View metadata, citation and similar papers at core.ac.uk

brought to you by CORE

provided by DigitalCommons@USU

Utah State University

DigitalCommons@USU

Reports

Publications

2007

The 2005 Nevada Rangeland Vegetation Survey General Public Questionnaire and Survey of Responses

Kimberly Rollins
University of Nevada, Reno

Anita Castledine
University of Nevada, Reno

Sherman Swanson
University of Nevada Cooperative Extension

M. D. R. Evans
University of Nevada, Reno

Kent McAdoo
University of Nevada Cooperative Extension

Brad Schultz
University of Nevada Cooperative Extension

Follow this and additional works at: https://digitalcommons.usu.edu/sagestep_reports

See next page for additional authors

 Part of the Plant Sciences Commons

Recommended Citation

Rollins, K., A. Castledine, S. Swanson, M.D.R. Evans, K. McAdoo, M. Havercamp, R. Wilson. 2007. The 2005 Nevada Rangeland Vegetation Survey General Public Questionnaire and Survey of Responses. University of Nevada Extension Special Publication 07-11, 43 pages.

This Report is brought to you for free and open access by the Publications at DigitalCommons@USU. It has been accepted for inclusion in Reports by an authorized administrator of DigitalCommons@USU. For more information, please contact digitalcommons@usu.edu.

Authors

Kimberly Rollins, Anita Castledine, Sherman Swanson, M. D. R. Evans, Kent McAdoo, Brad Schultz, Michael Havercamp, and Robert Wilson

This report is available at DigitalCommons@USU: https://digitalcommons.usu.edu/sagestep_reports/2

The 2005 Nevada Rangeland Vegetation Survey General Public Questionnaire and Survey of Responses*

Kimberly Rollins, Associate Professor, Department of Resource Economics,
University of Nevada, Reno

Anita Castledine, Graduate Research Assistant, Department of Resource Economics,
University of Nevada, Reno

Sherman Swanson, Associate Professor, College of Agriculture, Biotechnology & Natural Resources;
Range/Riparian State Specialist, University of Nevada Cooperative Extension

M.D.R. Evans, Associate Professor, Department of Resource Economics and
Department of Sociology, University of Nevada, Reno

Kent McAdoo, Natural Resource Specialist, University of Nevada Cooperative Extension

Brad Schultz, Resource Specialist and Humboldt County Extension Educator,
University of Nevada Cooperative Extension

Michael Havercamp, Associate Professor and State Specialist, University of Nevada Cooperative Extension

Robert Wilson, Resource Specialist and White Pine County Extension Educator,
University of Nevada Cooperative Extension

University of Nevada
Cooperative Extension

Special Publication 07-11

The University of Nevada, Reno is an Equal Employment Opportunity/Affirmative Action employer and does not discriminate on the basis of race, color, religion, sex, age, creed, national origin, veteran status, physical or mental disability, or sexual orientation in any program or activity it operates. The University of Nevada employs only United States citizens and aliens lawfully authorized to work in the United States.

*The authors wish to acknowledge that funding was provided by UNCE and the Sagebrush Steppe Treatment Evaluation Project (SageSTEP), funded by the U.S. Joint Fire Science Program. This is Contribution Number 8 of the Sagebrush Steppe Treatment Evaluation Project (SageSTEP), funded by the U.S. Joint Fire Science Program.

TABLE OF CONTENTS

The 2005 Nevada Rangeland Vegetation Survey
General Public Questionnaire and Summary of Responses

Part 1 Motivation and Methods

I. Purposes of the project

The 2005 Nevada Rangeland Vegetation Survey was conducted as a collaborative effort between the University of Nevada, Reno (UNR) Department of Resource Economics and the University of Nevada Cooperative Extension (UNCE) Natural Resources Program to fulfill two roles.

(1) A primary purpose for the work was to understand how the University of Nevada Cooperative Extension can better teach applicable natural resource science and management. The survey provided data for needs assessment. This data includes information about how people use Nevada's rangeland resources, what their priorities for rangeland management are, what they consider as threats, and how they understand the role of vegetation management in maintaining ecological goods and services. The first lessons from this survey for UNCE educators about their "markets" in the general public for information on rangeland ecology and vegetation management are now available (Swanson, Schultz, McAdoo, Wilson, Rollins, Evans, Havercamp, and Castledine 2007).

(2) Collaboration with the Department of Resource Economics was initiated by UNCE faculty to ensure expertise in survey design and implementation, statistical and analytical methods, and in the substance of natural resource related attitudes and values in the general public. In particular, Dr. Rollins' research with the Sagebrush Steppe Treatment Evaluation Project (SageSTEP) involves measuring benefits and costs of vegetation management treatments in the Great Basin undertaken to reduce the risk of landscapes being lost to accelerated fire/cheatgrass regimes (SageSTEP 2007). The collaboration provided a means for Dr. Rollins to run pilot surveys to evaluate how people in Nevada understand and value vegetation management on rangelands, to develop methods to measure costs and benefits of vegetation management that are external to markets, and to improve measurement of public attitudes, values and goals concerning natural resources. The collaboration with UNCE also serves as a form of outreach for UNCE faculty to become familiar with the SageSTEP project.

Thus, our joint goal for this project was to collect data that would form a valuable resource for research by both groups, enhancing both the knowledge base and the efficiency of outreach. Indeed, at the time that this report is written, data analysis has already resulted in six presentations at various venues and a working paper (Castledine and Rollins 2006[a], 2006[b], 2006[c]; Swanson et al. 2007, Evans et al. 2007, Rollins, Castledine and Evans 2007[a], 2007[b]).

The purpose of this report is to document the questionnaire development, sampling scheme, implementation, response rates and basic summary statistics of the data. It does not include more in-depth analyses, as this will appear in stand-alone papers and research bulletins. A companion questionnaire was developed specifically for land management professionals. A separate report describes that questionnaire, survey, and sampling methods, and includes a summary of responses.

II. Organization of this report

The purpose of this report is to document the methods used and data collected for this project. Section III describes the Needs Assessment process and sketches the ecological situation that makes it important to inquire into public attitudes, values, and goals concerning vegetation management.

Next, the focus group work is described. Section IV opens by detailing our focus group procedures, and then provides highlights from the focus group discussions and exercises.

More details on the focus groups are provided in Appendix A (description of participants and field notes on the focus group discussions).

Section V details the questionnaire development process, including pretesting procedures. Section VI describes the final questionnaires. Appendix B contains a copy of the final questionnaire as it was distributed to recipients. Subsequently, the sampling strategy (section VII), survey implementation (section VIII), and response rates (section IX) are described.

Part 2 provides frequency distributions of responses to each question together with the actual questions as they were phrased and formatted in the questionnaire. While further analysis is beyond the scope of this document, Part 2 includes comments that add context to selected results.

III. Needs assessment

This survey was conducted to obtain public input regarding vegetation management of Nevada's public rangelands. As we enter the 21st century, users and managers of rangelands face many challenges, including education, proper application of science, multiple use management, and cooperation among diverse, sometimes conflicting, user groups, all within the context of environmental sustainability. Threats to the sustainability of Great Basin Ecosystems include altered fire regimes with: 1) shifts in species composition toward shrubs and trees that accumulate woody fuels; 2) shifts toward annual or perennial invasive non-native weeds, some of which are facilitated by fire or fuel frequent fires; and 3) shifts toward plant communities that do not allow native plant communities to return. Loss of soil through accelerated erosion also reflects an irreversible transition with loss of productivity and biological diversity.

Rangelands are defined as untilled lands on which the indigenous vegetation is predominantly grasses, forbs, and/or shrubs, and the soil-vegetation complex has the potential to provide forage and habitat for livestock and/or wildlife. Great Basin rangelands are "filling up" in the sense that more people are discovering and using resources that historically were used by comparatively few. How society responds to these challenges will affect future generations. The health of rangeland ecosystems, sustained agricultural production, wildlife habitat and diversity, and continued use of natural resources are at stake. Productive rangelands, i.e., rangelands with properly functioning ecological processes, will provide these values (McAdoo 2003). Vegetation management to address invasive species, altered fire regimes, the effects of historic and current land uses, plant growth, and environmental change is becoming increasingly necessary. A better understanding of the needs and perceptions of Nevada's public land users is foundational to appropriate public land management. Land managers can use the results of this survey to help set priorities in rangeland management, and educators can use it to discern areas for education emphases and appropriate teaching vehicles.

IV. Identifying Issues for a needs assessment: focus groups

In December of 2004, four focus groups were conducted across Nevada to identify issues about which a follow-up survey would assess opinions. Focus group results were also used as a basis from which to understand the language and idiomatic manner in which people talk about and understand issues related to rangeland vegetation management. This was important for crafting a questionnaire that would feel natural to the intended audience.

The focus groups were held in Reno, Ely, Elko, and Winnemucca and were conducted by the following UNCE faculty: Sherman Swanson, UNCE state range specialist; Kent McAdoo, Central/Northeast Area rangeland natural resources specialist; Robert Wilson, White Pine County extension educator; and Brad Schultz, Humboldt County extension educator.

Invited participants were selected to represent a cross section of Nevada rangeland managers, users, and enthusiasts from each region of the state to identify elements for a

community vision and living action plan for land stewardship into the year 2020. The participants represented agriculture, citizen empowerment, conservation, consulting firms, county government, environment, federal agencies, (BLM, FS, and NRCS), fire management, forestry, mining, ranching, range management, water quality, and state agencies (NDOW, NDA, NDEP, and UNR).

The agenda was developed in collaboration with Michael Havercamp, UNCE state community development specialist. Each focus group meeting included a strengths exercise, wherein participants introduced themselves and identified the major strengths related to land stewardship and vegetation management associated with their communities. Themes were identified from the resulting set of strengths.

This was followed by a historical sketch in which participants identified elements and conditions that best describe "their natural resources" over two historical periods: from 1850 through 1950, and from 1950 to the present. Participants then discussed which elements and conditions have changed and which have stayed "about the same" within and between these periods.

A visioning exercise focused on "Our vision for land stewardship and vegetation management in 2020." Participants identified what vegetation management will be like 15 years from now (in 2020), specifically identifying what they would change and what should remain the same. Participants discussed each other's responses and identified the most important elements of their vision. Finally, participants discussed how this information would be used to identify data necessary for a needs assessment of representative samples of two groups: the general public and land managers in Nevada.

Notes from the focus groups are summarized in Table 1 and presented in detail in Appendix A. While the focus groups were conducted prior to involvement of Resource Economics faculty, these notes provided a general starting point for formulating hypotheses, questionnaire design and the sampling strategy.

Table 1. Issues and themes emerging from the focus groups.

Strengths	History	Vision - Keep the Same
Diversity	Prehistoric fire use	Cooperation and collaboration
Gradients	Wildlife habitats changed	Planning and public participation
Resilience	Hard lessons (die-offs - channel incision)	Common visions
Naturalness	Management changes (hay – fewer livestock)	Broadening use of plant community dynamics
Productivity	Pinyon and juniper used for fuel	Multiple uses of water and land
Expansiveness	Fire control	Management of vegetation e.g., pinyon/juniper
Management	Increase in shrubs and trees	Livestock for vegetation management
Habitats	Growth of agencies	
Adaptability	Range improvements (or not)	**Vision - Change**
	Wild horses and burros	
	Paperwork – analysis paralysis	Integrated planning
	More people (weed seeds & roads)	Holistic management
	Fire management	Education on systems, tools, and consequences
	Systems thinking	Personal responsibility
	Extremists and courts	Cooperative weed management
	Weed impacts	Drought management
	Weed management	Adaptive management and flexibility
	Vegetation trends	Active habitat management with all tools
	Landscape scale	Monitoring
	Collaboration	
	Funding issues & opportunities	

V. Questionnaire development and pretesting

The collaborative work was initiated with a meeting between UNCE Natural Resource Team members and Resource Economics faculty in January 2005. The objectives for the survey were discussed and included learning about attitudes regarding vegetation management and needs regarding education for this. Notes from focus group meetings between UNCE faculty and stakeholders held during the previous December were used by Kimberly Rollins and team members to assist in questionnaire development. Survey development and implementation were based on Dillman's recommendations and methods (Dillman 2000).

The team concurred that in addition to the needs assessment and questions about attitudes regarding vegetation management, the survey would collect data to estimate individuals' values, in terms of their willingness to pay (WTP) for vegetation management programs. The valuation questions ask respondents to indicate whether their households would be willing to pay specific annual dollar amounts to adopt vegetation management programs that would reduce risk of further ecosystem and wildfire-related losses. The dollar amounts were variable across the sample to collect a distribution of 'yes' and 'no' responses to a number of dollar values. The design of the survey accommodated several versions in an experimental design to test for robustness of these valuation estimates. An exploratory analysis of these issues using the survey data is available (Castledine and Rollins 2006).

Additional questions were included to determine how these needs, attitudes and values vary with demographic characteristics. These have already proven to be useful. Exploratory analyses of these data reveal considerable diversity among social groups in attitudes and values relevant to vegetation management (Evans, Rollins, Swanson, McAdoo, Schultz, Wilson, and Havercamp 2007).

The survey included versions with and without two additional information pages that describe cheatgrass (an invasive species that affects fire risk), recent trends in accelerating fire cycles, costs of wildfires, and potential effects of continued acceleration of fire cycles in terms of potentially irreversible ecosystem losses. The purpose of the information version was to determine whether the additional information affects people's willingness to support and pay for vegetation management programs. These versions are further described below.

The questionnaire was developed and pretested during the spring and summer of 2005. Pretesting was conducted in the following manner: drafts were distributed to diverse members of the general public throughout Reno by graduate and undergraduate research assistants. These responses were analyzed during one-on-one interviews with pretest respondents, during group sessions, and afterward by the researchers. Question wording was reviewed for comprehension and interpretation by members of the public. In many cases, technical jargon was replaced with words and phrases that provided subjects with the intended meaning but with a minimal amount of added wording or definitions.

VI. Final questionnaire

The survey included the following features, organized into an experimental design resulting in five questionnaire versions:

- A version with no added information and a version with two added information pages describing accelerated fire cycles and their impacts to society and rangelands. The survey attached in Appendix B includes the information pages. The alternative version omits these pages.
- Two alternative vegetation management proposals for willingness to pay voting. One (Appendix B) proposed to maintain the status quo by managing vegetation to prevent further acceleration of fire cycles and ecosystem losses, and the other (Appendix C) proposed to improve on the status quo by restoring ecosystem losses

and reducing the number of wildfires in the future.

- Three alternative scenarios for proposing dollar amounts for respondents to vote on. One version included a single positive dollar value greater than $1, a second version included two positive values greater than $1 and a third included five positive values greater than $1. Previous research indicates responses may be affected by the magnitudes and ranges of dollar values proposed. This design allows for testing of the extent of this effect, if any. Appendix B is a copy of the survey with the multiple dollar value question format. The shortened formats are similar to this one.
- All versions included bid amounts of $0 and $1. The $0 bid distinguishes between people who would only support the program if it cost them nothing, and those who would not support it at all, presumably because it is perceived to leave them worse off in other ways. The $1 bid amount allows people to express support, especially if the next higher dollar amount is more than they would be able to or wish to pay. The purpose of this is to reduce the potential for a "yea-saying" bias that has been reported to arise when people wish to indicate a positive reaction by saying 'yes' to the lowest bid amount, even if that amount is more than their maximum valuation.

These scenarios were combined into five versions of the questionnaire and randomly assigned to survey recipients.

VII. Sampling strategy

Names and addresses for the sample were obtained by purchasing a named list from a private company. The first 1,000 addresses were generated to be representative of the state of Nevada overall, according to the 2000 census. A very high proportion of the state population is in Clark and Washoe counties. In order to perform analysis comparing rural and urban populations, an additional 1,000 addresses were distributed over rural counties, with heavier weighting on Elko, White Pine, Humboldt, and Washoe Counties. The last four are counties where UNCE team members have active vegetation management programs**.**

VIII. Implementation

The first mail-out was conducted during mid-October, 2005. Follow-up post cards were sent out to those who had not yet responded on December 7, 2005. A second mail-out of the questionnaire was sent to non-respondents during the first week of February 2006.

IX. Response rates

Response rates are calculated as the number of surveys delivered (the total mailed out minus the number returned by the post office as 'undeliverable') divided by the number of returned and completed surveys. As Table 2 shows, response rates vary by county, with an average county-level response rate of 37%. Because response rates tended to be higher in rural counties, the column average is higher than the statewide non-weighted average response rate of 30% (1,947/576). County response rates varied from a low of 18% and 17% for Carson City and Clark County, to a high of 53% for Lincoln County. Much of this variation is not particularly surprising; for example, Clark County's relatively low response rate likely reflects the large proportion of new residents to the Las Vegas area. Many of the vegetation management issues described in the questionnaire may be seen as being less relevant to Clark County residents than residents in other parts of the state. The 18% response rate from Carson City, which had recently experienced a large fire that resulted in the loss of several homes, was lower than expected.

Table 2. Number of Surveys Mailed Out and Response Rates by County

County	2000 Census % of State	Number of surveys delivered	Number of surveys Returned	Response Rate %	% of Sample Total
Carson City	2.63%	40	7	18%	1%
Churchill	1.20%	27	14	52%	2%
Clark	68.85%	630	108	17%	19%
Douglas	2.06%	35	13	37%	2%
Elko	2.27%	241	75	31%	13%
Esmeralda	0.05%	20	9	45%	2%
Eureka	0.08%	20	6	30%	1%
Humboldt	0.81%	232	85	37%	15%
Lander	0.29%	20	9	45%	2%
Lincoln	0.21%	19	10	53%	2%
Lyon	1.73%	33	12	36%	2%
Mineral	0.25%	19	5	26%	1%
Nye	1.63%	29	12	41%	2%
Pershing	0.33%	19	7	37%	1%
Storey	0.17%	24	13	54%	2%
Washoe	16.99%	311	101	32%	18%
White Pine	0.46%	228	90	39%	16%
Total / Avg	**100.00%**	**1,947**	**576**	**37%**	**100.0%**

The next section of this report summarizes responses for each question of the survey. The format of the summary follows the layout of the questionnaire, which appears in its entirety in Appendix B. Numbers in the summary section reflect the numbers of respondents checking the corresponding items. Notes below each question summary are included to provide additional information and to draw attention to specific items. Copies of the data are available upon request from Kimberly Rollins at krollins@cabnr.unr.edu.

Literature cited

Castledine, Anita and Kimberly Rollins. 2006[a]. "Invasive species and rangeland fires in Nevada: residents' willingness to pay to reduce risks." Presented at the International Symposium on Society and Resource Management, Vancouver British Columbia, June 6, 2006.

Castledine, Anita and Kimberly Rollins. 2006[b]. "Cheatgrass and rangeland fires in Nevada: Residents' willingness to pay to reduce risks." Presented at the College of Agriculture, Biotechnology, and Natural Resources Dean's Advisory Council Meeting, Reno, NV, May 3, 2006.

Castledine, Anita and Kimberly Rollins. 2006[c]. "Invasive species and rangeland fires in Nevada: Residents' willingness to pay to reduce risks." Presented at the Nevada Wildland Fire Research and Outreach Conference, Desert Research Institute, Reno, Nevada, May 25, 2006.

Dillman, Don A. 2000. Mail and Internet Surveys: The Tailored Design Method, second edition. John Wiley and Sons, Inc., New York.

McAdoo, J. Kent. 2003. Public Opinions about Rangeland Resources in Northeast Nevada. Rangelands 25(4): 51-56.

Evans, M.D.R., Kimberly Rollins, Sherman Swanson, J. Kent McAdoo, Brad Schultz, Robert Wilson and Michael Havercamp. 2007. "Quantitative Analysis of Social Differences in Attitudes Regarding Vegetation Management in Nevada, Society for Rangeland Management annual meeting, Reno, Nevada, February 15, 2007.

Rollins, Kimberly S., Anita Castledine, and M.D.R. Evans. 2007. "Invasive species and rangeland fires in Nevada: Residents' willingness to pay to reduce risks." working paper, Department of Resource Economics, University of Nevada, Reno, 2007[a].

Rollins, Kimberly S., Anita Castledine, and M.D.R. Evans. 2007. "Invasive species and rangeland fires in Nevada: Residents' willingness to pay to reduce risks," Presented at the Cooperative Ecosystem Service Unit Joint Science Meeting, University of Utah, Salt Lake City, Utah, October 18, 2007[b].

Swanson, Sherman, Brad Schultz, Kent McAdoo, Robert Wilson, Kimberly Rollins, M.D.R. Evans, Michael Havercamp, and Anita Castledine. 2007. "Survey Implications for Extension Rangeland Programming," Society for Rangeland Management Annual Meeting, Reno, Nevada, February 15, 2007.

SageSTEP (Sage Steppe Treatment Evaluation Project). 2007. url: www.sagestep.org

PART 2 Summary of Descriptive Statistics

The tables in this section provide basic descriptive statistics for each survey question. Unless indicated otherwise, the numbers in each cell represent the numbers of responses for the corresponding question. In some places, additional comments are inserted just after each question summary.

1. Please check the boxes that best indicate your use of Nevada rangelands for the listed activities in the last 12 months and what your future activities may include.

	Activities in the last 12 months			Future Activities	
	None	1-4 times	5 or more times	No	Yes
Bicycling	331	74	49	227	161
Camping	198	214	98	90	341
Hiking	161	188	159	87	340
Sightseeing	109	208	199	61	369
Wildlife viewing	128	186	201	80	340
Horseback riding	364	56	51	250	139
Off-road vehicle use	219	121	162	148	259
Rock Hounding	298	102	80	190	201
Nut or berry harvesting	346	107	23	234	155
Hunting	318	85	79	213	184
Ranching	405	19	38	305	75
Fishing	240	145	115	125	285
Target Shooting	154	74	64	104	136
Other (please list below)	87	28	30	43	57

"Other" activities listed by respondents include boating, mining, NDOW volunteer programs, paint ball, snow sports, historical research, running, storm watching, and work.

"Sightseeing" and "Wildlife viewing" are the most common activities indicated, with some level of participation during the past 12 months reported at 79% and 75% respectively.

Many more people expect or hope to be active on the rangeland than are current users. This anticipated use needs to be taken into account as well as current actual use.

2. Nevada rangeland vegetation provides us with many resources and services. Check the boxes that best indicate how important each of the following resources and services is to <u>you personally</u>.

	How important to you?			
	Not at all	**Somewhat**	**Important**	**Very**
Solitude	22	78	220	233
Scenic value	9	39	204	304
Air quality	8	26	159	367
Water quality	9	18	144	387
Soil quality	20	85	206	240
Erosion control	20	95	213	229
Wildlife habitat	6	33	171	349
Native plants	19	81	190	264
Livestock forage	67	129	200	154
Biological diversity	39	120	214	171
Other (please list below)	19	3	12	28

The immediately experienced resources/ services of solitude and scenic value are “important” or “very” important to large majorities of respondents (82% and 91% respectively).

“Scenic value,” together with more practical eco-system related resources, “Water quality,” “Air quality”, and “Wildlife habitat” topped the list of important resources and services, with over 90% of respondents declaring each of them to be “Important” or “Very” (important).

“Livestock forage” is probably the most divisive issue: It is held to be important or very important by a substantial majority of respondents, 64%, but the dissenters are more numerous here (36%) than on other resources.

“Other” resources and services listed include preservation for future generations, wildfire suppression, public access, and uniqueness.

3. Please indicate how knowledgeable you are regarding the following land use

	How knowledgeable?				Would you like to learn more?
	Not at all	A little	Fairly	Very	
Rangeland ecosystem	134	219	159	40	110
Native plants	72	237	203	47	142
Invasive plants	125	229	159	43	125
Cheatgrass and fire	96	138	174	147	94
Grazing management	173	195	122	70	87
Wildlife management	113	194	180	71	126
Rangeland wildfires	90	180	188	99	104
Vegetation management	162	231	128	37	98
Water quality	81	200	199	86	123
Water quantity	76	201	190	96	127
Wetland management	168	230	125	34	99
Drought impacts	96	187	182	95	109
Soil Erosion	118	210	175	51	88
Other (please list below)	14	6	3	5	15

Self-reported knowledge levels covered a wide range.

Respondents stated that they are most knowledgeable about “Cheatgrass and fire” issues with 57% reporting “Fairly” (knowledgeable) or “Very” (knowledgeable).

About half of respondents felt “Fairly” (knowledgeable) or “Very” (knowledgeable) about rangeland wildfires (51%), water quantity (51%), water quality (50%), and drought impacts (49%).

Respondents felt least knowledgeable about vegetation management (30% Fairly” (knowledgeable) or “Very” (knowledgeable), and about wetland management (29%).

The desire to know more about a particular vegetation-management related topic ranged from lows of 15% (Grazing management) and 16% (Soil erosion) to highs of 22% (water quality and invasive plants), 23% (wildlife management and water quantity), and 25% (native plants). This is not an overwhelming demand for information, but may indicate some receptivity.

“Other” land use topics include conservation, mining, and water diversion to Clark County.

4. Check the boxes below indicating to what degree <u>you</u> feel these issues threaten Nevada's rangelands.

	Extent to which each is a threat				
	Not at all	**Small**	**Moderate**	**Serious**	**Don't know**
Current land use policies	17	85	164	179	104
Strict regulations	36	104	150	136	115
Lenient regulations	35	115	132	126	127
Development	18	58	145	298	31
Off-road vehicles	45	140	165	182	28
Wild horse populations	98	181	121	109	48
Livestock grazing	69	205	166	72	49
Invasive weeds	13	43	126	326	52
Cheatgrass spread	9	36	100	354	62
Pinyon pine / juniper spread	81	134	167	95	83
Increasing fires	29	46	129	284	73
Prescribed fires	86	172	143	67	86
Fire suppression	54	126	170	110	94
Water diversions	17	76	130	251	84
Seeding with non-native plants	41	102	158	155	104
Other (please list below)	11	5	2	17	9

Respondents perceive some of these issues as much riskier than others:

At the risky end, of respondents who felt they knew enough about the matter to answer, 91% chose "Cheatgrass spread", and 89% nominated "Invasive weeds" as "Moderate" or "Serious" threats to Nevada's rangelands. Close behind were "development" (85%) and "increasing fires" (85%), followed by "water diversions" (80%) and "current land use policies" (77%).

Still on the high-risk side, although somewhat less so, are "seeding with non-native plants" (69%), "strict regulations" (67%), "off-road vehicles" (65%), "lenient regulations" (63%), "fire suppression" (61%), and "pinyon pine/juniper spread" (55%).

Less than half of respondents perceived these issues to pose moderate or serious threats to the rangelands: "livestock grazing" (46%), "wild horse populations" (45%), and "prescribed fires" (45%).

"Other" issues threatening rangelands include BLM, environmental groups, government ownership, Yucca Mountain site, coal burning power plants, and hunting.

5. How important are the following vegetation management priorities to <u>you personally</u>?

	How important to you?			
	Not at all	**Somewhat**	**Important**	**Very**
Livestock forage production	149	186	152	65
Mined land reclamation	79	138	214	122
Native plant preservation	61	155	209	127
Invasive weed control	38	112	187	217
Restoration of cheatgrass dominated areas	65	137	173	171
Prevention of cheatgrass domination	50	111	177	213
Revegetation of burned areas	27	80	199	252
Fire prevention	37	113	175	224
Wildlife habitat	22	58	192	280
Revegetation of abandoned roads	24	108	212	212
Stream area restoration	29	104	199	222
Soil and water conservation	28	95	204	231
Other (please list below)	8	4	3	14

Respondents gave very different priorities to these different issues.

The leading priorities were "Wildlife habitat" and "Revegetation of burned areas," which were rated as "Important" or "Very" (important) personal priorities by 86% and 81% of respondents respectively.

Close behind them were "soil and water conservation" (78%), "revegetation of abandoned roads" (76%), and "stream area restoration" (76%). Next came "invasive weed control" (73%), fire prevention (73%), and "prevention of cheatgrass domination" (71%).

A bit lower on respondents' priority lists were "restoration of cheatgrass dominated areas" (63%), "native plant preservation" (61%), and "mined land reclamation" (61%). Far behind these goals came "livestock forage production" which was rated as an "Important" or "Very" (important) personal priority by 39% of respondents.

"Other" vegetation management priorities listed include reduction of wild horse populations and minimizing land and water pollution.

6. How appropriate do <u>you</u> feel each of the following vegetation management methods are for use on Nevada's rangelands?

	How appropriate?				
	Not at all	Somewhat	Appropriate	Very	Don't know
Prescribed fire	36	144	203	114	66
Fire control	16	107	199	210	34
Seeding native species	9	57	197	260	42
Seeding non-native species	158	180	95	34	95
Using machinery to remove vegetation	65	170	185	59	83
Using herbicides	140	174	129	46	72
Prescribed grazing	36	126	205	136	58
Excluding grazing animals	230	142	58	51	79
Brush and tree cutting by hand	40	149	215	83	74
Control with selected insects	63	135	154	83	114

These were harder questions for some respondents to answer, with fully 21% feeling that they didn't know how appropriate "control with selected insects" is as a vegetation management tool. In fact, "don't know" rates exceeded 10% for all the questions here except for "seeding native species" and "fire control." This suggests that many people may still be open to persuasion on these issues.

For respondents who felt they could answer the question, some methods were seen as much more appropriate than others.

"Seeding of native species" is seen as the most appropriate method with 87% rating it as an "Appropriate" or "Very" (appropriate) method of managing Nevada's rangelands. Next came "fire control" (77%) and "prescribed grazing" (68%). Not far behind were "prescribed fire" (64%) and "brush and tree cutting by hand" (61%).

Less popular, but still seen as "Appropriate" or "Very" (appropriate) by about half of the respondents were "control with selected insects" (54%) and "Using machinery to remove vegetation" (50%).

Many fewer respondents endorsed the use of herbicides (35%), and even fewer see seeding non-native species as appropriate (27%). The vegetation management method which attracted the least support as "appropriate" was "excluding grazing animals" (23%).

7. Please indicate the extent to which you agree or disagree with the following statements about grazing and vegetation management on Nevada rangelands.

	Extent to which you agree or disagree				
	Strongly Agree	**Somewhat Agree**	**No opinion**	**Somewhat Disagree**	**Strongly Disagree**
Livestock grazing should be managed to meet vegetation priorities	237	196	66	44	23
Wild horse populations should be managed to meet vegetation priorities	215	175	52	73	49
Wildlife populations should be managed to meet vegetation priorities	154	193	56	98	62

A majority of respondents endorsed each of these statements. Respondents had the highest agreement for "Livestock grazing should be managed to meet vegetation priorities" (77%) and the lowest agreement for "Wildlife populations should be managed to meet vegetation priorities" (62%).

8. Please indicate whether <u>you</u> agree or disagree with the following statements about fire on Nevada rangelands.

	Extent to which you agree or disagree				
	Strongly Agree	**Somewhat Agree**	**No opinion**	**Somewhat Disagree**	**Strongly Disagree**
All rangeland fires should be stopped whenever possible.	163	139	32	170	60
Rangeland fires should be stopped **only** when they threaten human life.	103	149	34	129	147
Rangeland fires should be stopped when they threaten human **life or property.**	376	122	20	25	25
Vegetation should be **managed to prevent** rangeland fires.	255	200	50	38	23

Opinion varied greatly on these fire management strategies. Respondents had the highest agreement for "Rangeland fires should be stopped when they threaten human life or property" (88%) and the lowest agreement for "Rangeland fires should be stopped only when they threaten human life" (45%).

9. Would you <u>vote</u> for this proposal if passage of the proposal would cost you these amounts every year for the foreseeable future? Please check one box for each amount.*

	How would you vote?				
Cost to you per year?	**Definitely No**	**Probably No**	**Probably Yes**	**Definitely Yes**	**Not Sure**
$ 0	40	68	22	80	302
$ 1	36	76	26	100	289
$ 12	29	72	25	84	177
$ 31	33	124	46	74	130
$ 52	31	148	61	65	94
$ 83	36	181	66	62	48
$ 114	41	210	70	27	21
$ 157	43	237	65	14	14
$ 282	38	256	55	13	10

*Respondents received one of two proposals. One proposed a program that would maintain losses at current levels and prevent further losses. The alternative proposal would result in an improvement relative to current conditions, with rehabilitation of sagebrush areas that had once been lost. The proposals were randomly assigned to survey recipients. The text for each proposal is reproduced in Appendix A, as part of the Questionnaire and in Appendix C.

This section asks about you and your household. This information is used to help group your responses with other households like yours. **Your answers will be kept completely confidential** and results will be pooled over all survey respondents.

	10a. **If you voted either** **Definitely Yes** **Probably Yes** **for one or more amounts** (Check all that apply)		**10b.** **If you voted either** **Definitely No** **Probably No** **Not Sure** **for one or more amounts** (Check all that apply)
261	Rangeland vegetation is important to me and it is worth the cost.	176	Rangeland vegetation is important to me, but I cannot afford the cost.
278	So I can continue my current uses of Nevada rangelands.	104	I could afford the cost, but I am concerned about spending this much money.
260	Because I might want to use Nevada rangelands in the future.	14	Nevada rangelands are **not** important to me.
361	To protect Nevada rangelands for future generations.	67	I'm against one or more of the methods proposed to reduce cheatgrass.
331	To protect the ecosystem.	27	I don't feel that cheatgrass is a threat to rangeland vegetation.
381	To protect wildlife habitat.	197	I don't trust the government to use my taxes wisely.
264	To protect wild horse habitat.	158	I already pay too much in taxes.
278	To protect grazing lands.	42	I object to the way the question was asked.
350	To protect human life and property.	111	I feel that I didn't have enough information.
22	Other (please specify):	36	Other (please specify):

"Other" reasons for voting "Yes" include: because it's the right thing to do, to manage for fire, to manage water resources, to limit motorized use, and to retain multiple use of the land.

"Other" reasons for voting "No" include: wildfires can be healthy for environment and man cannot control nature without problems.

Of the respondents reporting "Yes", the most frequent selection (66%) was "To protect wildlife habitat". Of the respondents reporting "No" the most frequent selection (34%) was "I don't trust the government to use my taxes wisely."

11. What sources would you be most likely to use to learn about Nevada rangeland vegetation management?

	How likely are you to use these sources?			
Sources	**Not at all**	**Somewhat**	**Highly**	**Don't know**
Internet	127	188	176	18
Newspaper articles	48	232	247	11
Magazine articles	89	255	145	27
Fact sheets and brochures	78	250	156	321
Demonstration projects	164	209	66	57
TV programs or news	63	227	222	21
Radio programs	172	215	98	21
Public information meetings	213	199	56	36
Short courses and workshops	264	142	49	42
Other (please list below)	5	5	9	6

Many respondents reported that they “don’t know” how likely they would be to use the various sources.

Of respondents who felt they could report their likelihood of information source use, “Newspaper articles” were listed as the most likely learning sources (47%) with TV programs or news coming next (43%).

36% said that they were highly likely to seek information about Nevada vegetation management on the Internet, and 32% were highly likely to use brochures and fact sheets, with 30% high likely to use magazine articles.

Radio programs are some distance behind at 20%. Demonstration projects would draw a slightly smaller user group at 15%.

Few respondents felt they were highly likely to attend “public information meetings” (12%) or “Short courses and workshops” (11%).

“Other” sources of information include BLM tour days, city council, direct mailings and talking with people who know rangelands. One response stated that ‘Short courses and workshops” are too expensive.

12. Have you attended an University of Nevada Cooperative Extension workshop on weed, rangeland, fuels, or vegetation management?

531 No

32 Yes → If yes, how many?

- 9 Once
- 12 Twice
- 4 Three times
- 3 Four times
- 2 Five times
- 1 Ten times
- 1 Twenty times
- 1 Many

13. How many people are in your household? Mean: 2.53

14. What is your age? Mean: 52.3

15. <u>Not including yourself</u>, how many people in your household are in each of the age groups listed below.

0-17 years	18-24 years	25-64 years	65 + years
Mean	Mean	Mean	Mean
1.61	0.75	1.12	0.78

16. What is the zip code of your residence? See mail-out and response distributions by county.

17. How many years have you lived in Nevada?

	I have lived in Nevada…	
26	Under 2 years →	Go to 17
44	2-5 years →	Go to 17a.
59	5-9 years →	Go to 17a.
143	10-19 years	
90	20-29 years	
196	30+ years	

17a. If you have lived in Nevada less than 10 years <u>from what state or country</u> did you move from?

35% moved from CA

18. What is your gender?

323 Male 253 Female

19. What is the highest level of schooling you have completed? (please check one box only)

20	Did not complete high school
85	High school graduate (includes equivalency)
206	Some college or vocation school, no degree
60	Associate Degree
110	Bachelor's Degree
78	Graduate or Professional Degree

20. What is your job status? (please check one box only)

327	Employed full-time
37	Employed part-time
15	Unemployed but looking for work
19	Unemployed not looking for work
161	Retired

21. Please choose the field(s) that best describes your line of work. (Check all that apply.)

33	Ranching
26	Agriculture (other than ranching)
11	Landscaping
87	Mining
58	Construction or Manufacturing
42	Wholesale or Retail Trade
13	Water Resources Management
19	Utilities (other than water)
50	Healthcare
21	Natural Resource and Environmental Sciences
115	Professional, Management, Administrative
56	Education/Academia
28	Arts, Entertainment, Accommodation and Food Services
24	Outdoor Recreation and Tourism
15	Public Land Management
9	Public Administration (except land and water resources management)
11	Firefighter
120	Other (please list)_____

22. What was your household income from all sources in 2004?

34	Less than $15,000
46	$15,000 to $24,999
50	$25,000 to $34,499
85	$35,000 to $49,999
127	$50,000 to $74,999
79	$75,000 to $99,999
67	$100,000 to $149,999
17	$150,000 to $199,999
18	$200,000 or more

Appendix A Focus Groups

Participants:

Focus Groups on Rangeland Vegetation Management in Nevada by location and date			
Reno 12/7/04	**Ely 12/14/04**	**Elko 12/15/04**	**Winnemucca 12/16/04**
Participant Interests by group			
agriculture range science environment mining ecology water quality state and federal agencies consulting and range management	conservation federal agencies ranching fire management mining	forestry wildlife ranching environment consulting conservation mining citizen empowerment	conservation federal agencies range management county government agriculture
Participant Affiliation by group (numbers of participants in parentheses)			
state employee (2) federal employee (1) environmentalist (2), UNR employee (2) consultant (4) mining (1)	federal employee (7) ranching (5) citizen activist (1) mining (1)	federal employee (2) state employee (2) ranching (3) consultant (1) citizen activist (1) environmentalist (1) unknown (1)	federal employee (6) county employee (2) state employee (1) farmer (1)

Notes From the Focus Groups:

This appendix summarizes the results of the four focus groups. Specific comments are identified by focus group: Reno, Ely, Elko, and Winnemucca. These results are organized by topic area: (1) strengths of Nevada rangeland vegetation, (2) historical sketch, (3) future projections for rangeland vegetation management over the next 15 years, (4) what we would not want to change about vegetation management over the next 15 years, and (5) what we would like to change for the next 15 years.

A.1 Strengths of Nevada Rangeland Vegetation

<u>Diversity</u>

- Diversity, diversity of vegetation types; gradients up mountains, across soils (white sage to PJ desert to riparian), and through succession (Reno)
- Diversity, sustainability, recreation, and living; variety recognition; diversity of plant communities - good for cattle, hunting, recreation, it's the ranchers home and he's totally dependent on it for his livelihood (Ely);
- The scope of rangelands; magnitude and plant community diversity; multiple use, diversity, sustainability (Elko)

Resiliency

- Resilient; lots of opportunities for damage and vegetation comes back, e.g., riparian areas; resilient and durable (Reno)
- Resilience – quality of life absorbs many demands - components still there – resiliency, especially where there's water; resilience (plants in unusual places and strength of plants to survive); resilient if people care about it and manage it appropriately (Ely)
- Versatility and "endurability" (Elko)
- Resilient riparian areas (Winn.)
- Adaptability of vegetation (Ely)
- Improvements of many burned areas after fire - better grass, fewer shrubs (Winn.)

Amount of Natural Conditions Remaining

- Natural vegetation versus agronomic or urban (Reno)
- Open and available (Ely)
- Indigenous plant species (Elko)
- Woodlands where they belong; brokenness of landscape; sub-alpine vegetation (Ely)
- Importance of pinyon juniper and aspen habitat (Elko)

Productivity

- Productive - vegetation is very resilient and after much history, it's productive (Reno)
- Versatility (Elko)
- Economic value; access to public land to provide commodities, recreation, etc. (Winn.)

Open Landscape

- Expansive (can go a long way without urban development); expansive - can enjoy and manage (Reno)
- Can ride all day with solitude; feeling of open "mosaic" country (Ely)
- Arid (Elko)

Intact Natural Environment

- Intact sagebrush communities; habitat (Reno)
- Great variety here - not like California where former ranges were replaced by annual ranges (Ely)
- Intact - large areas are not totally fragmented; potential for more wildlife diversity; non-game wildlife and species diversity (Elko)
- Capture water in watersheds (Winn.)
- Ecological process works positively (Winn.)

The people of the state clearly care about the state of rangeland vegetation

- Vegetation demonstrates man-caused change which we're now studying how to understand and correct (Reno)
- Multiple uses with caring people; solitude; escape (Ely)
- People that manage and care for the land - diversity of people with changing understanding (Elko)
- Openness; willingness of most people to take care of vegetation (Ely)
- How much people care (Ely)

A.2 Historical Sketch of Rangeland Management in Nevada

Early years: 1850 to 1950

- Some burning but this varied from area to area, lots of sagebrush; Indians burned only a little (Reno)
- Extensive management by Native Americans when the first European settlers came in the 1880s and dumped cattle. Indians used fire to create new growth, keep game accessible, and provide food, especially roots, pinion nuts, and small rodents. (Ely)
- Indian burning, especially in forested lands, and natural fire led to mosaics: natural fire with indigenous people and their fires as influenced by long climatic periods transitioned from minimal fire suppression to a lot more fire suppression (Elko)
- There were more grasslands; more bighorns, few deer. Early explorers had to eat their horses; lush riparian with fish in all the creeks; wetter climate; grass along Humboldt River soon went away from grazing by the wagon trains' livestock (Reno)
- Loss of grass because too many livestock, especially in the spring (Reno)
- Europeans came with huge ranches - the Adams McGill ranch was the largest; season-long grazing (Ely)
- Too many livestock for the range. A free-for-all until the forest reserves were established (Elko)
- It was first-come, first-served and bad grass management; the small guys got walked on (Winn.)
- Lost a lot of livestock around the 1890s; 1890-1910 lost our wildrye (Reno)
- Winter 1890's changed livestock management - before that we thought it would last forever. After that we had to manage for the longer term (Elko)
- Bad winters in the 1880s and 1890s caused a cattle die-off. Ranching by a boom- and bust-cycle with bad winters every 10-15 years; 1889 was really a bad winter and there were three bad winters in the 1920s (Winn.)
- Brush increases (Reno)
- Many more sheep, including tramp sheep operations (Reno)
- There were lots more sheep which were moved north and south as well as up and down mountains; most impact from sheep that were traveling through (Ely)
- A lot of sheep prior to the 1930s when many sheep operations converted to cattle. Sheep went all over California, Nevada, Utah; up to 3 million sheep in Nevada - now less than 100,000 (Winn.)
- Fire suppression with livestock eating the fuels (Ely)
- Fire suppression combined with the altered fuels from numerous hoofed animals caused fires to be spotty (Elko)

- Cattle were first brought in the 1870s to feed the miners; it wasn't until the turn of the century when the railroad came in that the large numbers of cattle were here (Ely)
- Grazing associations (Elko)
- Before 1930 - bad management, people could graze their stock wherever. Homesteaders found it difficult to keep livestock off their property. Before the Taylor Grazing Act, it was not managed to the extent it is now (Winn.)
- Water rights go back to the 1800s (Ely)
- Water rights claimed downstate in 1930s (Elko)
- Mining started in the 1860s to 70s; pinyon/juniper on the ridge tops but hard to tell because so much was cut in the last quarter of the 1800's (Reno)
- Miners kept trees over six inches in diameter cleared out within a 35 mile radius from the Ward Charcoal Ovens: cordwood was still stacked when the mines petered out or the railroad came in bringing coal (Ely)
- Mining impacts, pinyon/juniper and sagebrush for fuel (Elko)
- Increased government influence -Taylor Grazing Act and other laws. (Elko)
- The Taylor Grazing Act required base property. Before that people could buy sheep to graze. The Taylor Grazing Act set up grazing districts to improve and maintain the land. It led to the BLM in 1947 (Winn.)
- There was more conflict; are there more or fewer livestock now? - land was overstocked at those numbers but there should be more now; economics drove it down (Winn.)
- Absence of weeds - no cheatgrass until 100 years ago (Reno)
- Railroad weeds (Halogeton in Wells in 1934) and fire (Elko)
- Mowing invented around a century ago (Reno)
- Fire control started in the 1940s - before this "wildfire is wildfire" (Reno)
- CCCs (Civilian Conservation Corps) put fires out in the 1930s (Ely)
- 1940s and 50s were very wet and cold, with water for erosion and for annuals (Ely)
- Meadow Valley Wash was deeply downcut and the CCCs put in structures (Ely)
- Very little game - any deer seen in the 1900s-1940s was rare (Ely)
- Ranchers learned about range management which was still mostly home-based (Elko)
- Internal management led to external forces (Elko)
- Few people (Winn.)

<u>Historical Sketch 1950s till the present</u>

- Bureaucrats; four to five people per BLM office (Reno)
- From the 1960s on there are more people, especially after the Federal Land Policy And Management Act of 1976. There were three people in the Ely BLM office in the 1960's, and they were doing seedings (Ely)
- Establishment of the BLM and FS; in 1956, four to five BLM personnel and twice as many cattle - today 60+ "BLMers"; in the 1950s no outside influence - now a lot; in the 60s there was a survey of vegetation and adjustment of stocking (adjudication) (Winn.)
- 1952 was a terrible winter (Ely)
- Fire suppression in the 1950s (Ely)
- Peak of deer and sage grouse (Ely)
- Crested wheatgrass seedings in the 1950s and 60s; rangeland improvement projects (Reno)

- 1950s and 60s had new equipment for crested wheatgrass seedings and chainings (Ely)
- Introduced seeded species - crested wheatgrass was the predominant species; range improvements (Elko)
- Billings did the first floral description of the Great basin in 1955 (Reno)
- Invasives - more weeds (Reno)
- Not many noxious weeds until the last half century; until five - six years ago there was little concern about weeds - now it's a priority by agencies and others (Winn.)
- Grazing allotments were in common until the 1960s when they were adjudicated; livestock numbers up and down (Ely)
- Refinements on adjudication and focus on range improvements (Elko)
- 1972 Wild Horse and Burro Act (Reno, Ely)
- Management changed in the 70s - change in government involvement (Ely)
- Not enough time for all the laws in the 70s; NEPA for FS and BLM (Ely)
- Proliferation of roads (Reno)
- Transportation routes increased for jeeps, 4-wheelers, OHVs, etc. and this led to changes in the vegetation; 4-wheel drive vehicles were only owned by the ranchers and miners till the 60s and 70s; areas became more accessible with more disposable income; this led to more noxious weeds and a diversity of ideas about land use with more users and their pressures (Ely)
- Transportation - a big impact bringing in invasive and noxious weeds; also, road kills have increased ravens (Elko)
- Introduced wildlife species, chukar, Hungarian partridge, and rainbow trout (Elko)
- Big time fire suppression (Ely)
- Did not have big and frequent fires until recently (Winn.)
- Big change in understanding of fire's role; from preventing fires to preventing wildfires; people coming full circle - fire use is managed natural fire; fire use began in 2000 locally although talk of it began in the 90s - it was used in the 70s in Yosemite; fire use still pretty philosophical but now planned for 6 million acres - appropriate response for every fire - fire use is letting nature run its course within prescription (Ely)
- Due to fires, the range is better today (Winn.)
- Users, especially recreationists, have increased tremendously in the last 20 years (Winn.)
- People were scattered until after the Depression - this would especially affect riparian areas with hay production; change in population demography; many canyons no longer have people; now many people in the cities and they recreate on the weekend (Reno)
- Growth is exponential in the West; Las Vegas controls the legislature and dominates all of Nevada; Las Vegas is building a pipeline (Elko)
- The population of people is way up - 0.5 to 2 million people (Winn.)
- More knowledge; many scientists are now looking at vegetation; rangeland science (Reno)
- Refinement of range knowledge; we became splitters and now we're moving back to the landscape, big picture, of the system rather than just fixing the parts. (Elko)
- Permittee management, led to specialized individual management, led to looking at the landscape (Elko)
- More interest in wildlife; change in perception from a wasteland to a resource with a diversity of species (Reno)

- Biological specialists and more looking at specific complexities - subtleties and interactions from the rule of thumb; change in politics; more interest from outsiders especially in last 20 years (Elko)
- The environmental movement has made a tremendous difference; environmentalists stopped some things and this was good and bad (Winn.)
- BLM tries to meet all needs which leads it to become more polarized; agencies get comments from many different people; conflict of uses is a problem; easier to protest than it was four years ago; extremism is bad and there's more of it - regulations are passed for extremists – it's coming from the Potomac and from the other side of the Sierras; the users, grazers, are just as much environmentalists as recreationists – it's in their best interests; the problem is not with the environmental movement but with the extremists; over and under regulated; over regulated due to personalities that don't work well - on both sides (Winn.)
- In this county the regulation entities work well with industry; don't have a big fight here; sometimes don't agree but can come to agreement; a lot of personalities. We have a state director who works well with industries and it carries down to people who work with them - good relationship (Winn.)
- Not managing any better than in the 60s; management agencies have to deal with much more conflict - especially grazing versus no grazing; cattle are managed better with fewer fences; there are some bad operators and they tend to drive regulation; here when those issues come up we can talk it through e.g., the Martin Basin EIS led to a process that worked well with everyone - producers understood it and we all came to the table resulting in adding an alternative to the scheme of things; whereas, in other areas such issues are really divisive; local people can work it out (Winn.)
- We went from turning our back on the Truckee to embracing the River. (Reno)
- Watersheds had terrible floods in the 80s that wiped things out (Winn.)
- Mining, ditches and dams affected riparian areas; ground water development led to cropland (Reno)
- History with mining was no mining regulation and no salvage of materials for reclamation - in the 70s started the Surface Mining and Reclamation Act (Ely)
- Decrease in species diversity (Elko)
- Soil trampling, impacts to biotic crusts, increased erosion, and decreased infiltration (Elko)
- Less reliable forage base with cheatgrass; a major cutworm infestation (200,000 acres last year) led to Russian thistle which is now everywhere except where perennial grasses are doing well - little cheatgrass led to Halogeton doing well - tumble weeds will blow through town; squirreltail doing well in the cheatgrass cleared areas (Winn.)

A.3 Projections for rangeland vegetation management over the next 15 years

- Range trending upwards; improved vegetation cause we're managing property better with education from riparian groups, etc.; Because people from the outside look in, we do better; not as optimistic about the vegetation trend (Elko)
- Management is now more positive (Ely)
- Weed management a big problem but trending up - So we'll be in better shape (Elko)
- Mormon crickets are a problem and will be again next year (Winn.)
- People are moving west - so there's lots more demand (Winn.)
- We know more; get help from experts (Elko)
- Current policies may not get us to sustainability (Ely)

- If we do not change, the future is not real pretty - Afghanistan, continued problems with fire, urban expansion and land sales (Winn.)
- Not on an upswing but the positive thing is we're working more in groups; Education is there and its good but for a lot of reasons many people are not doing the right thing (Elko)
- Trend is toward planting natives (Elko)
- Not just outside pressures, but communities doing work - an evolution of our own ideas, not a fight (Elko)
- Not much will change in management because of mistrust and disagreement with new pressures from new groups (Ely)
- Really hard times coming in decision making (Elko)
- Technology makes it easy to protest things from the outside (Winn.)
- Public land grazing from subdivided private land should go to light, to no use (Elko)
- There will be more pressure from both sides - every use is consumptive (Ely)
- Still people who differ in opinion; society is more litigious; legal trend is that groups like Western watersheds will continue to use the courts and we have to deal with judicial decisions (Elko)
- Politics from ranchers and people want to keep ag. people in place even to the detriment of the vegetation
- Fault with the Feds waited and waited; that is, they did not act to correct improper grazing, then they finally had to do something and the hit comes hard (Elko)
- Coordinated Resource Management still occurs (Ely)
- Teamwork will be critical - more than enough resources if we respect each others' interests and work as a team; it's been our management style for a long time; **We have people problems not resource problems** - or they're solvable; The Ford Foundation says it is looking for community-based groups to develop the new paradigm; economics and politics will improve management (Elko)
- Started the next resource management plan for the BLM - with scoping to begin in March (Winn.)
- Weeds (Elko)
- Cheatgrass led to change in fire regime and fire size due to the acreage in fine fuels - at least Russian thistle is green in August; The types of invasives affect livestock and wildlife taking us from a shrub steppe, to an annual grassland, to decreased wildlife. This leads to a changed landscape with cheatgrass and noxious weeds. Cheatgrass crowded out native plants and weeds changed management of the landscape (Winn.)
- Nature makes the rules we have to follow (Ely)
- Continue to manage around drought (Winn.)
- Radically different country – it's 10 times worse because there has been no coherent policy - today its fire, management depends on money, another hot item is weeds, squeaky wheel management 5 years ago it was riparian and a few years ago fire - politically that's land management; management across programs rather than single program management; now trying to manage watersheds - a big change from the days of crested wheatgrass seedings; managers see things more interdisciplinary - interdisciplinary management plans; money for popular programs - agencies use money to move toward priorities (Ely)
- Increased urbanization pressure (Ely)
- Subdivisions are bad for all the resources - we feel this a bit, but not like, on the Colorado Front Range - the problem is coordinating multiple uses to maintain open space (Elko)

- Curb the irresponsible usage (2% of 100,000 is less than 2% of 1,000,000 so with growth we get more irresponsible users) (Winn.)
- ATVs lead to conflict (Winn.)
- Ranches getting larger and ranchers on non-ranch jobs (Ely)
- Open space is a big issue for people in the cities (Elko)
- More accountable; accountability leads to more paperwork and less on-the-ground work (Ely)
- Wild horses and burros were an unfunded mandate which led to the law allowing the killing of unadoptable wild horses and now people are screaming bloody murder - we must stop legislating management from emotions; not just horses - salvage what's left; A $ 0.37 stamp can have as much effect on management as a $250,000. Water development; private industry can't bear the costs of unfunded mandates - feds can't either - must balance these (Ely)
- Discussions lead to more science driving things for the future (Ely)
- More money coming from non-consumptive uses of public lands than from consumptive uses - shift in power from consumptive to non-consumptive users ie, recreation (Ely)
- Changes in the 70s were not humungous for vegetation but they led to stalemate (Ely)
- People moving from California to Nevada so, people problems increase - people moving in and buying lots (Ely)
- Clean Air and Clean Water Acts lead to restraints - with too many restraints, people subdivide ranches which leads to a decline in wildlife habitat (Ely)
- No gray between black and white - look at communist Russia, with government ownership it failed; we're pushing toward more government control rather than individual rights and responsibilities; we have the vision in place, but the biggest problem is budget (Ely)
- One big community is pinyon juniper, and no one wants it, which leads to a better understanding of what to do with it; we're not totally in agreement on how to do the common vision (Ely)
- There are many challenges - less use in the short run - air quality; Las Vegas' grand plan is to bring the water to the City; now there is access to Southern Nevada Public Land Management Act funds for natural resource management (Las Vegas is generating money for us); but appropriated money is down and we need to treat 50,000 acres per year to stay even; this will require a change in management - with a large scale treatments vision; environmental restrictions are the reality (Ely)

A.4 What we would not want to change over the next 15 years

The first 10 items in the following list were those that were rated high priority. These are each followed by the number of votes received.

- Active land management, 3 (Elko)
- CRM - collaborative process - open to ideas - watershed planning, 3 (Ely)
- Many partnerships working and in place, 2 (Ely)
- Public buy in - what is important to Nevada, 1 (Reno)
- Communication and ongoing education, 1 (Elko)
- Collaboration and communication, 1 (Winn.)
- Understanding of community dynamics broadened: increased use of state and transition models to prepare for the future, 1 (Ely)

- Continue to manage pinyon juniper by canopy reduction as needed, 1 (Elko)
- Private water for multiple use now could be lost if ranching lost, 1 (Ely)
- Continue to use livestock - commodity - fire control, 1 (Winn.)
- Keep the upward trend we are working on and implement what we've learned (Elko)
- Need for flexibility in vegetation management - options (Reno)
- Keep resilience; keep doing watershed assessments and become better at it (Ely)
- Fundamental change in how business is done (Reno)
- Maintain bunchgrass resilience (Winn.)
- Establishing ground rules for working together (Ely)
- State and transition models are an important tool; don't cross the thresholds - agencies are trying to maintain and improve, but management is very expensive; keep perennials (Reno)
- Agencies need to think big and look at the landscape level. An ecological analysis done by the nature conservancy was used for the joint venture bird program; keep a sense of independence and strength for the challenge (Reno)
- Take care of the community (Elko)
- Planning gets to development and private land, rather than the public land only focus of the federal agencies; public participation (Reno)
- Establish our own partnerships, CRM etc., with new neighbors, politics will change and we can work with partnerships - incorporating people's ideas; keep CRM working here - keep expanding technology-use GIS - better than mylars (Ely)
- Cooperative management to address the industries that made the communities; we have the ability to keep our quality of life e.g., sage grouse process, Shoe Sole HRM, etc. (Elko)
- Get more done with cooperation (Winn.)
- Planning - the value of planning is the process - defining goals and objectives with a good vision (Reno)
- Until we manage holistically, it will fail (Ely)
- Keep improving the land (Elko)
- People working it out (Winn.)
- Place value on what is important to Nevada (Reno)
- Empowerment (Ely)
- Keep educating (Elko)
- Ability to meet one on one (Winn.)
- Planning to keep open space (Reno)
- Keep individual rights to succeed or fail (Ely)
- Keep land use the same by using the tax structure to keep land from being subdivided (Elko)
- Develop a resource ethic for local planning groups to embrace (Reno)
- All parties have a voice (Elko)
- Key is urban audience - learn to appreciate what is here - identify values (Reno)
- Provide incentives - especially for those more removed from the land (Elko)
- Focus on landscapes with ranches at the bottom and the rest of the landscape working (Reno)
- Keep people managing well by recognizing the good work they do (Ely)
- Publicize our successes as an incentive to keep working; consider economic benefits (Elko)

- Vegetation, soils, and water are the basic resources of the state; prioritize areas in good shape and keep them good; identify critical wildlife areas e.g., sage grouse plan which needs continued support and the idea needs to be expanded to other resources; keep diversity of landscapes (Reno)
- Nature conservation approach to ecological classification (Reno)
- Small private land ownership, but many public land areas could be private - keep an appropriate balance. More private ownership of these areas will generate more taxes; big disparity between private and public land (Reno)
- Local politicians have an influence (Elko)
- Prevent massive ground water pumping; people moving to Nevada should celebrate Nevada landscapes - xeriscaping (Reno)
- Water is private property (Ely)
- Keep population same; more regulation: to control growth - and to protect the urban fringe (Reno)
- Keep land from subdividing, especially valuable scenic high $ areas (Ely)
- Keep hiring new people in old professions like agronomy; hire range people at UNR (Reno)
- Increased science - use increased technological application (e.g. GIS); innovators (Ely)
- Avoid the 'California' scene e.g., building in the pinyon juniper (Reno)
- Avoid transferring weeds everywhere by building awareness of weeds (Reno)
- Weeds not expanding (Reno)
- Keep roads down (Reno)
- Getting back white sage, bud sage and black brush (Ely)
- Not harvesting woodlands for wood products (Elko)
- Water developments for livestock management; BLM OK water developments and the ranchers who fund the work keep the value (Winn.)
- Use livestock to manage vegetation, for production, to manage wildlife habitat, and for fire control (Winn.)
- Weeds are a big problem for livestock and wildlife. Keep weed treatments and be more aggressive: cheatgrass is good compared to medusa head, knapweeds, etc. Weed treatment has been important in Nevada: weeds are much worse elsewhere. Major improvements in weed control during the last 12 years; everybody in the county is involved: improvement in weed efforts; pooling money to do weed work; equip money for weeds (Winn.)

A.5 What we would like to change over the next 15 years

The first 17 items in the following list were those that were rated high priority. These are followed by the number of votes each received.

- Active planning county-wide; plan which lands the Feds could dispose of and which lands should be acquired; a county lands act with a county-wide evaluation including big game migration, etc., 3 (Elko)
- Back to individuals' right to succeed or fail on their own, 3 (Ely)
- Integrate statewide planning to develop a vision of vegetation management -- needs to be water-based; honest cooperation and collaboration, use recent efforts as base for a statewide resource management plan. More than vegetation; grass roots-based planning with commitment from the top; community-based facilitation using accurate information to understand what communities want, e.g., transportation corridors, 2 (Reno)
- Must manage holistically - need common vision and power to achieve it, 2 (Ely)
- Development of resource values within population (ethics); people value sagebrush, 2 (Reno)
- Build on current weed efforts - cooperative efforts; more diligent with aggressive weed management; more research regarding pre-emergent herbicides for weeds or vast expanses of annuals so we can follow up with seeding; use management by livestock to reduce the cost for seedings - for resilient rangelands we must have perennial bunchgrasses and consider this in the use of livestock for fuels treatments, 2 (Winn.)
- Drought management knowledge - how to manage and come out good, 2 (Winn.)
- Educate general public at national level that it's not a void and barren area with nothing; need to see Nevada as a well-kept desert; educate public about value of sagebrush ecosystem; value sagebrush; must assign community value to aesthetic resources (to keep intact), 1 (Ely)
- Society change about what is important, 1 (Elko)
- Funding for watershed planning for sage grouse, etc., 1 (Elko)
- Value on water - manage water for vegetation - need balance to prevent loss; focus on what our water can support, water for people and water for riparian, 1 (Reno)
- Don't continue to relearn, 1 (Ely)
- More specific management of wildlife, 1 (Elko)
- Education - value of grazing in range management, 1 (Elko)
- Resource education in urban schools; more education would increase responsible use; increased public participation in educational programs, 1 (Winn.)
- More flexibility for permittee in livestock management, 1 (Winn.);
- Better sharing of range resources to overcome problems; manage livestock to meet goals; more AUMs during productive cheatgrass years; appropriate season of use; reduce ability to appeal/protest - need standing before protest accepted, get out of the protest and appeal mode, 1 (Winn.)

- Well permits and pipeline – right of way in 60 days not 6 years. (Winn.)
- More community meetings countywide; more buy-in to the process by the public; community-wide outreach; more collaborative planning; people buy in to a collaborative product (Winn.)

- Cooperative extension becoming a key player for education of the much greater number of people (Reno)
- Planning with support from the top and with Las Vegas' support; planning when the bullets are not flying; NGO saying we need planning as a coalition; make some fundamental changes regarding planning for conservation; create a holistic look with all things on the table (Reno)
- Expand our vision; more partnerships (Ely)
- Restored and functioning ecosystems (general concept) - sagebrush - pinyon juniper - riparian (Reno)
- Keep cooperating in regard to resting after seeding and sharing forage after fire (Winn.)
- Lack of a comprehensive plan - need to know where we want to be; create a common vision and work to achieve it; plan with recognition of people who are out on the land; keep partnerships, e.g., tri-county weeds Eastern Nevada Landscape Coalition, rancher restoration with BLM (Ely)
- Need a huge public relations campaign (Nevada is not a wasteland)
- More concern for taking care of resources (Winn.)
- Cooperative Extension becoming a key player for education of the much greater number of people (Reno)
- Figure out how to rehabilitate cheatgrass fire areas; because we're at the threshold with weeds, we need an educational effort and changed practices; extend the regulations for vehicle wash down from power line project equipment and mining excavation to OHVs (Reno)
- Protect lands not damaged by weeds and fire; put value on landscape - change starting; public values the landscape; people value water for riparian areas e.g., cottonwood trees (Reno)
- Less sagebrush (15% cover not 30-40%) (Reno)
- Riparian area values along with the rest of the landscape (Reno)
- Manage on purpose for wildlife (Elko)
- Global change is background for everything and a "holistic look" is needed (Reno)
- People understand the value of diversity, of resources and of water for nature all superimposed on global change - mega drought (Reno)
- Much more public education - all the same goals even if the outcome is different - what kind of vegetation, fire resistant species, outdoor recreationists need to know the flammability of cheatgrass and damage done by OHVs, the value of grazing cause people don't have a clue, benefits of grazing (the general public is too far removed from agriculture, more responsible uses of land (not abuses from motorized vehicles causing havoc with erosion) (Winn.)
- Fewer roads; manage the people coming to Nevada for outdoor recreation especially with off highway vehicles (Reno)
- Put people in the bombed areas while we watch over areas that are sensitive (Elko)
- Consolidate checkerboard lands and dispose for private use (Elko)
- Plant materials - new knowledge and progress for positive change; better knowledge of plant soil relationships - what can grow where, need much better refinement; rehabilitated cheatgrass fire areas - 1% less cheatgrass dominated area (Reno)

- Increase the science base, more time on range to apply science - know what's going on; keep all land management / revegetation tools in the toolbox (this is starting); allow people to experiment with ways to manage the land; keep innovation (Ely)
- Projects on the ground (Winn.)
- Use new technologies (Elko)
- Empower people to make changes; put tools in the Resource Management Plan; get more people to change their way of thinking - creating savannahs and increasing springs with mechanical tools; we've broadened our understanding with state and transition models and we need to broaden further - capture the past and prepare for the future with approximations - build our understanding with state and transition models; those who fail to learn the lessons of history are doomed to repeat, so capture these lessons with state and transition models (Ely)
- Adaptive management; manipulate PJ to gain biodiversity; fuels management; think more complex thoughts (Elko)
- Improve by having people out on the land to monitor (Ely)
- Counter the disconnect of people and the land (Elko)
- Recognition for those using resources who are doing well (Ely)
- Tell success stories - don't paint the good with the bad (Elko)
- Value the work of good ranchers - not by buying a conservation easement but by not regulating people into subdivisions; change the agencies to allow families to work to achieve their dream (Ely)
- Management flexibility by land management agencies; coax agencies into working in new ways - become more elastic; provide incentives (Elko)
- Keep custom and culture intact (Ely)
- Gain multiple use (Elko)
- Use native species for xeriscaping (Reno)
- Everything (resources) goes to Las Vegas - rest of state a wasteland in 20 years; Develop a process for keeping Las Vegas from growing by five times and making the rest of the state a ghost town (Reno)
- Develop real incentives for conservation; put a priority on natural areas for restricted use (Reno)
- Change way of thinking and recognize landscape potential (Ely)
- Lobby lawmakers for appropriate land-use legislation (Elko)
- Make the checkerboard private and save wonderful areas for the public (Elko)
- Use local politics to keep land uses - consider economic value of wildlife (Elko)
- Change from range livestock to recreation (Elko)
- Stop using the shotgun approach (Elko)
- Resolve water development issues on public lands; easier approval for water development
- Permits in shorter time, not 3-5 years; resolve the water issues between the state and the feds regarding water for livestock, especially with the continuing drought (Winn.)
- Put water on millions of acres - the cause of no water is cost, time for studies (NEPA, arch., etc.) (Winn.)
- Information about livestock management through drought, going in and coming out of a drought to have the range stay in good shape (Winn.)
- Agree better about when to use forage after fire or a seeding (Winn.)

- Allow more AUMs on cheatgrass in good years; change the season of use regarding cheatgrass and fire
- Land managers have more flexibility as to turn-out - the problem is the review process is too time consuming (Winn.)

Appendix B Questionnaire

YOUR OPINION COUNTS

Nevada's Rangeland Vegetation

A Public Opinion Questionnaire

2005

A study conducted by
University of Nevada Cooperative Extension and
UNR, Reno, Department of Resource Economics

Ver 1Mi

Nevada's Rangeland Vegetation
A Public Opinion Questionnaire

Nevada's Rangelands are the non-crop and non-urban open lands that make up nine-tenths of Nevada's landscape.

The purpose of this study is to understand how you and other Nevadans value and use rangelands.

Rangelands support ranching, recreation, wild horses, and over 300 wildlife species. The type and amount of vegetation on these lands are crucial to supporting this resource. To best address vegetation management it is important to understand how people value and use these lands.

The information from this study will help direct future research and develop educational programs that best meet the needs of all Nevadans.

- This questionnaire will take approximately 20 to 30 minutes to complete.
- It is important that this survey be completed by the person to whom it is addressed.
- Please return the survey in the enclosed postage-paid envelope.

The following questions ask you to provide your opinions about management and uses of rangeland vegetation. Please respond to each question in the terms of **your own** opinions, knowledge, and values. **There is no correct answer – the best answers are those that reflect your own experiences.**

1. Please check the boxes that best indicate your use of Nevada rangelands for the listed activities in the last 12 months and what your future activities may include.

	Activities in the last 12 months			Future Activities	
	None	1-4 times	5 or more times	No	Yes
Bicycling	☐	☐	☐	☐	☐
Camping	☐	☐	☐	☐	☐
Hiking	☐	☐	☐	☐	☐
Sightseeing	☐	☐	☐	☐	☐
Wildlife viewing	☐	☐	☐	☐	☐
Horseback riding	☐	☐	☐	☐	☐
Off-road vehicle use	☐	☐	☐	☐	☐
Rock Hounding	☐	☐	☐	☐	☐
Nut or berry harvesting	☐	☐	☐	☐	☐
Hunting	☐	☐	☐	☐	☐
Ranching	☐	☐	☐	☐	☐
Fishing	☐	☐	☐	☐	☐
Target Shooting	☐	☐	☐	☐	☐
Other (please list below) _____	☐	☐	☐	☐	☐

2. Nevada rangeland vegetation provides us with many resources and services. Check the boxes that best indicate how important each of the following resources and services is to <u>you personally</u>.

	How important to you?			
	Not at all	Somewhat	Important	Very
Solitude	☐	☐	☐	☐
Scenic value	☐	☐	☐	☐
Air quality	☐	☐	☐	☐
Water quality	☐	☐	☐	☐
Soil quality	☐	☐	☐	☐
Erosion control	☐	☐	☐	☐
Wildlife habitat	☐	☐	☐	☐
Native plants	☐	☐	☐	☐
Livestock forage	☐	☐	☐	☐
Biological diversity	☐	☐	☐	☐
Other (please list below) _____	☐	☐	☐	☐

3. Please indicate how knowledgeable you are regarding the following land use topics.

	How knowledgeable?				Would you like to learn more?
	Not at all	A little	Fairly	Very	
Rangeland Ecosystem	☐	☐	☐	☐	☐
Native plants	☐	☐	☐	☐	☐
Invasive plants	☐	☐	☐	☐	☐
Cheatgrass and fire	☐	☐	☐	☐	☐
Grazing management	☐	☐	☐	☐	☐
Wildlife management	☐	☐	☐	☐	☐
Rangeland wildfires	☐	☐	☐	☐	☐
Vegetation management	☐	☐	☐	☐	☐
Water quality	☐	☐	☐	☐	☐
Water quantity	☐	☐	☐	☐	☐
Wetland management	☐	☐	☐	☐	☐
Drought impacts	☐	☐	☐	☐	☐
Soil Erosion	☐	☐	☐	☐	☐
Other (please list below) _____	☐	☐	☐	☐	☐

Before continuing ,
please review the following information on Wildfires and Rangeland Vegetation.

Rangeland Vegetation and Wildfire

Historically, much of rangelands in northern Nevada experienced wildfires about every 30 to 70 years. This fire cycle kept a natural balance between native grasses, wildflowers, shrubs, and trees.

However, human activities have changed the natural fire cycle. Two activities that have contributed to the change are:

- The introduction of cheatgrass, an invasive, highly flammable annual grass, that has spread throughout Nevada. Cheatgrass fuels more frequent and hotter fires. These fires can destroy vegetation and often prevent native plants from reestablishing. Cheatgrass produces abundant seeds each year and rapidly reestablishes after fire. Many of these areas now burn every 2 to 15 years.

- Fire suppression which has allowed pinion pines and junipers to spread, crowding out native grasses, wildflowers and shrubs. Some of these areas have not burned for more than 100 years. When a fire eventually occurs in these areas, it is hotter and thus more severe than normal due to the buildup of woody fuels. Following a severe fire cheatgrass rapidly invades.

Rangelands that experience this accelerating cheatgrass/fire cycle eventually loose their capacity to support native vegetation.

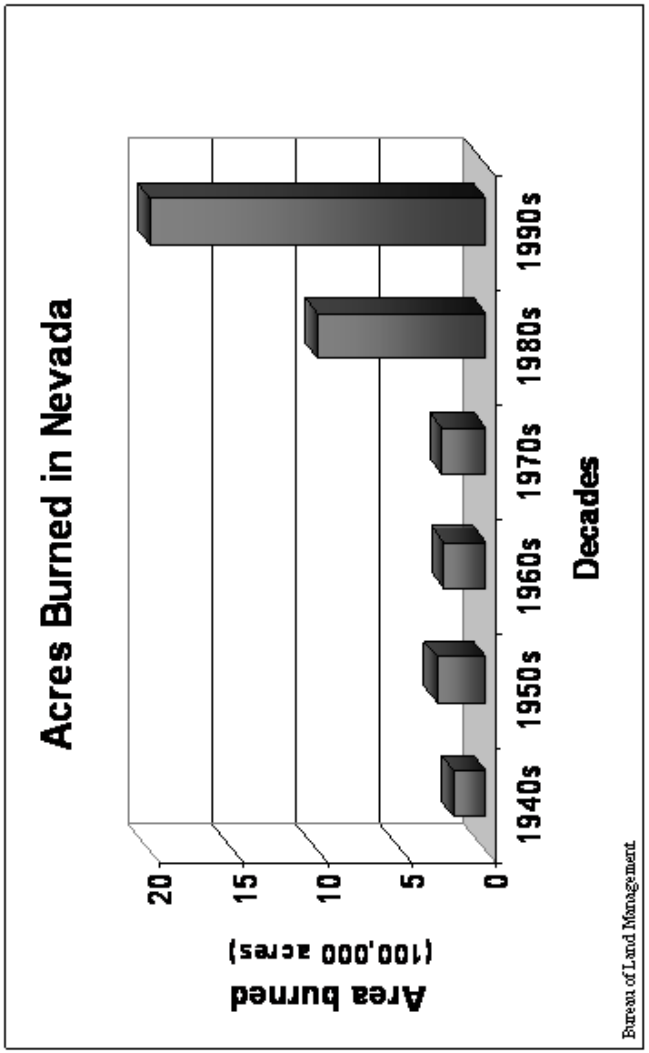
The graph on the next page shows how the number of wildfires has increased on Nevada rangelands over the last six decades. During the summer of 1999 alone, huge wildfires burned 1.8 million acres of land in Nevada, wiping out many native plants.

The 2005 fire season could be worse than the 1999 season. Fire officials say the extraordinary precipitation earlier this year has led to record cheatgrass growth and created conditions favorable for the fires.

As of July 1, more than 731,000 acres have burned in Nevada.

The changing fire cycle and loss of native rangeland vegetation in Nevada has resulted in:

- millions of taxpayer dollars spent annually for fire suppression and restoration
- increased threat to property and life
- increased erosion and sedimentation
- decreased water quality
- change in the forage base for domestic livestock
- fewer recreation opportunities
- decreased habitat for wildlife and wild horses



The number of acres burned in Nevada has increased in the last two decades.

4. Check the boxes below indicating to what degree <u>you</u> feel these issues threaten Nevada's rangelands.

	Extent to which each is a threat				
	Not at all	**Small**	**Moderate**	**Serious**	**Don't know**
Current land use policies	☐	☐	☐	☐	☐
Strict regulations	☐	☐	☐	☐	☐
Lenient regulations	☐	☐	☐	☐	☐
Development	☐	☐	☐	☐	☐
Off-road vehicles	☐	☐	☐	☐	☐
Wild horse populations	☐	☐	☐	☐	☐
Livestock grazing	☐	☐	☐	☐	☐
Invasive weeds	☐	☐	☐	☐	☐
Cheatgrass spread	☐	☐	☐	☐	☐
Pinyon pine / juniper spread	☐	☐	☐	☐	☐
Increasing fires	☐	☐	☐	☐	☐
Prescribed fires	☐	☐	☐	☐	☐
Fire suppression	☐	☐	☐	☐	☐
Water diversions	☐	☐	☐	☐	☐
Seeding with non-native plants	☐	☐	☐	☐	☐
Other (please list below)					
_____	☐	☐	☐	☐	☐

Vegetation Management works to ensure that land maintains the capacity to produce optimal amounts and types of native and beneficial plants. Both public agencies and private citizens participate in vegetation management practices.

5. How important are the following vegetation management priorities to <u>you personally</u>?

	How important to you?			
	Not at all	Somewhat	Important	Very
Livestock forage production	❑	❑	❑	❑
Mined land reclamation	❑	❑	❑	❑
Native plant preservation	❑	❑	❑	❑
Invasive weed control	❑	❑	❑	❑
Restoration of cheatgrass dominated areas	❑	❑	❑	❑
Prevention of cheatgrass domination	❑	❑	❑	❑
Revegetation of burned areas	❑	❑	❑	❑
Fire prevention	❑	❑	❑	❑
Wildlife habitat	❑	❑	❑	❑
Revegetation of abandoned roads	❑	❑	❑	❑
Stream area restoration	❑	❑	❑	❑
Soil and water conservation	❑	❑	❑	❑
Other (please list below) _____	❑	❑	❑	❑

6. How appropriate do <u>you</u> feel each of the following vegetation management methods are for use on Nevada's rangelands?

	How appropriate?				
	Not at all	Somewhat	Appropriate	Very	Don't know
Prescribed fire	❑	❑	❑	❑	❑
Fire control	❑	❑	❑	❑	❑
Seeding native species	❑	❑	❑	❑	❑
Seeding non-native species	❑	❑	❑	❑	❑
Using machinery to remove vegetation	❑	❑	❑	❑	❑
Using herbicides	❑	❑	❑	❑	❑
Prescribed grazing	❑	❑	❑	❑	❑
Excluding grazing animals	❑	❑	❑	❑	❑
Brush and tree cutting by hand	❑	❑	❑	❑	❑
Control with selected insects	❑	❑	❑	❑	❑

7. Please indicate the extent to which you agree or disagree with the following statements about grazing and vegetation management on Nevada rangelands.

	Extent to which you agree or disagree				
	Strongly Agree	Somewhat Agree	No opinion	Somewhat Disagree	Strongly Disagree
Livestock grazing should be managed to meet vegetation priorities	❑	❑	❑	❑	❑
Wild horse populations should be managed to meet vegetation priorities	❑	❑	❑	❑	❑
Wildlife populations should be managed to meet vegetation priorities	❑	❑	❑	❑	❑

8. Please indicate whether <u>you</u> agree or disagree with the following statements about fire on Nevada rangelands.

	Extent to which you agree or disagree				
	Strongly Agree	Somewhat Agree	No opinion	Somewhat Disagree	Strongly Disagree
All rangeland fires should be stopped whenever possible.	❑	❑	❑	❑	❑
Rangeland fires should be stopped **only** when they threaten human life.	❑	❑	❑	❑	❑
Rangeland fires should be stopped when they threaten human **life or property.**	❑	❑	❑	❑	❑
Vegetation should be **managed to prevent** rangeland fires.	❑	❑	❑	❑	❑

The next question asks you to consider and respond to a **hypothetical** proposal.
Your answer to this questions will help us understand how you value rangeland vegetation.

PROPOSAL

Suppose that experts expect the numbers of wildfires in Nevada to **double** over the next five years due to the continued spread of cheatgrass. This will lead to the loss of native grasses, wildflowers, and shrubs.

A new, intensive Rangeland Vegetation Management Program has been proposed. This program will reduce fire risk by reducing cheatgrass through the use of prescribed fires, machinery, herbicides, prescribed grazing, and seeding with native plants and non-native grasses such as crested wheatgrass.

Under this new program, fire risk would **not double**, but stay the same as it is now.

Now **suppose** that the Rangeland Vegetation Management Program would be funded through a new tax.

- If a majority voted **YES** (for the proposal), a special tax would be collected from everyone and used only for the Rangeland Vegetation Management Program.
- If a majority voted **NO** (against the proposal) the tax would not be charged and the management program would not be funded.
- Please imagine that if the proposal passes, you would be charged the special tax every year for the foreseeable future.
- As you think about your answer, please remember that if this proposal passes, you would have less money for other expenses.

9. Would you vote for this proposal if passage of the proposal would cost you these amounts every year for the foreseeable future? Please check one box for each amount.

	How would you vote?				
Cost to you per year?	**Definitely No**	**Probably No**	**Probably Yes**	**Definitely Yes**	**Not Sure**
$0	☐	☐	☐	☐	☐
$1	☐	☐	☐	☐	☐
$	☐	☐	☐	☐	☐
$	☐	☐	☐	☐	☐
$	☐	☐	☐	☐	☐
$	☐	☐	☐	☐	☐
$	☐	☐	☐	☐	☐

Please tell us **WHY** you voted for or against the proposal.
Depending on how you voted for each amount,
you might answer only 10a **or** 10b, or you might answer both 10a **and** 10b.

10a. **If you voted either** • **Definitely Yes** • **Probably Yes** **for one or more amounts** (Check all that apply)	
☐	Rangeland vegetation is important to me and it is worth the cost.
☐	So I can continue my current uses of Nevada rangelands.
☐	Because I might want to use Nevada rangelands in the future.
☐	To protect Nevada rangelands for future generations.
☐	To protect the ecosystem.
☐	To protect wildlife habitat.
☐	To protect wild horse habitat.
☐	To protect grazing lands.
☐	To protect human life and property.
☐	Other (please specify):

10b. **If you voted either** • **Definitely No** • **Probably No** • **Not Sure** **for one or more amounts** (Check all that apply)	
☐	Rangeland vegetation is important to me, but I cannot afford the cost.
☐	I could afford the cost, but I am concerned about spending this much money.
☐	Nevada rangelands are **not** important to me.
☐	I'm against one or more of the methods proposed to reduce cheatgrass.
☐	I don't feel that cheatgrass is a threat to rangeland vegetation.
☐	I don't trust the government to use my taxes wisely.
☐	I already pay too much in taxes.
☐	I object to the way the question was asked.
☐	I feel that I didn't have enough information.
☐	Other (please specify):

This section asks about you and your household. This information is used to help group your responses with other households like yours. **Your answers will be kept completely confidential** and results will be pooled over all survey respondents.

11. What sources would you be most likely to use to learn about Nevada rangeland vegetation management?

Sources	How likely are you to use these sources? Not at all	Somewhat	Highly	Don't know
Internet	☐	☐	☐	☐
Newspaper articles	☐	☐	☐	☐
Magazine articles	☐	☐	☐	☐
Fact sheets and brochures	☐	☐	☐	☐
Demonstration projects	☐	☐	☐	☐
TV programs or news	☐	☐	☐	☐
Radio programs	☐	☐	☐	☐
Public information meetings	☐	☐	☐	☐
Short courses and workshops	☐	☐	☐	☐
Other (please list below)	☐	☐	☐	☐

_____

12. Have you attended an University of Nevada Cooperative Extension workshop on weed, rangeland, fuels, or vegetation management?

☐ No

☐ Yes → If yes, how many?_____

13. How many people are in your household? _____

14. What is your age? _____

15. Not including yourself, how many people in your household are in each of the age groups listed below.

	0-17 years	18-24 years	25-64 years	65 + years
Not including yourself, how many people in your household are in each age group				

(please fill in number)

16. What is the zip code of your residence?

_____

(please fill in)

17. How many years have you lived in Nevada?

I have lived in Nevada...		
☐	Under 2 years →	Go to 17a.
☐	2-5 years →	Go to 17a.
☐	5-9 years →	Go to 17a.
☐	10-19 years	
☐	20-29 years	
☐	30+ years	

17a. If you have lived in Nevada less than 10 years from what state or country did you move from?

_____

18. What is your gender?

☐ Male

☐ Female

19. What is the highest level of schooling you have completed? (Please check one box only)

☐ Did not complete high school

☐ High school graduate (includes equivalency)

☐ Some college or vocation school, no degree

☐ Associate Degree

☐ Bachelor's Degree

☐ Graduate or Professional Degree

20. What is your job status? (Please check one box only)

☐ Employed full-time

☐ Employed part-time

☐ Unemployed but looking for work

☐ Unemployed not looking for work

☐ Retired

21. Please choose the field(s) that best describes your line of work. (Check all that apply)

- ☐ Ranching
- ☐ Agriculture (other than ranching)
- ☐ Landscaping
- ☐ Mining
- ☐ Construction or Manufacturing
- ☐ Wholesale or Retail Trade
- ☐ Water Resources Management
- ☐ Utilities (other than water)
- ☐ Healthcare
- ☐ Natural Resource and Environmental Sciences
- ☐ Professional, Management, Administrative
- ☐ Education/Academia
- ☐ Arts, Entertainment, Accommodation and Food Services
- ☐ Outdoor Recreation and Tourism
- ☐ Public Land Management
- ☐ Public Administration (Except Land and Water Resources Management)
- ☐ Firefighter
- ☐ Other (please list)_____

22. Please indicate your total household income from all sources, before taxes, in 2004.

- ☐ Less than $15,000
- ☐ $15,000 to $24,999
- ☐ $25,000 to $34,499
- ☐ $35,000 to $49,999
- ☐ $50,000 to $74,999
- ☐ $75,000 to $99,999
- ☐ $100,000 to $149,999
- ☐ $150,000 to $199,999
- ☐ $200,000 or more

Thank you for taking the time to fill out this questionnaire. Your assistance is very much appreciated. It is only with the help of people like you that our research can be successful.

Please return this questionnaire as soon as possible in the enclosed postage-paid envelope.

Feel free to address questions to:

Anita Castledine
Graduate Research Assistant and Survey Manager
(775) 784-7589
acastledine@cabnr.unr.edu
University of Nevada
Dept. of Resource Economics
Reno, NV 89557-0105

If there is anything you would like to tell us about this survey, or the services provided by UNR Cooperative Extension, please do so in the space below.

COMMENTS

Appendix C Alternative Proposal

PROPOSAL

Suppose that a new, intensive Rangeland Vegetation Management Program has been proposed. This program will reduce fire risk by reducing cheatgrass through the use of prescribed fires, machinery, herbicides, prescribed grazing, and seeding with native plants and non-native grasses such as crested wheatgrass.

The new program could **reduce** the number of wildfires throughout the state **by half**.

Now **suppose** that the Rangeland Vegetation Management Program would be funded through a new tax.

If a majority voted **YES** (for the proposal), a special tax would be collected from everyone and used only for the Rangeland Vegetation Management Program.

If a majority voted **NO** (against the proposal), the tax would not be charged and the management program would not be funded.

Please imagine that if the proposal passes, you would be charged the special tax every year for the foreseeable future.

As you think about your answer, please remember that if this proposal passes, you would have less money for other expenses.