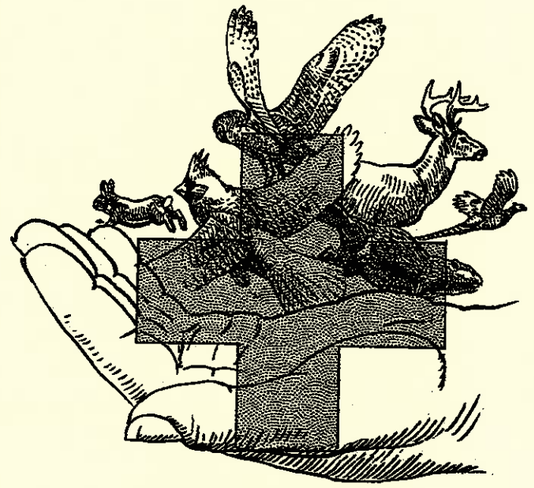

CHARACTERISTICS OF WILDLIFE REHABILITATION COOPERATORS IN NEW YORK

September 1994

HDRU Series No. 94-5

Prepared by:

William F. Siemer and Tommy L. Brown
Human Dimensions Research Unit
Department of Natural Resources
Cornell University
Ithaca, NY 14853-3001

HUMAN DIMENSIONS RESEARCH UNIT PUBLICATIONS SERIES

This publication is part of a series of reports resulting from investigations dealing with public issues in the management of wildlife, fish, and other natural resources. The Human Dimensions Research Unit (HDRU) in the Department of Natural Resources at Cornell University is a nationally-recognized leader in the study of the economic and social values of wildlife, fish, and other natural resources and the application of such information in management planning and policy. A list of HDRU publications may be obtained by writing to the Human Dimensions Research Unit, Department of Natural Resources, Fernow Hall, Cornell University, Ithaca, NY 14853.

CHARACTERISTICS OF WILDLIFE REHABILITATION COOPERATORS IN NEW YORK

by

William F. Siemer and Tommy L. Brown
Human Dimensions Research Unit
Department of Natural Resources
Cornell University

HDRU Series No. 94-5

Keywords: wildlife management, wildlife rehabilitation, wildlife use.

STUDY PHASE III: FINAL REPORT

STATE: NEW YORK
GRANT: WE-173-G
PROJECT: W-146-R:17

PROJECT TITLE: Public Attitudes Toward Wildlife and Its Accessibility

STUDY NUMBER AND TITLE: II - Identification of Wildlife Management Action Needs.

JOB NUMBER AND TITLE: II-3 - Participation Parameters of Nonconsumptive Wildlife Recreationists in New York and Their Propensity to Support Management.

JOB OBJECTIVES:
(1) Characterize licensed wildlife rehabilitators in New York State.

(2) Characterize the perceptions of BOW personnel regarding licensed wildlife rehabilitators and rehabilitation in New York State.

(3) Characterize the perceptions of licensed wildlife rehabilitators and rehabilitation in New York State held by people who contact wildlife rehabilitators during animal delivery or information/education experiences.

JOB DURATION: 1 July 1989 - 30 June 1992

PREPARED BY:

William F. Siemer
Research Support Specialist
Department of Natural Resources
Cornell University

Tommy L. Brown
Senior Research Associate
Department of Natural Resources
Cornell University

APPROVED BY:

George F. Mattfeld
Supervising Wildlife Biologist
Bureau of Wildlife (NYSDEC)

Gary R. Parsons
Chief Wildlife Biologist
Bureau of Wildlife (NYSDEC)

ACKNOWLEDGMENTS

We extend our thanks to the New York State residents who participated in this study. For their assistance and support during study design and implementation, we express our appreciation to New York State Department of Environmental Conservation (DEC) personnel Kelly Allen, Marge Blanchard, Julie Harjung, Patrick Martin, Gary Parsons, Randy Stumvoll, Chris von Schilgen, and Ken Wich.

Special thanks are extended to Kelly Bolton (president, New York State Wildlife Rehabilitation Council [NYSWRC]) for her contributions to instrument development and review, and for her involvement in this project as a liaison between the Human Dimensions Research Unit (HDRU), DEC, and the wildlife rehabilitation community. We are also grateful to the Executive Board members of NYSWRC for their contributions to instrument review.

Members of the HDRU assisted in a variety of ways during the course of this study. Daniel Decker assisted with conceptual design. Nancy Connelly, Jody Enck, Larry Gigliotti, and Barbara Knuth provided instrument reviews. Heidi Christoffel assisted with data analysis. Margie Peech provided word-processing support.

This project was funded by New York State through Federal Aid in Wildlife Restoration Grant WE-173-G, Job 146-02-03. Additional funding was contributed to this project through a research grant awarded by the National Wildlife Rehabilitators Association.

*** EXECUTIVE SUMMARY ***

PURPOSE FOR STUDY PHASE III

- To provide baseline information on wildlife rehabilitation "cooperators" (i.e., members of the public who contact wildlife rehabilitators for assistance with a distressed wild animal) in order to increase understanding about the effects of rehabilitators' activities on public perceptions of wildlife and wildlife management.

OBJECTIVES FOR STUDY PHASE III

- Provide a demographic profile of the people who bring distressed animals to New York State wildlife rehabilitators.
- Characterize the experiences occurring between rehabilitators and wildlife rehabilitation cooperators.
- Characterize the key beliefs, values, and attitudes held by rehabilitation cooperators.

METHODS

- In 1992, we conducted a self-administered mail survey with a sample of rehabilitation cooperators. We drew a random sample of 501 cooperators from logbook records submitted by all 1991 rehabilitators.
- Our questionnaire assessed respondents': demographic characteristics, past interactions with rehabilitators, attitudes toward wildlife and wildlife management, perceptions of rehabilitators and rehabilitation, expectations of DEC related to rehabilitation, and self-attributed attitude and behavior change associated with past rehabilitator contacts.
- Key beliefs and values held by rehabilitation cooperators were measured with the 15-item Wildlife Use and Management scale used in study phase I (i.e., a 1991 survey of wildlife rehabilitators) and study phase II (i.e., a 1991 survey of DEC personnel). Grand means from factors in the Wildlife Use and Management Scale were calculated as a measure for attitude comparison between rehabilitators, rehabilitation cooperators, and wildlife agency personnel.

RESULTS

- 279 useable questionnaires were returned, yielding a 64% response after adjustment for undeliverable questionnaires (n=53) and contacts with active 1991 rehabilitators (n=8). No follow-up study was done to assess potential nonresponse bias.

Personal Characteristics of Cooperators:

- The majority (71%) of rehabilitation cooperators were women. They ranged from 12 to 73 years old (mean age = 40; median age = 38). About 21% held a high school diploma, 38% had completed some college, and 35% held an undergraduate or graduate degree. About 36% had a pre-tax household income of >30,000; 35% had a household income of $50,000 or more. They resided in rural areas (39%), villages and small cities (less than 25,000 people) (40%), and larger cities (population over 25,000) (21%).

- About 1 in 4 belonged to a conservation or environmental organization. About 13% were licensed hunters, 19% were licensed anglers, and 55% had taken trips of more than 1 mile away from home to watch, photograph, or feed wildlife.

Their Experiences With Rehabilitators:

- Over 60% contacted a rehabilitator just once during the 1991-92 rehabilitation license year. In the majority of cases, a single, immature animal was delivered.

- In about 30% of all cases, the distressed animal was discovered by a person other than the cooperator, usually a male family member.

- Over 70% said it was somewhat to very easy for them to locate a rehabilitator. However, 60% said that a rehabilitator was not the first person they contacted when the animal distress incident occurred. 29% of all cooperators contacted veterinarians and 20% contacted representatives of animal welfare groups before they were referred to a rehabilitator. Less than 10% contacted DEC regional staff, central office staff, or law enforcement staff before locating a rehabilitator.

- The majority assisted a distressed animal out of sympathy for the animal rather than moral obligation.

Wildlife-Related Beliefs and Attitudes:

- Rehabilitation cooperators held attitudes similar to those held by rehabilitators on the dimensions measured by the management scale.

Image of Rehabilitators and Rehabilitation:

- The majority of cooperators were already aware that rehabilitators existed before they first encountered an animal distress incident. However, more than 70% held the misperceptions that rehabilitators were state employees and received state funding.

- Most cooperators regarded rehabilitators as trustworthy, knowledgeable, concerned, and professional.

Expectations for DEC Involvement in Rehabilitation:

- The majority of people who call rehabilitators for assistance perceive rehabilitation as an important part of managing wildlife populations that should be part of DEC's wildlife program.

- 97% supported "the practice of allowing licensed, regulated individuals to receive live wild animals for the purpose of wildlife rehabilitation."

- The majority believed rehabilitation should always or nearly always be done, not just with threatened or endangered species, but also with individuals from common or exotic species.

Self-Reported Attitude and Behavior Change:

- Some cooperators reported wildlife-related attitude change due to interactions with rehabilitators. The majority of cooperators believed their experience with rehabilitators had made them more knowledgeable about wildlife. More than 1 in 3 believed that rehabilitators had elevated their interest in animal welfare and rights. A similar proportion said their interactions with rehabilitators had made them more supportive of DEC's wildlife management activities.

- Self-reported behavior change as a result of contact with a rehabilitator was more limited. Many cooperators took actions in 1991 that could be described as wildlife preservation- or conservation- related. But in most cases, cooperators didn't attribute these actions to contact with a rehabilitator. Increased contribution to conservation organizations as a result of contact with rehabilitators represents an exception to this general finding.

DISCUSSION

- Through their activities rehabilitators reach a predominantly female audience. The people they reach are both urban and rural. The majority of their contacts are with people who do not hunt, fish, or belong to conservation organizations. Rehabilitators thus reach an audience with which the DEC Division of Fish and Wildlife may have little contact. DEC should consider cooperation with rehabilitators to reach such nontraditional publics.

- Members of the public often call nonrehabilitators (e.g, veterinarians) when they encounter distressed wildlife. Though contacted less frequently than veterinarians or humane groups, wildlife agency staff also receive public requests for rehabilitation-

related assistance. Better coordination between these groups could improve the efficiency with which these public requests are addressed. Cooperation between rehabilitators and wildlife management personnel could benefit rehabilitators, wildlife managers, and the citizens of New York.

- The data collected in this study is not rich enough to provide definitive evidence of public attitudinal changes associated with wildlife rehabilitation. The study provides some evidence that contact with rehabilitators may heighten public interest in animal welfare and rights issues. Like rehabilitators, many cooperators believed that hunting and trapping were inappropriate uses of wildlife. However, most cooperators had just 1 lifetime interaction with a rehabilitator. It seems unreasonable to suggest that cooperators' attitudes toward wildlife were determined by this single event. We believe a more plausible hypothesis is that rehabilitators attract people who, like themselves, hold a high level of concern about the welfare of individual animals. They may also reinforce preexisting concerns cooperators hold about human use of wildlife through hunting and trapping.

- Rehabilitators enjoy a very positive image among the people they serve directly. This image creates opportunities for public communication that could be utilized more fully by both rehabilitators and wildlife managers.

- The common perception among cooperators that wildlife rehabilitation is an important part of managing wildlife populations, and that it should be part of DEC's wildlife program, has important implications for DEC, especially if this perception is common among New York State residents.

- Public cooperators may often hold unrealistically high expectations related to animal rehabilitation. Informational materials and experiences are needed to encourage realistic public expectations of rehabilitators and wildlife managers.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF TABLES (Continued)

LIST OF FIGURES

INTRODUCTION

In 1990, the New York State Department of Environmental Conservation (DEC) contracted with the Human Dimensions Research Unit (HDRU) at Cornell University to conduct a study of wildlife rehabilitation in New York. The goal of this study was to generate information that could serve as a foundation for improved communication and interaction between DEC and the wildlife rehabilitation community. Toward that end, HDRU developed and implemented a multi-phase study that included surveys of 3 key groups: wildlife rehabilitators, DEC Division of Fish and Wildlife personnel, and members of the public who contact rehabilitators for assistance.

The first phase of our research produced baseline information on wildlife rehabilitators (hereafter referred to as rehabilitators). We focused on rehabilitators' education and animal care activities and their attitudes and perceptions on key wildlife management issues (Siemer and Brown 1992a, 1992b, 1993; Siemer et al. 1992). The second phase of our study focused on DEC Division of Fish and Wildlife personnel and provided a comparative analysis of key perceptions, attitudes, and values held by DEC staff and rehabilitators (Siemer and Brown 1993). In this document, we report results from the third and final phase of our study, which sheds light on the interactions occurring between rehabilitators and those members of the public who contact rehabilitators during an animal distress incident (hereafter referred to as rehabilitation cooperators).

BACKGROUND AND RESEARCH NEEDS

Rehabilitators are licensed by the state of New York to receive, possess, and aid injured, orphaned, or distressed wildlife. The primary goal of wildlife rehabilitation is to provide temporary care to wildlife in distress and eventually return each of these animals to the wild (Pokras and Thomas 1991:3). A wildlife rehabilitation license requirement was

established by DEC in 1980. The number of licensed rehabilitators quadrupled between 1980 and 1990 (Siemer and Brown 1992a). By 1990, more than 400 licensed participants handled approximately 13,000 animal distress incidents (Siemer and Brown 1992a). A 1989 amendment to Section 11-0515 of New York's Environmental Conservation Law (ECL) allowed people who discovered distressed wildlife to deliver such animals directly to a licensed rehabilitator rather than only to a DEC Environmental Conservation Officer.

Since 1985, rehabilitators have been required to report specific information associated with their animal care activities (e.g., species treated, cause of distress, and final disposition of animals treated). However, increased public participation in rehabilitation and increased management responsibility led to an agency need for additional information on rehabilitators and their activities. Among the needs DEC staff identified were baseline information on rehabilitators' attitudes (toward wildlife and wildlife management) and perceptions of DEC-rehabilitator interactions. Given the recent emergence of licensed rehabilitation activity, no studies had been conducted in New York to provide accurate, baseline information on key attitudes and perceptions held by rehabilitators and DEC personnel, or to clarify the context for communication between managers and rehabilitators in New York. The absence of information in these areas was identified by DEC as an impediment to effective program administration and the development of effective intergroup communication. Addressing these information needs was the primary reason for conducting the Cornell study of wildlife rehabilitation activity in New York.[1]

The degree to which wildlife rehabilitation contributes to wildlife conservation is a subject of continuing debate (Loftin 1985, Duke 1987, Marion 1989, Steinhart 1990, Tudge

[1]The results of study phases I and II are reported in HDRU Series Publications 92-1 and 93-1.

1992). Our study did not focus on this debate. Phase III of our study focused on a less discussed, yet equally important aspect of wildlife rehabilitation: the nature of rehabilitator-public contacts and the effect that those contacts have on the attitudes and behavior of rehabilitation cooperators. Rehabilitators appear to have extensive interaction with the public, both directly, during animal distress incidents, and indirectly, through media coverage, education activities, and public information services. This level of interaction occurring between rehabilitators and the larger citizenry raises a number of questions of management importance to the DEC Division of Fish and Wildlife:

- What sectors of the New York State population do rehabilitators contact?
- What are their interests, beliefs, and values related to wildlife?
- How do these citizens perceive wildlife rehabilitation and rehabilitators?
- What benefits, if any, do citizens receive through contact with rehabilitators?
- What communication messages does the citizenry receive from rehabilitators?
- How does contact with rehabilitators influence people's attitudes and behavior?
- What do the people who interact with rehabilitators expect from the DEC wildlife program?

Answering these questions about direct public contact with rehabilitators may help wildlife managers to understand the knowledge, beliefs and attitudes rehabilitators attempt to promote. Such understanding can then serve to facilitate decision making on the degree to which the wildlife management and wildlife rehabilitation communities might supplement, enhance or cooperate with each other in the provision of wildlife-related information and education.

PURPOSE AND OBJECTIVES

No previous research has been done on rehabilitation cooperators in New York State. The goal of our research was to provide baseline data by which to begin answering the most

important questions DEC held about rehabilitation cooperators. We established 3 objectives as guidelines for phase III of our research:

(1) Provide a demographic profile of rehabilitation cooperators.

(2) Characterize the experiences occurring between rehabilitators and rehabilitation cooperators.

(3) Characterize the key beliefs, values, and attitudes of rehabilitation cooperators.

METHODS

Sampling

All New York state rehabilitators are required to submit an annual log of their animal care activities. Logbooks provide a complete record of animal distress incidents, including the names and addresses of the people who delivered a distressed animal. With permission and assistance from DEC, we drew a sample of rehabilitation cooperators from logbook records submitted for 1991. We sampled approximately 500 members from a universe of approximately 13,000 animal distress incidents reported in 1991. This sample size was chosen to provide reliable statewide data (margin of error on proportional data ±5% at a 90% level of confidence) within project funding limitations.

We sorted logbook entries by DEC administrative region, used a random-digit start from the first page of DEC region 1, and then recorded mailing information for every 26th rehabilitation cooperator listed (selecting every 26th name ensured an equal probability of selecting any name in the logbook records). One pass through the logbook records resulted in a sample of 551 cooperators (Appendix A). We removed sample members listed as rehabilitators in 1990 (n=19), and duplicate or incomplete records (n=19), leaving an original sample size of 501 people.

The Rehabilitation Cooperator Questionnaire

Data were collected through the use of a 12-page, mail-back questionnaire containing 148 variables. The survey instrument characterized rehabilitation cooperators, their interactions with rehabilitators, and their attitudes and perceptions on key wildlife and wildlife management issues.

Cooperator Characteristics:

The questionnaire assessed selected demographic characteristics (age, sex, education level, area of residence), wildlife-related activity involvement, affiliation with wildlife-related organizations, and travel distance between the rehabilitator and rehabilitation cooperator. Items were also included to identify rehabilitation cooperators who were or had been a rehabilitator.

Wildlife-Related Attitudes:

Key beliefs and values on wildlife and wildlife management were measured with the 15-item Wildlife Use and Management scale developed during the first 2 phases of this study (Siemer and Brown 1992a, 1993). The scale is comprised of 3 factors which we believe are critical to communication between wildlife managers, rehabilitators, and rehabilitation cooperators. These factors are: wildlife management and use, animal pain and suffering, and human impacts on ecological systems. For a complete discussion of the Wildlife Use and Management Scale, refer to Siemer and Brown (1993).

Interactions With Rehabilitators:

Rehabilitation cooperators were asked to recall some of the key details surrounding their most recent contact with a rehabilitator, including: the level of difficulty they encountered when trying to find assistance for an animal, the information sources they contacted during their search for assistance, the type of animal they delivered, the season during which the

animal was found, the disposition of the animal(s) (e.g., immature, orphaned, injured), and the primary reason that motivated them to assist a distressed animal.

Several items were also included to profile interactions with rehabilitators throughout 1991. We collected data on: the frequency of contacts with rehabilitators, the number of different rehabilitators contacted, 1991 attendance at information/education presentations given by rehabilitators, and information content areas discussed with rehabilitators.

Attitudes, Expectations and Behaviors Related to Rehabilitation:

Much of the survey instrument was devoted to assessing cooperators': (1) perceptions of rehabilitators and rehabilitation, (2) expectations of DEC related to rehabilitation, and (3) self-attributed attitude and behavior change associated with past rehabilitator contacts. Eight items were developed to measure general awareness of rehabilitation activity in New York. We also developed a modified version of Decker's (1985) agency image scale to assess the perception that cooperators held of rehabilitators as a group and rehabilitation as an activity.

Implementation and Analysis:

We implemented our survey of rehabilitation cooperators in the summer of 1992, utilizing the four-wave mailing approach suggested by Dillman (1978). HDRU staff completed data coding and analysis using the Statistical Package for Social Sciences software (SPSS Inc. 1986, 1988). Chi-square and Student's t statistics were used for comparisons between groups (between group differences were tested at the $P < 0.05$ level of significance). We calculated grand means from factors in the Wildlife Use and Management Scale as a measure for attitude comparison between rehabilitation cooperators, rehabilitators, and wildlife agency personnel.

RESULTS

Contact with a sample of 501 cooperators resulted in 53 undeliverable questionnaires and contacts with 8 people outside the sample frame (e.g., licensed rehabilitators). An adjusted sample of 440 yielded 279 useable returns (63.4% response). No follow-up study was done to assess potential nonresponse bias.

Cooperator Characteristics

The majority (71%) of rehabilitation cooperators were women. They ranged from 12 to 73 years old (mean age = 40; median age = 38) (Table 1). About 74% of cooperators had completed some college and 37% held an undergraduate or graduate degree (Table 2) (by comparison, about 40% of all U.S. adults have completed some college education). About 34% of adult cooperators had a pre-tax household income of >$30,000; 37% had a household income of $50,000 or more (Table 3).

About 55% had taken trips of more than 1 mile away from home to watch, photograph, or feed wildlife. About 26% belonged to a conservation or environmental organization (Appendix B), 19% were licensed anglers, and 13% were licensed hunters. The majority of cooperators (60%) lived within 10 miles of the nearest rehabilitator (over 90% lived within 30 miles of the nearest rehabilitator). Thirty-nine percent resided in rural areas, 40% lived in villages and small cities (less than 25,000 people), and 21% lived in larger cities (population over 25,000).

These findings are most meaningful in comparison to the demographic characteristics of other wildlife-related interest groups. In Figures 1-3, 1992 data on rehabilitation cooperators' sex, education, and age are compared to 1991 data on rehabilitators (Siemer and Brown 1992a), New York State hunters (USFWS 1989), and New York State residents who participated in other wildlife-related activities (e.g., had taken trips of more than 1 mile away from home to watch, photograph, or feed wildlife). By comparison, rehabilitation

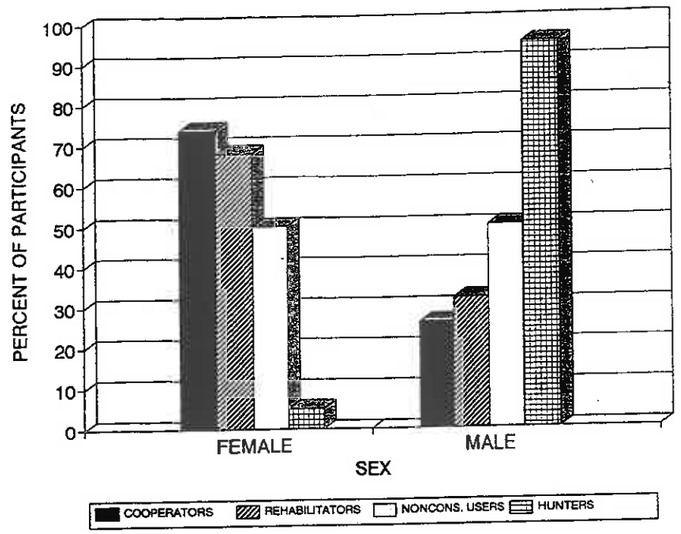

Figure 1. Sex of New York State rehabilitation cooperators (1992), wildlife rehabilitators (1991), hunters (1991), and nonconsumptive wildlife-associated recreationists (1991).

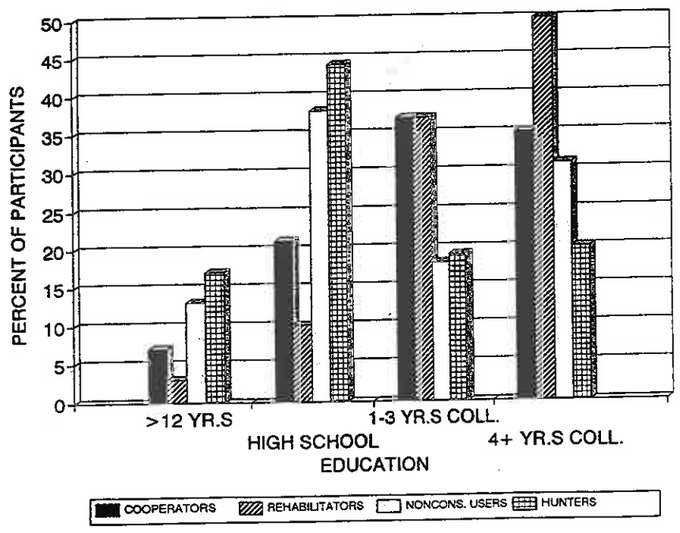

Figure 2. Education levels of New York State rehabilitation cooperators (1992), wildlife rehabilitators (1991), hunters (1991), and nonconsumptive wildlife-associated recreationists (1991).

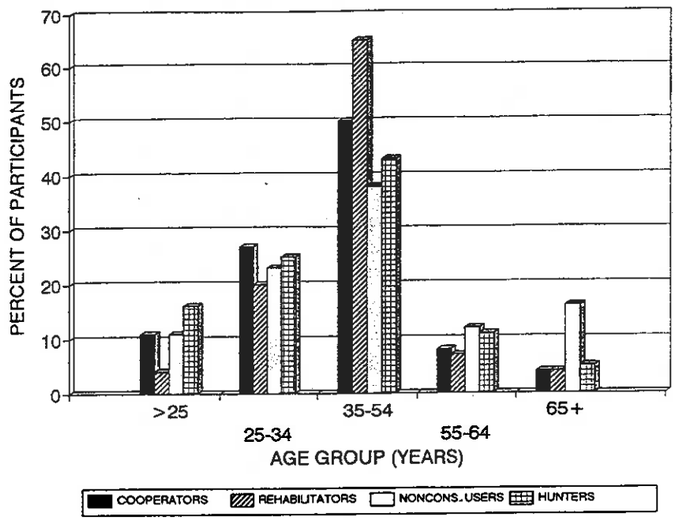

Figure 3. Ages of New York rehabilitation cooperators (1992), wildlife rehabilitators (1991), hunters (1991), and nonconsumptive wildlife-associated recreationists (1991).

Table 1. Age of rehabilitation cooperators in New York, 1992.

Age	*n*	%	Age	*n*	%
12-20	11	4.0	51-60	32	11.7
21-30	59	21.5	61-65	12	4.4
31-40	89	32.5	66 or more	7	2.6
41-50	64	23.4			

Table 2. Highest level of formal education attained by New York State wildlife rehabilitators (1991) and rehabilitation cooperators (1992).		
Highest Education Level	Rehabilitators (n=294)	Cooperators (n=252)
Some high school	2.7	5.2
High school diploma	10.2	20.6
Some college or technical school	22.8	24.2
Completed a two-year college degree	14.3	13.1
Completed an undergraduate degree	11.9	15.1
Some post-graduate education	14.6	7.1
Completed a post-graduate degree	23.5	14.7

Table 3. Pre-tax household income of rehabilitation cooperators, 1992.		
Income	*n*	Percent
$9,999 or less	18	7.7
$10,000 - 19,999	28	12.1
$20,000 - 29,999	34	14.5
$30,000 - 39,999	40	17.1
$40,000 - 49,999	27	11.5
$50,000 - 59,999	19	8.1
$60,000 - 69,999	18	7.7
$70,000 - 79,999	12	5.1
$80,000+	38	16.2

cooperators were more likely to be female and college educated than hunters or recreationists who watched, fed, or photographed wildlife (note: rehabilitation cooperators, hunters, and other wildlife-related interests are not mutually exclusive groups).

Wildlife Use and Management Scale Results:

We utilized the Wildlife Use and Management Scale (WUMS) (Siemer and Brown 1993) (Table 4) to characterize cooperators' attitudes in 3 key wildlife-related issue areas. Tables 5-7 report the responses of rehabilitation cooperators, DEC Bureau of Wildlife personnel, and rehabilitators to items in the WUMS.

Table 4. The Wildlife Use and Management Scale.

FACTOR 1: VALUES RELATED TO WILDLIFE USE AND MANAGEMENT

- An important step in conserving a species of wildlife is to protect it from hunting.
- Resources expended in New York to manage wildlife for hunting would be better spent on conservation of threatened and endangered wildlife.
- Hunting is justified only when it is necessary to sustain human life.
- Hunting wild animals is morally wrong if done primarily to obtain food.
- Hunting is morally wrong because it violates the right of an animal to exist.

- People who participate in trapping do not feel compassion for wildlife.
- Trapping wild animals is morally wrong if done primarily for recreation.
- Killing wild animals to sell their fur is morally wrong.
- It is wrong to regard wild animals as a renewable source of food.

FACTOR 2: VALUES RELATED TO ANIMAL WELFARE

- Minimizing animal pain and suffering is an important consideration in New York State's wildlife management program.
- People allowed to hunt or trap should follow practices that minimize animal suffering.
- Any user of wild animals should be concerned about animal suffering.

FACTOR 3: VALUES RELATED TO HUMAN IMPACTS ON THE ENVIRONMENT

- It is ethical for society to restrict human activities to minimize negative impacts on wildlife.
- It is more important to manage for species diversity than to manage for large populations in a few species.
- The people of New York are not doing enough to conserve the natural systems wildlife depend on.

Animal Welfare.--Three items explored issues of animal welfare, where that term refers to considerations of animal pain and suffering. Nearly all (97%) cooperators believed that those who use animals should be concerned about animal suffering and should follow practices that minimize animal pain and suffering (96%). The majority (76%) also believed that minimizing animal pain was an important consideration in New York State's wildlife management program (cooperators were more likely to agree with this statement than rehabilitators or BOW personnel) (Table 5).

Table 5. Responses (%) of DEC Bureau of Wildlife personnel[a], rehabilitation cooperators, and wildlife rehabilitators[a] to items in Factor 3 of the Wildlife Use and Management Scale.

Item Description	Strongly Agree/ Agree	Neutral	Strongly Disagree/ Disagree
Minimizing animal pain and suffering is an important consideration in New York's wildlife management programs.			
Bureau of Wildlife	61.7	15.7	22.6
Public Cooperators	76.4	16.2	7.4
Wildlife Rehabilitators	18.6	81.4	0.0
People who are allowed to hunt or trap should follow practices that cause the least animal pain and suffering.			
Bureau of Wildlife	86.3	7.5	6.2
Public Cooperators	95.6	3.3	1.1
Wildlife Rehabilitators	97.3	1.7	1.0
Anyone who uses wild animals in some way should be concerned about the pain and suffering of those animals.			
Bureau of Wildlife	81.6	13.7	4.7
Public Cooperators	96.7	3.0	0.3
Wildlife Rehabilitators	98.3	1.1	0.6

[a]Data taken from Siemer and Brown 1993.

Wildlife Conservation.--The majority (81%) of cooperators believed it is ethical to restrict human activities to minimize negative impacts on wildlife (over 90% of BOW staff and rehabilitators also agreed with this statement). The majority (78%) agreed that New Yorkers were not doing enough to conserve the natural systems that support wildlife. Cooperators were less likely than rehabilitators or BOW staff to agree that maintaining species diversity is more important than managing for large numbers of animals in a small number of species. Forty-eight percent neither agreed nor disagreed with this statement, suggesting that cooperators may have found this item difficult to understand (Table 6).

Table 6. Responses (%) of DEC Bureau of Wildlife personnel[a], rehabilitation cooperators, and wildlife rehabilitators[a] to items in Factor 2 of the Wildlife Use and Management Scale.

Item Description	Strongly Agree/ Agree	Neutral	Strongly Disagree/ Disagree
It is ethical for society to restrict human activities to minimize negative impacts on wildlife.			
Bureau of Wildlife	91.0	4.9	4.1
Public Cooperators	80.6	13.5	5.9
Wildlife Rehabilitators	92.8	4.8	2.4
It is more important to manage wildlife for species diversity than it is to manage for a large number of animals in a small number of species.			
Bureau of Wildlife	68.3	21.7	10.0
Public Cooperators	44.3	48.2	7.5
Wildlife Rehabilitators	66.9	26.4	6.7
The people of New York are not doing enough to conserve the natural systems that wildlife depend on for survival.			
Bureau of Wildlife	75.2	15.1	9.7
Public Cooperators	78.0	17.5	4.5
Wildlife Rehabilitators	87.8	8.4	3.8

[a]Data taken from Siemer and Brown 1993.

Wildlife Management and Use.--Most cooperators believed that use of wildlife for food was appropriate, but a majority disapproved of recreational hunting and fur trapping. Over 60% of cooperators disagreed with the statement, "hunting wild animals is morally wrong if it is done primarily to obtain food." This suggests that the majority of cooperators approve of hunting for the purpose of obtaining meat. Yet, 61% also believed wildlife conservation necessitated protection from all hunting, nearly 48% believed that hunting was justified only when necessary to sustain human life, 49% thought it was inappropriate to regard wildlife as a renewable source of food, and 39% believed hunting was morally wrong because it violated animals' rights (Table 7).

A comparison of actual mean scores on factors in the WUMS provides further insights on the attitudinal differences and commonalities between cooperators, rehabilitators, and BOW staff (Table 8, Figure 4). A comparison of means on the use factor of the WUMS shows that the groups differed most in their attitudes toward wildlife use. BOW staff held a relatively strong and uniform orientation toward acceptance of wildlife use through hunting and trapping, while rehabilitators and cooperators were more likely to disapprove of such use. Cooperators were even less likely than rehabilitators to approve of wildlife use through hunting and trapping. This was reflected in group means on the use factor that differed significantly between cooperators and rehabilitators ($t = -3.21$, 567df, $P = 0.001$), and between cooperators and Bureau of Wildlife staff ($t = 26.81$, 418df, $P < 0.001$).

Although there was relatively close agreement across groups on 2 of 3 items in the attitude factor related to animal pain and suffering, mean scores on this factor were significantly different between cooperators and rehabilitators ($t = 3.30$, 566df, $P = 0.001$), and between cooperators and Bureau of Wildlife staff ($t = -8.20$, 416df, $P < 0.001$). The

Table 7. Responses (%) of DEC Bureau of Wildlife personnel[a], rehabilitation cooperators, and wildlife rehabilitators[a] to items in Factor 1 of the Wildlife Use and Management Scale.

Item Description	Strongly Agree/ Agree	Neutral	Strongly Disagree/ Disagree
Hunting is justified only when it is necessary to sustain human life.			
Bureau of Wildlife	1.4	2.0	96.6
Public Cooperators	48.1	20.1	31.8
Wildlife Rehabilitators	37.0	16.1	46.9
An important step in conserving a species of wildlife is to protect it from all forms of hunting.			
Bureau of Wildlife	4.9	6.9	88.2
Public Cooperators	60.9	14.9	24.2
Wildlife Rehabilitators	47.5	14.7	37.8
Trapping wild animals is morally wrong if it is done primarily for recreation.			
Bureau of Wildlife	5.4	4.9	89.7
Public Cooperators	90.1	2.9	7.0
Wildlife Rehabilitators	84.3	5.4	10.3
Hunting wild animals is morally wrong if it is done primarily to obtain food.			
Bureau of Wildlife	0.0	0.7	99.3
Public Cooperators	16.5	20.3	63.2
Wildlife Rehabilitators	13.5	14.3	72.2
Killing wild animals to sell their fur is morally wrong.			
Bureau of Wildlife	3.3	0.7	96.0
Public Cooperators	78.7	8.8	12.5
Wildlife Rehabilitators	74.2	8.2	17.6
Hunting is morally wrong because it violates the right of an individual animal to exist.			
Bureau of Wildlife	2.0	1.4	96.6
Public Cooperators	39.7	23.2	37.1
Wildlife Rehabilitators	31.1	22.6	46.3

Table 7. Continued

Item Description	Strongly Agree/ Agree	Neutral	Strongly Disagree/ Disagree
It is wrong to regard wild animals as a renewable source of food.			
Bureau of Wildlife	2.7	2.8	94.5
Public Cooperators	48.6	27.4	24.0
Wildlife Rehabilitators	41.9	22.3	35.8
People who participate in trapping do not feel compassion for wildlife.			
Bureau of Wildlife	1.4	3.4	95.2
Public Cooperators	56.1	24.7	19.2
Wildlife Rehabilitators	49.8	17.9	32.3
The resources expended in New York to manage wildlife for hunting would be better spent on conservation of threatened and endangered wildlife.			
Bureau of Wildlife	9.5	11.6	78.9
Public Cooperators	62.0	24.3	13.7
Wildlife Rehabilitators	62.2	16.7	21.1

[a]Data taken from Siemer and Brown 1993.

differences seen are largely a product of different perceptions of the degree to which animal pain and suffering is considered in New York's wildlife management program.

The groups were most similar in attitudes toward human impacts on the environment. In all groups the majority of respondents believed it was ethical to restrict human activities to protect wildlife, and that New Yorkers should do more to conserve natural systems. However, even on this factor, significant differences emerged between cooperators and rehabilitators ($t = 3.30$, 566df, $P = 0.001$), and between cooperators and Bureau of Wildlife staff ($t = -8.20$, 416df, $P < 0.001$). The differences were largely a result of different responses to the item, " It is more important to manage wildlife for species diversity than it is to manage a large number of animals in a small number of species." Since so many cooperators appeared uncertain

Table 8. Mean factor scores on the Wildlife Use and Management Scale received by wildlife rehabilitators[a], DEC Bureau of Wildlife personnel[a], and rehabilitation cooperators.

	Respondent Group				
	Wildlife Rehabilitators				
Scale Factor	All (n=278)	Subgroup 1[b] (n=198)	Subgroup 2[c] (n=80)	Rehabilitation Cooperators (n=270)	BOW (n=146)
Wildlife Use Values	-0.19	-0.81	1.00	-0.57	1.65
Animal Welfare Values	1.33	1.40	1.14	1.22	0.89
Values Related to Human Impacts on the Environment	1.33	1.39	1.16	1.03	1.15

[a]Data taken from Siemer and Brown 1993.
[b]Rehabilitator attitudinal subgroup 1 (71% of all rehabilitators).
[c]Rehabilitator attitudinal subgroup 2 (29% of all rehabilitators).

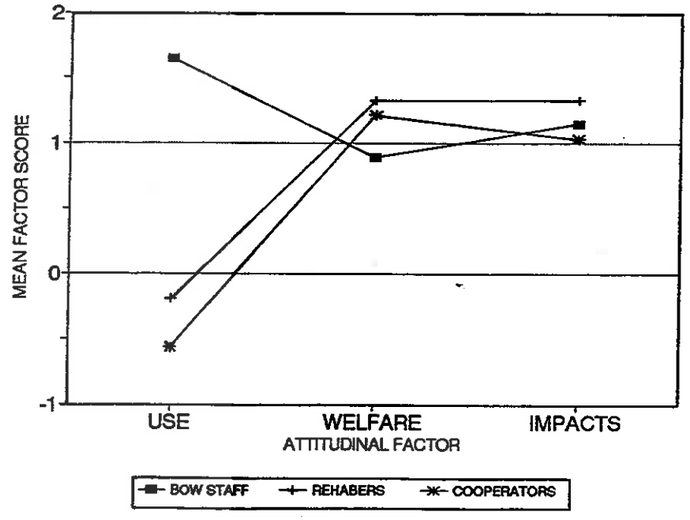

Figure 4. Actual mean scores of New York State rehabilitation cooperators (1992), wildlife rehabilitators (1991), and DEC Bureau of Wildlife personnel (1991) on factors in the Wildlife Use and Management Scale.

about the meaning of this question, the differences seen on the means for this factor should be interpreted cautiously.

Interaction Between Rehabilitators and Public Cooperators

Contact between rehabilitators and the majority of cooperators was recent and limited (Table 9). Most cooperators contacted a rehabilitator for assistance with an animal distress incident once (64%) or twice (19%) during the 1991-92 rehabilitation license year (about 6% of cooperators had contacted a rehabilitator 6 or more times for assistance with an animal distress incident during 1991-92). The majority (62 percent) of cooperators reported no contact with rehabilitators outside the context of an animal distress incident. Minorities of cooperators had also called a rehabilitator for wildlife-related information (15%), attended an educational presentation by a rehabilitator (13 percent), or volunteered at a rehabilitation facility (7 percent). Most cooperators contacted a rehabilitator about an animal distress

Table 9. Types of cooperator interactions with rehabilitators by frequency of interaction with rehabilitators in 1991-92.

Type of Interaction	Frequency of Interaction in 1991-92		
	Once (n=148)	2-5 Times (n=89)	6+ Times (n=17)
Attended an educational presentation given by a rehabilitator	8.8	18.0	29.4
Volunteered at a rehabilitation facility	1.4	11.2	41.2
Called a rehabilitator for information (not a distress incident)	8.1	22.5	35.3
Called a rehabilitator before 1991	12.2	36.0	64.7
None of the above	77.7	49.0	11.8
Percent of all cooperators	57.9	33.2	6.3

incident once (64 percent) or twice (19 percent) during the 1991-92 rehabilitation license year (about 6 percent contacted a rehabilitator 6 or more times for assistance). Fewer that 25 percent of 1991 cooperators reported any contact with a rehabilitator before 1991.

About 26% of cooperators said they "knew very little about rehabilitators or rehabilitation." A slight majority (54%) of cooperators described themselves as "somewhat familiar with rehabilitators and what they do;" 20% described themselves as "very familiar" with rehabilitators.

Several questionnaire items were developed to assess the informational and educational aspects of cumulative cooperator contacts with rehabilitators. Our 1991 survey of rehabilitators (Siemer and Brown 1992a) found that the majority of rehabilitators address a wide range of topic areas during their public communication activities (Table 10). The most common types of information cooperators received from rehabilitators in 1991-92 was "how to safely pick up or transport an animal" (45%) and "the importance of showing concern for individual animals" (44%). Only a minority of cooperators had received information on topics unrelated to the animal distress incident (e.g., habitat conservation, wildlife natural history, the importance of natural systems that support wildlife). A breakdown of cooperators based on the number of contacts they had with rehabilitators in 1991-92 shows that the range of information topics discussed increases with increased rehabilitator-cooperator contact (Table 11).

We also attempted to determine what rehabilitation cooperators learn from rehabilitators during the course of an individual animal distress incident. The majority (77%) of cooperators believed they had learned something from a rehabilitator as a result of their most recently reported animal distress incident. The majority of learning experiences were related to information about the animal delivered or about a specific aspect of wildlife rehabilitation. A minority of cooperators experienced what might be labelled negative

Table 10. Proportion of New York State wildlife rehabilitators who delivered information to the public on 10 topic areas in 1990[a], and the proportion of rehabilitation cooperators who said they received information in the same topic areas during an animal distress incident in 1991-92.

Education Topic	% of rehabilitators who addressed topics in public contacts in 1990 (n=170)	% of cooperators who received information on this topic from a rehabilitator in 1991-92 (n=270)
How to tell if an animal needs help.	85.0	29.8
Laws against keeping wild animals as pets.	85.0	27.1
The importance of habitat conservation.	81.5	25.5
Human impacts on wildlife.	80.9	19.9
Encouraging concern for individual animals.	70.5	44.2
Basic wildlife ecology and natural history.	68.8	24.7
Preventing wildlife casualties.	65.3	16.3
The importance of the natural systems that support wildlife.	64.2	20.7
Dealing with wildlife nuisance and damage.	53.7	6.3
Understanding how wildlife populations are managed by the State of New York.	20.2	7.2

[a]Data taken from Siemer and Brown 1993.

Table 11. Proportion of rehabilitation cooperators who said they received information on one of 16 topic areas, by frequency of contact with rehabilitators in 1991-92.

Education Topics	Number of Contacts in 1991-92			
	Once (n=144)	Few Times (n=86)	Many Times (n=16)	Don't Recall (n=5)
How to provide temporary care for distressed wildlife.	44.8	66.3	56.3	80.0
The importance of showing concern for individual animals.	42.0	44.2	68.8	20.0
How to safely pick up or transport an animal.	41.7	50.0	43.8	60.0
The importance of conserving wildlife habitat.	24.5	26.7	25.0	20.0
Understanding basic wildlife needs and natural history.	21.7	25.6	50.0	0.0
How to tell if an animal needs human assistance.	21.5	40.7	37.5	40.0
Laws against keeping wild animals as pets.	21.0	32.6	50.0	20.0
The importance of the natural systems that support wildlife.	17.5	23.3	37.5	0.0
Human health hazards associated with handling wild animals.	16.1	29.1	37.5	0.0
Understanding how human activities impact wildlife.	14.0	22.1	56.3	20.0
Preventing wildlife casualties caused by human activities.	11.9	19.8	31.3	20.0
How wildlife populations are managed in New York.	4.9	9.3	18.8	0.0
Dealing with wildlife nuisance and damage problems.	2.8	8.1	25.0	0.0
How hunting is used as a tool to manage wildlife.	2.8	2.3	6.3	20.0
How trapping is used as a tool to manage wildlife.	1.4	1.2	6.3	0.0
Other	8.4	9.3	18.8	0.0

learning experiences (e.g., they were told they could not keep wildlife without appropriate permits, they were told a rehabilitator had self-imposed limitations regarding what animals were accepted) (Table 12).

Characteristics of Animal Distress Incidents in 1991:

Respondents were asked to recall several key details related to the most recent animal distress incident they had reported to a rehabilitator. The majority of cooperators called for assistance with a single bird or mammal (66%) that was immature (76%) and injured (65%). Few of the animal distress incidents involved an animal the cooperator believed was caught inside a building (11%), damaging plantings or property (4%), or posing a threat to human health and safety (3%). Most distress incidents occurred in spring (49%) or summer (33%) (only 6% of incidents occurred in winter).

In about 30% of all cases, the distressed animal was discovered by a person other than the rehabilitation cooperator, usually another family member. In 64% of these cases, the person who actually discovered the distressed animal was male. The majority (60%) of these original animal discoverers were over 21 years old, but 23% were less than 10 years old. These figures suggest that about 7% of the animals delivered to rehabilitators in 1991 were discovered by children 10 years old or younger.

Over 70% of cooperators described their efforts to locate a rehabilitator as somewhat to very easy. However, 60% also said that a rehabilitator was not the first person they contacted when the animal distress incident occurred. Cooperators contacted a wide variety of groups and individuals in their searches for animal assistance. Nearly one-third of all cooperators contacted veterinarians and about 1 in 5 contacted representatives of animal welfare groups before they were referred to a rehabilitator. Fewer than 10% of cooperators contacted DEC regional staff, central office staff, or law enforcement staff before locating a rehabilitator (Table 13).

Table 12. Things rehabilitation cooperators said they learned from wildlife rehabilitators during contacts in 1991-92.

Topic Area of Messages*	Paraphrased Examples of Messages
Specific Information About Wildlife: (57.0% of cases)	• Specifics on the care of a particular animal. • Recovering animals are sensitive to noise and handling. • Handling wildlife can be dangerous. • Information about a wildlife nuisance problem. • Specific natural history. • Laws about wildlife. • Lawn chemicals are toxic. • When to leave young animals alone. • There are many distressed animals.
Specific Rehabilitation-related Information: (55.0% of cases)	• Wildlife rehabilitators exist. • What rehabilitators do. • Rehabilitators are dedicated, caring, knowledgeable. • Distressed animals are best cared for by a rehabilitator. • Rehabilitators receive many kinds of animals. • Some veterinarians rehabilitate wildlife. • Specifics of animal release sites. • Animals are returned to the wild, not zoos.
Negative Learning Experiences: (6.8% of cases)	• Rehabilitators don't want to help unlicensed people care for animals. • It is hard to find a rehabilitator. • Rehabilitators don't want you to bring animals many times. • Not to call that rehabilitator again. • DEC doesn't care about individual animals. • Most wildlife groups are not interested in assisting distressed animals.
Compassion for Animal Life: (5.3% of cases)	• Every animal's life is precious. • There is no reason to give up on a hurt animal. • People should get involved with distressed wildlife. • I should get involved with distressed wildlife.
Financing for Rehabilitation Work: (4.4% of cases)	• Rehabilitators don't get financial support. • Rehabilitation is expensive. • Few people will help wildlife financially.

*Exceeds 100% because multiple responses were possible.

Table 13. Information sources other than rehabilitators that rehabilitation cooperators contacted for assistance during an animal distress incident in 1991-92.

Group or Individual	All Cooperators (n=269) %[a]	Cooperators Whose Initial Contact Was With a Source Other Than a Rehabilitator	
		Contacted sometimes during search for assistance (n=160) %	First party contacted during search for assistance (n=130) %
Veterinarian	29.0	48.4	34.5
Animal welfare group	17.1	28.9	20.0
"Other"[b]	16.4	25.2	16.2
DEC regional staff	4.8	8.2	3.8
Nature center	6.7	10.6	8.5
DEC conservation officer	4.8	7.5	4.6
Local officials (e.g., fire, police)	5.2	8.8	6.2
Zoo	3.0	5.0	3.8
Wildlife nuisance control licensee	2.2	3.8	0.0
New York State Dept. of Health	1.9	3.1	0.8
Cornell Cooperative Extension	1.9	3.1	0.8
DEC central office staff	1.1	1.9	0.8

[a]Exceeds 100% because multiple responses were possible.

[b]Others contacted (fewer than 1% per category) included: a neighbor, local birdwatcher, campground staff, chimney sweep, state park personnel, animal control officer, high school teacher, wildlife refuge, pet shop, animal rights organization, VFW post, National Audubon, Community College of the Finger Lakes, a library.

All of the people contacted for this study were eventually referred to rehabilitators, despite whatever difficulty they may have encountered in locating them. We asked cooperators why they became involved with an animal distress incident (and stayed involved until a rehabilitator was found). The most common reason for involvement was concern about the pain and suffering of the distressed animal. Some cooperators reportedly got involved because they were aware that rehabilitation existed and they knew a rehabilitator could help. In a smaller number of cases cooperators were motivated by a sense of moral obligation to assist the animal (Table 14).

Attitudes, Expectations, and Behaviors Related to Rehabilitation

Image of Rehabilitators and Rehabilitation:

At the time they first contacted a rehabilitator for assistance, many cooperators were unaware of important characteristics of rehabilitation in New York State. Fewer than half (41%) of cooperators reported an awareness of the existence of licensed rehabilitators prior to the distress incident they reported in 1991. Only 23% knew that rehabilitators cannot charge a fee for services. Fewer that 20% knew that DEC regulates wildlife rehabilitation, but that rehabilitators are not DEC employees and receive no funds from DEC. Fewer than 10% knew that DEC was not directly involved in providing care to distressed wild animals (Table 15).

Whether their direct experience with rehabilitators was limited or extensive, cooperators expressed very positive views of both rehabilitators and rehabilitation (Tables 16-17). Most cooperators regarded rehabilitators as trustworthy, knowledgeable, concerned, and professional. Ninety-seven percent supported "the practice of allowing licensed, regulated individuals to receive live wild animals for the purpose of wildlife rehabilitation." The majority believed rehabilitation should always or nearly always be done, not just with threatened or endangered species, but also with individuals from common or exotic species (Table 18).

Table 14. Reasons why rehabilitation cooperators sought assistance for a distressed animal in 1991-92.

Motivation Category*	Paraphrased Examples of Motivation Category
Compassion, Animal Welfare Concerns: (68.5% of cases)	• I felt sorry for it. • Compassion for a living thing that was hurt. • It appeared to be in distress; it needed help. • It was in obvious pain. • Because they were injured. • Mother was dead; I thought the animal would die on its own. • I wanted it to have a chance to grow up. • My children wanted to help the animal. • I am an animal lover and wanted to save it. • I love caring for wildlife.
Awareness of Rehabilitation: (27.7% of cases)	• I knew that a rehabilitation center could help. • I work with a veterinarian; I knew rehabilitators could help. • I was worried it would die without help. • I couldn't do it myself; I needed qualified help.
Obligation (Moralistic Motivation): (16.1% of cases)	• I felt obligated because people cause so much harm to animals. • I felt a sense of moral obligation. • A friend told me to do it. • It was in my driveway. • I felt the need to help the animal. • No animal should be left if injured. • I was responsible for the injury. • Because my pet caused the problem. • Because I think wildlife should be preserved, not destroyed.
Naturalistic, Ecologistic: (1.5% of cases)	• I enjoy seeing that type of animal in the woods. • The animal was beautiful. • The kind of animal I found is important.

*Exceeds 100% total because multiple responses were possible.

Table 15. Proportion of rehabilitation cooperators who had knowledge of 8 characteristics of rehabilitation activity in New York, before they began seeking assistance for a distressed animal (n=271).

Aspect of Wildlife Rehabilitation	Percent
That there were people licensed to accept and care for distressed wild animals.	51.3
That a special license is needed to legally possess most native wildlife.	48.9
Who to call for assistance with a distressed wild animal.	35.4
That rehabilitators can accept donations, but cannot charge a fee for care of wildlife.	32.8
That DEC regulates rehabilitators.	27.3
That rehabilitators are not DEC employees.	24.9
That rehabilitators receive no funds from DEC.	22.8
That DEC does not directly provide care for distressed wildlife.	17.5

Table 16. Perceptions of wildlife rehabilitators held by rehabilitation cooperators (n=250-270).

THE WILDLIFE REHABILITATORS I HAVE MET...	Agree/ Strongly Agree	Undecided	Disagree/ Strongly Disagree
Are trustworthy.	89.4	10.2	0.4
Are knowledgeable about wildlife.	95.1	3.4	1.5
Are concerned about wildlife.	94.1	5.6	0.3
Want to establish good communication with the public.	74.7	21.5	3.8
Are willing to provide information to people who have questions about wildlife.	89.2	8.6	2.2
Teach the public that it is wrong for society to control wildlife populations.	30.0	50.4	19.6
Teach the public that recreational hunting should not be permitted.	22.6	50.1	27.3
Teach the public that trapping wildlife for fur should not be permitted.	34.1	47.5	18.3

Table 17. Perceptions of wildlife rehabilitation held by rehabilitation cooperators (n=250-270).

I BELIEVE WILDLIFE REHABILITATION...	Agree/ Strongly Agree	Undecided	Disagree/ Strongly Disagree
Is more like a profession than a hobby.	82.0	10.5	7.5
Is a human "use" of wildlife.	18.0	29.6	52.4
Contributes to the conservation of wildlife species.	94.1	3.7	2.2
Is an important part of managing wildlife populations.	76.7	15.4	7.9
Contributes to public understanding about wildlife.	90.0	7.0	3.0
Should not be financially supported with state funds.	11.5	18.7	69.8
Is an activity that should be conducted as part of DEC's wildlife program.	64.1	26.6	9.3

Expectations for DEC Involvement in Rehabilitation:

The majority of people who call rehabilitators for assistance perceived rehabilitation as an important component of wildlife management. Sixty-four percent agreed (fewer than 10% disagreed) with the statement, "I believe wildlife rehabilitation is an activity that should be conducted as part of DEC's wildlife program" (Table 18). A series of questionnaire items explored cooperator perceptions of rehabilitation-related assistance from DEC staff. However, the number of respondents who had interacted with DEC staff during the course of an animal distress incident was too low (n=25) to allow for valid statistical analysis.

Self-Reported Attitude and Behavior Change:

Of great interest to wildlife managers and rehabilitators is the degree to which rehabilitators teach things that lead to attitude or behavior change in cooperators. We did find evidence of attitude change in some cases. The majority of cooperators believed their

Table 18. Response (%) of DEC Bureau of Wildlife personnel[a], DEC Division of Fish and Wildlife personnel[a], and rehabilitation cooperators regarding the appropriateness of wildlife rehabilitation, given a particular species status (common, exotic and endangered) or source of injury (human or nonhuman causes).

Circumstances of an Animal Distress Incident	How Often is Rehabilitation Appropriate? Never/ Almost Never	Sometimes	Nearly Always/ Always	No Opinion
Species Status: Common				
Bureau of Wildlife (n=146)	36.3	41.1	19.9	2.7
Division of Fish & Wildlife (n=160)	40.5	40.8	16.4	2.0
Public Cooperators (n=271)	2.6	14.4	81.9	1.1
Species Status: Exotic				
Bureau of Wildlife (n=147)	64.7	24.5	8.2	2.6
Division of Fish & Wildlife (n=160)	60.9	26.6	9.9	2.6
Public Cooperators (n=271)	5.9	16.3	73.0	4.8
Species Status: Endangered				
Bureau of Wildlife (n=147)	9.5	17.0	72.2	1.3
Division of Fish & Wildlife (n=160)	8.6	41.4	48.7	1.3
Public Cooperators (n=271)	0.0	2.2	96.3	1.5
If Injury Resulted From Human Activity				
Bureau of Wildlife (n=145)	22.8	53.1	20.7	3.4
Division of Fish & Wildlife (n=160)	15.7	51.5	30.6	2.2
Public Cooperators (n=271)	0.4	5.5	93.4	0.7
If Injury Is Not a Result of Human Activity				
Bureau of wildlife (n=145)	35.4	49.0	12.3	3.3
Division of Fish & Wildlife (n=160)	30.6	49.7	17.6	2.1
Public Cooperators (n=271)	2.6	9.2	87.0	1.2

[a]Data taken from Siemer and Brown 1993.

experience with rehabilitators had made them more knowledgeable about wildlife. More than 1 in 3 cooperators reported an elevated interest in animal welfare and rights. A similar proportion said their interactions with rehabilitators had made them more supportive of DEC's wildlife management activities (Table 19).

Self-reported behavior change as a result of contact with a rehabilitator was more limited (Table 20). Many cooperators took actions in 1991 which could be described as wildlife preservation- or conservation-related. But in most cases, cooperators didn't attribute these actions to contact with a rehabilitator. Increased contribution to conservation organizations as a result of contact with rehabilitators represents an exception to this general finding.

Table 19. Change in wildlife-related interests rehabilitation cooperators experienced as a result of interactions with rehabilitators (n=272).

	Direction of Change			
Wildlife-related Interests and Knowledge	Increased	Decreased	Stayed the Same	Don't Know
Knowledge about wild animals	62.4	0.0	37.3	0.3
Interest and awareness about wild animals	51.5	0.4	47.8	0.3
Interest in conservation of wildlife	46.3	0.4	51.8	1.5
Concern for the welfare of distressed wild animals	43.0	0.0	56.3	0.7
Interest about the rights of animals	37.1	0.0	61.0	1.9
Support for DEC's wildlife management program	36.0	3.4	40.4	20.2

Table 20. Change in wildlife-related behaviors rehabilitation cooperators experienced as a result of interactions with rehabilitators.

Type of Action	n	% Who Took Action in Past 12 Months	% Who Said Action Was Influenced by Rehaber
Donated money to a wildlife conservation organization.	267	54.7	24.3
Took actions to reduce the chance that my pet(s) would injure wild animals.	255	65.9	12.9
Took actions to prevent nuisance wildlife problems (e.g., capped a chimney, stored garbage bags in tightly sealed containers).	266	69.9	11.3
Left a young animal alone overnight before deciding if I should attempt to provide assistance.	256	27.3	10.9
Drove defensively to minimize risk of collisions with wildlife.	267	92.5	7.5
Donated money to DEC's Return-a-Gift to Wildlife checkoff program.	262	19.5	4.5

DISCUSSION AND IMPLICATIONS

Cooperators' Attitudes and Values

Nearly all cooperators believed that wildlife rehabilitation was an important part of managing wildlife populations[2] and one that should be part of DEC's wildlife program. Most

[2]Known characteristics of wildlife rehabilitation in New York suggest that rehabilitation and release of wildlife may have little or no effect on wildlife populations. Most rehabilitation occurs with representatives of a few common species of birds and mammals (Siemer and Brown 1992a). Annual rehabilitation logbooks indicate that over half of all animals received are euthanized or remain in captivity. Survival and subsequent breeding of released animals is not well documented for any species in New York.

cooperators believed rehabilitation should be conducted regardless of species status or cause of injury (i.e., regardless of whether its injury was related to human actions). Concern for suffering among individual animals appears to be the most common motivation underlying involvement with an animal distress incident. Each of these findings provides some indication that rehabilitation cooperators represent a portion of our society whose primary orientation toward animals is "humanistic" (Kellert 1980)--they hold a primary interest in the welfare of individual animals.

These data are important as documentation that rehabilitation cooperators hold a belief orientation which emphasizes the pain and suffering of individual animals. Perhaps of greater management significance to DEC is the possibility that a broader cross-section (and as yet, an unknown proportion) of New York State residents is also oriented primarily toward the welfare of individual animals. Widespread pet ownership, growing membership in animal welfare organizations, and other indicators suggest that such an orientation may be common today in New York State.

Kellert's (1980) national survey data suggested that the humanistic orientation toward animals was among the most common expressed by U.S. adults in 1978. A 1993 *Los Angeles Times* poll provides more recent evidence that humanistic and moralistic orientations (i.e., strong feelings of affinity, spiritual reverence, and ethical responsibility toward animals and the natural world) have become prevalent in the U.S (Balzar 1993). The poll, conducted in December 1993 with a sample of 1,612 American adults, found that 47% of respondents agreed with the statement, "Animals are just like people in all important ways" (51% disagreed, 2% responded "don't know"). Thirty percent believed that current laws to protect animals from inhumane treatment in our society "don't go far enough" (46% believed current laws provided adequate protection, 17% believed current laws go "to far," and 7% responded

"don't know"). Asked whether they "generally favor or oppose the wearing of clothes made of animal furs," 50% responded "oppose," 35% responded "favor," and 15% responded "don't know." Similar percentages were obtained when respondents were asked if they "generally favor or oppose hunting of animals for sport" (54% opposed, 41% favored, 5% responded "don't know").

We can only speculate on the factors that contribute to the development of empathy toward animals. Kellert (1993) proposes that the strong humanistic values, so characteristic of rehabilitation cooperators, are but one expression of an innate human affinity (i.e., "biophilia") for other living organisms. His thoughts are an extension of the "biophilia hypothesis" (Kellert and Wilson 1993) put forth by Harvard biologist Edward Wilson (1984). Close personal contact with an individual distressed animal is an intense experience that provides unique opportunities to express such an affinity. In responding to perceived animal distress incidents, rehabilitation cooperators may receive a range of benefits that people throughout history have received from close contact with wild, domestic, and companion animals. The Kellert hypothesis asserts that living wild animals which people experience directly hold instrumental value as stimuli to human cognitive development.

> The [A] humanistic experience of nature can result in strong tendencies toward care and nurturance for individual elements of nature. From an adaptational viewpoint, the human animal as a social species, dependent on extensive cooperative and affiliational ties, may especially benefit from the interactive opportunities fostered by a humanistic experience of nature. An enhanced capacity for bonding, altruism, and sharing may be important character traits enhanced by this tendency (Kellert 1993:53).

An alternative hypothesis is offered by environmental philosopher Mary Midgley. She describes human societies as a "mixed community" of people and animals (mainly domestic animals) (Midgley 1992: 211-225). She asserts that few of us perceive clear barriers

regarding interactions between people and animals when we are children and, as a result, "hardly any of us, at heart, sees the world as an exclusively human one" (Midgley 1992:218).

Rehabilitators as Environmental Educators

Phase I of this study documented that a majority of rehabilitators provide information about wildlife ecology during contacts with the public in educational settings (Siemer and Brown 1992a). However, the cooperator survey suggests that rehabilitators are unlikely to address such topics during the course of an animal distress incident. During these public contacts, specific information about animal care or particular behaviors of the distressed animal are the only topics likely to be addressed by a rehabilitator. These findings suggest that rehabilitators and wildlife managers could do much to broaden the educational value of rehabilitator-public contacts during an animal distress incident.

Some in the wildlife management community believe that rehabilitators' communication activities run counter to and thus threaten contemporary wildlife management programs. A concern among managers has been that rehabilitators emphasize welfare of individual animals while ignoring problems that face wildlife at the population or ecosystem level. Midgley (1992) and others (Kellert 1992, Steinhart 1990) have articulated 2 concerns about animal pain and suffering as the sole criteria for human interactions with animals. First, sympathy may be evoked by traits people mistakenly project into animals (e.g., the bald eagle is perceived to hold courage, the white-tailed deer is perceived to hold innocence). This could be deleterious for wildlife, affording protection to some species (e.g., deer) and precipitating persecution of others (e.g., snakes, predators). Second, human sympathy may cause people to rank animals in an ecologically misguided hierarchy. For example, it can lead one to feel that individual animals are important, but may not instill regard for populations or entire species. Large mammals become worthy of much concern, but fish,

insects, and plants may not be considered. The possibility that a broader cross-section (and as yet, an unknown proportion) of Americans are oriented primarily toward animal welfare issues may thus be a source of some concern among wildlife managers.

Some wildlife managers also believe that rehabilitators promote public opposition to hunting and trapping. An earlier phase of this study documented that the majority of rehabilitators are opposed to some forms of hunting and trapping (Siemer and Brown 1992a). The cooperator survey indicates that some rehabilitators do communicate messages of opposition to hunting and trapping to cooperators. About 1 in 3 cooperators also said that their interest in animal rights had increased as a result of contacts with rehabilitators. These findings may perpetuate anxiety among some members of the wildlife management community and, if left unaddressed, may serve as a barrier to rehabilitator-manager communications.

The rehabilitation cooperator survey was not designed to provide definitive evidence of public attitudinal changes associated with wildlife rehabilitation. However, the study does suggest that contact with rehabilitators may heighten public interest in animal welfare and rights issues. Like rehabilitators, many cooperators believed that hunting and trapping were inappropriate uses of wildlife. Most cooperators had just 1 lifetime interaction with a rehabilitator. It seems unreasonable to suggest that their attitudes toward wildlife were determined by this single event. We believe a more plausible hypothesis is that rehabilitators attract people who, like themselves, hold a high level of concern about the welfare of individual animals. They may also reinforce preexisting concerns cooperators hold about human use of wildlife through hunting and trapping. In some cases, this heightened concern may translate into financial contributions made to rehabilitators or other wildlife-related nongovernment organizations (NGO's). Additional research on rehabilitation cooperators

would be necessary to determine the impacts that rehabilitators' exert on wildlife management through their influence on public financial contributions to wildlife-related NGO's.

Strengthening Intergroup Communication

Rehabilitators enjoy a very positive image among the people they serve directly. They are generally regarded as trusted professionals by public cooperators. They reach both urban and rural people, including women who do not hunt, fish, or belong to conservation organizations. Their audience includes a high proportion of people with whom wildlife managers may have little contact. This positive image and broad geographic range may open opportunities for public communication that could be utilized more fully by both rehabilitators and wildlife managers. In areas where managers and rehabilitators share common goals (e.g., public safety related to wildlife-transmitted diseases, reduction of wildlife-related nuisance/damage), cooperation with rehabilitators could allow managers to reach nontraditional wildlife management stakeholders and enhance agency image with a range of stakeholders.

Members of the public call veterinarians, humane organizations, and DEC personnel often when they encounter distressed wildlife. Cooperators frequently come to rehabilitators, veterinarians, and others with little awareness of rehabilitation activities. Misunderstanding about rehabilitation and demands on the time resources of nonrehabilitators might be reduced through better coordination and information exchange between rehabilitators, veterinarians, and wildlife management personnel. Such cooperation could provide a higher level of wildlife-related benefits to the public, while increasing the efficiency of rehabilitators, veterinarians, and wildlife management personnel.

LITERATURE CITED

Balzar, J. 1993. Creatures great and equal? Los Angeles Times. Dec. 25, 1993.

Decker, D. J. 1985. Agency image: a key to successful natural resource management. Trans. Northeast Sect. The Wildl. Soc. 41:43-56.

Dillman, D. A. 1978. Mail and telephone surveys: the total design method. John Wiley and Sons, Inc. New York, NY. 325pp.

Duke, G. E. 1987. Wildlife rehabilitation: is it significant? Wildl. Rehabilitation 6:141-144.

Kellert, S. R. 1980. Contemporary values of wildlife in American society. Pages 31-60 in W. W. Shaw and E. H. Zube (eds.). Valuing Wildlife. Center for Assessment of Noncommodity Natural Resource Values. Institutional report No. 1. Univ. of Arizona, Tucson.

Kellert, S. R. 1982. Striving for common ground: humane and scientific considerations in contemporary wildlife management. Inter. J. for Study of Anim. Prob. 3:137-140.

Kellert, S. R. and E. O. Wilson (eds.). 1993. The biophilia hypothesis. Island Press, Shearwater Books. Washington, D.C. 484pp.

Kellert, S. R. 1993. Introduction. Pages 20-27 in S. R. Kellert and E. O. Wilson, The biophilia hypothesis. Island Press, Shearwater Books. Washington, D.C. 484pp.

Loftin, R. W. 1985. The medical treatment of wild animals. Environ. Ethics. 7:231-240.

Marion, W. R. 1989. Wildlife rehabilitation: its role in future resource management. Trans. North Am. Wildl. and Nat. Resour. Conf. 54:476-482.

Midgley, M. 1992. The mixed community. Pages 211-225 in E. C. Hargrove (ed.) The Animal rights, environmental ethics debate: the environmental perspective. State Univ. of New York Press. Albany, NY.

Pokras, M. A. and D. Thomas. 1991. New York State wildlife rehabilitation study guide. N.Y.S. Dep. Environ. Conserv. Albany, NY. 71pp.

Siemer, W. F. and T. L. Brown. 1992a. Characteristics, activities, and attitudes of licensed wildlife rehabilitators in New York. Human Dimensions Res. Unit Publ. 92-1. Dep. Nat. Resour., N.Y.S. Coll. Agric. and Life Sci., Cornell Univ. Ithaca, NY. 63pp.

_____ and _____. 1992b. Wildlife rehabilitators attitudes and motivations: insights from New York. Wildl. Rehabilitation 10:205-220.

_____ and _____. 1993. Key perceptions held by wildlife managers and wildlife rehabilitators in New York: an assessment of communication coorientation. Human Dimensions Res. Unit Publ. 93-1. Dep. Nat. Resour., N.Y.S. Coll. Agric. and Life Sci., Cornell Univ. Ithaca, NY. 53pp.

_____, _____, P. P. Martin, and R. D. Stumvoll. 1992. Tapping the potential of the wildlife rehabilitation community for public education on wildlife damage management. Proc. Eastern Wildl. Damage Control Conf. 5:142-146

SPSS, Inc. 1986. Statistical package for social sciences user's guide. 2nd ed. McGraw-Hill. Chicago, IL. 988pp.

_____. 1988. SPSS data entry II for the IBM PC/XT/AT. McGraw-Hill. Chicago, IL. 157pp.

Steinhart, P. 1990. Humanity without biology. Audubon 92(3):24-27.

Tudge, C. 1992. Saved by St. Tiggywinkles. Wildl. Conserv. 95:44-49, 84.

U.S. Fish and Wildlife Service (USFWS). 1989. 1985 national survey of fishing, hunting, and wildlife-associated recreation. U.S. Dep. Inter. Washington, DC.

Wilson, E. O. 1984. Biophilia. Harvard Univ. Press. Cambridge, MA. 157pp.

Appendix Table A: Proportion of 1991 wildlife rehabilitators, animal distress incidents, and 1992 rehabilitation cooperator sample size, by DEC administrative unit.

DEC Region	% of All 1991 Rehabilitators	% of Animal Distress Incidents in 1991	Sample Size: 1992 Rehabilitation Cooperators Survey
1	14.4	10.3	57
2	1.7	2.6	14
3	18.1	16.2	89
4	14.0	16.0	88
5	7.4	4.6	25
6	6.9	8.2	45
7	14.9	18.6	102
8	6.8	9.5	53
9	15.8	14.0	77

Appendix Table B. Environmental organizations to which rehabilitation cooperators were affiliated in 1991-92.		
Organization	*n*	Percent
Greenpeace	21	7.7
The Nature Conservancy	12	4.4
World Wildlife Federation	12	4.4
Audubon	6	2.2
PETA	5	1.9
Sierra Club	4	1.5
Volunteers for Wildlife	4	1.5
Environmental Defense Fund	4	1.5
(Local) Fish & Game Club	4	1.5
Ducks Unlimited	3	1.1
International Fund for Animal Welfare	2	<1.0
National Arbor Day Foundation	2	<1.0
National Geographic Society	2	<1.0
NRDC, NADCA	2/1	<1.0
NYS Conservation Officers Organization	2	<1.0
Local Conservation Club	2	<1.0
Alaskan Geographic Society	1	<1.0
ASPA	1	<1.0
ARAL	1	<1.0
Appalachian Trail Conference	1	<1.0
Adirondack Mountain Club	1	<1.0
Cooperative Extension Beekeepers	1	<1.0
C.E.C., C.C.E.	1,1	<1.0
Friends of Animals	1	<1.0
Cousteau Society	1	<1.0
Green Mountain Club	1	<1.0
C.A.R.E. of Wyoming	1	<1.0

Appendix Table B. (cont.)		
Organization	*n*	Percent
ITWF	1	<1.0
Lifeline for Wildlife	1	<1.0
National Wildlife Unlimited	1	<1.0
National Humane Education Society	1	<1.0
NPCA	1	<1.0
NUEG Niagara University	1	<1.0
NYS Outdoor Federation Association	1	<1.0
NYS Hunter Safety Instructor	1	<1.0
NYS Trappers Association, US Trappers Association	1,1	<1.0
Rapture Inst. (Wildcare Inc.)	1	<1.0
Okeanos	1	<1.0
Roger Tory Peterson Wildlife Cons.	1	<1.0
NYS Taxidermy Association	1	<1.0
Seneca Co. Human Society	1	<1.0
S.E.A.C.	1	<1.0
North American Fishing Club	1	<1.0
North American Hunting Club	1	<1.0
Center for Marine Conservation	1	<1.0
Water Lobbying Organization	1	<1.0
Whale Watch	1	<1.0
Water Quality Advisory Comm.	1	<1.0
Defenders of Wildlife	1	<1.0
Mt. Arab Preserve Assn. (Adirondacks)	1	<1.0
Animal Protection Institute	1	<1.0
Adirondack Council	1	<1.0
Garden Club	1	<1.0
Environmental Centers of Smithtown	1	<1.0

Appendix Table B. (cont.)		
Organization	*n*	Percent
North American Wildlife Enforcement Officers Association	1	<1.0
Orange County Trappers	1	<1.0
Hidden Acres Wildlife Rehabilitation Center	1	<1.0
Rice Creek Association	1	<1.0
Waterman Conservation Center	1	<1.0
Wilderness Society	1	<1.0
International Wildlife Coalition	1	<1.0
NY Zoological Society	1	<1.0
National Wildlife Association		