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# Values and Attitudes of National Wildlife Refuge Managers and Biologists: *Report to Respondents*

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U.S. Department of the Interior  
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respondents (20%) returned their questionnaires or asked for a supplemental copy and eventually returned the survey; two positions were vacant; and three others did not return the questionnaire.

We found one difference when comparing the respondents who answered after the telephone survey to the original respondents. Telephone respondents were more likely to be refuge managers. There were no other significant differences between the telephone respondents and the mail respondents; therefore, we concluded that a non-response bias does not exist in this study.

**Question Summaries**

The following shows descriptive results (percentages) for all survey questions. They are placed within the actual survey template.

**Section 1: In this section, we would like to know about your philosophy as either a Refuge Manager or Biologist.**

1. Are you a:

- a. Refuge Manager (or Acting Refuge Manager) 55.4%
- b. Refuge Biologist (or Acting Refuge Biologist) 44.6%
- c. Other 0.6%

2. How would you like others to perceive you as a professional?

- a. A good technician 0.0%
- b. A good scientist 12.6%
- c. A good wildlife manager 31.9%
- d. A good people manager 2.9%
- e. A good program administrator 7.1%
- f. A good land steward 33.2%
- g. Other 12.3%

3. What is the most important source of your job *satisfaction*? (The following are categorized groupings of answers to open-ended questions. Men and women had significantly different answers to this question.)

Greatest source of job satisfaction	N	Percentage (%)
Accomplishing projects for wildlife/habitat	69	22.0
Working with wildlife for people	40	12.7
Seeing results of actions	38	12.1
Habitat protection and improvement	36	11.5
Working outdoors and with other wildlife professionals	17	5.4
Visitor appreciation	12	3.8
Teamwork and partnerships for conservation	10	3.2
Other	62	19.7

4. What is the most important source of your job *dissatisfaction*? (The following are categorized groupings of answers to open-ended questions. Men and women had significantly different answers to this question.)

Greatest source of job dissatisfaction	N	Percentage (%)
Bureaucracy and red tape	59	18.8
Lack of funding and staff	41	13.1
Politics	30	9.6
Paperwork	28	8.9
Personnel issues	19	6.1
Poor working relationship with supervisor	11	3.5
Public disapproval and anti-environment rhetoric	10	3.2
Lack of support from upper management	10	3.2
Other	106	33.8

5. Do you think it is generally a good idea to look for new ways of doing things, or do you think it is better to continue to use methods with which you are familiar?

- a. New ways 16.0%
- b. Familiar methods 0.3%
- c. Both a and b 81.4%
- d. Neither a nor b 2.2%

6. In which sector(s) would you advise bright, young people to seek careers?

- a. Federal agencies 37.4%
- b. State agencies 1.0%
- c. Local or municipal agencies 0.3%
- d. Non-governmental agencies 10.5%
- e. Private for profit businesses 3.3%
- f. Private land management businesses 2.0%
- g. No preferences 33.4%
- h. Other 12.1%

**Section II: In this section, we would like to know about your philosophy and priorities for refuge management.**

7. What are the top two priority issues for *refuge* management?

Top Priority	Second Priority	Issue
50.0%	12.7%	Habitat protection
22.3%	27.7%	Habitat restoration
8.6%	4.1%	Other
5.4%	14.6%	Cooperation and collaboration
5.4%	7.0%	Endangered species management
1.9%	1.3%	Ranch and farm practices
1.0%	3.2%	Private land development
1.9%	7.6%	Population management
1.6%	17.8%	Invasive species management
0.6%	0.3%	Game management
0%	1.9%	Tourism and recreation opportunities

8. What are the most important issues facing management of fish and wildlife in *your state*?  
(The following are categorized groupings of answers to open-ended questions.)

Response	N	Percentage (%)
Population growth, development and urban sprawl	83	26.4
Habitat loss	62	19.7
Habitat protection and restoration	29	9.2
Adequate funds to protect the resource	16	5.1
Invasive species management	14	4.5
Wetland loss	12	3.8
Lack of water	10	3.2
Water issues	8	2.5
Endangered species management	8	2.5
State and federal conflicts	7	2.2
Agricultural practices	6	1.9
Other	47	14.7
Total	302	95.7

\*Responses may not total to 100% due to blank answers on individual questions.

**Section III: In this section, we would like your personal opinion on the National Wildlife Refuge System and governing policies.**

9. How many visitors come to your refuge in an average year?

Mean: 193,072.2 people

Median: 47,000 people

10. How many visitors do you want at your refuge?

a. One-fourth the number of current visitors	1.4%
b. One-half the number of current visitors	2.8%
c. No change in the number of visitors	57.3%
d. Twice the number of current visitors	24.6%
e. Three times the number of current visitors	10.8%

11. Please rank the following activities for the amount of usage by the public at your refuge

<b>Activity</b>	<b>Mean</b>
Hunting	21.2%
Fishing	19.1%
Wildlife observation	32.4%
Wildlife photography	6.3%
Environmental education	9.8%
Environmental interpretation	9.2%
Other	19.7%

12. In your opinion, a realistic role for the public in natural resource management should be:

1. The public should provide suggestions and let the resource professionals decide.	<b>56.4%</b>
2. The public should serve on advisory boards that review and comment on resource management decisions.	<b>27.4%</b>
3. Other	<b>8.5%</b>
4. The public should act as a full and equal partner in making natural resource management decisions.	<b>5.9%</b>
5. None. Let the natural resource professionals make all of the decisions.	<b>1.6%</b>
6. The public should decide management issues and resource professionals should carry them out.	<b>0.3%</b>

13. Has the Comprehensive Conservation Planning (CCP) process been conducted at your refuge?

a. No	52.9%
b. Yes	46.1%
c. Not sure	1.0%

14. In your opinion, should the range of management alternatives for the Comprehensive Conservation Plan for your refuge be based upon?

a. Individual refuge purposes	8.4%
b. National Wildlife Refuge system purposes	1.3%
c. Both a and b	88.3%
d. Neither	1.9%

15. When selecting management alternatives for the Comprehensive Conservation Plan, will your refuge base management alternatives upon: (The following are categorized groupings of answers to open-ended questions.)

<b>Management goals based upon?</b>	<b>N</b>	<b>Percentage (%)</b>
Single species management	7	2.3
All native species	161	53.0
Balance between maximizing all native species and a single target species	39	12.4
Habitat management	32	10.2
Threatened/endangered species and migratory bird management	23	7.3
Balance refuge and refuge system purposes	16	5.1
Maximize all native species, plus emphasizing specific refuge purposes	10	3.2
Maximize critical refuge species	3	1.0
Waterfowl management	3	1.0
Fish and Wildlife Service trust species	2	0.6
Wetland dependent species	2	0.6
Habitat management and refuge purposes	2	0.6
Based upon cultural/historical resources and maximizing all native species	1	0.3
Maintaining the ecological functioning of the surrounding area	1	0.3
Politics	1	0.3

16. How do you view the Comprehensive Conservation Plan?

- |  |       |
|--|-------|
| a. A political requirement that will soon change           | 9.4%  |
| b. A useful tool for refuge management                     | 43.0% |
| c. A means of getting more funding and staff at the refuge | 6.5%  |
| d. A somewhat useful tool for refuge management            | 38.1% |
| e. A useless tool for refuge management                    | 2.9%  |

17. In regards to question 16, why did you choose your answer in the above question? (The following are categorized groupings of answers to open-ended questions.)

<b>Reason</b>	<b>N</b>	<b>Percentage (%)</b>
Evaluates refuge activities to develop goals/objectives and provide direction	111	35.4
It is important to have something that management has to pay attention to even with staffing and agency changes	34	10.8
It will sit on a shelf or become outdated too quickly	19	6.1
The structure of the CCP does not facilitate use in management	18	5.7
Negative past experience with plans	17	5.4
Achieves public involvement; the public, stakeholders and other agencies will understand Refuge direction	16	5.1
Takes valuable staff time and resources	13	4.1
Politically driven	9	2.9
Strength of CCP depends on the amount of effort put in	8	2.5
CCP will soon be replaced with another planning requirement	8	2.5
Brings more money and staff to the refuge	6	1.9
There will be no funds to implement the plan	6	1.9
If CCP's are kept around, they could be effective	6	1.9
Other*	13	4.2

\* Some of the other comments included: useful for new refuges, and written by contractors.

18. How has the philosophy of the National Wildlife Refuge System changed in the last ten years? (The following are categorized groupings of answers to open-ended questions.)

<b>Reason</b>	<b>N</b>	<b>Percentage (%)</b>
Toward ecosystem management	110	33.0
Increased outreach efforts	31	9.9
Increased public use	28	8.9
Cannot comment	21	6.7
The philosophy has not changed	17	5.4
Toward politically motivated and charged management	12	3.8
Wildlife first	10	3.2
Toward ecosystem management and increased outreach efforts	9	2.9
More people oriented	9	2.9
Increased wildlife compatible recreation	5	1.6
Decisions are now made to please the public	4	1.3
Employees are not as committed to refuge management	4	1.3
Refuges are being held back by the U.S. Fish and Wildlife Service	4	1.3
Other	26	8.2

19. What should the philosophy of the National Wildlife Refuge System be in the future? (The following are categorized groupings of answers to open-ended questions.)

<b>Reason</b>	<b>N</b>	<b>Percentage (%)</b>
Wildlife first	76	24.2
Ecosystem and holistic management approach	43	13.7
Current mission	26	8.3
Habitat restoration, management and protection	24	7.6
Provide wildlife experience for the public without damaging the resource	16	5.1
Maintain ecological integrity and biodiversity and mimic natural processes	15	4.8
Follow the Refuge Improvement Act of 1997	14	4.5
Use the best science and tools available to be good examples of habitat management and land stewardship	12	3.8
Lands managed for wildlife as a system	9	2.9
More on the ground management	8	2.5
No change from current philosophy	5	1.6
Other*	32	10.2

\*Some of the other comments included: reduce the bureaucracy and avoid reorganization, go back to our roots of maximizing game species, manage based upon the original purpose of the refuge, become more people oriented, manage for future generations, and manage existing refuges before adding new lands.

**Section IV: In this section, we would like to know more about you and your reasons for entering this profession.**

20. What activities, events, people, etc...stimulated you to enter this profession? (The following are categorized groupings of answers to open-ended questions. Men and women had significantly different answers to this question.)

<b>Stimulus to enter natural resource profession</b>	<b>N</b>	<b>Percentage (%)</b>
Hunting and fishing	84	26.8
Interest in outdoors, woods, wildlife and natural world	65	20.7
Family	26	8.3
Elementary, high school, or college classes and teachers	17	5.4
Conservation literature and television	15	4.8
Grew up on a farm, hunting and fishing	14	4.5
Rural background	9	2.9
Camping and hiking	8	2.5
Work experience on public land or with refuge people	8	2.5
Other	60	19.1

21. In your opinion, based upon your experiences in the National Wildlife Refuge System, what are the critical elements needed for persons employed as a refuge biologist and a refuge manager? (The following are categorized groupings of answers to open-ended questions.)

**Refuge Biologist:**

<b>Area</b>	<b>N</b>	<b>Percentage (%)</b>
Technical skills	155	56.4
Social skills	2	.7
Personal qualities and basic knowledge	10	3.6
Technical and social skills	37	13.5
Technical skills and personal qualities	54	19.6
Social skills and personal qualities	2	.7
All of the above	15	5.5
Total	275	100.0

**Refuge Manager:**

<b>Area</b>	<b>N</b>	<b>Percentage (%)</b>
Technical skills	64	23.9
Social skills	13	4.9
Personal qualities and basic knowledge	19	2.1
Technical and social skills	51	19
Technical skills and personal qualities	41	15.3
Social skills and personal qualities	11	4.1
All of the above	69	25.7
Total	268	100.0

22. Please list all of your degrees and subject areas. (The following are categorized groupings of answers to open-ended questions.)

<b>Undergraduate Degree Area</b>	<b>N</b>	<b>Percentage (%)</b>
Wildlife	153	48.7
Biology	51	16.2
Wildlife and fisheries management	26	8.3
Zoology	15	4.8
Forestry	9	2.9
Social sciences	7	2.2
Wildlife management, range management	6	1.9
Natural resources	5	1.6
Wildlife and forestry	5	1.6
Other	28	7.2
<b>Master's Degree Area</b>		
None	150	47.8
Wildlife	82	26.1
Biology	26	8.3
Zoology	12	3.8
Other	44	14.0
<b>PhD Degree Area</b>		
None	306	97.5
Wildlife	5	1.6
Other	3	0.9

23. Answers to question 23 were used to create an index known as the New Environmental Paradigm (NEP). The measure predicts respondents' environmental values (Dunlap and Van Liere 1978, 1984; Van Liere and Dunlap 1980, 1981). The result is a 5-point scale with the higher score indicating increased biocentrism or support of the NEP.

	<b>Strongly disagree</b>	<b>Somewhat disagree</b>	<b>No opinion</b>	<b>Somewhat agree</b>	<b>Strongly agree</b>	<b>Mean (std dev)</b>
<i>The balance of nature is very delicate and easily upset by human activities</i>	0.6	11.8	0.6	55.1	30.3	4.05 (0.92)
<i>The earth is like a spaceship with only limited room and resources</i>	2.5	1.9	2.5	22.0	69.4	4.60 (0.83)
<i>Plants and animals do not exist primarily for human use</i>	5.4	10.5	6.7	26.8	49.4	4.13 (1.23)
<i>Modifying the environment seldom causes serious problems</i>	2.2	3.8	1.0	32.9	58.9	4.46 (0.87)
<i>People were created to rule over the rest of nature</i>	7.3	9.2	8.6	14.3	59.2	4.21 (1.33)

**Overall NEP mean and standard deviation: 4.00, 0.61**

Managers and Biologists were significantly different in their scores on the environmental values index, the New Environmental Paradigm.

<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>Std error of difference</b>
<i>Manager</i>	143	3.91	0.059
<i>Biologist</i>	121	4.12	0.041
<i>Difference</i>	22	0.21	0.074

24. In your personal or leisure time, what recreational activities do you participate in?

Recreational Activity	Zero times per year	1-2 times per year	3-5 times per year	6-10 times per year	More than 10 times per year
Hunting	25.2%	15.0%	13.9%	13.9%	32
Fishing	18.2%	19.2%	17.5%	19.5%	25..
Camping	11.0%	33.4%	30.1%	14.4%	11.0%
Hiking	5.0%	12.3%	24.2%	18.5%	40.1%
Kayaking/canoeing	26.7%	34.7%	20.8%	7.6%	10.1%
Nature viewing	1.3%	1.3%	6.2%	10.8%	80.3%
Photography	19.3%	20.7%	20.0%	13.6%	25.4%
Four-wheeling	83.3%	5.6%	5.2%	2.8%	3.1%
Snowmobiling	95.8%	3.5%	0.3%	0.3%	0.0%
Skiing	58.6%	15.9%	12.1%	5.9%	7.6%
Motorized boating	67.0%	11.5%	9.7%	3.5%	8.3%
Other	3.9%	0.0%	3.9%	17.1%	25.0%

25. Do you belong to any professional organizations? (The following are categorized groupings of answers to open-ended questions.)

Professional Society	N	Percentage (%)
The Wildlife Society	97	30.9
National Wildlife Refuge Association	9	2.9
The Wildlife Society, National Wildlife Refuge Association	7	2.2
State Chapter of The Wildlife Society	7	2.2
The Wildlife Society, Society for Conservation Biology	6	1.9
The Wildlife Society, American Society for Mammologists	3	1.0
The Wildlife Society, State Chapter of the Wildlife Society	3	1.0
Other	20	6.4

**Section V: In this section, we would like to know some demographic information about you.**

26. Age

Mean            44.5 years  
 Median         46.0 years

Age Groups

25-29 years	3.9%
30-34 years	12.7%
35-39 years	13.3%
40-44 years	14.9%
45-49 years	25.0%
50-54 years	22.4%
55-59 years	4.9%
60-69 years	2.9%

27. Gender

Male 76.1%	Female 24.9%
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28. Please select one category that best describes your race and ethnicity.

a. American Indian or Alaska Native	2.6%
b. Asian American	1.3%
c. Black or African American	0.7%
d. Hispanic or Latino	3.0%
e. Native Hawaiian or Pacific Islander	0.0%
f. White or European	90.4%
g. Other	2.0%

29. Did you grow up on a farm or a ranch?

a. Farm	20.7%
b. Ranch	3.5%
c. Neither	73.9%

30. Which of the following best describes the area where you grew up?

a. In a town of less than 500 people	10.9%
b. In a town of 501 – 2,500 people	14.5%
c. In a town of 2,501 – 9,999 people	23.1%
d. In a city of 10,000 – 24,999 people	12.5%
e. In a city of 25,000 – 49,999 people	14.9%
f. In a city of 50,000 – 99,999 people	9.6%
g. In a city of 100,000 – 1 million people	7.9%
h. In a city of greater than 1 million people	6.6%

31. When thinking of your basic political orientation, which statement is most true?

a. I am unsure of my political orientation	2.0%
b. I am somewhat unsure of my political orientation	4.9%
c. I am somewhat sure of my political orientation	32.1%
d. I am sure of my political orientation	58.7%
e. Don't know	2.3%

32. As you think about it now, how would you describe your political orientation?

a. Extremely liberal	1.3%
b. Liberal	20.8%
c. Slightly liberal	21.8%
d. Middle of the road or moderate	23.2%
e. Slightly conservative	15.8%
f. Conservative	16.4%
g. Extremely conservative	0.7%

Liberal	43.8%
Moderate	23.2%
Conservative	33.0%

33. How many years have you been employed by the U.S. Fish and Wildlife Service?

Mean: 16.1 years      Median: 15 years

Groups of years employed by the U.S. Fish and Wildlife Service

0-4 years	11.8%
5-9 years	15.7%
10-14 years	20.9%
15-19 years	10.5%
20-24 years	21.6%
25-29 years	11.4%
30-34 years	6.9%
35-42 years	1.3%

34. What is your current GS grade level?

a. GS 5	0.0%
b. GS 7	2.6%
c. GS 9	6.9%
d. GS 11	31.0%
e. GS 12	26.8%
f. GS 13	21.9%
g. GS 14	10.8%
h. GS 15	0.0%
i. Other	0.0%

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