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Wilderness Experience in Rocky Mountain National Park 2002:

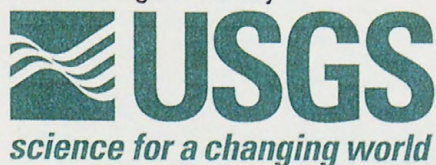
Report to Respondents

December 2003

Open File Report 03-444



U.S. Department of the Interior
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U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

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Rocky Mountain National Park 2002:**

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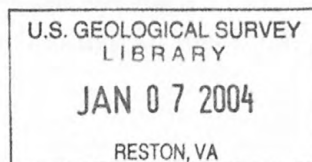
by

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Fort Collins Science Center
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REPORT TO RESPONDENTS

Executive Summary

A substantial amount of backcountry (about 250,000 acres) in Rocky Mountain National Park [RMNP or the Park] may be designated as wilderness areas in the coming years. Currently, over 3 million visitors drive through the park on Trail Ridge Road, camp in designated campgrounds, day hike, etc. each year. Many of those visitors also report using the backcountry-wilderness areas that are not easily accessible by roads or trails. Use of the backcountry is growing at RMNP and is accompanied by changing visitor expectations and preferences for wilderness management. For these reasons it is of great importance for the Park to periodically assess what *types of environments and conditions* wilderness users seek to facilitate a quality experience.

To assist in this effort, the Political Analysis and Science Assistance [PASA] program / Fort Collins Science Center / U.S. Geological Survey, in close collaboration with personnel and volunteers from RMNP, as well as the Natural Resource Recreation and Tourism [NRRT] Department at Colorado State University, launched a research effort in the summer of 2002 to investigate visitors' wilderness experiences in the Park.

Specifically, the purpose of this research was: (1) To determine what constitutes a wilderness experience; (2) To identify important places, visual features, and sounds essential to a quality wilderness experience and; (3) To determine what aspects may detract from wilderness experience. Thus, answers to these questions should provide insight for Park managers about visitors' expectations for wilderness recreation and the conditions they seek for quality wilderness experiences. Ultimately, this information can be used to support wilderness management decisions within RMNP.

The social science technique of Visitor Employed Photography [VEP] was used to obtain information from visitors about wilderness experiences. Visitors were selected at random from Park-designated wilderness trails, in proportion to their use, and asked to participate in the survey. Respondents were given single use, 10-exposure cameras and photo-log diaries to record experiences. A total of 293 cameras were distributed, with a response rate of 87%. Following the development of the photos, a copy of the photos, two pertinent pages from the photo-log, and a follow-up survey were mailed to respondents. Fifty-six percent of the follow-up surveys were returned. Findings from the two surveys were analyzed and compared. The key findings for this study are highlighted as follows:

What is being photographed?

- Respondents took photos of natural subjects only, human or human-made subjects only or combinations of both human and natural subjects. Natural subject only photos accounted for more photographed subjects than any other category (70%).
- Approximately 80% of all photos included a natural feature. Running water features (i.e., rivers, creeks, streams) were the most photographed natural feature, followed by trees then the category of mountains, peaks or glaciers.
- Collectively, photos of people and of hiking trails constituted over half of all human or human-made subject photos (57%).

What are the effects of these subjects on wilderness experiences?

- Most photo subjects had a positive effect on wilderness experience (87%).
- Cross comparisons showed that almost all of the natural-subject photos taken (93%) had a positive effect on wilderness experiences, whereas, only 66% of human-subject photos had such an effect on experiences.

What sounds are being heard?

- Respondents listed, in the photo-logs, sounds of natural origin, non-mechanized or mechanized human sounds, or a combination of both. A majority of sounds reported were of natural origin only (77%).
- Sounds of water were reported most often (39%) compared to other natural sounds, followed by sounds of wildlife and wind.
- Sounds of human voices were reported more often than any other human origin sound (46%). Cars and motorcycles were the most reported mechanized human sound with airplane noise a close second.

What are the effects of these sounds on wilderness experience?

- As with photo subjects, most sounds had a positive effect on wilderness experiences (81%).
- Cross comparisons of human origin and natural origin sounds with effect on experience showed that 93% of natural sounds had positive effects, whereas, only 34% of human sounds had positive effects on wilderness experiences.

Why do sounds & subjects affect wilderness experiences?

- Human-made subjects were listed as positive for reasons such as the facilitation of wilderness experiences, increasing ease of access to the Park, or as an indication of the National Park Service conserving lands. Human subjects had negative effects if they were an indication of environmental degradation, horse presence on trails, or interference with use of the Park.
- Human voices were positive because of the enjoyment of hearing others enjoy nature and the Park, or were a reminder of the importance of sharing wilderness experiences with others. Voices were thought to be negative when they implied the Park was too crowded. Mechanized noises such as planes or cars were a reminder of everyday life, stress, and civilization. These latter noises were thought to be out of place in wilderness.

How do respondents define a wilderness experience?

- The most important reason for visiting RMNP was to enjoy the backcountry or wilderness itself. There was no important difference between day hikers and overnight users of the backcountry on this measure.
- A majority of day hikers (68%) and overnight users (65%) felt that “being in wilderness” depends on where they are in the Park.
- When asked to describe, in their own words, what the experience of being in the wilderness at RMNP means to them, respondents’ answers revealed a number of emergent themes. “Aesthetics” was the most often mentioned theme, followed by “physical escape” then “solitude”. A total of eleven researcher-defined themes were identified for this measure.

- The meaning of wilderness experience is not a simple, straightforward construct for Park visitors, but a complex one that includes multiple reasons for a wilderness experience being an important component to recreation at RMNP.

How do changes in sights and sounds affect wilderness experiences?

- When asked about changes in sounds, respondents reported that hearing birds sing was the most enhancing sound, followed by thunder from an approaching storm. Hearing a person on their cell phone was the most detracting sound, followed by a jet flying overhead.
- Seeing an elk was greatly enhancing, however, this experience was altered to only neutral if the elk was wearing a radio collar. Seeing trash was the most detracting, followed by seeing a family feed a chipmunk.
- Explanations for the reasons why these sights and sounds were enhancing or detracting from a wilderness experience were similar to the conceptual dimensions that emerged from respondents' previous explanations for subject and sounds' effects on wilderness experiences in the photo-log exercise. In general, natural sights and sounds were perceived to be enhancing to the experience, whereas, non-natural or human-origin sights and sounds detracted, more or less, from the beauty and solitude of the wilderness area.

Who were the respondents?

- Most respondents had visited the backcountry and front country of RMNP many times before this trip. The average number of trips to the backcountry was 10.2, and to the front country, 10.7.
- In the past year most respondents had visited the backcountry 3.8 times, and the front country 2.8 times.
- Out of the respondents who answered the follow-up survey, 59% were male, between the ages of 26 and 55 (67%), well educated with 48% having graduate or professional degrees, and 71% reported annual incomes of over \$50,000.

The following pages show the questions or instructions you were provided, and the responses as either graphs or tables.

RESULTS – CAMERA & PHOTO-LOG EXERCISE

Question Summaries

As you take each photograph, please...

1. Record the **subject** (What you are taking a picture of.)
2. Record the **location** (Where is it in the surrounding countryside? Identify nearby landmarks, trails, etc.)
3. Record whether that photo-subject has a **positive and/or negative effect** on your wilderness experience.
4. Comment briefly on **why the subject** photographed is important to your experience.
5. Record any **sounds** that you are particularly aware of.
6. Record whether those sounds have a **positive and/or negative effect** on your wilderness experience.
7. **How do these sounds affect** your wilderness experience?

Be sure to record the above information in the booklet in the same order as the pictures in the camera.

1. Subject: What are you taking a picture of?

Figure1. Percentage of human or human-made vs. natural photo subjects (n = 2252).

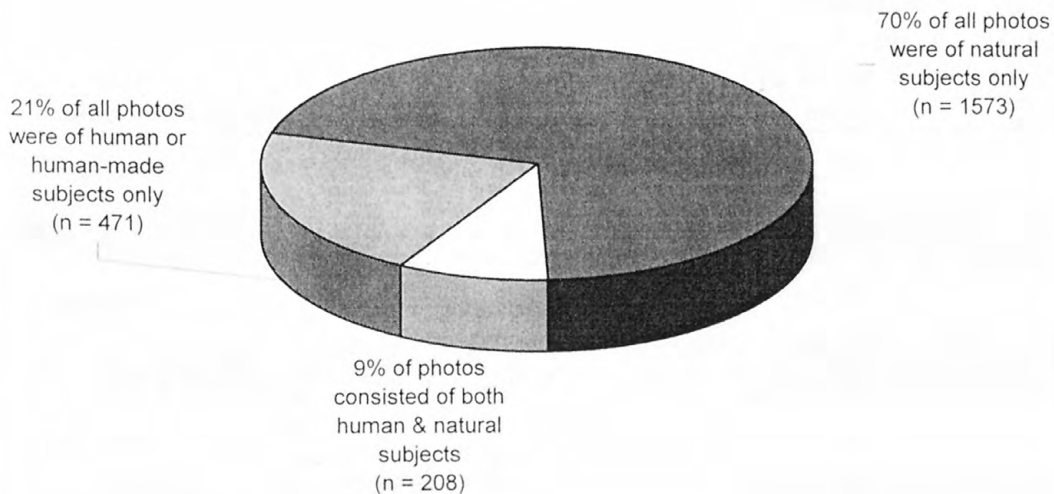


Table 1. Count totals and percentages for natural subject photos
(n = 254 respondents)¹.

Nature subject	Number of aggregate photos that included this subject	Percent of natural subject aggregate photographs
Running Water (Rivers, Creeks, Streams)	554	23
Trees	382	17
Mountains, Peaks or Glaciers	338	15
Still Water (Lakes or Ponds)	298	13
Wildlife	241	10
Rocks/Cliffs/Boulders	199	8
Meadows, Valleys or Open Spaces (including vistas)	180	7
Wildflowers	143	6
Forest Fire or Burn Area	31	1

¹ Counts and percents are generalized aggregates of specific photo subject categories.

Table 2. Count totals and percentages for human subject photos
(n = 254 respondents)¹.

Human or human-made subject	Number of aggregate photos that included this subject	Percent of human subject aggregate photographs
People	224	34
Trails	152	23
Campsites	73	11
Trail Signs & Markers	67	10
Buildings	60	9
Bridges	46	7
Horses & Horse Droppings (including pack animals)	38	6

¹ Counts and percents are generalized aggregates of specific photo subject categories.

2. Location: Place names given of popular photo locations in RMNP.

Place names were given by respondents in both photo-log booklet photo subject descriptions and in follow-up survey as special places that were not visited on this trip.

Table 3. Place names given of popular photo locations in RMNP.

Important Place Names:	Total Count and (Aggregate Percent)		Total Count and (Aggregate Percent)
<i>Lakes or Ponds</i>		<i>Lakes or Ponds</i>	
<i>(352 total occurrences)</i>	<i>(39%)</i>		
Fern Lake	22	Lily Lake	2
Cub Lake	19	Many Winds	2
Odessa Lake	17	Shadow Lake	2
Mills Lake	16	Chiquita Lake	2
Dream Lake	15	Mirror Lake	2
Chasm Lake	15	Spectacle Lake	2
Lion Lakes	13	Sprague Lake	2
Bear Lake	13	Chickory Lake	1
Sky Pond	13	Copeland Lake	1
Loch Lake	13	Estes Lake	1
Thunder Lake	12	Finch Lake	1
Bierstadt Lake	11	Lost Pine Lake	1
Emerald Lake	10	Louise Lake	1
Lawn Lake	10	Mary's Lake	1
Black Lake	9	Mirror Pond	1
Ypsilon Lake	8	Nokoni Lake	1
Lost Lake	7	Sheep Lake	1
Timber Lake	7	Snowbank Lake	1
Ouzel Lake	7	Gem Lake	1
Bluebird Lake	7	Loomis Lake	1
Spruce Lake	7	Andrew's Tarn	1
Grand Lake	6	Parika Lake	1
Glass Lake	6	Hutchenson Lakes	1
Sandbeach Lake	6	Frozen Lake	1
Haynoch Lake	6	Gorge Lakes	1
Nymph Lake	6		
Peacock Lake	5		
Hiayaha Lake	5		
Husted Lake	4		
Julian Lake	4		
Lone Pine Lake	4		
Chickadee Pond	3		
Chipmunk Lake	3		
Spirit Lake	3		
Verna Lake	3		
Green Lake	2		
Irene Lake	2		

Important Place Names:	<i>Total Count and (Aggregate Percent)</i>		<i>Total Count and (Aggregate Percent)</i>
<i>Geological Features (203 total occurrences)</i>			
	<i>(22%)</i>		
Long's Peak	81	Lady Washington	1
Hallet Peak	19	Lily Mountain	1
Keyhole	11	McHenry's Peak	1
Mummy Range	10	Otis Mountain	1
Estes Cone	8	Pagoda Mountain	1
Alice	7	Pilot Mountain	1
Flattop Mountain	7	Rabbit Ear Rock	1
Meeker	6	Richthofen Mountain	1
Ypsilon Mountain	6	Skull Point	1
Never Summer Mtns	6	Sugar Loaf Mountain	1
Twin Sisters	6	Sundance Rock	1
Andrew's Glacier	5	Knob Mountain	1
Ida	5	Hayden's Spire	1
Spearhead	5	The Diamond	1
Baldi	4	Deer Mountain	1
Specimen Mountain	4	The Saddle	1
Little Matterhorn	3	The Loft	1
Lumpy Ridge	3	Blitzen Ridge	1
Notchtop Mountain	3	Sharkstooth	1
Ptarmigan Mountain	3	Chaotic Glacier	1
Tyndall Glacier	3	Chiquita Mountain	1
Milner Pass	3	Shipler Mountain	1
Arrowhead	2	Cascade Mountain	1
Copeland Mountain	2	Snow Drift Peak	1
Craig	2	Parika Peak	1
Hanges Peak	2	Cony Pass	1
Isolation Peak	2	Twin Owls	1
Mummy Mountain	2		
Nakai Peak	2		
Rowe Mountain	2		
Stones Peak	2		
Storm Peak	2		
Taylor Peak	2		
Baker	1		
Bierstadt Moraine	1		
Cairns	1		
Castle Rock	1		
Dock Mountain	1		
Dunraven Mountain	1		
Fairchild Mountain	1		
Gore Range	1		
Henry's Mountain	1		

Important Place Names:	Total Count and (Aggregate Percent)		Total Count and (Aggregate Percent)
<i>Waterfalls</i> <i>(131 total occurrences)</i>	<i>(14%)</i>	<i>Trails or Areas</i> <i>(87 total occurrences)</i>	<i>(10%)</i>
Alberta Falls	21	Bear Lake Trail	9
Ouzel Falls	18	Glacier Gorge	9
Copeland Falls	16	Moraine Park	8
The Pool	15	Wild Basin	6
Calypso Falls/Cascades	13	Loch Vale	5
Adams Falls	9	North Fork Trail	3
Granite Falls	8	Lawn Lake Trail	3
Cascade Falls	8	Odessa Lake Region	2
Fern Falls	6	Paradise Park	2
Ribbon Falls	3	West Side of Park	2
Timberline Falls	3	Hallett Peak Area	2
Bridal Veil Falls	2	Colorado River Trail	2
Beaver Creek Falls	1	Timber Lake Trail	2
Chasm Falls	1	Longs Peak Trail	2
Fairy Falls	1	Grand Ditch	2
Grace Falls	1	Ouzel Lk. Burn Area	2
Little Yellowstone Falls	1	Spruce Lake Trail	2
		Cub Lake Trail	2
		Chasm Lake Trail	2
		Bowen-Baker Trail	1
		Forest Canyon Pass	1
		Cow Creek Trail	1
		Glacier Basin	1
		Flattop & Notchtop	1
		Andrews Tarn Area	1
		Hayden Gorge	1
		Ute Trail	1
		Mummy Mtn. Area	1
		Stoneman Pass Area	1
		North Inlet Trail	1
		Onahu Creek Trail	1
		Coney Creek Trail	1
		Twin Sisters Trail	1
		Dream Lake Trail	1
		Lake Hiayaha Trail	1
		Poudre Lake Trail	1
		Deer Mountain Trail	1
		Adams Falls Trail	1
		Ypsilon Lake Trail	1
<i>Rivers or Streams</i> <i>(76 total occurrences)</i>	<i>(8%)</i>		
Big Thompson River	16		
Onahu Creek	12		
Colorado River	10		
St. Vrain Creek	6		
Ouzel Creek	4		
Roaring River	4		
Timber Creek	4		
Tonahutu Creek	3		
Poudre River	3		
Fall River	2		
North Inlet Creek	2		
Boulder Brook	2		
North Inlet River	2		
Spruce Creek	1		
Fern River	1		
Cub Stream	1		
Andrew Creek	1		

Important Place Names:	<i>Total Count and (Aggregate Percent)</i>		<i>Total Count and (Aggregate Percent)</i>
<i>Roads</i>		<i>Park Facilities</i>	
<i>(17 total occurrences)</i>	<i>(2%)</i>	<i>(19 total occurrences)</i>	<i>(3%)</i>
Fall River Road	9	Kettle Tarn Campsite	3
Trail Ridge Road	8	Forest Canyon Overlook	3
<i>Valleys or Meadows</i>		Alpine Visitors Center	2
<i>(11 total occurrences)</i>	<i>(1%)</i>	Lodge in Hollowell Park	2
Kawuneeche Valley	2	Eugenia Mine	2
Endovalley	2	July Campsite	2
Big Meadows	1	Shipler Cabin	2
Ute Meadows	1	Lost Meadow Group Site	2
Tonohutu Meadows	1	Sandbeach Lake Campsite	1
Colorado River Valley	1	Jackstraw Campsite	1
East Inlet Valley	1	Bigband Viewing Area	1
Andrew's Meadow	1	Wolcotville/Sortland Shelter	1
Hague Creek Valley	1		
<i>Other</i>			
<i>(13 total occurrences)</i>	<i>(1%)</i>		
Estes Park	7		
Boulderfield	2		
Flat Rock	2		
Alluvial fan	2		

Table 4. Comparison of percentages of photo subjects by region surveyed within RMNP.

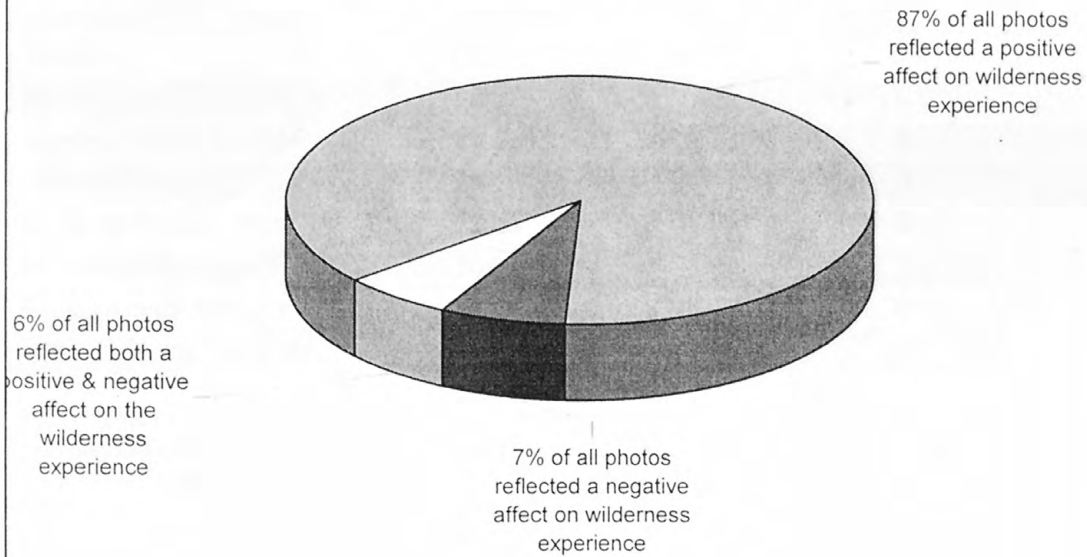
Location within Rocky Mountain Nat'l Park				
Types of Photo Subjects	Bear Lake Area	Wild Basin Long's Peak	West Park Area	North Park Area
Human Subject Photos	%	%	%	%
People	32	42	28	27
Structures	52	46	50	61
Impacts	14	8	15	12
Other	2	4	6	0
Natural Subject Photos	%	%	%	%
Water	35	28	27	33
Geological Features	32	35	27	31
Wildlife	13	13	13	12
Vegetation	18	21	28	18
Weather/Celestial	2	3	4	5
Other	0	0	1	1

1 Human subject photos were divided into three general categories: "people" respondent identified people as the primary subject of the picture, "structure" human built structures such as buildings, privies, bridges & trails, "impact" of human impacts such as initials carved in tree trunks, horse or dog feces, trash & erosion.

3. Does the subject of this photograph affect your wilderness experience...

☐ Positively ☐ Negatively ☐ Both ... and WHY?

Figure 2. How does the subject of this photo affect your wilderness experience?



**Figure 3. Human subject vs. natural subject:
How does the subject of this photo affect your wilderness experience?**

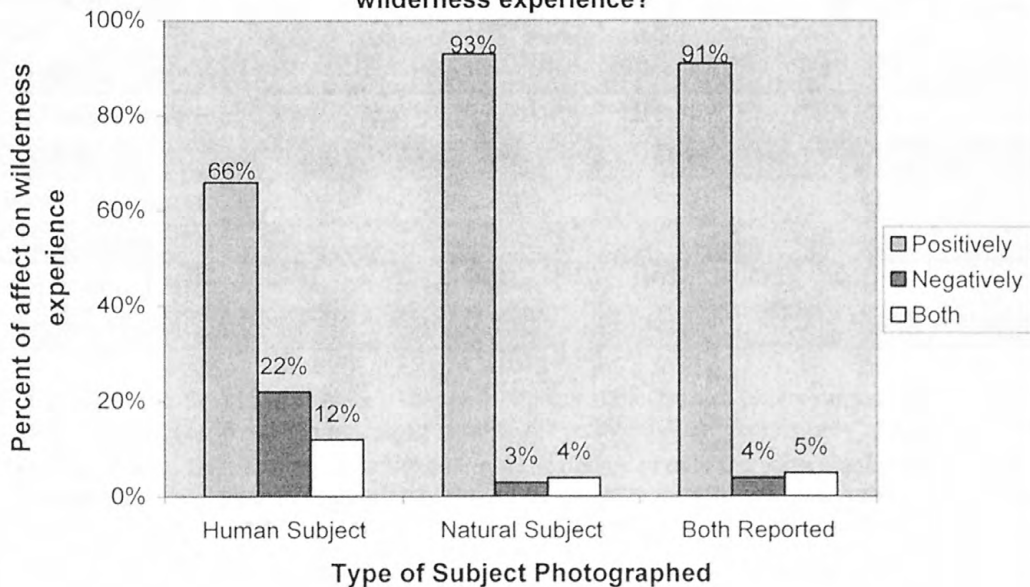


Table 5. Percent of positive vs. negative effects on wilderness experience for natural subject only photos.

Most photographed natural subjects	n¹	% positive	% negative	% both
Wildlife	172	92	1	7
Mountains or Glaciers	167	95	3	2
Lake or Pond	164	93	1	6
Waterfall	124	98	1	1
Trees	100	84	10	6
River, Creek, Stream	95	97	0	3
Rocks, Cliffs, Boulders	86	95	3	2
Wildflowers	75	99	0	1
Vista or Scenic View	58	98	2	0
Mountain & Lake	56	96	2	2
Meadows or Valleys	51	96	0	4
Forest Fire or Burn Area	24	29	29	42

1 The value of *n* for this table represents the number of photos of only the particular nature subject listed where respondents also provided an evaluation of the subject's effect on wilderness experience. These values for *n* do not represent the total number of photos taken of these subjects for the entire data set.

Table 6. Percent of positive vs. negative effects on wilderness experience for human subject only photos.

Most photographed human subjects¹	n²	% positive	% negative	% both
Trail	77	78	10	12
People/Socializing	55	89	7	4
Trail Markers/Signs	51	71	12	17
Campsite	44	77	7	16
Horse Droppings	32	0	91	9
Park Service Buildings	31	58	26	16
People and Trail	16	100	0	0
People and Campsite	15	80	13	7

1 Photos of trash & fishing were among the top 10 human subjects most photographed, however, a comparison to +/- affect was not reported due to a small number of "trash only" or "fishing only" photos (*n* < 15).

2 The value of *n* for this table represents the number of photos of only the particular human subject listed where respondents also provided an evaluation of the subject's effect on wilderness experience. These values for *n* do not represent the total number of photos taken of these subjects for the entire data set.

Table 7. Percent of statements given by respondents describing various photo subject affects on wilderness experiences.¹

Conceptual statements by photo-type	% of Statements
Photos of Human-Made Structures²	
<i>Why does this photo have a positive affect on your wilderness experience?</i>	(n = 194)
Facilitates a wilderness experience	32%
Increases the ability to use or access the park	29
Indicates that the NPS is preserving land and/or conserving natural resources	15
Facilities for comfort	12
Increases safety	7
Historical importance	5
<i>Why does this photo have a negative affect on your wilderness experience?</i>	(n = 50)
Detracts from wilderness experience	53%
Prevents or interferes with use or ease of access	27
Environmentally degrading	10
Decreases safety	10
Photos of Human Caused Impacts³	
<i>Why does this photo have a negative affect on your wilderness experience?</i>	(n = 79)
Environmentally degrading	33%
Illustrates the negative presence of horses on NPS trails	30
Detracts from wilderness experience	28
Prevents or interferes with use or ease of access	5
Decreases safety	4
Photos of People⁴	
<i>Why does this photo have a positive affect on your wilderness experience?</i>	(n = 103)
Important to share nature/wilderness experience with family & friends	37%
Reason for visit, to see nature, shows people with a natural feature	19
Proves, "We did it!"	13
Demonstrates visitors with the positive aspects of RMNP	11
Getting back to basics & returning to nature while visiting RMNP	10
Illustrates the importance of family and friends spending time together	10

1 Percentages represent the proportion of statements, related to researcher-identified themes that occurred in respondents' explanations as to why a photo subject had a "positive" or "negative" effect on their wilderness experience. Number of statements precedes percent listing for each group of affect statements.

2 Examples of "human-made structure" photos include, trails, NPS buildings, privies, bridges, ranger stations, historical buildings, visitor centers and bear boxes.

3 Examples of "human caused impact" photos include carvings on tree trunks, trash, horse and dog excrement, and erosion.

4 Examples of "people" photos consist of any photo where the respondents identified the primary subject of the photo to be people.

4. Sounds: What sounds are you aware of at this location?

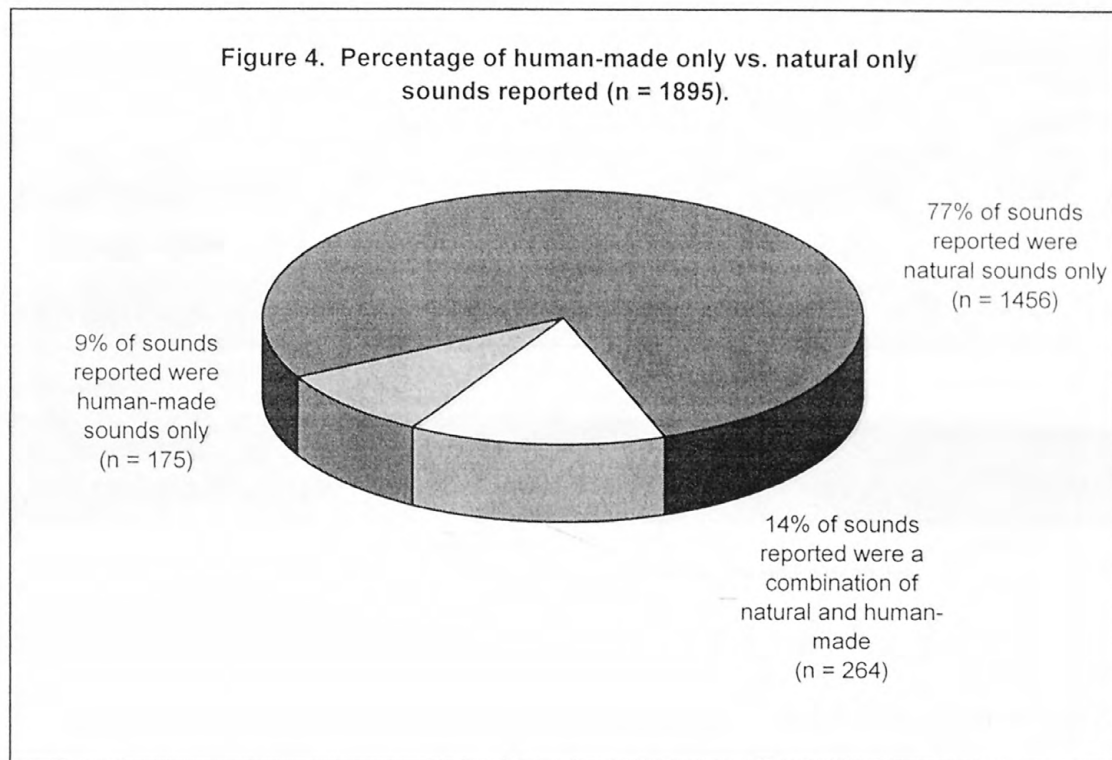


Table 8. Count totals and percentages for nature made sounds (n = 254 respondents)¹

Nature Sound	Number of aggregate reports that included this sound type	Percent of aggregate natural sound reports
Water	861	39%
Wildlife (including insects)	718	32
Wind	466	21
Quiet or Silence	134	6
Weather(including thunder, rain, hail but not wind)	46	2

¹ Counts and percents are generalized aggregates of specific reported sound categories.

Table 9. Count totals and percentages for human-made sounds (n = 254 respondents)¹.

Human-made sound	Number of aggregate reports that included this sound type	Percent of aggregate human-made sound reports
Voices of Others	205	46%
Cars & Motorcycles	110	24
Airplanes	98	21
Sounds of Self (heartbeat, breathing, footsteps, own voices)	41	9

¹ Counts and percents are generalized aggregates of specific reported sound categories.

Table 10. Comparison of percentages of sound reports by region surveyed within RMNP.

Type of Sounds Reported	Location within Rocky Mountain Nat'l Park			
	Bear Lake Area	Wild Basin Long's Peak	West Park Area	North Park Area
Human Origin Sounds ¹	%	%	%	%
Non-mechanized	69	76	45	44
Mechanized	29	22	52	54
Other	2	2	3	2
Natural Origin Sounds	%	%	%	%
Wind	24	29	25	31
Water	32	32	28	25
Wildlife/Birds/Insects	35	27	37	35
Weather	2	1	3	1
Other	7	11	7	8

¹ Human sounds were divided into two general categories: Non-mechanized sounds consisted of people's voices, footsteps, breathing & heartbeat. Mechanized sounds consisted of airplanes, vehicular traffic, and construction noise.

5. Do these sounds affect your wilderness experience...

☐ Positively ☐ Negatively ☐ Both ... and WHY?

Figure 5. How do the sounds you are hearing affect your wilderness experience?

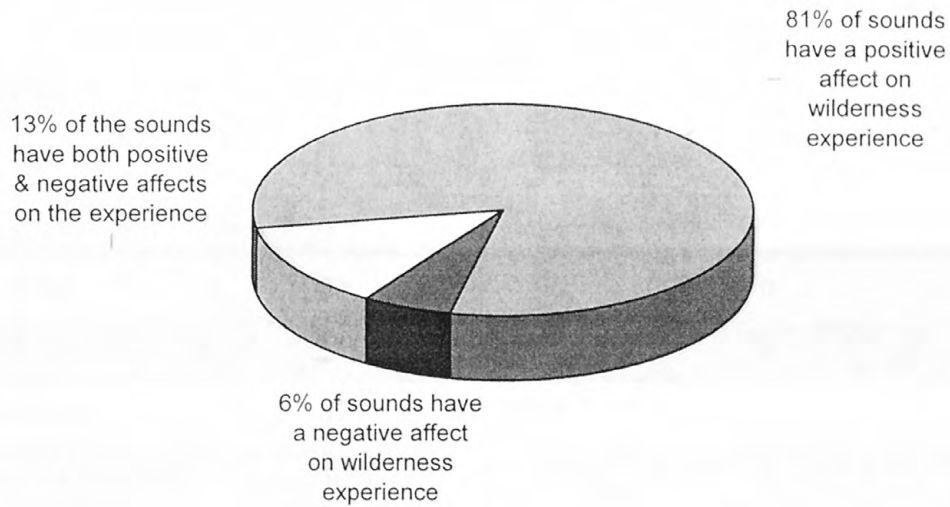


Figure 6. Human-made vs. natural sound: How do these sounds affect your wilderness experience?

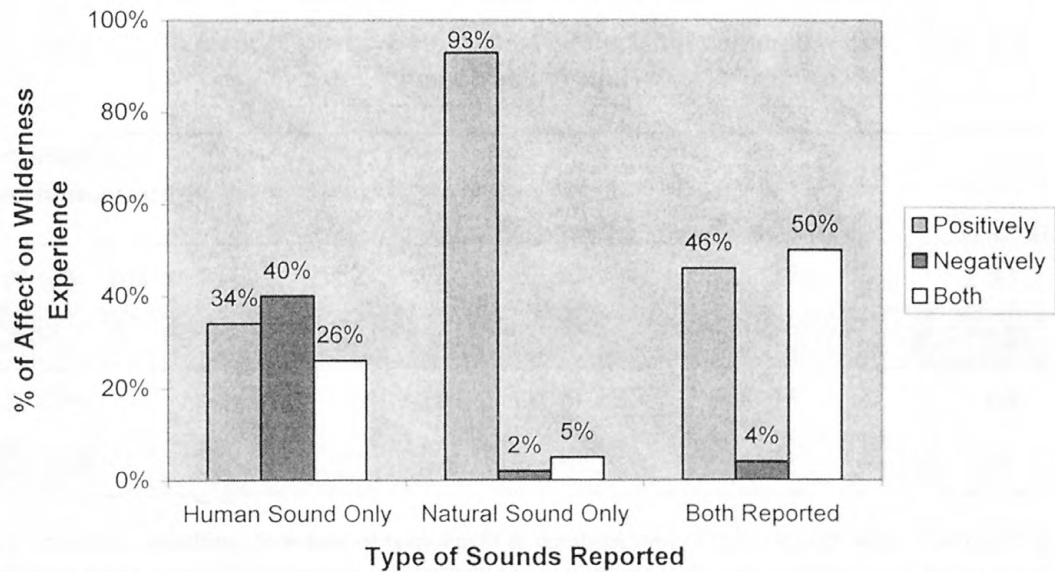


Table 11. Percent of positive vs. negative effects on wilderness experience for natural sounds only.

Most reported natural sounds	n¹	% positive	% negative	% both
Water	420	99	0	1
Birds & Water	194	99	0	1
Wind	184	84	9	7
Birds	128	98	0	2
Wind & Water	83	96	0	4
Wind & Birds	75	96	0	4
Quiet or Silence	67	97	2	1
Wildlife other than birds	30	97	0	3
Birds & Wildlife	28	100	0	0
Insects	21	33	38	29

1 The value of *n* for this table represents the number of sound reports of only the particular nature sound listed where respondents also provided an evaluation of the sounds effect on wilderness experience. These values for *n* do not represent the total number of sounds reported for these sounds types for the entire data set.

Table 12. Percent of positive vs. negative effects on wilderness experience for human sounds only.

Most reported human or human-origin sounds¹	n²	% positive	% negative	% both
Voices of other hikers	52	40	27	33
Cars	29	3	66	31
Voices & Cars	16	6	25	69
Airplanes or Jets	11	9	91	0

1 Sounds of children, breathing, footsteps of respondent & combinations of these sounds were among the top 10 human sounds most reported, however, a comparison to +/- effect on wilderness experience was not reported due to a small number of only these sounds being recorded (*n* < 10).

2 The value of *n* for this table represents the number of sound reports of only the particular human origin sound listed where respondents also provided an evaluation of the sounds effect on wilderness experience. These values for *n* do not represent the total number of sounds reported for these sounds types for the entire data set.

Table 13. Percent of statements given by respondents describing various sound effects on wilderness experiences¹.

Conceptual statements by sound-type	% of Statements
Non-mechanized human origin sounds²	
<i>Why do these sounds have a positive affect on your wilderness experience?</i>	(n = 55)
Enjoy hearing others experiencing nature & the park, “The Park is for the people!”	44%
Reminder of how important it is to share this experience with others	30
Only hearing a <u>few voices</u> underscores that this truly is a wilderness experience	15
Feels good to know you’re not alone, safety in numbers	11
<i>Why do these sounds have a negative affect on your wilderness experience?</i>	(n = 55)
Wanted solitude. Indicates that park is too crowded	42%
Mentally distracting to wilderness experience by interfering with enjoyment	23
Physically irritating, loud, noise interferes with hearing nature sounds	20
Out of place in nature, civilized world encroaching on wilderness	15
Mechanized human origin sounds³	
<i>Why does traffic noise have a negative affect on your wilderness experience?</i>	(n = 40)
Reminder of stress & everyday life, what we came to RMNP to escape	30%
Mentally distracting to wilderness experience by interfering with enjoyment	25
Out of place in nature, civilized world encroaching on wilderness	23
Physically irritating, loud, noise interferes with hearing nature sounds	15
Indications that the noise is <u>negative</u> , however, no explanation given by respondent	7
<i>Why does airplane noise have a negative affect on your wilderness experience?</i>	(n = 55)
Indications that the noise is <u>negative</u> , however, no explanation given by respondent	30%
Mentally distracting to wilderness experience by interfering with enjoyment	24
Reminder of stress & everyday life, what we came to RMNP to escape	11
Physically irritating, loud, noise interferes with hearing nature sounds	10
Out of place in nature, civilized world encroaching on wilderness	25

1 Percentages represent the proportion of statements, related to researcher-identified themes that occurred in respondents’ explanations as to why sounds had a “positive” or “negative” effect on their wilderness experience. Number of statements precedes percent listing for each group of affect statements.

2 Non-mechanized sounds consisted of human-made sounds, specifically, adult human voices and footsteps, and children.

3 Mechanized sounds consisted of human-made sounds, specifically, traffic and airplane noise.

RESULTS – FOLLOW-UP SURVEY

Question Summaries

SECTION I.

First, we would like to ask you some questions about your visit to Rocky Mountain National Park [RMNP]. We are asking specifically about the visit when we gave you the camera and about the photos that you took.

Please follow the instructions after each question.

1. Please tell us which one of your photographed places was most important to your Backcountry/Wilderness experience that day.

Table 14. Most important photographed place to wilderness experience (n=134)¹.

Subject	n	%
Lake/Pond	37	28
Mountain/Glacier	25	19
View/Scenery	15	11
Wildlife	11	8
Waterfall	9	7
Stream	6	5
Alpine Tundra/Above tree-line	5	4
Meadow/Valley	4	3
Trail/Trailhead	4	3
People	4	3
Forest Fire and Re-growth	3	2
Signs	3	2
Rocks	2	1
Horse droppings	2	1
Park Service Building/Campsite	2	1
Fishing/Climbing	2	1
Total	134	100

¹ n represents the number of responses to this question

2. Are there other places in RMNP that are especially important to you that were not visited during the trip when you took these pictures? *Please list them in the space below.*

Note: Responses for this question were added to most photographed places of the photo-log. See photo-log results section, question 2.

3. Which of the reasons listed below was most important for your visit to RMNP on this trip?

- ☐ I came here because I enjoy the Backcountry/Wilderness itself.
☐ I came here because I wanted to spend more time with my family/companions.
☐ I came here to gain a fresh perspective on life.
☐ I came here because it is a good place to do some of the activities that I enjoy.

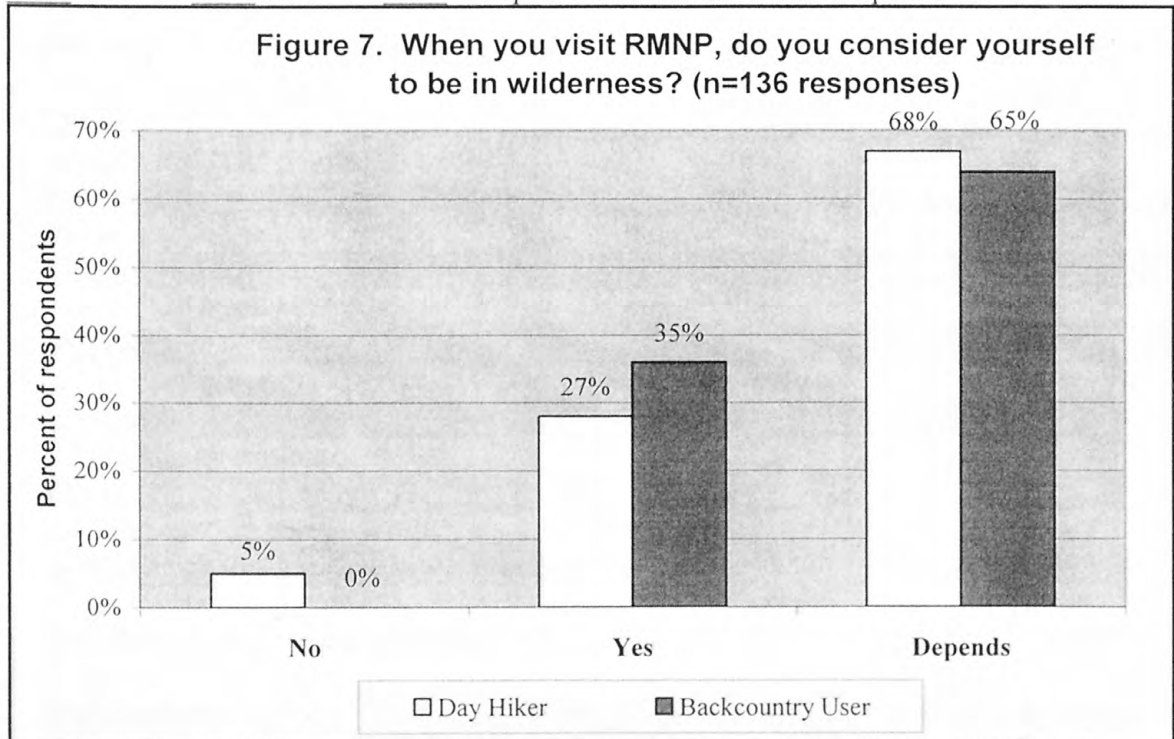
Table 15. Most important reason for visiting RMNP by user group (n=128)¹.

Reason for visiting RMNP ² :	Day Hiker	Overnight User
I came here because I enjoy the Backcountry/Wilderness itself	64%	73%
I came here because it is a good place to do some of the activities that I enjoy	23	9
I came here because I wanted to spend more time with my family/companions	10	12
I came here to gain a fresh perspective on life	3	6
Total	100	100

¹ n represents the number of responses to this question

4. When you visit RMNP, do you consider yourself to be in the wilderness?

Yes No It depends where I am in the the park..



5. In your own words, would you please describe what the experience of being in the Backcountry/Wilderness at RMNP means to you?

Table 16. Meaning of wilderness experience to visitors of RMNP (n=322)¹.

Themes ²	n
AESTHETICS: (25%)	82
Beauty	26
Scenery	12
Unspoiled nature	12
Wildlife	11
Appreciation of nature	9
Smells and sounds	8
Protection of nature	4
PHYSICAL ESCAPE: (17%)	55
Away from everyday life/ Away from it all	16
Getting away from people	10
Getting away from the city	9
Away from noise / pollution / traffic	8
Getting away from civilization	6
Away from work	5
Easy access	1
SOLITUDE: (14%)	46
Peace	18
No crowds / Other humans	10
Relaxing	8
Solitude	7
Quiet	3
THERAPEUTIC (feeling): (8%)	27
Refreshing / Invigorating / Rejuvenating	11
Peace of mind	9
Peak experience	3
Feeling alive and happy	2
Inspiring	2
BACK TO BASICS: (7%)	21
Connection with nature	6
Like being an explorer	5
Home	4
Visiting another place / World	3
Getting back to basics / What's important	3
GOD: (6%)	20
Experiencing God / Feeling close to God	9
God's natural beauty	5
God's creation	4
Nature as a church	2

Table 16. (continued) Meaning of wilderness experience to visitors of RMNP.

EXERCISE / HEALTH:	(6%)	19
Specific activities		10
Getting exercise		8
Fresh air		1
GOAL ATTAINMENT:	(6%)	19
Adventure		6
Self-reliance		5
Challenge		5
Sense of accomplishment		3
INTROSPECTION (thinking):	(4%)	13
Thinking / Reflecting on life		8
Gaining fresh perspective on life		3
Memories		1
Tradition		1
FEELING OF AWE:	(3%)	11
Open expanse / Vastness		5
Wonder at nature / Marvel		3
Feeling very small		2
Feeling of awe		1
SOCIALIZING:	(3%)	9
Being with family		6
Being with friends		3

1 n represents the number of responses to this question; respondents could list more than one experience

2 Themes “emerged” from content analysis of Question 5

SECTION II.

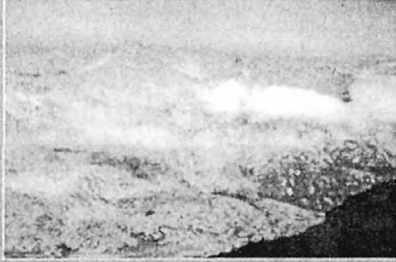
For this section we would like to ask you a few questions about TWO of the photographs that you took while at Rocky Mountain National Park [RMNP]. We have enclosed a couple of pages with corresponding numbers from your photo-log to help you remember these places.

6. Please find Photo Number _____ in your set of RMNP Photographs (the photo number is listed on the back) and read the corresponding page from your photo log. Having read what you said about the sights and sounds of that place, please consider how each of the following changes would affect your experience:


Figure 8. Sight and sound change scenarios in RMNP wilderness.

Scenic Vista & Water Scenario

Please find Photo Number _____ in your set of photographs and read the corresponding page from your photo log. Having read what you said about the sights and sounds of that place, please consider how each of the following changes would affect your experience:



- ☐ You hear several approaching hikers calling to each other
- ☐ You hear thunder from a storm about a mile away
- ☐ You hear children laughing




- ☐ You see scientific weather-monitoring equipment inside a fenced-off area
- ☐ You see thrown away drink containers on the ground
- ☐ You see a fly-fisherman casting into a nearby stream


* Two examples of reference photos are shown

Trail & Open Area Scenario

Please find Photo Number _____ in your set of photographs and read the corresponding page from your photo log. Having read what you said about the sights and sounds of that place, please consider how each of the following changes would affect your experience:



- ☐ You hear a commercial jet aircraft flying overhead
- ☐ You hear a bird singing
- ☐ You hear a person talking on their cell phone



- ☐ You see a bull elk walk into sight about 50 yards away
- ☐ Looking more closely, you see that the elk is wearing a radio collar
- ☐ You see a group of about 5 people walk into sight about 50 yards away
- ☐ You see a family feeding part of their lunch to a chipmunk

* Two examples of reference photos are shown

Table 17. The effect of sounds on visitors' wilderness experience in RMNP.

Change ¹	Mean	Minimum	Maximum
You hear a bird singing ² (+)	9.1	5	10
You hear thunder from a storm a mile away (?)	6.5	1	10
You hear children laughing (?)	5.2	1	10
You hear several approaching hikers calling to each other (-)	3.7	1	8
You hear a commercial jet aircraft flying overhead (-)	2.8	1	7
You hear a person talking on their cell phone (-)	2.0	1	5

¹ Variables coded on a scale from 1 "Greatly detracts" to 10 "Greatly enhances"

² A plus sign (+) indicates that a high mean was expected, a minus sign (-) indicates that a low mean was expected, and a question mark (?) indicates that the outcome for the analysis was not predicted

Table 18. The effect of sights on visitors' wilderness experience in RMNP.

Change ¹	Mean	Minimum	Maximum
You see a bull elk walk into sight, about 50 yards away (+)	9.3	5	10
Looking more closely, you see that the elk is wearing a radio collar (?)	5.3	1	10
You see a fly fisherman casting into a nearby stream (?)	6.5	1	10
You see a group of about 5 people walk into sight, about 50 yards away (?)	4.6	1	10
You see scientific weather-monitoring equipment inside a fenced-off area (?)	3.8	1	8
You see a family feeding part of their lunch to a chipmunk (-)	2.8	1	10
You see thrown away drink containers on the ground (-)	1.3	1	5

¹ Variables coded on a scale from 1 "Greatly detracts" to 10 "Greatly enhances"

² A plus sign (+) indicates that a high mean was expected, a minus sign (-) indicates that a low mean was expected, and a question mark (?) indicates that the outcome for the analysis was not predicted

6. Describe how this change alters your experience:

Table 19. How sounds alter visitors' wilderness experience (Trail Scenario).

<i>"You hear a commercial aircraft flying overhead"</i>		n=81 ¹
ENHANCES:	(0%)	0
NEUTRAL:	(22%)	18
Jets are part of 21st Century; Jets are a necessity		5
Jets are fairly high up and therefore not that noticeable		5
Thankful to be enjoying the day in the park instead of in an airplane		2
If there are not too many, no problem		2
A single jet is momentary		2
Like to watch their contrails go across the sky		1
Jet aircraft are much quieter than 5-10 years ago		1
DETRACTS:	(78%)	63
Brings me back to 'civilization'; Brings me back to reality		27
Detracts from peaceful surroundings; Feels less like backcountry		16
Sound intrudes on this quiet location; Aircraft hides natural sounds		14
Spoils the mood; Annoying; Not as relaxing		3
Disturbs wildlife		2
Resent the pollution		1
<i>"You hear a bird singing"</i>		n=65
ENHANCES:	(97%)	63
Part of nature experience; Adds to beauty and solitude; Belongs there		30
Increases awareness and appreciation for wilderness; Makes me happy		15
Enjoy identifying birds; I came here to enjoy wildlife		12
There is more to the park than is seen by the eye; Audible nature reminder		4
Reminder of the past		1
Want to be a bird in the park ☺		1
NEUTRAL:	(3%)	2
Expect to hear birds		2
DETRACTS:	(0%)	0
<i>"You hear a person talking on their cell phone"</i>		n=86
ENHANCES:	(0%)	0
NEUTRAL:	(12%)	10
Once in a while is ok, just not to conduct business; It's only momentary		6
Ok, if the call is important		2
Could use cell phone to call for help		1
Reminds you that you can still communicate with the world		1
DETRACTS:	(88%)	76
Brings me back to 'civilization'; Reminder of work and stress		22
Spoils the mood; Annoying; Disrespectful; Invasion of privacy		16
Cell phone usage should be limited, unless for emergency		16
Disconnects from nature experience; Feels less like backcountry		13
Cell phones should not be in the backcountry at all		9

1 n represents the number of responses to this question.

Table 20. How sounds alter visitors' wilderness experience (Scenic Vista Scenario).

<i>"You hear several approaching hikers calling to each other"</i>		n=71 [†]
ENHANCES:	(3%)	2
Good to share and compare; Sometimes nice to speak to other hikers		2
NEUTRAL:	(41%)	29
No problem, it's their park also; They enjoy the same experience I enjoy		15
I share their pleasure, unless they are shouting loudly or complaining		9
Although it breaks the sound of nature, they will pass on; Only momentary		3
You can avoid other hikers, popular areas, crowds		2
DETRACTS:	(56%)	40
Disturbs silence; solitude; scenery; beauty; Feels less like wilderness		24
Brings me back to 'civilization'; Interrupts escape from real world		12
Disrespect for wildlife, nature, and others; Scares wildlife; Scares people		4
<i>"You hear thunder from a storm about a mile away"</i>		n=67
ENHANCES:	(52%)	35
I like the sound of thunder; I love storms; Part of outdoor experience		20
I like storms, but fear lightning; Love beauty, but concerned about safety		14
Stirs memories of times shared with friends		1
NEUTRAL:	(15%)	10
It's a neutral event, I expect it; Uncontrollable part of the outdoors		10
DETRACTS:	(33%)	22
I would be nervous about lightning so close; Danger		14
Distracting or plan altering; I would head back to my car		8
<i>"You hear children laughing"</i>		n=69
ENHANCES:	(49%)	34
I love children; Nice to hear children laughing in any environment		18
I like to see children in the wilderness; Future conservationists		15
NEUTRAL:	(22%)	15
It's distracting, but I'm pleased children are enjoying the area		11
Unless the children are yelling, it wouldn't greatly affect experience		3
Occasional sounds like that are ok		1
DETRACTS:	(29%)	20
Disturbs silence; Detracts from natural sounds and scenery		9
Brings me back to 'civilization'		5
Annoying; Don't like children		4
Scares wildlife away		2

[†] n represents the number of responses to this question.

Table 21. How sights alter visitors' wilderness experience (Open Area Scenario).

<i>"You see a bull elk walk into sight, about 50 yards away"</i>		n=69
ENHANCES:	(99%)	68
Always neat to see wildlife; I love wildlife; Exciting		33
Adds to the experience; It completes the nature experience		29
You don't see that in the city; Does not occur on a daily basis at home		6
NEUTRAL:	(1%)	1
I would be nervous, unless I was informed that they are not dangerous		1
DETRACTS:	(0%)	0
<i>"Looking more closely, you see that the elk is wearing a radio collar"</i>		n=64
ENHANCES:	(33%)	21
Science should learn from and within the park; I am interested in research		21
NEUTRAL:	(39%)	25
I would like wildlife to be left alone, but also understand need for studies		20
No real impact		3
It may detract somewhat from beauty of animal, but would still be neat		2
DETRACTS:	(28%)	18
Seems more like a zoo; It feels less natural; Humans interfering with nature		18
<i>"You see a group of about 5 people walk into sight, about 50 yards away"</i>		n=68
ENHANCES:	(10%)	7
It's good to see others enjoying the same experience		7
NEUTRAL:	(53%)	36
I realize everyone has a right to enjoy the park		18
As long as they are quiet and not disruptive, it's a neutral experience		8
I'm ok with just us, but not upset seeing others either		6
I hike early to avoid crowds; This is ok, but we start early to avoid crowds		4
DETRACTS:	(37%)	25
Came here to get away from people; I'd rather not hear or see any humans		16
Chances of seeing wildlife and enjoying solitude are greatly reduced		8
They should show more respect and stay on the trail		1
<i>"You see a family feeding part of their lunch to a chipmunk"</i>		n=68
ENHANCES:	(3%)	2
It is nice to see people interacting with wildlife, it's safe		1
Sharing with God's creation some things that humans rarely do		1
NEUTRAL:	(13%)	9
Not good, but I understand their enjoyment		6
It does not alter my experience; Oh well, if it's a carrot I'm ok		3
DETRACTS:	(84%)	57
Not good to tame wildlife; People disturbing the balance of nature		29
Fine these people; People stupidly breaking the law		25
Ends up being litter; I'm sure some litter will be left behind		2
Could be bad for the family (bite – rabies etc.)		1

1 n represents the number of responses to this question.

Table 22. How sights alter visitors' wilderness experience (Water Scenario).

<i>"You see scientific weather-monitoring equipment inside a fenced-off area"</i>		n=68
ENHANCES:	(7%)	5
I'm happy to have someone doing scientific studies to help management		3
It has the potential to enhance experience if its presence is explained		2
NEUTRAL:	(51%)	35
A distraction, but I understand the need for scientific investigation		16
No impact if done in a way that blends into surroundings		12
No problem; I don't have a problem with it. I can take it or leave it		6
I can just move somewhere else		1
DETRACTS:	(41%)	28
Takes away from natural setting; Takes away from my viewing experience		13
Love not seeing human presence; Makes me feel close to 'civilization'		8
It would be a great distracting, visually ugly sight		7
<i>"You see thrown away drink containers on the ground"</i>		n=83
ENHANCES:	(0%)	0
NEUTRAL:	(2%)	2
Pick it up and move on		1
It's not good, but the sort of thing I expect to some degree so close to a road		1
DETRACTS:	(98%)	81
No respect for environment or nature; Completely alters the experience		43
It shows self-centeredness and the lack of concern for others		19
I pick them up and haul them out; Will pick up the trash; Detest pollution!		19
<i>"You see a fly-fisherman casting into a nearby stream"</i>		n=66
ENHANCES:	(50%)	33
It's good to see people enjoying nature in a peaceful way; Romantic		30
I enjoy fly-fishing as long as it's catch and release		3
NEUTRAL:	(44%)	29
This doesn't really bother me. They are enjoying nature in their own way		15
I don't fish, so this is a neutral activity; No significant change		9
Neutral, however beginners are clumsy; litter left behind (i.e. fishing line)		4
He might be in the spot I hiked to get to – requires an alternative plan		1
DETRACTS:	(6%)	4
The fisherman is another park user which detracts from solitude		2
There are plenty of other areas (not RMNP) available to the sportsman		2

n represents the number of responses to this question.

SECTION III.

8. Visitors to RMNP have talked about experiencing certain feelings and emotions during their visits. To what extent do you agree or disagree that you personally experience the following when you visit the Backcountry/Wilderness at RMNP?

Table 23. Strength of agreement/disagreement with wilderness experience emotions.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
A. I feel awe inspired	0%	0%	3%	33%	64%
B. I feel slowed down/relaxed	0	3	7	49	41
C. I feel socially connected with my companions	2	4	30	44	20
D. I feel conscious of the creation of God	7	3	13	24	53
E. I feel joy/happiness	0	0	1	40	59
F. I feel respect for the wilderness	0	0	1	21	78
G. I feel rejuvenated	0	1	6	35	58
H. I feel problem free	1	10	28	38	23
I. I feel personally connected to the wilderness	0	2	10	49	39
J. I feel peaceful	0	1	8	42	49
K. I feel anxiety/nervousness	61	32	5	2	0
L. I feel connected to my own spirituality	2	2	24	38	35

9. To what extent do you agree or disagree with each of the following statements about RMNP?

Table 24. Strength of agreement/disagreement with reasons for connecting with RMNP.

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
A. I mainly come to this place to enjoy the Backcountry/Wilderness.	0%	2%	9%	46%	43%
B. RMNP is very special to me.	0	0	10	33	57
C. This place brings back memories of time spent with friends.	6	7	30	30	27
D. I get more satisfaction out of visiting RMNP than any other place.	1	22	40	23	14
E. Most of the activities that I do here are related to the Backcountry/Wilderness.	1	3	10	42	44
F. I am very attached to RMNP.	0	4	22	36	38
G. I associate special people in my life with this place.	5	9	29	29	28
H. Doing what I do at RMNP is more important to me than doing it in any other place.	5	21	42	19	13
I. Being in the Backcountry/Wilderness is necessary for me to do the things that I enjoy.	0	11	21	41	27
J. RMNP means a lot to me.	0	1	8	45	46
K. My family regularly visited RMNP when I was young.	53	20	6	14	7
L. I wouldn't substitute any other area for doing the types of things that I do at RMNP	10	29	34	16	11

10. Listed below are statements that represent different ways people feel about the environment and environmental issues.

Table 25. Strength of agreement/disagreement with different environmental values.

Statement	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
A. Present levels of industrial activity are severely upsetting the natural environment.	0%	9%	18%	45%	28%
B. Humans have the right to alter nature to satisfy wants and desires.	25	40	19	15	1
C. There are limits to industrial growth.	1	3	11	53	32
D. The natural environment has value within itself regardless of any value that humans may place on it.	1	3	5	35	56
E. Maintaining economic growth is more important than protecting the natural environment.	34	43	21	1	1
F. Natural resources should be used primarily to provide for basic needs rather than material wealth.	0	6	25	40	29
G. Humans have moral duties and obligations to other animal species.	1	2	9	43	45
H. A change in basic attitudes is necessary to solve environmental problems.	1	3	11	48	37
I. Humans have the right to subdue and control the rest of nature.	33	36	15	12	4
J. Humans have moral duties and obligations to plants and trees.	4	4	9	44	39
K. Present generations of humans have moral duties and obligations to future human generations.	0	0	1	29	70
L. Humans should have compassion and respect for the rest of nature.	0	0	2	23	75

SECTION IV.

Finally, we would like to ask you to tell us a bit about your previous experience in Rocky Mountain National Park (RMNP) and your background.

Table 26. History of experience in RMNP (n=140)¹.

Variable	Mean
<i>How many times have you visited RMNP before this trip?</i>	
Visits to Backcountry/Wilderness:	10.2
Visits to developed Front country:	10.7
<i>How many years ago did you first visit RMNP?</i>	
	17.3
<i>Including this current visit, how many times did you visit RMNP in the past 12 months?</i>	
Visits to Backcountry/Wilderness:	3.8
Visits to developed Front country:	2.8
<i>Approximately how many other Backcountry/Wilderness areas have you visited in the past?</i>	
	12.2
<i>How familiar are you with RMNP?</i>	
(Scale from 1 “not at all” to 10 “extremely familiar”)	6.6
<i>How attached are you to RMNP?</i>	
(Scale from 1 “not at all” to 10 “extremely attached”)	7.8

¹ n represents the number of returned surveys.

Table 27. Demographic characteristics of wilderness experience respondents¹.

Variable	n	%
GENDER:		
Male	82	59
Female	56	41
AGE:		
15-25	9	6
26-35	28	20
36-45	28	20
46-55	37	27
56-65	26	19
66-75	11	8
CHILDHOOD RESIDENCE:		
Farm or ranch	18	13
Rural or small town (< 1,000 people)	10	7
Town (1,000 to 5,000 people)	18	13
Small city (5,000 to 50,000 people)	38	27
Medium city (50,000 to 1 million people)	37	27
Metropolitan area	18	13
EDUCATION:		
< High school	0	0
High school	13	9
College	59	43
Graduate or Professional	67	48
ARE YOU STILL A STUDENT:		
Yes	23	17
No	114	83
INCOME:		
< \$5,000	1	1
\$5,000 - \$9,999	2	1
\$10,000 - \$14,999	2	1
\$15,000 - \$19,999	2	1
\$20,000 - \$24,999	7	5
\$25,000 - \$34,999	9	7
\$35,000 - \$49,999	17	13
\$50,000 - \$74,999	33	24
\$75,000 - \$100,000	32	24
> \$100,000	31	23
PEOPLE CONTRIBUTING TO INCOME:		
1	67	49
2	68	50
3	2	1

1 (n=140) represents the number of returned surveys.

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