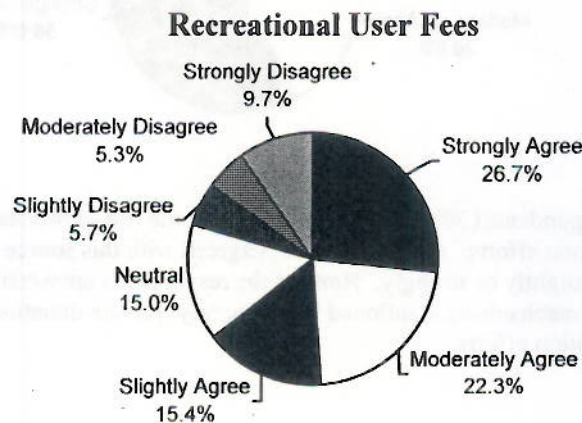
Four questions were devoted to understanding the community's ability and willingness to help with Gunnison Sage-grouse conservation efforts. Respondents were not asked to take any action at the present time, nor were any type of contributions or donations solicited. The majority of these questions used a 7-point Likert scale.

The first question in this section provided five sources where funds may come from to help conservation efforts. Respondents were asked the following question: "Sage-grouse conservation efforts may need funding, and that money can come from a number of sources. On a scale of 1 to 7, with 1 being strongly agree, 4 being neutral, and 7 being strongly disagree, what sources of funds do you think should be used?"



n=247

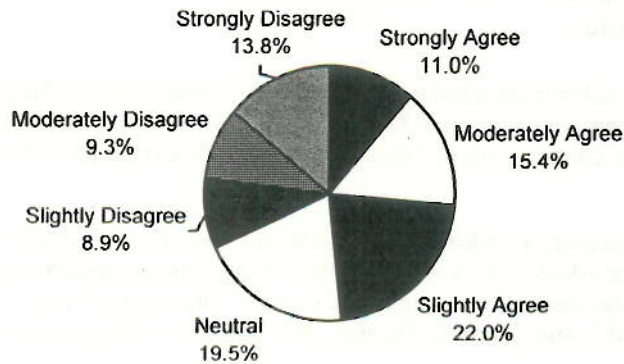
Half of respondents (50%) disagreed to some degree with using sales taxes as a source of funds for Sage-grouse conservation efforts. Another 26% were neutral and 24% agreed to some degree. Sales tax for grouse conservation was unpopular.



n=247

A total of 64% of respondents felt recreational user fees would be a good source of funds to some degree. Nearly 2/3 of respondents felt that users should pay for the services or recreation that they experience. This may indicate that local residents are willing to pay to use the Waunita Watchable Wildlife site or to use local hiking and biking trails in sagebrush areas. Approximately 21% disagreed with recreational user fees as a source of funds and 15% were neutral.

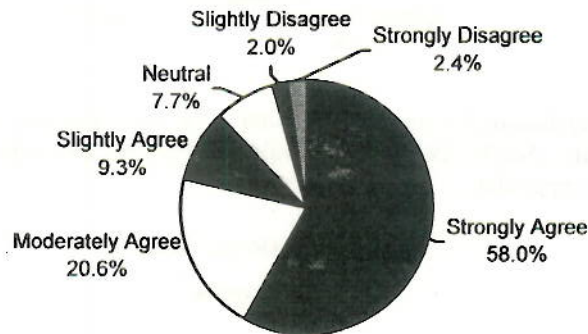
City or County Funds



n=246

Nearly half of respondents (48%) agreed to some degree that city or county funds would be a good source of funds for the sage-grouse conservation efforts. Twenty percent were neutral and 32% disagreed with city or county funds as a source of funds. City or county funds were a more popular source of funds than general sales tax, but still 50% did not support the use of these funds for sage-grouse conservation.

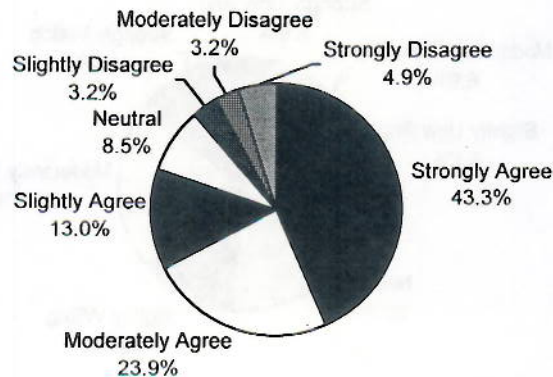
Private Donations



n=247

The highest number of respondents (58%) strongly agreed with the use of private donations as a source of funds for grouse conservation efforts. All together, 88% agreed with this source of funds to some degree. Only 4% disagreed either slightly or strongly. None of the respondents answered with "moderately disagree." Of the funding mechanisms mentioned in this survey, private donations are the most popular source for grouse conservation efforts.

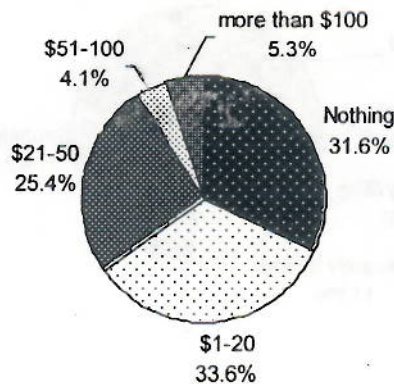
State or Federal Agency Funds



n=247

Again, the highest number of respondents reacted positively to state or federal agency funds being used as a source to help conservation efforts. Approximately 43% answered "strongly agree" and a total of 80% of respondents agreed to some degree. Only 11% disagreed to some degree and 9% were neutral. State and federal funds were the second most popular source of funding for grouse conservation.

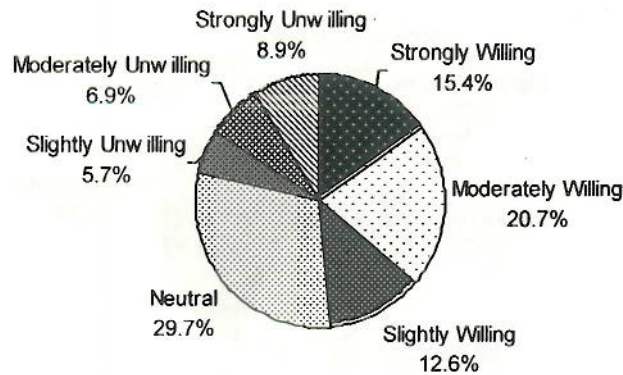
How much would you be willing to donate to Gunnison Sage-grouse conservation efforts?



n=244

Respondents were asked how much they might be willing to donate to help with grouse conservation efforts. The categories "nothing" and "\$1-20" have close results with 32% and 34%, respectively. Only 9% of respondents are willing to donate over \$50 and the survey shows 25% of respondents would donate \$21-50. Over 2/3 of the community was willing to spend at least \$1 on grouse conservation, but only 9% were willing to spend more than \$50 and less than 5% of the community was willing to spend over \$100. Two-thirds of the community are not willing to spend more than \$20.

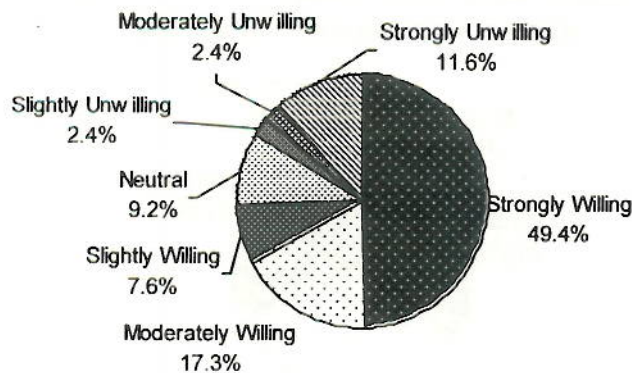
Would you be willing to donate your time to the Gunnison Sage-grouse conservation efforts?



n=246

Almost half (49%) of the respondents were willing to donate at least some time to the Gunnison Sage-grouse conservation effort. Twenty-two percent were unwilling to give time to some degree and 29% were neutral.

Are you willing to limit your use of recreational trails during certain seasons for the Gunnison Sage-grouse?



n=249

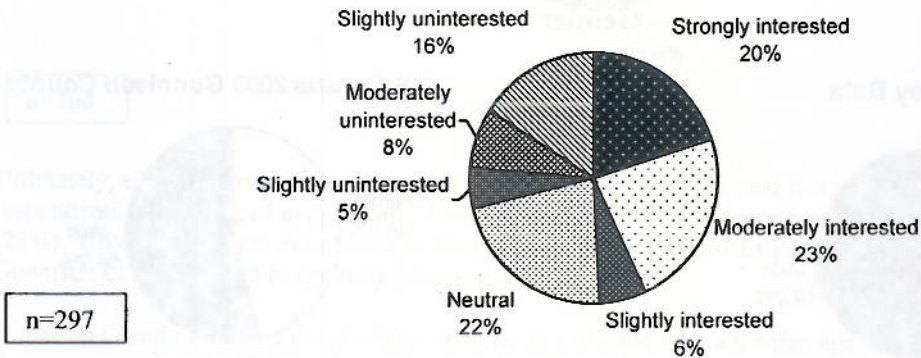
The highest number of respondents was strongly willing to limit their use of trails during certain seasons to benefit the Gunnison Sage-grouse (50%). About ¼ of respondents were willing to change their behavior to benefit the Gunnison Sage-grouse. Altogether, 16% of respondents were unwilling to limit their use of trails and of those respondents 12% answered strongly unwilling. Evidently, a portion of the community strongly opposes infringements on personal rights to use recreational trails.

Part 5:

Respondent's Desire to Obtain More Information about the Gunnison Sage-grouse

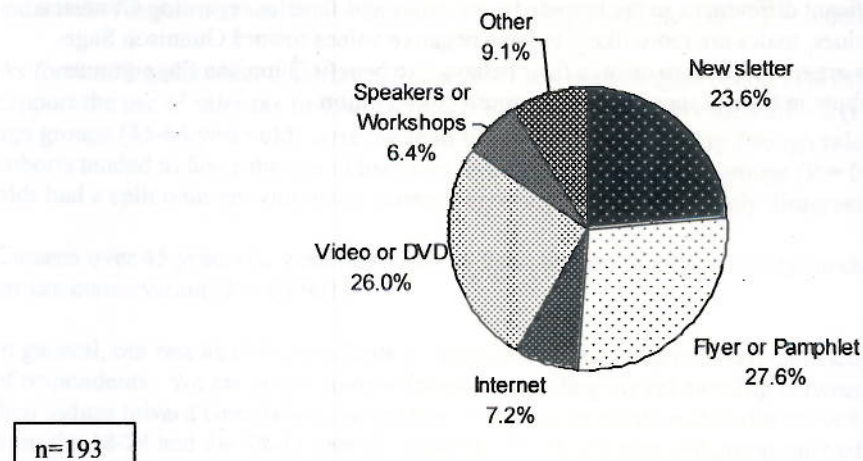
The next two questions gauge respondent interest in receiving more information about the Gunnison Sage-Grouse and what format is best for the information.

Are you interested in receiving more information about the Gunnison Sage-grouse?



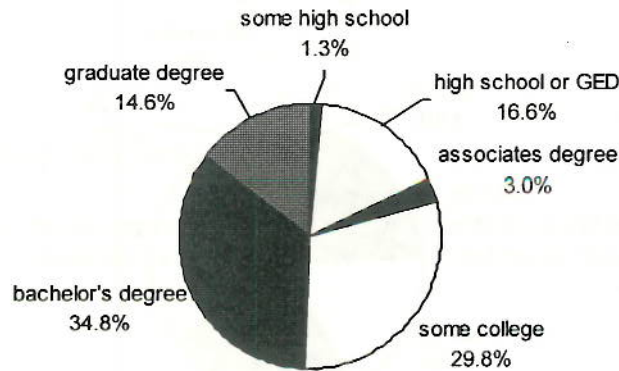
Almost half of respondents (49%) were interested to some degree in receiving more information. Twenty-nine percent showed non-interest to some degree and 22% were neutral. These results represent a challenge to a community wide conservation effort because only half the community is interested in learning more about the issues.

What is the best format for you to receive further information?



Those that indicated they were receptive to further information were asked about the best format for it. A flyer or pamphlet was the most popular answer closely followed by video/DVD and newsletter. A complete list of the "other" category can be found in Appendix F. These results indicate that a variety of resources are required to insure that a large proportion of the public has access to information.

Highest Level of Education



n=302

Education demographics closely match the 2000 U.S. Census statistics for Gunnison County. According to the U.S. Census, 43.6% of Gunnison County residents have a bachelor's degree or higher. In our survey, 48% of survey respondents have a bachelor's degree or higher.

How respondents had first heard about the Gunnison Sage-grouse was significantly correlated with their education level ($P = 0.003$). The higher the educational level, the more likely the respondent was to have learned about the bird from the local media rather than in the field. Similarly, those with less than a high school level of education were less likely to rely on the local newspaper for their current information about the Gunnison Sage-grouse ($P = 0.033$). Also, the higher the educational level, the fewer times the respondents had seen the Gunnison Sage-grouse ($P = 0.009$).

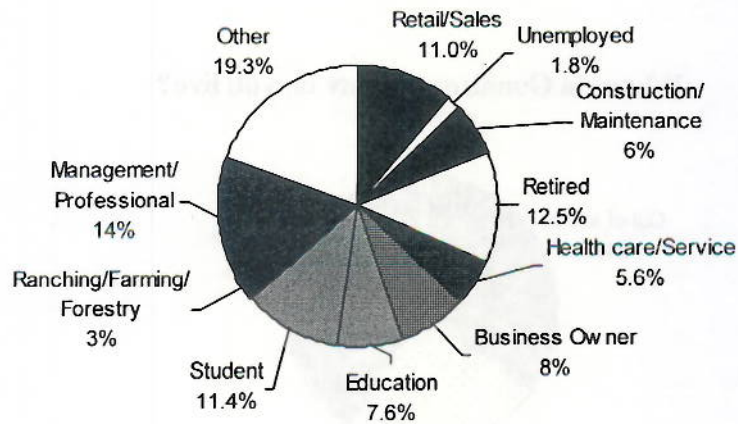
Respondents with more education tended to underestimate the Gunnison Sage-grouse population, whereas those with less education tended to overestimate ($P = 0.010$). Our survey indicated that residents with less than a bachelor's degree were more likely to identify predators as the top threat to Gunnison Sage-grouse ($P = 0.043$). Also, those surveyed who had a minimum of a bachelor's degree were more likely to support listing the Gunnison Sage-grouse as a federally threatened or endangered species ($P = 0.029$) and were more concerned if the Gunnison Sage-grouse went extinct ($P = 0.0001$). Further, surveyees with some college were more likely to consider the Gunnison sage-grouse as part of our community's identity ($P = 0.035$), they recognized the grouse as a symbol of Gunnison County ($P = 0.007$), and they tended to value the beauty of the grouse more than other groups ($P = 0.005$). Over 95% of the respondents who had a college degree thought the existence of the Gunnison Sage-grouse was extremely important. This demonstrated a significant correlation between educational level and existence value associated with the grouse ($P = 0.001$). Those surveyed who had at least some college were also more likely to associate recreational value ($P = 0.006$) and scientific value ($P = 0.0001$), and they were more likely to see the Gunnison Sage-grouse as an important indicator of ecosystem health ($P = 0.0001$).

For funding, respondents with a college degree were more likely to support the use of state and federal funds for grouse conservation ($P = 0.001$). They were also more likely to contribute between \$21-50, but in contrast they were more likely than other educational groupings to not give any financial support ($P = 0.067$). We observed a slight trend in the likelihood of donating time to help the grouse and level of education ($P = 0.037$), and we observed a relationship between level of education and willingness to limit personal use of recreation trails ($P = 0.0001$).

Finally, respondents with some college and especially those with graduate degrees were most likely to be interested in learning more about the Gunnison Sage-grouse ($P = 0.0001$).

In general, higher level of education did not correlate with a better knowledge of Gunnison sage-grouse. However, all ten survey questions that referred to values toward sage-grouse were significantly correlated with educational level. Those with more education tended to associate more value toward the Gunnison Sage-grouse. There was a slight trend in the willingness to pay and donate time toward grouse conservation efforts with more education.

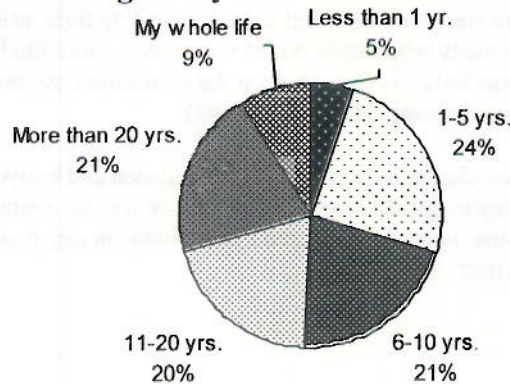
Occupations



n=310

Respondents were asked "What is your occupation?" in an open-ended question format. For presentation in this report, occupational categories were determined by a list from the US Census Bureau website. See Appendix G for a complete list of occupational responses.

How long have you lived in Gunnison County?



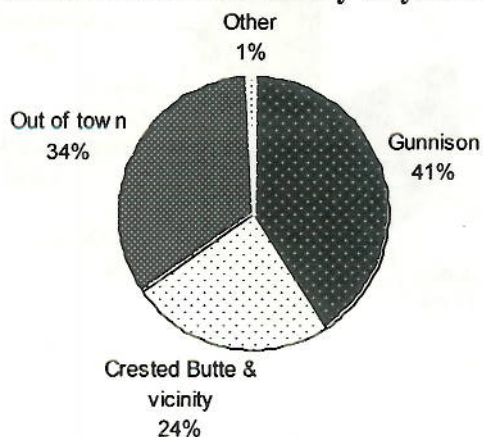
n=306

Approximately 41% of respondents had lived in Gunnison County between 6-20 years. Thirty percent of respondents stated they had lived here more than 20 years or their whole life, whereas 29% of respondents had lived in Gunnison County under 5 years.

We observed numerous significant correlations between length of residency in the Gunnison Basin and grouse values and behaviors. As expected, there was a significant correlation in length of residency and age ($P = 0.0001$), so much of the previous discussion on age correlations applies here. Generally, those respondents who only lived in the county a short time were less familiar with grouse and the issues associated with grouse, and were more likely to have a neutral opinion. Long-term residents were more likely to have a strong opinion about the grouse.

In general, the only knowledge question that was significantly correlated with residency time was the agency that had management authority over the Gunnison Sage-grouse. Those residents who lived in the county less than 10 years identified federal land management agencies (especially the US Fish and Wildlife Service) as the managing authority. Therefore, knowledge of the issues was not significantly tied to length of time one lived in the county. However, there was a trend in showing less value for the Gunnison Sage-grouse and less willingness to contribute time or money as respondents lived in the county longer.

Where in Gunnison County do you live?



n=305

Forty-one percent of respondents lived in Gunnison and 24% lived in Crested Butte, Mt. Crested Butte or Crested Butte South. Over a third (34%) of respondents lived beyond the city limits of Gunnison and Crested Butte. The rest (1%) were classified in the "other" category.

Where respondents lived in the county was also important in understanding their attitudes toward Gunnison Sage-grouse. Those residents of the county who reside out of towns were more likely to have seen the bird ($P = 0.041$). Interestingly, those respondents who lived within the Gunnison city limits were less likely to be concerned if the Gunnison Sage-grouse went extinct ($P = 0.008$).

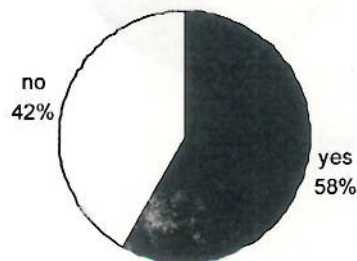
In general, there was no significant correlation between place of residence and knowledge of grouse or willingness to contribute time or money to grouse conservation. There was no overall trend in the place of residence and values held toward grouse, except for the trend that Gunnison city residents were less likely to be concerned if the grouse went extinct.

Part 7:

Analysis of Non-Respondents

The same demographic questions were asked to people not willing to do the full survey along with two questions concerning the Gunnison Sage-grouse. The questions were asked of non-respondents to determine if the survey had a non-response bias. The results below show that a significant non-response bias was not observed in this survey. In part, this is due to the small sample of non-respondents (only 1% of residents called refused to participate).

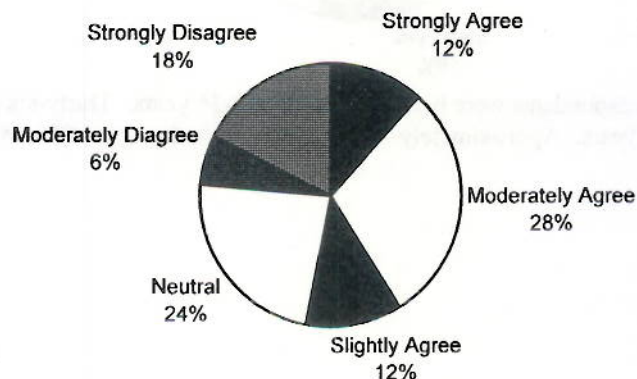
Have you ever heard of the Gunnison Sage-grouse?



n=31

Over half (58%) of the non-respondents said they had heard of the Gunnison Sage Grouse before the questionnaire. This compares to 81% of respondents who had previously heard of the Gunnison Sage-grouse.

I think the Gunnison Sage-grouse should be listed and federally protected under the Endangered Species Act.

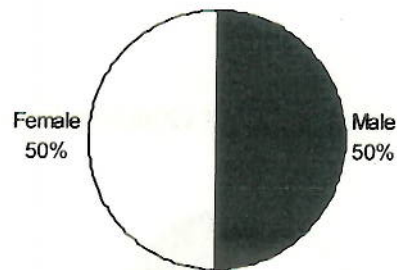


n=17

Approximately half, 52%, of the non-respondents agreed with the statement to some degree, while 24% disagreed moderately or strongly, and 24% were neutral. Of the respondents to the survey, 68% agreed, 12% disagreed, and 21% were neutral.

Demographics for Non-Respondents

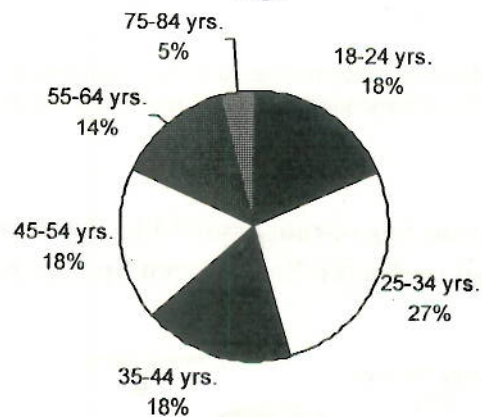
Gender



n=18

The results show a split of nine females and nine males.

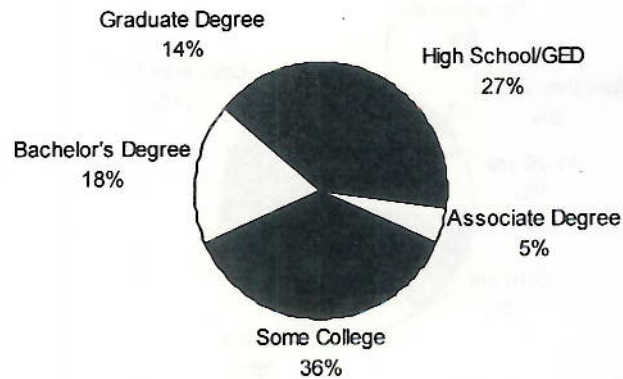
Age



n=22

Almost half (45%) of non-respondents were between the ages 18-34 years. Thirty-six percent were between the ages of 35-54 years. Approximately 19% were between the ages of 55-84 years old.

Highest Level of Education



n=22

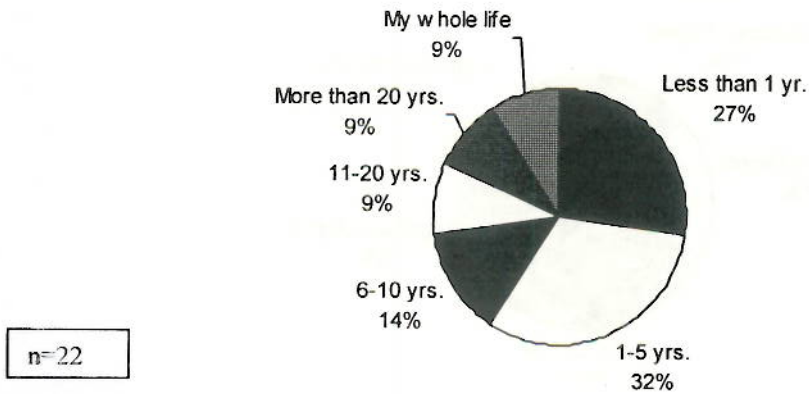
Approximately 36% of non-respondents had some college experience. Thirty-seven percent had received a degree and 27% had completed high school or a GED.

Occupations

The complete list of occupations for the non-respondents is listed below (n=22).

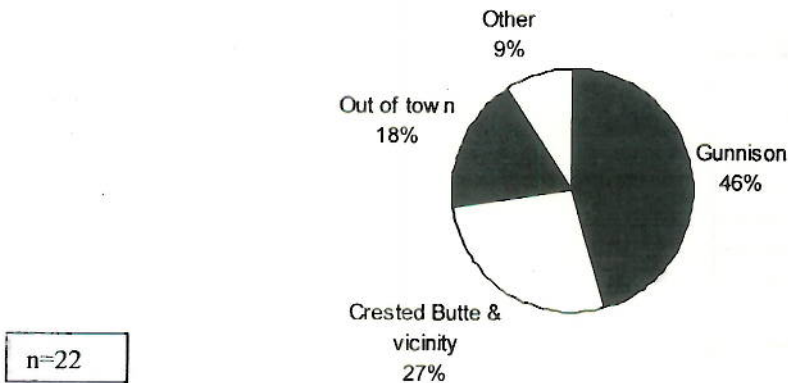
Occupation	Frequency
Doctor	1
Engineer	1
Firefighter	1
Homemaker	1
House stainer	1
Housewife	1
Marketing	1
Mobil home park owner	1
Nurse	1
Restaurant manager	1
Retired	3
Store owner	1
Student	3
Student/brewery	1
City of CB	1
Truck driver	1
Unemployed	1
Wife	1
Total	22

How long have you lived in Gunnison County?



The highest percentage (32%) of non-respondents had lived in Gunnison County between 1-5 years. Twenty-seven percent have lived in Gunnison County for less than a year. Approximately 14% have been here between 6-10 years and 9% between 11-20 years. Eighteen percent have lived here more than twenty years or their whole life.

Where in Gunnison County do you live?



Almost half (46%) of non-respondents lived in the town of Gunnison. Approximately 27% lived in Crested Butte and the surrounding area (Mt. Crested Butte, Crested Butte South). 18% of non-respondents lived in the county but outside the city limits of Gunnison and Crested Butte. Nine percent were classified in the "other" category.

Conclusions

The Gunnison community gave an overwhelming approval rating to the Gunnison Sage-grouse. Almost 70% of the residents of Gunnison County believed the Gunnison Sage-grouse was an important part of the community's identity, and 80% were concerned if the bird went extinct. Nearly three-fourths (74%) valued the beauty of the species. Over 80% thought it was important that the bird existed regardless of whether they saw the bird or not. And, 71% of respondents thought the Gunnison Sage-grouse was an important indicator of the health of the sagebrush ecosystem. We observed that residents who had positive values toward the Gunnison Sage-grouse were likely to be willing to contribute to conservation efforts.

However, we identified some gaps. Whereas Gunnison county residents indicated their love for the Gunnison Sage-grouse, they did not indicate their willingness to contribute to conservation proportionately. Two-thirds of respondents were willing to contribute financially, but only 5% were willing to give more than \$100. Two thirds of residents were not willing to contribute more than \$20 (the price of approximately one tank of gasoline). Also, while 49% of respondents were willing to donate time, 51% were unwilling or neutral.

Summary of Values and Willingness to Contribute Responses

Questionnaire Item	Negative Response	Positive Response	Neutral Response
Should grouse be listed for federal protection	12%	67%	21%
Concerned if grouse went extinct	5%	80%	15%
Grouse is part of community identity	18%	69%	13%
Grouse is beautiful	12%	74%	14%
Grouse has economic value for tourism	39%	36%	25%
Glad the grouse exists	8%	84%	8%
Grouse is symbol of Gunnison County	27%	57%	16%
Grouse is indicator of sagebrush health	14%	71%	15%
Grouse has recreational value	41%	34%	25%
Grouse has scientific value	40%	35%	24%
Use sales tax to fund grouse conservation	50%	24%	26%
Use recreation fees for grouse conservation	21%	64%	15%
Use city or county funds for grouse conservation	32%	48%	20%
Use private funds for grouse conservation	4%	88%	8%
Use state/federal funds for grouse conservation	11%	80%	9%
Donate personal time to grouse conservation	22%	49%	29%
Donate personal income to grouse conservation	32%	68%	N/A
Limit trail use for grouse conservation	16%	75%	9%
Want to learn more about grouse issues	29%	49%	22%

Positive responses were below 50% for economic, scientific, and recreational value of the Gunnison Sage-grouse. Further, low positive responses were associated with use of sales tax and city and county funds to pay for Gunnison Sage-grouse conservation activities. About half the respondents were willing to donate personal time to the grouse conservation effort and similarly less than half the community apparently wants to learn more about the conservation issues associated with the Gunnison Sage-grouse.

Gunnison County is relatively young compared to other counties in Colorado and highly educated. We found a positive correlation between educational status and positive values held toward the Gunnison Sage-grouse. Interestingly, there was no correlation between educational level and knowledge about Gunnison Sage-grouse. The survey results may indicate that education plays an important role in shaping our society's values toward other species.

1. Introduction

The purpose of this study is to investigate the effects of the proposed system on the performance of the system. The study is divided into two main parts: a theoretical analysis and an experimental evaluation. The theoretical analysis is based on the principles of the system and the experimental evaluation is based on the results of the experiments.

The experimental evaluation is divided into two main parts: a comparison of the proposed system with the existing system and a comparison of the proposed system with the theoretical model. The results of the experiments show that the proposed system is more efficient than the existing system and more accurate than the theoretical model.

2. Theoretical Analysis

Parameter	Value	Unit
System A	1.0	1.0
System B	1.5	1.5
System C	2.0	2.0
System D	2.5	2.5
System E	3.0	3.0
System F	3.5	3.5
System G	4.0	4.0
System H	4.5	4.5
System I	5.0	5.0
System J	5.5	5.5
System K	6.0	6.0
System L	6.5	6.5
System M	7.0	7.0
System N	7.5	7.5
System O	8.0	8.0
System P	8.5	8.5
System Q	9.0	9.0
System R	9.5	9.5
System S	10.0	10.0
System T	10.5	10.5
System U	11.0	11.0
System V	11.5	11.5
System W	12.0	12.0
System X	12.5	12.5
System Y	13.0	13.0
System Z	13.5	13.5
System AA	14.0	14.0
System AB	14.5	14.5
System AC	15.0	15.0
System AD	15.5	15.5
System AE	16.0	16.0
System AF	16.5	16.5
System AG	17.0	17.0
System AH	17.5	17.5
System AI	18.0	18.0
System AJ	18.5	18.5
System AK	19.0	19.0
System AL	19.5	19.5
System AM	20.0	20.0
System AN	20.5	20.5
System AO	21.0	21.0
System AP	21.5	21.5
System AQ	22.0	22.0
System AR	22.5	22.5
System AS	23.0	23.0
System AT	23.5	23.5
System AU	24.0	24.0
System AV	24.5	24.5
System AW	25.0	25.0
System AX	25.5	25.5
System AY	26.0	26.0
System AZ	26.5	26.5
System BA	27.0	27.0
System BB	27.5	27.5
System BC	28.0	28.0
System BD	28.5	28.5
System BE	29.0	29.0
System BF	29.5	29.5
System BG	30.0	30.0
System BH	30.5	30.5
System BI	31.0	31.0
System BJ	31.5	31.5
System BK	32.0	32.0
System BL	32.5	32.5
System BM	33.0	33.0
System BN	33.5	33.5
System BO	34.0	34.0
System BP	34.5	34.5
System BQ	35.0	35.0
System BR	35.5	35.5
System BS	36.0	36.0
System BT	36.5	36.5
System BU	37.0	37.0
System BV	37.5	37.5
System BW	38.0	38.0
System BX	38.5	38.5
System BY	39.0	39.0
System BZ	39.5	39.5
System CA	40.0	40.0
System CB	40.5	40.5
System CC	41.0	41.0
System CD	41.5	41.5
System CE	42.0	42.0
System CF	42.5	42.5
System CG	43.0	43.0
System CH	43.5	43.5
System CI	44.0	44.0
System CJ	44.5	44.5
System CK	45.0	45.0
System CL	45.5	45.5
System CM	46.0	46.0
System CN	46.5	46.5
System CO	47.0	47.0
System CP	47.5	47.5
System CQ	48.0	48.0
System CR	48.5	48.5
System CS	49.0	49.0
System CT	49.5	49.5
System CU	50.0	50.0
System CV	50.5	50.5
System CW	51.0	51.0
System CX	51.5	51.5
System CY	52.0	52.0
System CZ	52.5	52.5
System DA	53.0	53.0
System DB	53.5	53.5
System DC	54.0	54.0
System DD	54.5	54.5
System DE	55.0	55.0
System DF	55.5	55.5
System DG	56.0	56.0
System DH	56.5	56.5
System DI	57.0	57.0
System DJ	57.5	57.5
System DK	58.0	58.0
System DL	58.5	58.5
System DM	59.0	59.0
System DN	59.5	59.5
System DO	60.0	60.0
System DP	60.5	60.5
System DQ	61.0	61.0
System DR	61.5	61.5
System DS	62.0	62.0
System DT	62.5	62.5
System DU	63.0	63.0
System DV	63.5	63.5
System DW	64.0	64.0
System DX	64.5	64.5
System DY	65.0	65.0
System DZ	65.5	65.5
System EA	66.0	66.0
System EB	66.5	66.5
System EC	67.0	67.0
System ED	67.5	67.5
System EE	68.0	68.0
System EF	68.5	68.5
System EG	69.0	69.0
System EH	69.5	69.5
System EI	70.0	70.0
System EJ	70.5	70.5
System EK	71.0	71.0
System EL	71.5	71.5
System EM	72.0	72.0
System EN	72.5	72.5
System EO	73.0	73.0
System EP	73.5	73.5
System EQ	74.0	74.0
System ER	74.5	74.5
System ES	75.0	75.0
System ET	75.5	75.5
System EU	76.0	76.0
System EV	76.5	76.5
System EW	77.0	77.0
System EX	77.5	77.5
System EY	78.0	78.0
System EZ	78.5	78.5
System FA	79.0	79.0
System FB	79.5	79.5
System FC	80.0	80.0
System FD	80.5	80.5
System FE	81.0	81.0
System FF	81.5	81.5
System FG	82.0	82.0
System FH	82.5	82.5
System FI	83.0	83.0
System FJ	83.5	83.5
System FK	84.0	84.0
System FL	84.5	84.5
System FM	85.0	85.0
System FN	85.5	85.5
System FO	86.0	86.0
System FP	86.5	86.5
System FQ	87.0	87.0
System FR	87.5	87.5
System FS	88.0	88.0
System FT	88.5	88.5
System FU	89.0	89.0
System FV	89.5	89.5
System FW	90.0	90.0
System FX	90.5	90.5
System FY	91.0	91.0
System FZ	91.5	91.5
System GA	92.0	92.0
System GB	92.5	92.5
System GC	93.0	93.0
System GD	93.5	93.5
System GE	94.0	94.0
System GF	94.5	94.5
System GG	95.0	95.0
System GH	95.5	95.5
System GI	96.0	96.0
System GJ	96.5	96.5
System GK	97.0	97.0
System GL	97.5	97.5
System GM	98.0	98.0
System GN	98.5	98.5
System GO	99.0	99.0
System GP	99.5	99.5
System GQ	100.0	100.0

The results of the theoretical analysis show that the proposed system is more efficient than the existing system and more accurate than the theoretical model. The experimental evaluation is divided into two main parts: a comparison of the proposed system with the existing system and a comparison of the proposed system with the theoretical model.

The results of the experimental evaluation show that the proposed system is more efficient than the existing system and more accurate than the theoretical model. The results of the experimental evaluation show that the proposed system is more efficient than the existing system and more accurate than the theoretical model.

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Appendix A: Survey with Results

Gunnison Sage Grouse Survey Phone Survey

I'm a student calling from Western State College. We're conducting a brief survey about the Gunnison Sage Grouse. Would you be willing to take a few minutes to give your opinions?

87.1% Yes, 12.9% No

It takes about 10 minutes, your responses will be strictly confidential, and we're not asking for any money, only your opinions. Let's begin!

1. Have you ever heard of the Gunnison Sage-Grouse before this call?
 - 81.6% Yes
 - 18.4% No
2. Where did you **first** hear about the Gunnison Sage-Grouse?
 - 17.6% Friend or relative
 - 20.0% Local newspaper
 - 3.3% Other media like video, television, radio
 - 3.3% Journals or magazine articles
 - 12.7% Classes / educational setting
 - 29.4% Experience seeing grouse in the field
 - 13.9% Other
3. Currently, what is your main source for information about the bird?
 - 14.2% Friend or relative
 - 38.9% Local newspaper
 - 5.4% Other media like video, television, radio
 - 4.6% Journals or magazine articles
 - 10.0% Classes / educational setting
 - 14.2% Experience seeing grouse in the field (*if response = 6, skip to question #5*)
 - 1.3% Just living here
 - 11.3% Other
4. Have you ever seen a Gunnison Sage-Grouse?
 - 70.2% Yes
 - 29.8% No (*If no, go to question #7*)
5. How many times have you seen one?
 - 24.9% 1 - 2 times
 - 14.9% 3 - 5 times
 - 11.0% 6 - 10 times
 - 49.2% more than 10 times

6. How confident are you that you can correctly identify a Gunnison Sage-Grouse in the field?
 - 47.0% extremely confident
 - 19.9% moderately confident
 - 19.9% slightly confident
 - 13.3% not confident at all
7. How would you describe yourself in relation to the Sage-Grouse?
 - 38.8% I have a general interest
 - 9.3% Sage-Grouse watcher
 - 15.6% Former grouse hunter
 - 11.4% Landowner with grouse habitat
 - 19.4% None of the above
 - 5.5% Other

Now I'll be presenting a series of questions to gauge your level of knowledge about the Gunnison Sage-Grouse. Please provide your best answer even if you aren't sure. (The correct answers to this section are bold.)

8. Currently the Gunnison Sage-Grouse inhabits:
 - .8% 32 of the lower 48 states
 - 12.1% 11 states in the intermountain west
 - 33.6% **Colorado and Utah**
 - 53.4% Gunnison County only
9. Approximately how many of the birds are alive today?
 - 11.7% 100
 - 61.9% **3,000**
 - 53.4% 20,000
 - .8% a million
10. What do you think are the top two threats to Sage-Grouse? (1st threat %, 2nd threat %)
 - 20.3%, 14.1% Predators like house cats or eagles
 - 51.5%, 16.7% **Habitat loss from residential building, roadways, etc.**
 - 16.2%, 17.9% Natural processes like drought, fire, or disease
 - 4.6%, 15.4% Livestock grazing
 - 1.7%, 16.2% Recreation activities
 - 4.6%, 14.1% Competing wildlife
 - 1.2%, 5.6% Something else
11. What agency has legal authority to manage the Sage-Grouse in this county?
 - 4.5% U.S. Forest Service
 - 13.4% U.S. Fish and Wildlife Service
 - 9.3% The Bureau of Land Management
 - 72.9% **The Colorado Division of Wildlife**
12. How is the Gunnison Sage-Grouse classified under the Endangered Species Act?
 - 21.8% Endangered
 - 45.7% Threatened
 - 20.2% **Candidate species**
 - 12.3% No conservation status

The next series of questions will explore your values toward the Sage-Grouse.

13. Do you agree, disagree, or feel neutral about the following statement: I think the Gunnison Sage-Grouse should be listed and federally protected under the Endangered Species Act. Is that strongly, moderately, or slightly [dis]agree?

- 36.0% Strongly agree
- 23.5% Moderately agree
- 7.7% Slightly agree
- 20.6% Neutral
- 2.4% Slightly disagree
- 4.9% Moderately disagree
- 4.9% Strongly disagree

14. If the bird became extinct today, would you be concerned, unconcerned or neutral? Would that be extremely, moderately, or slightly [un]concerned?

- 42.3% Extremely concerned
- 28.6% Moderately concerned
- 9.3% Slightly concerned
- 14.9% Neutral
- .8% Slightly unconcerned
- 2.4% Moderately unconcerned
- 1.6% Extremely unconcerned

15. Do you agree, disagree, or feel neutral about this statement: The Gunnison Sage-Grouse is part of my community's identity. Is that strongly, moderately, or slightly [dis]agree?

- 34.3% Strongly agree
- 21.4% Moderately agree
- 12.9% Slightly agree
- 13.3% Neutral
- 2.4% Slightly disagree
- 7.7% Moderately disagree
- 8.1% Strongly disagree

16. I have a list of values that the Sage-Grouse may have for you. On a scale of 1 to 7, with one being extremely important, 4 being neutral, and 7 being not important at all, how would you rate these values?

	Extremely Important	Moderately Important	Slightly Important	Neutral	Slightly Unimportant	Moderately Unimportant	Extremely Unimportant
Economic value for tourism	7.3%	9.7%	19.0%	24.2%	13.3%	8.5%	18.1%
Beauty of the species	38.9%	22.3%	12.6%	13.8%	4.9%	4.5%	3.2%
Glad they exist regardless of whether I see one	60.5%	16.9%	6.5%	8.1%	4.0%	2.4%	1.6%
Symbol of Gunnison County	25.0%	16.5%	16.5%	16.1%	7.7%	7.7%	10.5%
Indicator of the sagebrush ecosystem health	42.3%	17.7%	10.5%	15.3%	6.0%	3.2%	4.8%
Recreational Opportunity Value	10.1%	9.7%	13.8%	25.1%	11.3%	11.7%	18.2%
Scientific Value for research	37.2%	22.7%	12.6%	13.8%	2.8%	5.7%	5.3%

I have a few questions about what you might be willing to do to help the Gunnison Sage-Grouse. Remember that I am not asking you to take any action or donate, nor will your name be associated with your responses in any way.

17. Sage-Grouse conservation efforts may need funding, and that money can come from a number of sources. On a scale of 1 to 7, with 1 being strongly agree, 4 being neutral, and 7 being strongly disagree, what sources of funds do you think should be used?

	Strongly Agree	Moderately Agree	Slightly Agree	Neutral	Slightly Disagree	Moderately Disagree	Strongly Disagree
Sales Tax	7.3%	6.1%	11.3%	25.5%	11.7%	5.7%	32.4%
Recreational user fees for bird watchers	26.7%	22.3%	15.4%	15.0%	5.7%	5.3%	9.7%
City or County funds	11.0%	15.4%	22.0%	19.5%	8.9%	9.3%	13.8%
Private Donations	57.9%	20.6%	9.3%	7.7%	2.0%	0.0%	2.4%
State or Federal agency funds	43.3%	23.9%	13.0%	8.5%	3.2%	3.2%	4.9%

18. How much would you be willing to donate to Sage-Grouse conservation efforts?

- 31.6% I would not be willing to donate anything
- 33.6% \$1 - 20
- 25.4% \$21 - 50
- 4.1% \$51 - 100
- 5.3% More than \$100

19. Are you willing, unwilling, or neutral about giving of your time to help with the conservation effort? Is that extremely, moderately, or slightly [un]willing?

- 15.4% Strongly willing
- 20.7% Moderately willing
- 12.6% Slightly willing
- 29.7% Neutral
- 5.7% Slightly unwilling
- 6.9% Moderately unwilling
- 8.9% Strongly unwilling

20. Would you be willing, unwilling, or neutral to limit your use of recreational trails during certain seasons for the Sage-Grouse? Is that extremely, moderately, or slightly [un]willing?

- 49.4% Strongly willing
- 17.3% Moderately willing
- 7.6% Slightly willing
- 9.2% Neutral
- 2.4% Slightly unwilling
- 2.4% Moderately unwilling
- 11.6% Strongly unwilling

21. Are you interested, uninterested, or neutral about receiving more information about the Gunnison Sage-Grouse? Is that extremely, moderately, or slightly [un]interested?

- 19.9% Strongly interested
- 23.2% Moderately interested
- 6.1% Slightly interested
- 21.9% Neutral
- 5.4% Slightly uninterested
- 7.7% Moderately uninterested
- 15.8% Strongly uninterested

(If uninterested, go to intro for question #23)

22. What would be the best format for you to receive further information?

- 44.6% Newsletter
- 17.1% Flyer or pamphlet
- 23.8% Internet or e-mail
- 2.1% Video or DVD
- 4.1% Speakers or workshops
- 8.3% Something else

23. Have you ever heard of the Gunnison Sage-Grouse before this call?

- 58.1% Yes **ASK THIS ONLY OF NON-RESPONDENTS!!**
- 41.9% No *[If no, DO NOT ask question #29]*

Now I need to ask you just a few questions about yourself, and we'll be done.

24. How long have you lived in Gunnison County?

- 6.7% Less than 1 year
- 25.0% 1 – 5 years
- 20.4% 6 – 10 years
- 19.2% 11 – 20 years
- 19.8% More than 20 years
- 8.8% My whole life

25. Do you mind if I ask how old you are?

- 13.5% 18 – 24 years
- 21.8% 25 – 34 years
- 23.0% 35 – 44 years
- 17.8% 45 – 54 years
- 17.2% 55 – 64 years
- 4.3% 65 – 74 years
- 1.8% 75 – 84 years
- .6% 85 years or older

26. What is your occupation? *(type in response)*

- 8.0% Business owner
- 6.0% Construction/Maintenance
- 7.6% Education
- 5.6% Health care/Service
- 14.0% Management/Professional
- 3.0% Ranch/Farming/Forestry
- 11.0% Retail/Sales
- 12.5% Retired
- 11.4% Student
- 1.8% Unemployed
- 19.3% Other

27. What is your level of education?

- 1.2% less than high school
- 17.3% high school or equivalent
- 3.1% associates degree
- 30.2% some college
- 33.6% bachelor's degree
- 14.5% graduate degree (master's degree or higher)

28. Do you live in town or out of town? Where?

- 41.3% Gunnison
- 24.5% Crested Butte and vicinity
- 32.7% Out of town
- 1.5% Other

29. One last question: Do you agree, disagree, or feel neutral about the following statement: I think the Gunnison Sage-Grouse should be listed and federally protected under the Endangered Species Act. Is that strongly, moderately, or slightly [dis]agree?

- 11.8% Strongly agree
- 29.4% Moderately agree
- 11.8% Slightly agree
- 23.5% Neutral
- 0.0% Slightly disagree
- 5.9% Moderately disagree
- 17.6% Strongly disagree

ASK THIS ONLY OF NON-RESPONDENTS!!

Thank you for your time in completing the survey. If you want more information about Gunnison Sage-Grouse or if you want to receive the results of this survey, contact Sisk-a-dee at 641-3959. Good night.

(If respondents would like to make written comments or have questions, they can also e-mail Sisk-a-dee at info@siskadee.org. Survey results will also be published in local newspapers)

30. Sex: 56.7% Male 43.3% Female

Appendix B

How did you first hear of the Gunnison Sage Grouse? From the "other" category.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	341	95.8	95.8	95.8
Chicago	1	.3	.3	96.1
County	1	.3	.3	96.3
Don't remember	3	.8	.8	97.2
DOW	1	.3	.3	97.5
HCCA	1	.3	.3	97.8
Jessica Young	4	1.1	1.1	98.9
Job	1	.3	.3	99.2
Kid	1	.3	.3	99.4
Sisk-a-dee	1	.3	.3	99.7
Sue Navy, HCCA	1	.3	.3	100.0
Total	356	100.0	100.0	

Appendix C

What is your main source for information now? From "other" category.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	326	91.6	91.6	91.6
BLM areas	1	.3	.3	91.9
"I see them"	1	.3	.3	92.1
Brad Phelps	1	.3	.3	92.4
DOW	2	.6	.6	93.3
Everywhere	1	.3	.3	93.5
HCCA	3	.8	.8	94.4
Internet	1	.3	.3	94.7
Jessica Young	2	.6	.6	95.2
Job	1	.3	.3	95.5
Kevin Alexander	1	.3	.3	95.8
None	9	2.6	2.6	98.4
Organizations	1	.3	.3	98.7
Park	1	.3	.3	98.9
Plaque out of town	1	.3	.3	99.2
Sue Navy	1	.3	.3	99.4
Survey	1	.3	.3	99.7
Word of mouth	1	.3	.3	100.0
Total	356	100.0	100.0	

Appendix D

How would you describe yourself in relation to the Gunnison Sage Grouse?
From "other" category

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	342	96.1	96.1	96.1
Care less	1	.3	.3	96.3
Casual	1	.3	.3	96.6
Co-community member	1	.3	.3	96.9
Concerned hunter	1	.3	.3	97.2
Conservationist	1	.3	.3	97.5
Hiker	1	.3	.3	97.8
Hunted	1	.3	.3	98.0
Hunter	1	.3	.3	98.3
Know about	1	.3	.3	98.6
Land surveyor	1	.3	.3	98.9
Present hunter	1	.3	.3	99.2
Specific interest	1	.3	.3	99.4
Vaguely familiar	1	.3	.3	99.7
Work	1	.3	.3	100.0
Total	356	100.0	100.0	

Appendix E

Threats to the Gunnison Sage Grouse: "other" category

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	344	96.6	96.6	96.6
All of the above	3	.8	.8	97.5
Critical #'s to sustain viable population	1	.3	.3	97.8
Crows, coyotes	1	.3	.3	98.0
Crows, sonic booms from airport	1	.3	.3	98.3
Development	1	.3	.3	98.6
DOW has and burns and it destroys	1	.3	.3	98.9
Hunting	2	.6	.6	99.4
Meeting species	1	.3	.3	99.7
Nothing else	1	.3	.3	100.0
Total	356	100.0	100.0	

Appendix F

What is the best format for you to receive further information?
From "other" category

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	333	93.5	93.5	93.5
All	5	1.4	1.4	94.9
Don't want it	2	.6	.6	95.5
Mail	9	2.5	2.5	98.0
Newspaper	1	.3	.3	98.3
None	2	.6	.6	98.9
Own sources	1	.3	.3	99.2
Reading materials	1	.3	.3	99.4
Sisk-a-dee	1	.3	.3	99.7
More than enough	1	.3	.3	100.0
Total	356	100.0	100.0	

Appendix G

This is a complete list of occupations for respondents.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5	1.6	1.6	1.6
1 st grade teacher	1	.3	.3	1.9
Accountant	3	1.0	1.0	2.9
Administrative assistant	1	.3	.3	3.2
Administration	1	.3	.3	3.5
Administrator	1	.3	.3	3.9
Artist	2	.6	.6	4.5
Assistant pastor	1	.3	.3	4.8
Attorney	1	.3	.3	5.2
Automechanic	1	.3	.3	5.5
Avon representative	1	.3	.3	5.8
Bank	1	.3	.3	6.1
Bartender	2	.6	.6	6.8
Biologist	2	.6	.6	7.4
Building management	1	.3	.3	7.7
Business	2	.6	.6	8.4
Business man	1	.3	.3	8.7
Business owner	6	2.0	2.0	10.6
Cabinet maker	1	.3	.3	11.0
Campground manager	1	.3	.3	11.3
Care giver	1	.3	.3	11.6
Carpenter	5	1.6	1.6	13.2
Carpenter/guide	1	.3	.3	13.5
Cashier	1	.3	.3	13.9
Chef	1	.3	.3	14.2
City employee	1	.3	.3	14.5
City finance department	1	.3	.3	14.8
Civil engineer	1	.3	.3	15.2
College administrator	1	.3	.3	15.5
Commercial broker	1	.3	.3	15.8
Construction	10	3.2	3.2	19.0
Consultant	1	.3	.3	19.4
Contact em	1	.3	.3	19.7
Contractor	6	2.0	2.0	21.6
Cook	3	1.0	1.0	22.6
CPA	2	.6	.6	23.2
Craftsman	1	.3	.3	23.5
Dad/mechanic	1	.3	.3	23.9
Daycare	1	.3	.3	24.2
Dentist	1	.3	.3	24.5
Designer	1	.3	.3	24.8
Director of Extended Studies	1	.3	.3	25.2
Director of Internal Affairs	1	.3	.3	25.5
Director of Operations	1	.3	.3	25.8
Doctor assistant	1	.3	.3	26.1
Driver	1	.3	.3	26.5

Drywall installer	1	.3	.3	26.8
Education	2	.6	.6	27.4
Education administration	1	.3	.3	27.7
Electrician-retired	1	.3	.3	28.1
Electrician/business owner	1	.3	.3	28.4
EMT	1	.3	.3	28.7
Engineer	1	.3	.3	29.0
Facilities manager	1	.3	.3	29.4
Financial coordinator	1	.3	.3	29.7
Fire chief (WSC grad)	1	.3	.3	30.0
Fishing guide	2	.6	.6	31.0
Flagger	1	.3	.3	31.3
Forest service	1	.3	.3	31.6
Garage door installer	1	.3	.3	31.9
Gas station	1	.3	.3	32.6
General contractor	2	.6	.6	32.9
Geologist	1	.3	.3	33.2
Graphic design	1	.3	.3	33.5
Grocery clerk	1	.3	.3	33.9
Gunni road & bridge	1	.3	.3	34.2
Handyman	1	.3	.3	34.5
Health care provider	1	.3	.3	34.8
Heavy equipment operator	1	.3	.3	35.8
Homemaker	3	1.0	1.0	36.1
Horse trainer (biology degree)	1	.3	.3	36.5
Hotel	1	.3	.3	37.4
Housewife/mother	1	.3	.3	37.7
Housewife/teach skiing/florist	1	.3	.3	38.1
Housewife/biologist	1	.3	.3	38.4
Housewife	5	1.6	1.6	39.0
Insurance agent	2	.6	.6	39.7
Kitchen manager	1	.3	.3	40.0
Laborer	1	.3	.3	40.3
Land surveyor	3	1.0	1.0	41.3
Landscape	1	.3	.3	41.6
Lawyer	1	.3	.3	41.9
Librarian	1	.3	.3	42.3
Maintenance	2	.6	.6	42.9
Manager	1	.3	.3	43.2
Manager @ CB Mtn.	1	.3	.3	43.5
Manages condo	1	.3	.3	43.9
Management	1	.3	.3	44.2
Marketing	1	.3	.3	44.5
Mayor of CB	1	.3	.3	44.8
Mechanic	2	.6	.6	45.5
Mental health	1	.3	.3	45.8
Mom	1	.3	.3	46.1
Mom/sled tour	1	.3	.3	46.5
Mortgage broker	1	.3	.3	46.8
Musician	1	.3	.3	47.1
Non-profit consultant	1	.3	.3	47.4
NPS employee	1	.3	.3	47.7
Nurse	1	.3	.3	48.1

Outdoor educator	1	.3	.3	48.4
Own business	1	.3	.3	48.7
Own construction company	1	.3	.3	49.0
Paint technician	1	.3	.3	49.4
Painter	1	.3	.3	49.7
Paradise café	1	.3	.3	50.0
Paralegal	1	.3	.3	50.3
Parks/rec	1	.3	.3	50.6
Psychologist	1	.3	.3	51.0
Physician	1	.3	.3	51.3
Plumber	1	.3	.3	51.6
Police-neighborhood	1	.3	.3	51.9
Police department	1	.3	.3	52.3
Probation officer	1	.3	.3	52.6
Professor	1	.3	.3	52.9
Property manager	1	.3	.3	53.2
Rancher	4	1.3	1.3	54.5
Real estate	2	.6	.6	55.2
Realtor	1	.3	.3	55.5
Resort owner	1	.3	.3	55.8
Resort sale	1	.3	.3	56.1
Retail	2	.6	.6	56.7
Retail/sales	1	.3	.3	57.0
Retired	33	10.6	10.6	67.7
Retired/real estate	1	.3	.3	68.1
Retired executive	1	.3	.3	68.4
Retired policeman	1	.3	.3	68.7
Retired teacher	1	.3	.3	69.0
Retired trucker	1	.3	.3	69.4
Safeway	1	.3	.3	69.7
Sales	3	1.0	1.0	70.6
Sandwich artist	1	.3	.3	71.0
School teacher	1	.3	.3	71.3
Scientist	1	.3	.3	71.6
Security	1	.3	.3	71.9
Self employed	12	3.8	3.8	75.8
Sheriff department	1	.3	.3	76.1
Shop keeper	1	.3	.3	76.5
Ski instructor	1	.3	.3	76.8
Ski resort	1	.3	.3	77.1
Ski tech/writer	1	.3	.3	77.4
Skiing/real estate	1	.3	.3	77.7
Small business	1	.3	.3	78.1
Social worker	1	.3	.3	78.4
Software programmer	1	.3	.3	78.7
Student	33	10.6	10.6	89.4
Student/asst.manager	1	.3	.3	89.7
Student/food service	1	.3	.3	90.0
Student/business owner	1	.3	.3	90.3
Sub teacher	1	.3	.3	90.6
SW stocker	1	.3	.3	91.0
Taxidermist	1	.3	.3	91.3
Teacher	10	3.2	3.2	94.5

Technology	1	.3	.3	94.8
Tore coordinator	1	.3	.3	95.2
Unemployed	5	1.6	1.6	96.8
Waitress	1	.3	.3	97.1
Wife	4	1.3	1.3	98.4
Wilderness therapist	1	.3	.3	98.7
Wood worker	2	.6	.6	99.4
WSC academic advisor	1	.3	.3	99.7
WSC teacher	1	.3	.3	100.0
Total	310	100.0	100.0	

Appendix H: Comments from Survey

1	discouraged about sage grouse because we've done so much work and they seem to be still dying off....
2	great survey, good luck
3	used surveys doing work with sisk-a-dee
4	feel people go overboard
5	doesn't care but hopes they do not go extinct
6	spends many months in the woods and says he is not the only one who has seen several burns that have destroyed nesting areas. Says the birds are not afraid of you and will come around you.
7	glad they survey is present
8	sorry the drought is hurting them so badly, county should come up with plan for watching the birds.
9	glad we're doing it, and hopes survey helps in helping g.s.g
10	has two bachelor's degrees in biology and has worked for BLM with habitat restoration for the grouse before having her new baby.
11	hunter
12	said " I hunt the damn things"
13	lives here and in Arizona

