

**A NATIONAL ASSESSMENT OF WILDLIFE INFORMATION TRANSFER
TO THE PUBLIC**

A Thesis

by

KIERAN JANE LINDSEY

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

August 2003

Major Subject: Wildlife and Fisheries Sciences

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Approved as to style and content by:

Clark E. Adams
(Chair of Committee)

Robert B. Ditton
(Member)

Barry L. Boyd
(Member)

Robert D. Brown
(Head of Department)

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ABSTRACT

A National Assessment of Wildlife Information

Transfer to the Public. (August 2003)

Kieran Jane Lindsey, B.S., Texas A&M University

Chair of Advisory Committee: Dr. Clark E. Adams

A self-administered questionnaire was developed using the Tailored Design Method (Dillman 2000) to assess how information about wildlife, beyond traditional hunting and fishing issues, was transferred to the public by the five selected governmental agencies: state wildlife management agencies (DNRs), U.S. Fish and Wildlife Service (USFWS), USDA Wildlife Services (WS), Cooperative State Research, Education and Extension Service (CSREES), and U.S. Forest Service (USFS). The questionnaire addressed agency mission and record-keeping, as well as public demand for information and agency response concerning non-traditional wildlife issues, including: conflicts between humans and wildlife; human health and safety; attracting wildlife; viewing wildlife; general curiosity; and wildlife in distress (i.e., injured, diseased, orphaned).

Respondents said that providing the public with information on wildlife and related issues is a significant part of their mission. Unfortunately, few kept permanent records of their interactions with constituents or had established formal protocols for handling queries about non-traditional wildlife issues.

Several factors may prevent effective transfer of information about non-traditional wildlife issues to the public, including the historic emphasis on consumptive users. However, collaborative efforts between governmental and non-governmental organizations may prove to be an effective way to respond to public demand.

DEDICATION

For my father, Harry Lindsey, Jr.

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INTRODUCTION

Urbanization of the American Public

The profile of a “typical” American has changed significantly over the last 50 years. Where once this nation was primarily rural in nature, 8 of 10 Americans now live in cities and towns with populations of 50,000 or more. Many, if not most, are several generations removed from a heritage of living close to the land. They are conditioned to expect support services from government sources for everything from garbage pick-up to solving conflicts between people and wildlife.

Urbanization has changed Americans’ attitudes and expectations concerning wildlife. Urbanites are migrating away from city cores, looking for, among other things, more contact with nature. As a result, growth and development are spilling into areas previously use for agriculture or unoccupied by humans (Manfredo and Zinn 1996). Unfortunately, these new “nature lovers” usually are not prepared for the realities of living with wildlife (San Julian 1987). They are more likely to value wildlife similarly to the way they value companion animals and people (Mankin et al. 1999). Americans are now more likely to be involved in non-consumptive forms of wildlife-related recreation than traditional activities such as hunting and fishing (U.S. Census Bureau 2001).

The list of wildlife stakeholders has increased from primarily hunters, anglers, and trappers to include wildlife-watchers, homeowners, farmers and ranchers, businesses that cater to recreationists (e.g., restaurants, motels, guides and outfitters, retail stores), and many others. The majority of wildlife-related recreationists are Caucasian, although they are no longer overwhelmingly male. Twenty-first Century stakeholders have a wider variety of attitudes and perceptions about wildlife than traditional constituents. They also have diverse opinions on acceptable wildlife management practices. This makes the job of managing wildlife more difficult for governmental agencies.

The format of this thesis follows that used in The Wildlife Society Bulletin.

The Effects of Urbanization on Wildlife Management

Most governmental agencies involved in wildlife management were created to address the needs of two primary stakeholders: consumptive users and landowners. Hunters, anglers, trappers, and landowners have been and continue to be the primary focus of wildlife management agencies, and these agencies used a quasi-agricultural model of management in which species were protected to allow an annual sustained yield “harvest” (Decker and Brown 2001). One reason for this approach was that consumptive users paid for agency activities through license fees and earmarked taxation. Management activities were designed to serve and build a constituency of consumptive users and to return revenues to the agencies (Dunlap 1988, Leopold 1933).

Since the late 1960s and early 1970s, however, there has been growing public interest in the environment. Along with this heightened interest came the formation of many local, state, and national environmental groups that sought to be included in management decisions (Decker and Brown 2001). Increasingly, the public was unwilling to leave decisions to the experts. By the 1990s, citizen participation, or “cooperative management” was a common activity for some wildlife agencies (Stout et al. 1992).

According to the U.S. Census Bureau (1993, 1997, 2001), the number of hunters and anglers has been in decline, while the number of wildlife-watchers has increased. Consumptive users must purchase licenses in order to participate in hunting, angling and trapping, but birders, wildlife photographers, and other non-consumptive users do not. As a result, most state wildlife agencies must develop creative funding strategies, such as conservation stamps and license plates, to address non-traditional wildlife issues.

Natural resource agencies have much at stake in shaping public understanding of wildlife management and conservation (Mankin et al. 1999). Unfortunately, these agencies have experienced difficulties responding effectively to the general public, although they have had more success identifying and communicating with specific, traditional clienteles (Decker et al. 1987, Witter 1990, Hesselton 1991, Kania and Connover 1991, Gray 1993, Jolma 1994).

Several regional studies have indicated that urban residents often have conflicting goals concerning resident wildlife, such as the desire to reduce human-wildlife conflict while enhancing wildlife viewing opportunities (Conover 1997). Human reactions to “backyard wildlife” include a broad spectrum of emotions and reactions based on previous exposure to both formal and informal education programs and personal experience (Kellert 1980).

Some agencies have attempted to reach out to non-consumptive users; Texas Parks and Wildlife’s Nongame and Urban Wildlife Program has made a major effort to develop programs specifically to appeal to adults excluded by hunting and fishing programs (Adams et al. 1997). The wildlife profession in general has had difficulty communicating effectively with the general public (Decker et al. 1987, Gray 1993).

Educating the Public about Wildlife

The need for public education about wildlife and wildlife issues has never been greater. The findings of Adams et al. (1987) discouraged any assumptions of an enlightened public concerning wildlife. This study of high school students found that many could not correctly identify common urban wildlife species (e.g., opossum vs. rat), the relative numbers of selected animals in Harris County, Texas (e.g., raccoons are rare, cougars are abundant), the eating habits of 16 common mammals, and the effect of human habitation on relative abundance of those mammals. In addition, the public’s tendency toward anthropogenic misinterpretations of wildlife behavior (e.g., a wild animal that does not maintain a safe escape distance “wants to be my friend”) can result in a variety of unwanted consequences, including human injury (e.g., tourists mauled by seemingly tame bears), removal of animals from the wild (e.g. “rescuing” deer fawns), or contributing to exponential proliferation of certain wildlife populations (e.g., feeding Canada geese, (*Branta Canadensis*), on city ponds). VanDruff et al. (1994) identified lack of public information, education and awareness of wildlife as an important wildlife issue.

As early as the mid-1980s, state and Federal agencies and non-governmental organizations (NGOs) began to produce a variety of educational programs about urban wildlife and habitats (Adams and Eudy 1990). While many of these programs have proven to be popular with educators and students (e.g., Project WILD, Project Learning Tree), little has been done to evaluate the effectiveness of this approach to information transfer.

Adams et al. (1987) suggested that urban wildlife education programs focus on the basic principles of cycles, interrelationships and diversity exemplified with human/wildlife interactions. In addition, these programs should include wildlife-related activities using species common to the urban environment.

When questions about living with wildlife arise, Americans often are unsure who to contact for assistance (Reiter et al. 1999). Adams and Thomas (1998) found a majority of Texas residents were unable to identify their state wildlife agency by name. Studies in other states have had similar results (Rossi and Armstrong 1999).

Privatization of Wildlife Management

Due in large part to a historic focus on consumptive issues, governmental agencies are not well positioned to address the concerns of an increasingly urbanized population. State wildlife agencies have a legislative mandate to manage all wildlife within their borders as a public resource. But in all but a few states, funding for non-traditional wildlife management issues is extremely limited.

As a result, a trend is developing toward increased privatization of wildlife management, particularly in urban and suburban settings. Non-governmental organizations, such as private wildlife control business, conservation associations, humane societies, and wildlife rehabilitators, have stepped in to fill public demand not addressed by governmental agencies. Unfortunately, this paradigm shift away from a system of managing wildlife for the good of the resources and toward private, profit-driven systems is not the result of policy decisions. Rather, it has evolved as agencies have attempted to deal with changing public demand and funding limitations.

Beyond Traditional Wildlife Management Issues

Traditionally, wildlife management has focused on consumptive use of the resource, including hunting, angling, and trapping activities. For the sake of this study, there were six general categories of non-traditional wildlife management issues, including: (1) human-wildlife conflicts, (2) human health and safety, (3) attracting wildlife, (4) viewing wildlife, (5) general curiosity about wildlife, and (6) injured, ill and orphaned wildlife, also referred to as wildlife rehabilitation.

Human-Wildlife Conflicts

As Americans become more urbanized, conflicts between humans and wildlife species are increasing. This is due in part to an increased interest in developing urban and suburban wildlife habitat. Some housing developers now promote the incorporation of “green space” as a way to attract potential buyers. Many homeowners strive to attract wild animals by turning their yards into pockets of habitat. In addition to landscaping with plants that provide both cover and food, bird feeders and other forms of supplemental support were common, resulting in a higher density of animals that would be supported by an equal amount of native habitat.

Effective transfer of information was needed to introduce the public to the realities of wildlife conflict and damage prevention (Lowery and Siemer 1999, Adams et al. 1988). For example, food may be plentiful in the city, but natural denning sites are not. This causes some animals to use attics, decks and out-buildings instead which, in turn, causes an increase in complaints from homeowners. Urban and suburban dwellers remain largely uninformed about consequences of attracting wildlife.

Not only is the public uneducated concerning human-wildlife conflicts, relatively few are knowledgeable about which agencies are responsible. A national study on public attitudes toward wildlife damage and policy (Reiter et al. 1999) found that only 19% of survey respondents answered yes to the question “Have you ever heard of the United States Department of Agriculture’s Animal Damage Control (ADC) program?” Despite the public’s ignorance, in many states ADC, now called Wildlife Services

received more calls about urban wildlife problems than for the agricultural depredation issues it was created to address (San Julian 1987).

A survey of agency and organization responsiveness to wildlife damage (Hewitt and Messmer 1997) found that most were concerned about the issue. The study focused on policy development, and 75% of the state and provincial wildlife agencies responding indicated they had written wildlife damage management policies. However, many did not actively publicize or articulate their policies. Few agencies evaluate their wildlife damage policies; when evaluations were done, often they were reactive. Most agencies measured policy effectiveness by internal agency concerns rather than by levels of public acceptance.

An earlier publication on the responsibilities of various agencies for animal damage management (Berryman 1994) stated that, as a result of legislation, agency responsibility can be confusing. In some states, responsibilities for some animals are vested with the state agriculture agencies, while others are the responsibility of the fish and wildlife agency. At the federal level, authority for migratory birds is vested within the U.S. Fish & Wildlife Service (Department of Interior), while depredation control is vested in Wildlife Services (Department of Agriculture). Additionally, the executive branch has, on occasion, stepped into the fray, as when an Executive Order in 1972 prohibited most chemicals used in predator control by federal agencies. Little wonder the public perception of responsibility was unclear at best.

The public will find their own solutions to human-wildlife conflicts when they are unable to get professional help. Unfortunately, their remedies may not be the ones wildlife professionals would suggest, or prefer. Some ideas are harmless, and often ineffective, but it was not uncommon for homeowners to try bizarre and even dangerous cures. Stories of damage control attempts gone awry were easy to come by. Pouring gasoline down holes and igniting it to exterminate chipmunks (*Tamias* spp.) was one dramatic example (San Julian 1987).

Wildlife professionals tend to regard human-wildlife conflict in urban and suburban situations as difficult due to the perceived resistance of the public to a full

range of management options (Decker and Loker 1996). Control of wildlife in urban environments is very different from control in an agricultural situation, even when the same species is involved. Attitudes among urban and suburban dwellers continue to shift away from utilitarian perspectives and toward moralistic and humanistic perspectives (Hadidian et al. 1999, Kellert 1996). They were more likely to be familiar with species from other parts of the world than with their own local fauna (Mankin et al. 1999). In addition, wildlife management agencies face impediments when trying to work with the public on conflict issues, including: 1) agency image and credibility problems, 2) conflicts between recommended solutions and the personal values of a diverse constituency, and 3) public animosity toward regulatory agencies (Lowery and Siemer 1999).

Given these obstacles, as well as funding limitations, state and federal wildlife agencies often have left resolution of human-wildlife conflicts to individual initiative or to private wildlife control operators (WCOs) (Hadidian et al. 1999). A 1993 study found that about 63% of trappers were contacted to trap problem animals (International Association of Fish and Wildlife Agencies Fur Resources Committee 1993). There has been rapid growth and privatization of the wildlife control field over the past 2 decades (Barnes 1997, Braband 1995).

The role of government in the business of wildlife control has been to regulate activities through a licensing or permitting process and to provide extension or educational services. Legal authority for such regulation is vested in federal and state governments, but often is divided among different agencies, such as natural resources, agriculture, and public health (Hadidian et al. 1999). Unfortunately, specifics on the nature, scope, and extent of WCO activities were limited. Thirty-six percent of states required a license for individuals to practice nuisance wildlife control; fourteen of those states required an annual report of activities. (Hadidian et al. 1999).

A study of private wildlife control operators (WCOs) found that most have a high school diploma, but little specific training in wildlife damage management or wildlife management in general; more than half of WCOs surveyed had not attended a trapper-

education course (Barnes 1995a, b). WCOs come from a diversity of backgrounds, including wildlife biologist, pest control operators, fur trappers, and wildlife rehabilitators (Braband 1995). Barnes (1997) proposed a model for nuisance wildlife control licensing containing 3 key requirements: education, continuing education, and liability insurance. Schmidt (1998) discussed the importance of training in wildlife identification and wildlife ecology, state and federal wildlife and pesticide laws, parasites and diseases of concern to wildlife and humans, chemical immobilization and euthanasia, and current and emerging technologies in wildlife damage management. Additional studies are needed to determine the extent and volume of nuisance wildlife control activities and the impact these have on wildlife populations.

Human Health and Safety

The effects of wildlife on human health and safety are a subset of human-wildlife conflict, but one that deserved special attention. Examples of conflicts that involve human health and safety include zoonotic diseases (e.g., Lyme disease, Hantavirus), transportation hazards (e.g., deer-automobile collisions, beaver dams flooding roads), and sanitation problems (e.g., rodents, roosting birds). Unfortunately, no national summaries were available on losses in human lives and economic productivity due to these types of human-wildlife conflicts. However, Conover et al. (1995) compiled published and unpublished data to assess potential cost of wildlife encounters in the U.S. in terms of human illnesses, injuries, and fatalities.

There were 18,263 reported cases of the 10 wildlife-related reportable diseases in the U.S. during 2001 (U.S. Centers for Disease Control and Prevention 2001). Lyme disease accounted for over 93% of these cases (Table 1). Records for the West Nile strain of encephalitis/meningitis were not kept before 2002. During that year, 4,156 human cases and 284 deaths were reported in the U.S. Humans, companion animals, and domestic livestock can serve as vectors or reservoirs for these diseases so the proportion of cases attributable to wildlife is unknown.

Human mortality data were lacking for most zoonotic diseases and parasitic infections. For example, histoplasmosis, a respiratory disease caused by inhaling

Histoplasma capsullatum fungus spores growing in bird or bat feces-enriched soil, was a common disease not included in the CDC's list of reportable diseases (McLean 1994). Bisseru (1967) and Beran (1994) list >140 diseases or parasitic infections in the U.S. for which non-human mammals or birds serve as a vector or reservoir.

Table 1. Cases for 1999 and 2001 of 10 “notifiable diseases” in the United States for which wildlife species may serve as a vector or reservoir (U.S. Centers for Disease Control and Prevention 2001).

Disease	Cases		Fatalities ^b
	1999	2001	1999
Brucellosis	82	136	0
Encephalitis ^c	80	216	3
Hantavirus	31	8	-- ^d
Lyme disease	16,273	17,029	7
Plague	9	2	1
Psittacosis	16	25	0
Rabies (human)	0	1	0
Rocky Mountain spotted fever	579	695	5
Trichinosis	12	22	0
Tularemia	-- ^e	129	-- ^f
Total	17,082	18,263	16

^a Humans, companion animals, and livestock also can serve as the vector or reservoir to the infectious agent. Wildlife are involved in an unknown proportion of these cases.

^b Fatalities are unavailable for 2001.

^c Includes California serogroup viral, Eastern equine, St. Louis, and Western equine.

^d Hantavirus data unavailable for 1999.

^e Tularemia was not classified as nationally reportable in 1999.

^f Tularemia data unavailable for 1999.

One of the more common ways in which wildlife impact human health and safety was in the area of ground and air transportation. Aircraft and avian species often competed for the same airspace at the same time. When that happens collisions may occur, resulting in property damage, injuries and even fatalities. The problem exists nationwide, but airports in the Eastern and Southeastern United States experienced the

greatest number of wildlife-aircraft collisions (Wildlife Services 2001). According to Thorpe (1996), bird strikes have resulted in the loss of at least 190 lives and 52 aircraft in civil aviation. There have been 283 military aircraft lost and 141 deaths recorded, in the limited number of western nations from which data are available, between 1959 and 1999 (Richardson & West 2000).

The annual number of collisions between vehicles and deer (*Odocoileus* spp.) has been estimated at >726,000 and increasing (Conover et al. 1995). Romin (1994) reported that approximately 600 collisions between moose (*Alces alces*) and vehicles occur in Alaska annually. The incidence of human injury has been reported as 4% nationwide, and that < 3% of deer-vehicle collisions resulted in a human fatality (Rue 1989). Based on estimates by Conover et al. (1995), approximately 29,000 human injuries and 211 human fatalities occurred as a result of collisions with deer. Of course, deer and moose are not the only wildlife species involved in vehicle collisions. Unfortunately, few if any records were kept on collisions with other mammalian species (e.g., black bear (*Ursus americanus*), coyote (*Canis latrans*), and elk (*Cervus elaphus*)), much less the number of accidents which were caused by drivers who attempted to avoid smaller wildlife species (e.g., tree squirrels (*Sciurus* spp., *Tamiasciurus* spp.), raccoons (*Procyon lotor*), and birds).

Despite the positive effects of beaver (*Castor canadensis*) on water quality and the creation of wetland habitat, when these animals begin constructing dams they can create public safety hazards by flooding roadways, plugging culverts, and damaging roadbeds and bridges (Harper 2002). In the northern United States, beaver complaints involving culvert plugging and road flooding comprised 27-40% of total beaver damage complaints (Payne and Peterson 1986). Flooded and washed-out roads can present serious human safety concerns (Jensen et al. 2001).

When wildlife congregate they can create sanitation problems that pose a threat to human health. Large flocks of starlings, grackles and red-winged blackbirds may take up residence in urban neighborhoods, and the accumulation of feces under roost trees can be considerable. Accumulation of fecal material also causes conflicts between

humans and urban waterfowl, particularly Canada geese. While waterfowl are not a health threat to humans, their droppings are causing concerns in water quality control in municipal lakes and ponds. Mammals also can create sanitation concerns; raccoon latrines may increase the potential for transmission of the parasite *Baylisascaris procyonis*, while rodent middens and droppings can be a source for hantavirus infection in humans.

Attracting Wildlife

The National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (FHWAR) has included information on wildlife-watching activities since 1980 (U.S. Census Bureau 1982). Wildlife-watching, for the purposes of the FHWAR Survey, included observing, photographing, and feeding. These activities were further categorized as residential (within a mile of one's home) or nonresidential. The 2001 survey found that 66.1 million U.S. residents (23% of the U.S. population, estimated at 284.8 million in July 2001) participated in a variety of wildlife-watching activities (U.S. Census Bureau 2001). This compared to 37.8 million U.S. residents who participated in hunting and/or fishing (13% of the U.S. population). While the number of sportspersons has fallen since 1996; wildlife-watching participation appears to be on the rise again (Table 2) after a decline from 1991 to 1996 (U.S. Census Bureau 1993, 1997).

Table 2. Participation and expenditures of sportspersons and wildlife-watchers in the United States from 1991 to 2001^a.

	1991		1996		2001	
	n	\$billion	n	\$billion	n	\$billion
Sportspersons	40.0	41.0 ^b	40.0	71.9 ^c	37.8	70.0 ^d
Wildlife-watchers	76.1	18.8 ^b	62.9	29.2 ^c	66.1	38.4 ^d

^a Data were provided by the U.S. Census Bureau 1991, 1996, 2001.

^b (in 1991 dollars)

^c (in 1996 dollars)

^d (in 2001 dollars)

The most popular wildlife-watching activity, feeding birds and other wildlife, attracted almost 54 million people in 2001, 86% of all residential wildlife watchers. The

greatest majority (52.6 million) fed wild birds, but other popular activities included feeding other wildlife (18.8 million), maintaining plantings for the benefit of wildlife (8.7 million), and maintaining natural areas for wildlife (8.7 million). Urbanization has isolated humans from the natural world, resulting in a lower level of knowledge about wildlife compared to rural residents (Van Druff et al. 1994), resulting in the need for information about how to attract wildlife.

Viewing Wildlife

Observing and photographing wildlife were two aspects of wildlife-watching tracked by the U.S. Census Bureau (2001). The 2001 survey found that 42.1 million people observed wildlife around the home. Over 20 million people participated in nonresidential wildlife observation activities. Photographing wildlife was enjoyed by almost 14 million resident and 9.4 million nonresident participants.

Observing resident mammals was popular with 34.6 million, 9.8 million observed reptiles or amphibians, and 13.8 million people enjoyed watching spiders and insects. Three million people reported traveling to observe marine mammals, and 9.4 million people reported observing other types of nonresident wildlife (e.g., turtles, butterflies, etc.). Birds were the undisputed favorites of wildlife-watchers. The 2001 survey found that 96% (n = 40.3 million) and 85% of all nonresident participants (n=18.6 million) observed wild birds. Birding was so popular it has been recognized as second only to gardening as the fastest-growing pastime in the U.S. (McMath 1989).

Studies have shown, however, that birders were dissatisfied with the amount of attention given to non-game species issues by government agencies (Adams et al. 1997, Witter and Shaw 1979). Birders were more likely to provide monetary support to non-governmental (NGO) conservation organizations. Some agencies have attempted to address this problem. The Texas Parks and Wildlife Department (TPWD), for example, has worked to publicize its non-game and urban wildlife projects and events, including the Great Texas Coastal Birding Trail, a 500-mile chain of Gulf coast birding sites (Adams et al. 1997).

Curiosity About Wildlife

People can be involved with wildlife near their homes in various ways, from watching wild animals to participating in management by providing food, water, shelter, and space for wildlife (Leedy and Adams 1984, Young 1991). The U.S. Census Bureau (2001) found that 31% of the U.S. population (66.1 million) participated in a variety of wildlife-watching activities, including observing, photographing, and feeding. Studies of groups considered “uncommitted” on attitudes about wildlife issues have found that while these individuals did not seek out wildlife-related activities, they appreciated wildlife in the context of their other activities (Fleishman-Hillard Research 1994).

While interest in wildlife and the environment is high, urban and suburban dwellers generally were not knowledgeable about wildlife. They were unaware of the names of all but the most common species (Penland 1987) and lacked understanding about basic wildlife biology. Stakeholders in need of general information about wildlife were a diverse group; they included adults and school children, elected officials and business owners, local governments, apartment managers, home owners, and members of the media. Their needs and/or reasons for obtaining wildlife information were just as diverse (Young 1991), ranging from a desire to increase opportunities to enjoy wildlife on a daily basis to avoiding property damage to improving public health.

Injured, Ill or Orphaned Wildlife

At one time in our history, Americans were most likely to view wildlife in one of three ways: as a source of food and pelts, as dangerous predators, or as pests. Urbanization has caused a major shift in attitudes towards wildlife. When a member of the public comes across a wild animal that is ill, injured, or orphaned, the encounter was likely to invoke sympathy and a desire to “do something.” A survey conducted at the Tufts University Wildlife Clinic supported this idea (Landau and Stump 1994). People who brought injured wildlife in to the clinic for care were questioned. The researchers assumed that most people who take time to care for a wild animal were already wildlife enthusiasts, but most of the individuals surveyed had little prior experience or interest in wildlife and the natural world. A survey of rehabilitators who belong to the National

Wildlife Rehabilitation Association (NWRA) found that members treated 500,000 animals in 1997 (Borgia 2001).

Wildlife rehabilitation was the practice of providing aid to wild animals that are injured, ill, orphaned, or in conflict with humans so they may be returned to their natural habitats (Bright et al. 1997). Rehabilitation began in the homes of compassionate, well-meaning, but often inadequately trained individuals, as a grassroots response to the lack of infrastructure to care for injured or orphaned wild animals (Hass 1998). The field now has established protocols and specific techniques for animal handling, medical and surgical care, nutrition, housing, and release (Dubois and Fraser 2003a). Organizations such as The University of Minnesota's Raptor Center, Tufts University Wildlife Clinic, and Tri-State Bird Rescue & Research have raised the standard for professionalism within the field. The Wildlife Center of Virginia has as part of its facilities a highly-regarded veterinary teaching hospital that was the focus of a television program called *Wildlife Emergency* on the Animal Planet channel.

Wildlife rehabilitators come from a variety of backgrounds. A recent study of 27 rehabilitators (Dubois and Fraser 2003b) found that 4 had university degrees in biology or animal science, 2 had been trained as animal health technicians, 2 were trained as nurses, and 3 had been trained at zoos. While the majority of wildlife rehabilitators volunteered their services, the potential for paid employment at rehabilitation centers was growing.

Wildlife rehabilitators operated within a regulatory framework created by government wildlife agencies which permit and monitor rehabilitation activities (Dubois and Fraser 2003a). In many states, wildlife rehabilitators were required to be permitted by the state wildlife agency before they were allowed to work with mammals and herpetiles. Training and testing requirements for rehabilitation permits vary depending on the state in which they plan to operate. Individuals who want to rehabilitate migratory birds must have a permit from the U.S. Fish and Wildlife Service; over 3,000 permits were granted by the Service in 2000 (Borgia 2001). The total number of licensed

rehabilitators was estimated at 5,000, with uncounted hundreds of sub-permittees and unlicensed volunteers (Borgia 2001).

Rehabilitation facilities vary greatly in size, from large centers that accepted an average of over 6,000 animals annually, to individual rehabilitators working out of their homes. While most rehabilitation centers were non-profit organizations supported by donations, some were affiliated with either state wildlife agencies or universities. In addition, organizations such as nature centers, museums, zoos and veterinary hospitals may be involved in rehabilitation activities.

There was substantial contact between the public and rehabilitators (Horton 1987, Marion 1989). An NWRA survey indicated that member educational programs reached 70 million people in 1997 alone (Borgia 2001) in the form of formal presentations and printed brochures. Many rehabilitators also gave newspaper, television, or radio interviews. Studies have shown that, collectively, they received hundreds of thousands of telephone information requests each year, and they appeared to have access to urban and non-hunting audiences that have proved difficult for wildlife managers to reach (Horton 1987, Siemer et al. 1992). However, wildlife rehabilitation operations often worked with limited budgets, so their ability to inform the public of their existence may be limited.

Study Justification

An extensive review of the published literature did not reveal any other studies that examined whether wildlife management agencies had developed formal structures to help the public with wildlife management issues beyond traditional questions related to hunting, angling, and trapping. Since the current status of non-traditional wildlife information transfer to the public was not known, the goal of this national study was to learn about the existence of formal structures within selected state and federal agencies. In order to achieve this goal it was necessary to determine:

1. whether selected Federal and state government agencies considered responding to questions about wildlife issues as part of their mission,

2. if selected Federal and state government agencies had formal protocols for responding to non-traditional wildlife issues,
3. how often selected Federal and state agencies were asked by the public to respond to non-traditional wildlife issues,
4. which non-traditional wildlife issues placed the greatest demands on agency resources, and
5. which communication mechanisms (e.g., telephone, email, U.S. mail) selected Federal and state agencies addressed non-traditional wildlife information transfer in formal and informal ways.

Hypotheses

H¹ Differences will be observed in the way selected agencies respond to public inquiries about non-traditional wildlife issues.

For this hypothesis, the assumption was made that the public will contact different wildlife management agencies for help with non-traditional wildlife issues based on the agencies' areas of expertise and the public's awareness of the agencies.

H² Geographical location will affect the way selected agencies respond to public inquiries about non-traditional wildlife issues.

Although the United States is experiencing a general trend toward urbanization of its population, regional variations in population density, racial and ethnic diversity, and recreational use of natural resources do exist. Therefore, the assumption was made that the public's interest in non-traditional wildlife issues will vary depending on the region in which they live. Each returned survey was assigned a regional designation based on an existing model for division of the country into regions (Figure 1).

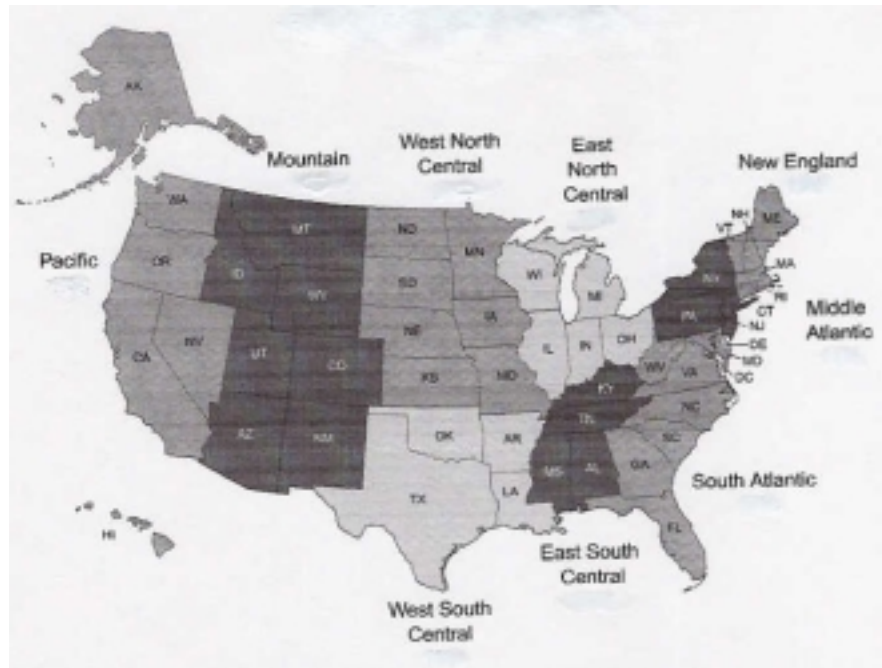


Figure 1. Study regions based on National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (U.S. Census Bureau 2001).

H³ Variation between agencies and between regions will depend on the wildlife issue considered.

An assumption was made that agencies will have developed different ways of responding to the public's queries about non-traditional wildlife issues; e.g., the way an agency responds to a question about a human-wildlife conflict will be different from the way it responds to a question about viewing wildlife.

METHODS

Sampling

This study began with the identification of those state and Federal agencies most likely to receive questions from the public about wildlife beyond traditional hunting and fishing issues. State wildlife management agencies, referred to here as “Departments of Natural Resources” or “DNRs,” were the first group of agencies identified as likely sources of data on transfer of wildlife information to the public. In most states, legislatures have assigned DNRs with management of all wildlife species within their borders.

The U.S. Fish and Wildlife Service (USFWS), part of the U.S. Department of the Interior, was the first Federal agency identified. The agency’s mission was “working with others, to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people.” USFWS’s major responsibilities were for migratory birds, endangered species, certain marine mammals, and freshwater and anadromous fish. While nothing was specifically mentioned about information transfer, the agency’s website was primarily educational in its focus.

Three agencies within the U.S. Department of Agriculture also were identified: Wildlife Services; Cooperative State Research, Education, and Extension Service (CSREES); and the U.S. Forest Service. Wildlife Services was granted statutory authority for wildlife damage management by the Animal Damage Control Act of 1931 (46 Statute 1468; 7 United States Code §§ 426-426b). Wildlife Services was not a resource management agency, but it was called upon by other agencies and the private sector for operational and technical assistance. The agency states in their publications that its mission was to provide federal leadership in managing conflicts between humans and wildlife, and in spite of its traditional focus on rural and agricultural interests, it did employ urban wildlife biologists.

The mission of CSREES was “to advance knowledge for agriculture, the environment, human health and well being, and communities.” Research and education

were the agency's main focus. County extension offices have access to information developed by both Wildlife Services and the wildlife and fisheries division of CSREES. Publications were available on many different wildlife topics, from damage control and human health issues to habitat management and wildscaping.

The U.S. Forest Service's mission was to "achieve quality land management under the sustainable multiple-use management concept to meet the diverse needs of people." The lands managed by the Forest Service were used by the public for a variety of outdoor recreational activities, and one of the most popular was wildlife viewing. So while the focus was on management of national forests and grasslands, the agency's website was filled with information on native wildlife.

Two agencies that were considered but not included were the National Park Service (NPS) and the Bureau of Land Management (BLM). Lands managed by both of these agencies also were used for a variety of outdoor recreation activities, including wildlife viewing. However, an examination of their websites seemed to indicate that the public education efforts of these agencies were less specifically focused on wildlife.

Within these five agency types, 157 discrete locations from which to solicit survey respondents were identified: 50 state wildlife management offices, 40 Wildlife Services offices (39 state offices plus national headquarters), 50 state CSREES offices, 9 regional U.S. Forest Service offices, and 8 U.S. Fish and Wildlife offices (7 regional plus national headquarters).

Anyone who wants to survey businesses and other organizations faces unique challenges (Dillman 2002). Identifying the individual best suited to participate in a survey was one hurdle. Another potential problem was getting past the "gatekeepers," individuals within an organization who open and sort mail and, more importantly, screened requests for survey participation. Developing ways to circumvent gatekeepers was critical for achieving a high level of response to self-administered surveys (Dillman 2000). This was achieved through the use of email, which allowed for direct contact with administrators and survey participants.

Rather than make assumptions about which individuals within an agency might be knowledgeable about the survey subject matter or were likely to handle these types of public inquiries, email addresses for high-ranking administrators within each of these 157 offices were compiled using agency websites and personnel directories. In August of 2002, a letter was sent to these administrators describing the purpose of the study and asking them to designate individuals within their organization best qualified to complete the survey. This approach has been used previously by Hewitt and Messmer (1997) and Conover and Decker (1991).

Although the letter was sent as a mass mailing, using the “blind copy” mode kept the addressees’ identities confidential and created the perception that each administrator was being contacted separately. The individuals identified by these administrators were subsequently contacted by email and asked to participate.

Questionnaire Development

A self-administered questionnaire (Appendix A) was developed using the Tailored Design Method (Dillman 2000) to assess how information about wildlife, beyond traditional hunting and fishing issues, was transferred to the public by the five selected governmental agencies. The questionnaire addressed study objectives using sets of open-ended, closed-ended and partially closed-ended question groups covering the following topics: characteristics of survey respondents, agency mission and record-keeping; conflicts between humans and wildlife; wildlife and human health/safety; attracting wildlife; viewing wildlife; wild animals in distress (i.e., injured, diseased, orphaned); and general curiosity.

Ordered, unordered, and ranked response categories were used to test study hypotheses. In addition to the above-listed categories, some questions were designed to obtain certain qualitative information, such as: job title of the respondent, number of years in current job, number of years at agency, and educational background. Once the survey instrument was completed it was pre-tested for clarity, ease of use, and length of time to complete by 4 members of the general public and 2 executive directors of

wildlife-related NGOs, and 2 human dimensions specialists at the Department of Wildlife and Fisheries at Texas A&M University. Suggested changes included question order and sentence structure. The questionnaire was reviewed and approved by the Institutional Review Board—Human Subjects in Research at Texas A&M University (TAMU#2002-538).

Following notification of IRB approval, the questionnaire was distributed to participants in a mass mailing sent on January 7, 2003. The questionnaires were sent out in several mass mailings, but by using the “blind copy” mode the identities of survey respondents were kept confidential. During initial contact, one individual requested the questionnaire be sent by U.S. mail. Another participant requested a hard copy of the questionnaire by U.S. mail when technical difficulties were experienced downloading the file. All other questionnaires were delivered as email attachments.

Participants were instructed to return the questionnaire by email, fax, or U.S. mail. Five participants returned their questionnaires by U.S. mail; all other questionnaires were returned as email attachments. Two weeks after the first mailing, non-respondents were contacted to determine their receipt of the survey instrument and provide a gentle reminder (Appendix II). When email messages were returned as undeliverable at least 3 attempts were made to find the correct address or identify someone else within the agency willing to participate. This process was repeated every two to three weeks through the end of March; the last questionnaire was returned in mid-April.

Data Analysis

An SPSS for Windows (SPSS Inc., Standard Version, Release 11.0.1) database was developed using the information on returned questionnaires. Data were examined using descriptive statistics, and analyzed to determine if selected characteristics of agency type, geographic location, and/or issue were determinants of variation for question responses. Measures of significance of differences were tested using chi-square or analysis of variance (one-way ANOVA) when appropriate.

RESULTS AND DISCUSSION

Response Rates

Of the 157 agency offices identified, 122 agreed to participate in the study (78%) and 111 responded (71%). Agencies were allowed to identify more than one respondent per office, so a total of 169 individuals were contacted and asked to participate. A total of 128 individuals responded (76%). Response variation was observed between agencies ($\chi^2 = 9.8$, $P = 0.04$, Figure 2).

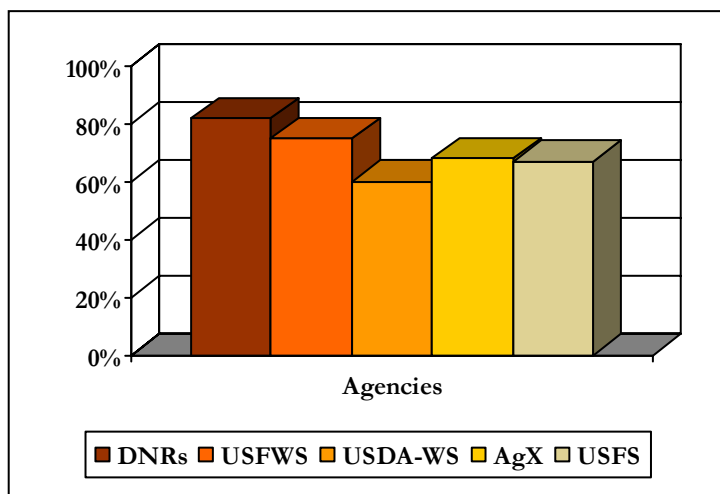


Figure 2. Survey response frequency by agency.

Regional participation also was analyzed (Figure 3), however, the U.S. Census Bureau (2001) regions included as many as 8 or as few as 4 states. When regional response was weighted to account for differences in the number of expected responses, no variation was observed ($\chi^2 = 3.5$, $P = 0.90$).

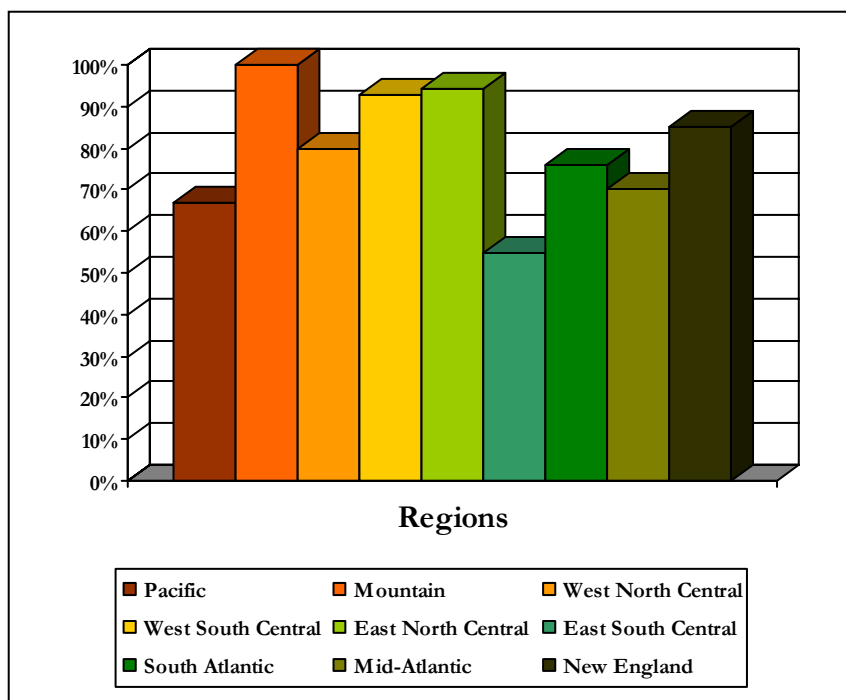


Figure 3. Survey response frequency by region.

Non-response follow up calls were deemed unnecessary due to high response rates (Dillman 2001). Possible reasons for non-response included: change of job, away from office for field work, and technical problems with email delivery.

Characteristics of Survey Participants

Survey participants consisted entirely of employees of the five identified types of state and Federal agencies: state DNRs, U.S. Fish & Wildlife Service, Wildlife Services, USDA -CSREES, and U.S. Forest Service. Job titles varied somewhat between agencies; whenever possible, similar titles were grouped together. The most common job categories for respondents were “specialist” (n = 24), “state director” (n = 15), and “biologist” (n = 9), but titles mentioned included everything from “section head” to “secretary”; four respondents did not list a job title (Table 3).

Some agencies had different titles for areas of specialization; whenever possible, similar titles were grouped together. The most common areas of specialization were

“wildlife management” (n = 56) and “information and education” (n = 30). Thirty respondents did not list an area of specialization (Table 4).

Table 3. Survey respondent job titles.

Job Title	Frequency	%	Job Title	Frequency	%
Administrator	1	0.8	Leader, Regional Program	2	1.6
Administrator, Asst.	1	0.8	Manager	4	3.1
Assistant	1	0.8	Manager, Program	1	0.8
Biologist	9	7.1	Manager, Regional	1	0.8
Chief	6	4.7	Professor	6	4.7
Chief, Regional	1	0.8	Professor, Assoc.	3	2.3
Clerk	1	0.8	Professor, Asst.	4	3.1
Coordinator	7	5.2	Secretary	3	2.3
Department Head	1	0.8	Section Head	1	0.8
Department Head, Assoc.	1	0.8	Specialist	24	18.9
Director	3	2.3	State Director	15	11.8
Director, Assoc.	1	0.8	State Director, Asst.	1	0.8
Director, Asst.	1	0.8	Supervisor	7	5.2
Director, Asst. Regional	2	1.6	Supervisor, District	2	1.6
Director, Program	1	0.8	Technician	2	1.6
Ecologist, Asst.	1	0.8	Veterinarian	1	0.8
Educator	3	2.3	Webmaster	1	0.8
Information Officer	3	2.3	Writer/Editor	1	0.8
Leader, Regional	1	0.8	No Answer	4	3.1
			Total	128	100.0

Table 4. Survey respondent specializations.

Specialization	Frequency	Percent
Conservation	1	0.8
Ecology	1	0.8
Forestry	1	0.8
Info. & Education	30	23.4
Natural Resources	2	1.6
Office Automation	1	0.8
Online Services	1	0.8
Private Land Services	1	0.8
Public Affairs	4	3.2
Wildlife Management	56	43.8
Unspecified	30	23.4
Total	128	100.0

Survey respondents were asked to provide some information about their level of education (Figure 4), major, and employment history (Figure 5). Most respondents had either a Bachelor (38%) or Masters (38%) degree, and 77% had majored in some areas of natural resource management. Forty percent of respondents had held their current job position for 10 or more years; 68% had worked at the same agency for more than 10 years (Figure 6).

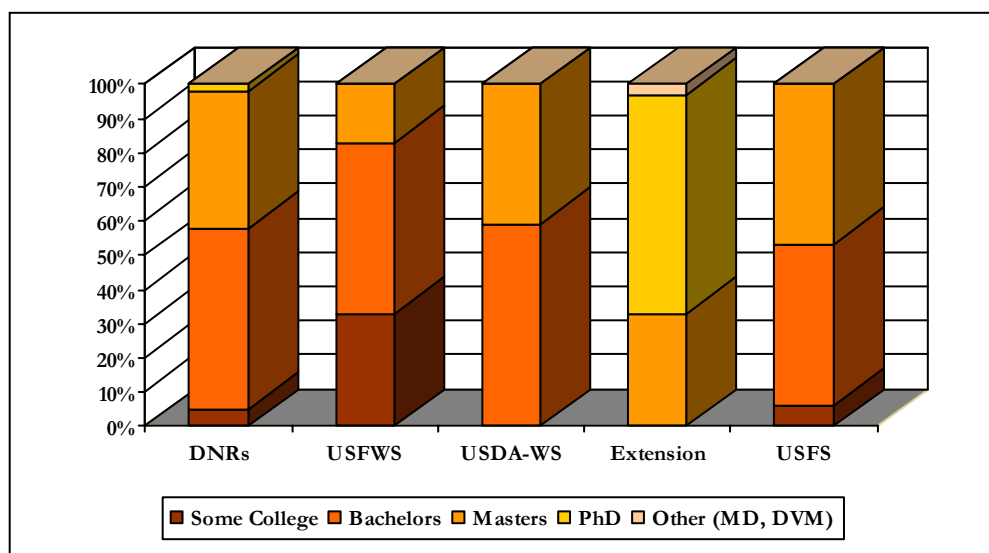


Figure 4. Educational history of survey respondents.

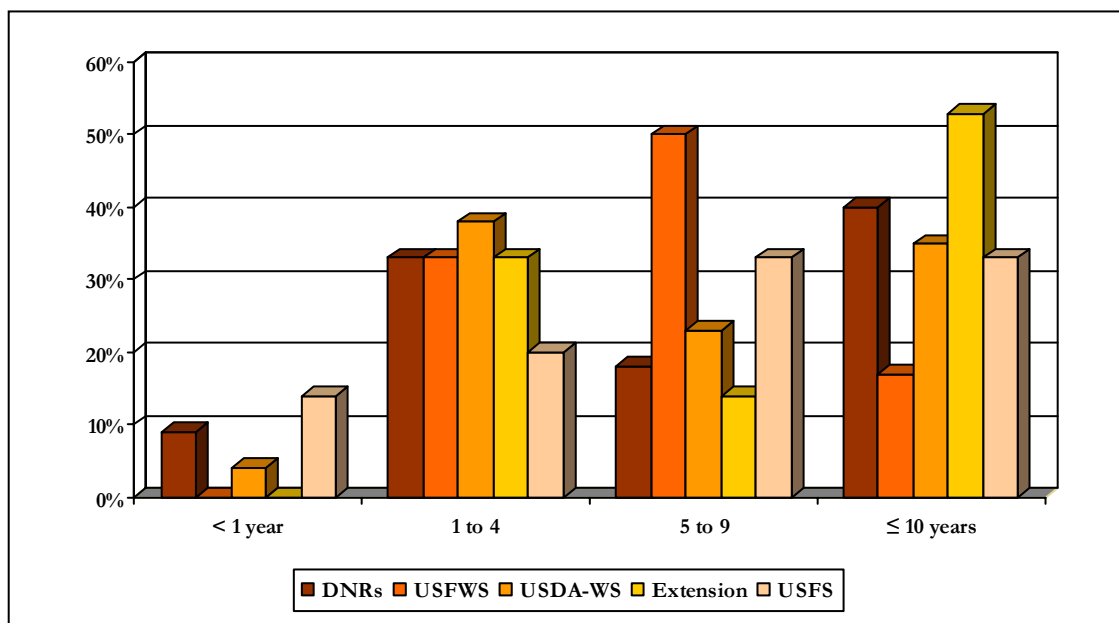


Figure 5. Survey respondent employment history: number of years in job position.

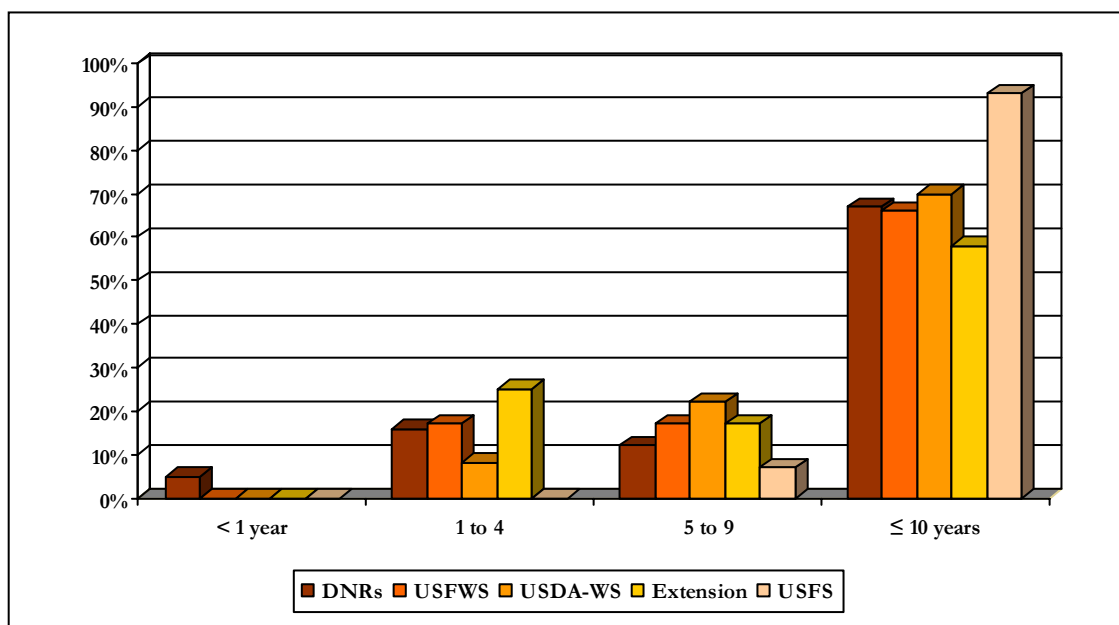


Figure 6. Survey respondent employment history: number of years at agency.

There was some concern during the sampling phase of this study that agencies would designate staff members who had relatively short employment histories, and that these individuals would not be very familiar with day-to-day operations concerning non-traditional wildlife issues. This was not the case. The education level, major area of study, and tenure in both job position and with the agencies seemed to indicate that the respondents were qualified to provide the information required in the questionnaire.

Agency Mission

The wildlife issues that urban and suburban residents face were quite different from those most natural resource agencies were established to address. Traditional means for classifying wildlife, such as game vs. non-game or protected vs. non-protected or abundant vs. threatened or endangered, were less applicable within urban habitats. Agencies were being asked to address situations outside their traditional scope. The Wildlife Services program (formerly known as Animal Damage Control), part of the U.S. Department of Agriculture (USDA), for example, was established primarily to address agricultural interests. But the agency now allocates a significant portion of staff and funding resources to human-wildlife conflicts in urban settings. Urbanites and suburbanites often did not know which agency to contact for information about wildlife. Due to an increased level of jurisdictional overlap within metropolitan areas, lack of personnel and funding, and poor communication between organizations, agencies may not always know where to direct wildlife questions.

So who is responsible for public information transfer concerning non-traditional wildlife issues? A study done in 1999 by the Urban Wildlife Working Group of The Wildlife Society found that 100% of state departments of natural resources (DNRs) surveyed considered some, if not all, urban wildlife management issues to be the responsibility of their agency (Adams 2003). Most state wildlife agencies were charged with management of all wildlife species within their borders, but traditionally resources have gone primarily to management of game species. This is due, at least in part, to restrictions placed on funding from the Federal Aid in Wildlife Restoration Act

(Pittman-Robertson Act, 16 United States Code §§ 669-669i) and the Federal Aid in Sport Fish Restoration Act (Dingell-Johnson Act, 16 United States Code §§ 777-777i), on which most state wildlife agencies depend. Still, a majority of individuals who responded to the Adams (2003) study said urban wildlife management was a growing concern in their state (85%); over two-thirds of the respondents said the public has a growing curiosity about wildlife but most need help to reconnect with the natural world around them.

According to a national survey conducted by Reiter et al. (1999), when Americans were asked who should be responsible for controlling wildlife damage and provided with a list of governmental agencies to choose from, they were more likely to feel that states rather than the federal government should take the lead concerning animal damage control. However, they also advocated public-private cooperation. Nearly three-quarters of survey respondents chose more than 1 agency, suggesting either that Americans were unsure which agency was best equipped to handle these problems or that they recognized that different agencies can contribute in different ways (Reiter et al. 1999). Conflicts between humans and wildlife have become an increasingly common non-traditional wildlife issue.

Survey participants in this study were asked the closed-ended question: “To what degree is providing the public with information about wildlife and wildlife issues part of your agency’s mission?” Five ordered response categories were provided:

- a fundamental part of this agency’s mission
- a significant part of this agency’s mission
- a part of this agency’s mission
- a minor part of this agency’s mission
- not part of this agency’s mission

Approximately 63% of respondents (n = 81) said responding to public inquiries about wildlife and wildlife issues was a fundamental part of their agency’s mission. Only 2 respondents said providing information was a minor part of their agency’s mission, and none of the respondents said this service was not part of their mission (Figure 7).

Differences were observed between agencies on the degree to which responding to public inquiries was part of the organizational mission ($P \leq 0.001$), but no significant variation was observed between regions ($P = 0.131$).

While the majority of respondents said information transfer is part of their agency's mission, the numbers may have been influenced by the fact that state DNRs, U.S. Fish and Wildlife Services, and Wildlife Services representatives accounted for well over half of the respondent group. One interesting aspect of the results was that, in spite of the fact that there are differences in patterns of outdoor recreation and natural resource use between regions, differences in the level of responsibility agencies have for handling non-traditional wildlife issues were not observed.

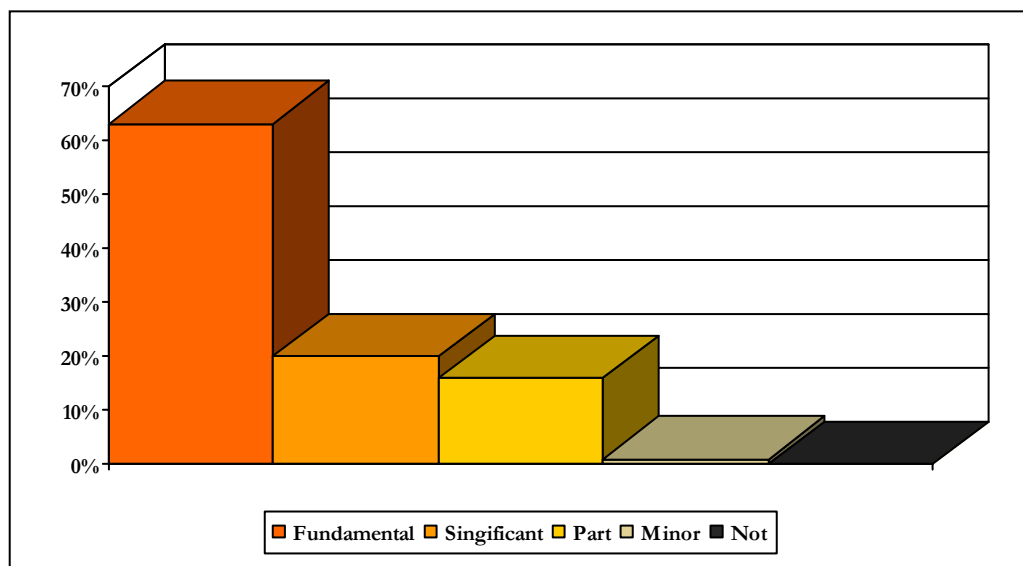


Figure 7. The degree to which agency mission includes providing the public with information about wildlife issues.

Record-keeping

Survey participants were asked to answer “yes” or “no” to the closed-ended question: “Does your agency keep permanent records of public inquiries about wildlife?”

Nearly 65% of respondents (n=83) said their agency/office did not keep permanent records of public questions; 45 respondents (35%) said their agency/office does keep records for at least some categories of questions. Variation was observed between agencies ($P \leq 0.001$); there was no significant difference in record-keeping practices between regions ($P = 0.075$).

Respondents from USDA-Wildlife Services offices were most likely to report that they kept permanent records on the questions they received from the public. This may be due to the fact that this agency's primary areas of responsibility were human-wildlife conflict, as well as human health and safety. Wildlife Services regularly partners with other governmental agencies, such as the Federal Aviation Administration (FAA), and these organizations may require that records be kept.

Formal Protocols for Handling Public Queries

Survey participants were asked whether or not their agency had formal protocols for handling questions about the six types of non-traditional wildlife issues (Appendix A). Formal protocols were a pre-established set of operating procedures. Developing protocols allow organizations to maintain quality control; ideally, the information provided to the public should be consistent and should not depend on which staff member handles the query. In addition, when an organization establishes standard operating procedures for handling public queries it indicates that an effort has been made to decide in advance about how best to respond.

Variation between regions was not observed, but variation between agencies was observed (Figure 8) for the conflict, health, curiosity, and rehabilitation categories (Table 5).

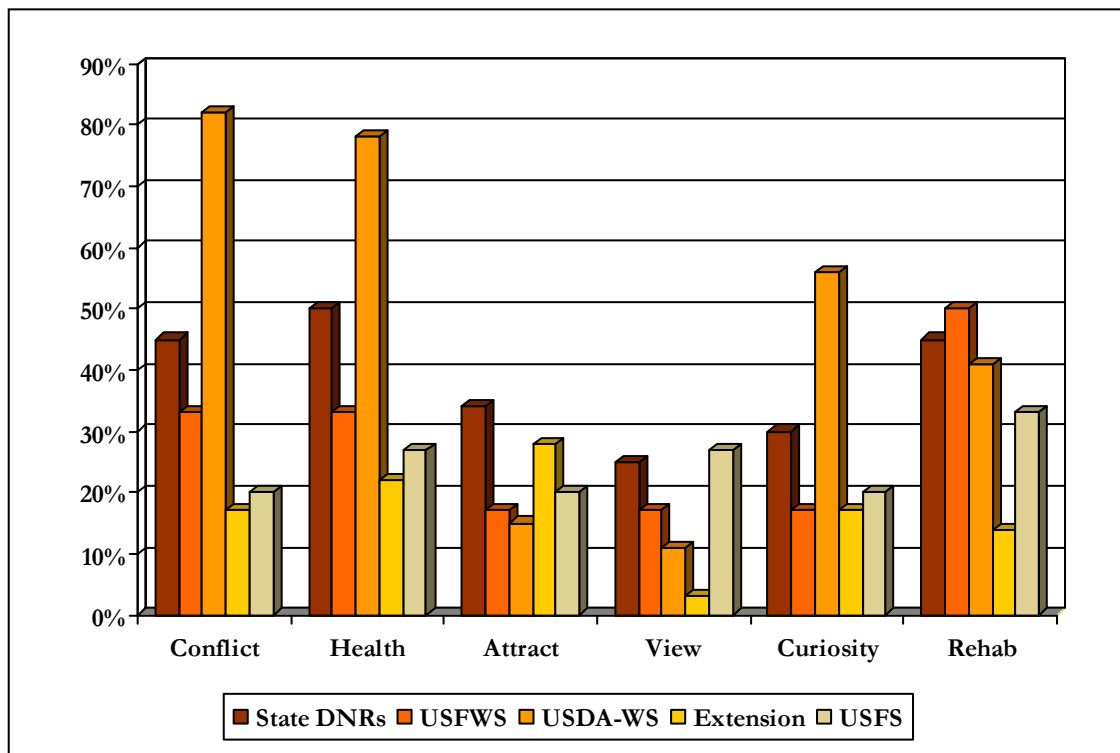


Figure 8. The existence of formal protocols for handling questions about non-traditional wildlife issues.

Table 5. Variation between agencies for existence of formal protocols, by category.

Category	F	P	Category	F	P
Conflict	6.6	≤ 0.001	View	1.2	0.325
Health	6.1	≤ 0.001	Curiosity	3.6	0.009
Attract	0.3	0.874	Rehabilitation	2.8	0.028

Few agencies reported the existence of formal protocols for non-traditional wildlife issues. Wildlife Services respondents were the most likely to indicate that formal protocols existed, at least for conflict, health, and curiosity categories. Again, this may be due to the nature of these management issues. The agency may have worked

with other governmental entities to develop protocols for handling questions about the impact of wildlife on aviation safety, highway safety, and zoonotic diseases. State DNRs were more likely to have formal protocols for human health and safety questions than for any other category.

Receipt of Questions about Non-traditional Wildlife Issues

Survey participants were asked whether or not their agency receives questions from the public about the six types of non-traditional wildlife issues (Appendix A). Overwhelmingly, respondents said the public did contact them about these issues. Variation between regions was not observed, but there was variation between agencies (Figure 9) for the health, attracting, viewing, and rehabilitation categories (Table 6).

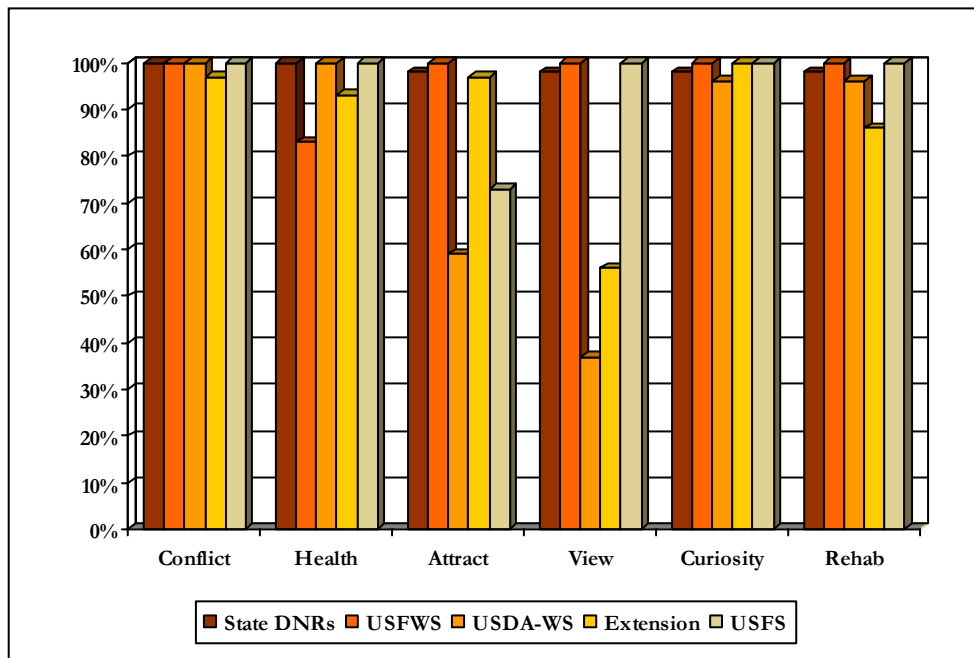


Figure 9. The existence of public queries about non-traditional wildlife issues received by agencies.

Table 6. Variation between agencies for public queries concerning non-traditional wildlife issues.

Category	F	P	Category	F	P
Conflict	0.6	0.641	View	16.8	≤ 0.001
Health	3.5	0.009	Curiosity	0.5	0.771
Attract	9.0	≤ 0.001	Rehabilitation	2.6	0.040

Despite the fact that each of the agencies surveyed have different areas of specialization, all of them receive questions from the public on all six categories of non-traditional wildlife issues. This may indicate that the public was relatively aware of the existence of these agencies, or that when searching for help with non-traditional wildlife issues they eventually found a governmental source for information. Attracting and viewing wildlife were the categories with the greatest degree of variation, although it isn't too surprising that the public was less likely to contact Wildlife Services about these issues.

Frequency of Public Questions about Non-traditional Wildlife Issues

Respondents were asked to indicate how often, on average, their agency received questions from the public about the six types of non-traditional wildlife issues. Six ordered response categories were provided: (1) daily, (2) weekly, (3) monthly, (4) every other month, (5) several times a year, and (6) less than once a year. The majority of respondents said they receive conflict, health and curiosity questions on at least a weekly basis (Figure 10). Variation was observed between both agencies and regions (Table 7).

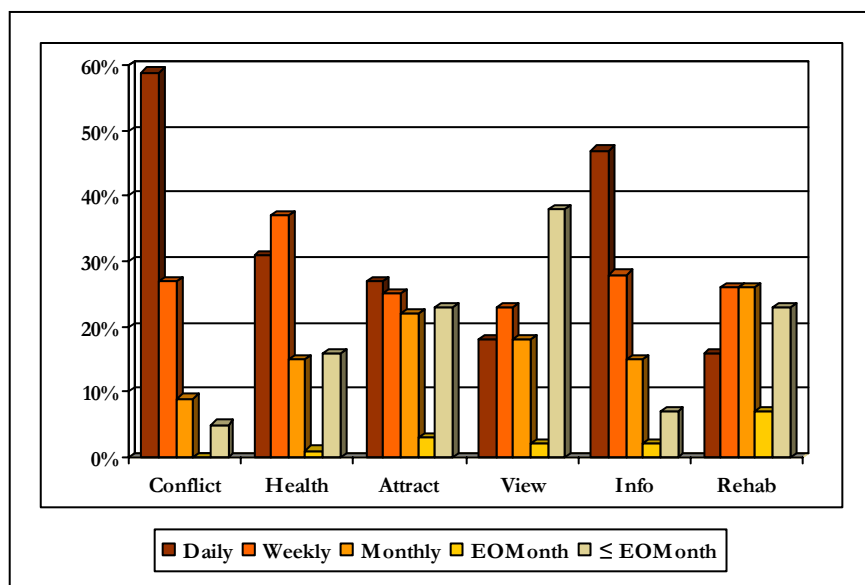


Figure 10. Frequency of non-traditional wildlife questions received by agencies.

Table 7. Variation between agencies and regions for frequency of public queries concerning non-traditional wildlife issues.

Category	Between Agencies		Between Regions	
	F	P	F	P
Conflict	22.7	≤ 0.001	2.0	0.048
Health	9.3	≤ 0.001	1.0	0.426
Attracting	8.5	≤ 0.001	2.9	0.006
Viewing	7.3	≤ 0.001	0.4	0.923
Curiosity	11.9	≤ 0.001	2.0	0.570
Rehabilitation	21.0	≤ 0.001	0.8	0.606

These data appeared to indicate that there was a significant public demand for information about conflict and health and safety issues, as well as a high degree of curiosity about wildlife. While the public did contact all of the surveyed agencies for help with non-traditional wildlife issues, certain agencies were contacted more often about particular categories. This may be due to the fact that when the public searched for help with a non-traditional wildlife issue, they were likely to turn to a governmental agency or NGO that had at least some connection to wildlife or the environment. These organizations may then point the public toward a more appropriate source of information.

Communication Methods Used by the Public

Respondents were asked to indicate which communication methods the public used to ask questions about non-traditional wildlife issues. Six unordered response categories were provided and respondents were encouraged to choose as many as applicable: (1) telephone, (2) email, (3) website, (4) U.S. mail, (5) in person, and (6) other. “Other” included faxes and the media, i.e. newspaper columns and radio programs. Respondents who chose “other” were asked to list the communication methods used. Most questions were received by telephone or in person (Figure 11). Variation was observed in almost all categories between agencies, but rarely between regions.

The telephone may be a popular choice with the public for several reasons. First, most adults were familiar with telephone directories, or they knew how to ask for assistance from telephone operators. Second, asking a question over the telephone provided an almost instant answer that were tailored specifically to the situation at hand. The public may become frustrated, however, if their call was forwarded too many times or if they had to deal with complicated voice-mail loops. Email also provided instant gratification and a tailored solution, but it required at least a minimal level of computer literacy, not to mention use of a computer with internet access. The “website” option was not a popular choice; respondents may not have considered hits on website FAQs as

a form of public query. Based on the comments of many respondents, “in person” did not necessarily mean that the public came to an agency office. Agency personnel often talked to the public at outdoor recreation shows and education programs, and the public took advantage of these opportunities

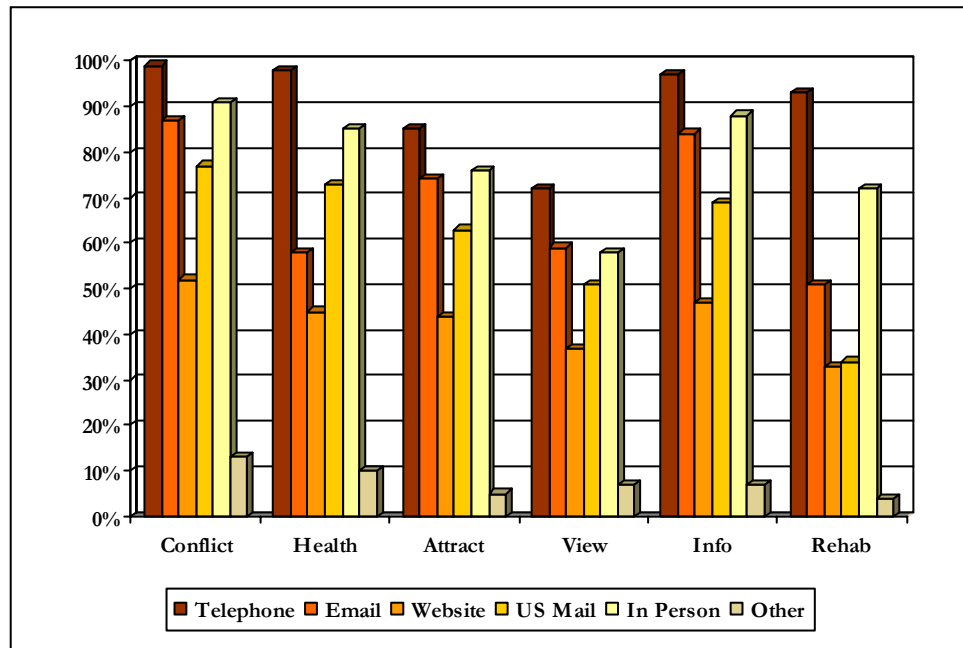


Figure 11. Communication methods used by the public for contacting agencies about non-traditional wildlife issues.

Agency Response to Queries about Non-traditional Wildlife Issues

Respondents were asked how they responded to the public’s questions about non-traditional wildlife issues. Seven unordered response categories were provided and respondents were encouraged to choose as many as applicable: (1) refer to specific individuals within agency, (2) refer to agency website FAQs, (3) refer to pre-recorded telephone messages, (4) refer to printed informational brochures, (5) refer to different governmental agencies, (6) refer to non-governmental organizations (NGOs), and (7)

other. Respondents who chose “refer to different governmental organization, “refer to NGO” or “other” were asked to provide a list of organizations or referral methods used. Variation ($P \leq 0.05$) was observed between agencies for 57% of response categories, but in only 5% of response categories between regions (Health/Website FAQs, Curiosity/Website FAQs).

Most respondents said questions were handled by individuals within their own agency (Figure 12). Brochures and referral to other governmental agencies also were popular choices. While few respondents indicated that they referred to NGOs, wildlife rehabilitation questions were the exception.

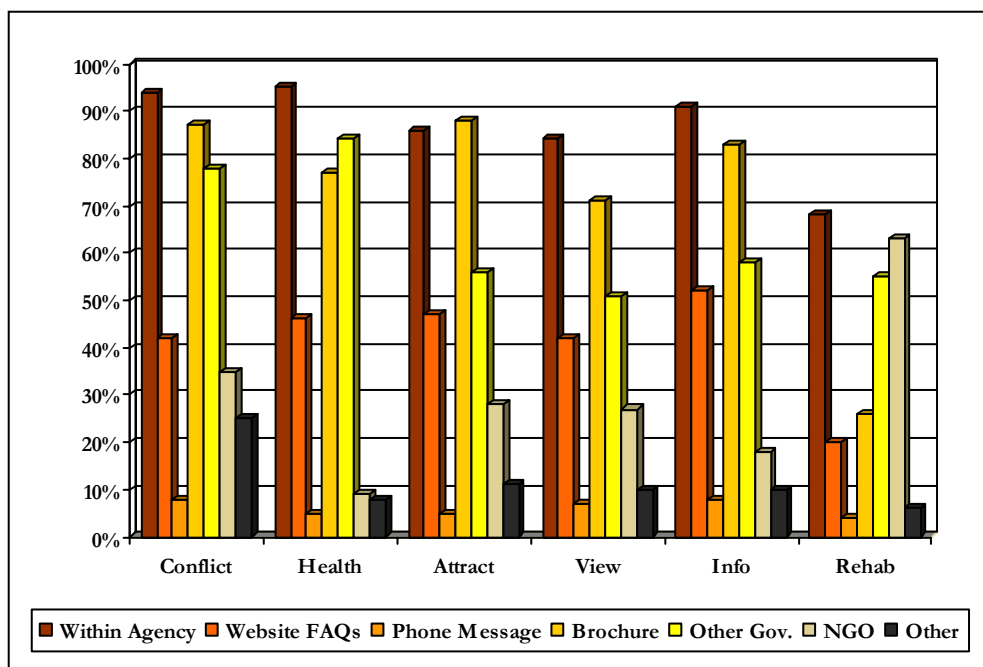


Figure 12. How agencies respond to questions from the public about non-traditional wildlife issues.

Referral to Different Governmental Agencies

For respondents who indicated their agency referred questions about non-traditional wildlife issues to different governmental agencies, DNRs were the most

popular referral choice for all categories except “health,” where DNRs ranked second. Governmental health agencies (state, county, municipal) were the most popular referrals for questions about the impacts of wildlife on human health and safety. Variation was observed between agencies for 50% of referral to governmental agency response categories. “Health/USDA” was the only response category in which variation between regions was observed ($P = 0.025$).

Referral to Non-governmental Agencies

Regardless of agency or region, the majority of respondents indicated that they do not referred the public to NGOs (65% to 95%, depending on the issue category), with one exception; 59% of respondents said they do refer to NGOs in the case of wildlife rehabilitation queries. Those that did chose wildlife control operators, retail businesses such as Wild Birds Unlimited, conservation organizations, and wildlife rehabilitators, depending on the question category.

The fact that agencies seldom refer to NGOs may indicate a lack of confidence in the information provided by these groups, or concern that the information provided is not in line with agency policy. Lack of awareness that they exists, especially in the case of locally-based organizations, also may be a factor. Because DNRs permit wildlife rehabilitation activities in most states, they usually have contact information readily available. The same was true for private wildlife control operators, at least in some states; in others these activities were licensed through state agricultural agencies or pest control boards.

Other Types of Questions

Respondents were asked to answer “yes” or “no” to the question, “Does your agency receive requests for wildlife-related information other than the types discussed above?” Over 63% of respondents ($n=81$) said their agency did receive other types of wildlife questions. Variation was observed between agencies ($F = 2.6$, $P = 0.041$) but not between regions ($F = 1.7$, $P = 0.103$).

In spite of the survey's emphasis on non-traditional wildlife issues, 20% of respondents who indicated their agency received other types of questions said they answered questions about traditional consumptive-use issues such as hunting, angling, and trapping (n=26). This may have been a way for respondents to say that while they do handle non-traditional issues, they haven't changed their primary focus. Another 10% received questions about wildlife laws, regulations and policy. A variety of habitat issues were listed by 9% of these respondents (n=11). Questions about threatened and endangered (T/E) species (8%) included how the presence of T/E species might affect property rights to requests for information on improving habitat to attract T/E species. Game ranching, importing, and exporting were mentioned by 4% of these respondents. "You name it, someone has asked us about it," was a sentiment expressed by several respondents.

Ranking of Non-traditional Wildlife Issue Categories

Respondents were asked to rank the six non-traditional wildlife issue categories based on the amount of time agency personnel spend handling these questions from the public. Eighty-two respondents ranked conflict issues first or second (Figure 13). However, 27 respondents represented Wildlife Services, an agency whose primary responsibility was to handle conflict issues, may have skewed this result. Curiosity was the next highest ranked category (n = 54), followed by Health (n = 39). Health issues may have ranked highly as a result of the high profile of West Nile virus and chronic wasting disease in the media. Some respondents used the same rank for more than one category; others did not rank certain categories.

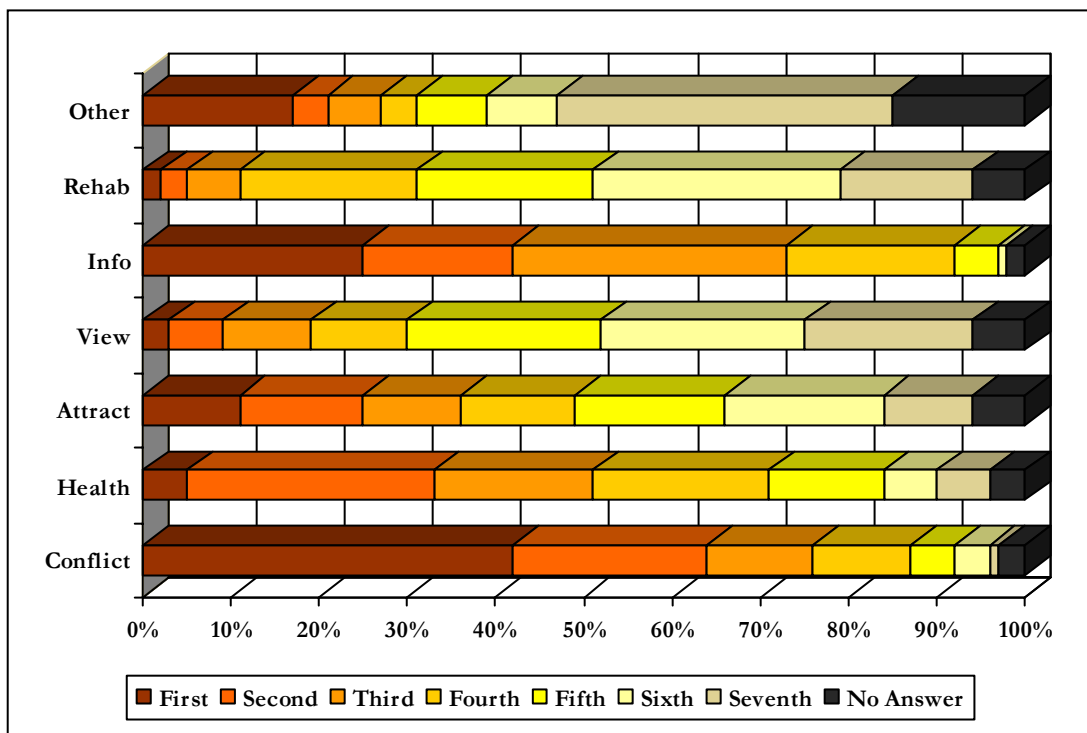


Figure 13. Ranking of non-traditional wildlife issue categories based on the amount of time agency personnel spend handling these questions.

CONCLUSIONS

As proposed in H¹, “differences will be observed in the way selected agencies respond to public inquires about non-traditional wildlife issues,” variation was observed between agencies for the majority of questions. However, little variation was observed between regions, as proposed in H², “geographic location will affect the way selected agencies respond to public inquiries about non-traditional wildlife issues.” This may indicate that Americans as a whole, not just those in rapidly urbanizing regions, are becoming more interested in non-traditional wildlife issues. The category of non-traditional wildlife issue did affect responses, as predicted in H³, “variation between agencies and between regions will depend on the wildlife issue considered.”

Discussion

Prior to this study, information on whether the public contacts governmental agencies about non-traditional wildlife issues was unknown. This study has shown that the public is looking for information on topics such as human-wildlife conflict, health and safety, and curiosity. The majority of surveyed agencies receive queries on a daily or weekly basis.

An uninformed public requires more attention from wildlife professionals than traditional clientele, resulting in a greater demand for agency resources. Often the public cannot correctly identify the species of animal in question, and they may misinterpret wildlife behavior. Especially in the case of human-wildlife conflict, many people simply want someone to come out and take care of their problem, and they may be surprised to find out their tax dollars do not pay for this kind of service.

The public’s dependence on the telephone, email, and face-to-face interactions may indicate a desire for speedy, individually-tailored information. If this is the case, the prevalence of queries received by U.S. mail was a bit puzzling, although it may have indicated that some members of the public prefer to have written information that can be referred to repeatedly. It may also have indicated that a significant segment of the public

does not have access to the Internet and email, or that they were uncomfortable using computers.

Printed materials, whether in the form of brochures or website FAQs, may be helpful for reinforcing ideas, but study data on communication methods seemed to indicate that many members of the public wanted to talk to a live human being. Unfortunately, they may not have known who to call for assistance, and they may have become frustrated and even angry when trying to locate the right agency or individual took more than a few phone calls.

Recommendations

According to respondents, providing the public with information on wildlife and related issues was a significant part of their mission. Based on the data gathered, agencies were responding to the public's demand for information on non-traditional wildlife issues. Unfortunately, few make any record of their interactions with constituents. Agencies should keep permanent records of public queries concerning non-traditional wildlife issues and how they are addressed by staff members. Without this information it will be difficult to quantify changes in public inquiries and the demand placed on agency resources. In the case of human-wildlife conflict and human health and safety issues, permanent records will allow agencies to document their response if a litigation results.

The majority of agency offices did not have formal protocols for handling any of the query types included in this survey. It should be mentioned that several respondents indicated they did not understand what was meant by the term "formal protocol." The lack of established protocols raised quality control concerns regarding agency preparedness and the consistency of information provided to the public. Agencies should begin to establish protocols for at least the most common types of non-traditional wildlife questions they receive; once again, having a permanent record of public queries will help agencies determine which questions they are most likely to receive. The information provided to the public will be more consistent and of a higher quality once

the agency determines how it wants to respond to specific issues. Particularly in the case of human health and safety issues, the ability to provide the public with accurate referral information can be of critical importance.

Several factors may prevent effective transfer of information about non-traditional wildlife issues to the public, e.g., the historic emphasis on consumptive users. Two indications that this focus continued within agencies were found in this study. First, when respondents were asked to list the NGOs they used for referrals when asked for information on attracting wildlife, 12% of respondents listed only consumptive-use organizations such as Quail Unlimited, National Wild Turkey Federation, and Pheasants Forever. These respondents apparently did not consider the possibility that questions about attracting wildlife may come from urban and suburban dwellers interested primarily in urban wildlife species in spite of the survey's use of exclusively non-consumptive examples of attracting wildlife questions (e.g., which plants to use in a butterfly garden; how to wildscape a backyard).

A second indication of continued focus on consumptive users was found in responses to the question, "Does your agency receive requests for wildlife-related information other than the types discussed above?" Even though the survey's focus was on non-traditional wildlife issues, over 20% of respondents took this opportunity to state that they received questions from the public about traditional hunting, fishing and/or trapping issues. This focus on consumptive use issues may cause non-consumptive users to view governmental wildlife management agencies as irrelevant in their lives. Witter and Shaw (1979) found that non-consumptive users rarely provided monetary support to wildlife agencies because they felt their interests were not being met. Instead, birders joined together and gave financial support to other conservation organizations. Adams et al. (1997) found that birders did not see Texas Parks and Wildlife Department as an organization that addressed their interests.

Although wildlife professionals have done a good job communicating with traditional consumptive clienteles, they have had difficulties responding effectively to the general public (Decker et al. 1987, Witter 1990, Jolma 1994). Decker (1985) found

communication with the public to be the least positive element of wildlife agency image among a variety of populations studied. Wildlife professionals typically lack a comprehensive understanding of ways to communicate effectively with the full set of constituents (Loker et al. 1999, Gilbert 1971). Several factors make agency communication efforts targeted at non-traditional constituents a challenge, including the diversity of values and beliefs and the lack of a longstanding relationship (Loker et al. 1999). Establishing partnerships with the private sector may allow agencies to improve their communication track record.

As public demand for information and assistance with non-traditional wildlife issues rises, meeting that demand will become increasingly expensive. Wildlife agencies face the loss of both traditional support in the form of licenses fees and earmarked taxes, and shrinking state budgets, the potential for collaborative efforts between governmental and non-governmental organizations should be explored as a way to respond more effectively to public demand.

Private wildlife control operators have stepped in to address the growing public demand for assistance with human-wildlife conflicts, but greater agency oversight may be needed to insure the public receives information on how to prevent future conflicts along with short-term solutions. In addition, agencies should attempt to insure that long-term wildlife management issues are taken into consideration by these businesses.

Conservation-oriented organizations may provide offer opportunities for collaborative partnerships, and should be considered as agencies attempt to address public demand for information about wildlife. Siemer et al. (1992) examined the potential of the wildlife rehabilitation community to educate the public about wildlife damage management. Most rehabilitators were willing to provide information about a wide range of issues important to wildlife managers. Through their wildlife care and educational activities, rehabilitators have regular opportunities to influence public understanding of natural history, ecology, and control of human-wildlife conflicts.

The same study explored the potential of the wildlife rehabilitation community for public education about wildlife damage management. The study found that most

wildlife rehabilitators are interested in providing information on a wide range of issues important to wildlife managers. Surveys of rehabilitators indicated that many have an educational program associated with their efforts (Marion 1989) and that collectively they received hundreds of thousands of telephone information requests annually (Horton 1987). They reached people of all ages, including non-traditional audiences that have proved difficult for wildlife managers to reach (Marion 1989).

The National Wildlife Federation has an extensive program to promote wildscaping. The Humane Society of the United States implemented a program aimed specifically at addressing urban wildlife issues, called Wild Neighbors, consisting of both printed information, web-based information, and materials for distribution to various mass media outlets. Native plant clubs often develop regionally-specific brochures and web-based materials. The CSREES Master Gardener program may be able to provide ideal resources for homeowners interested in creating backyard habitat. Texas Parks and Wildlife has developed a program that appears to have great potential for meeting public demand for information about wildlife and the environment. The Master Naturalist program provides individuals with in-depth training in wildlife and natural resource management. In return, volunteers agree to provide their community with educational activities, projects and demonstrations. Several states have taken steps to create similar programs.

Further Study

Further study is needed in several areas related to transfer of information on non-traditional wildlife issues to the public. Ideally, the next step would be to examine whether agencies actually respond to public as reported in this survey. Since few agencies have formal protocols for handling these types of queries, it can not be assumed that respondents' answers are typical within their agencies. The only way to determine how agencies actually respond would be to pose as a member of the public and query them about non-traditional wildlife issues using a variety of communication methods.

A second question that needs to be addressed is whether or not the public is satisfied with the response they received from agencies. Survey data indicated that the public does contact agencies about non-traditional wildlife issues, but data on the ease or difficulty they experience identifying these sources of information was not available. Unfortunately, the fact that few agencies keep records on their interactions with the public will make this type of study difficult to implement

Any study of public satisfaction should include an examination of the educational materials used by agencies. Both printed and web-based materials should be reviewed. Publications may be written at a technical level far beyond the abilities of the general public. Species descriptions and explanations of wildlife behavior need to be interpreted so that someone outside the wildlife profession can understand them. Most educational efforts were targeted towards people who already have a higher than average interest in wildlife. In order to reach the broadest possible audience, agencies need to do a better job of utilizing mass media, particularly mainstream newspapers, radio and television.

A similar assessment of wildlife information transfer to the public by NGOs, based on this study of governmental agencies, is needed. When agencies refer the public to NGOs, how do these organizations respond? Do they address these questions or simply referred the public to yet another potential source of information? Do these organizations keep records of their interactions with the public? Do they have established protocols for specific wildlife issues? Is the information provided by these organizations in keeping with wildlife management agency goals? An examination of NGOs could help complete the wildlife information transfer picture.

Due to the work of Master Gardener programs across the country, much of the infrastructure needed to more fully utilize this resource is already in place. An examination of the Master Naturalist program, its ability to address public demand for information on non-traditional wildlife issues, and the potential to expand the program nationally, could prove invaluable as agencies strive to address public demand for assistance with non-traditional wildlife issues.

LITERATURE CITED

- Adams, C. E. 2003. The infrastructure for urban wildlife management is missing. Transactions of the North American Wildlife and Natural Resource Conference 68: in press.
- Adams, C. E., and J. L. Eudy. 1990. Trends and opportunities in natural resource education. Transactions of the North American Wildlife and Natural Resource Conference 55:94-100.
- Adams, C. E., J. A. Leifester, and J. S. C. Herron. 1997. Understanding wildlife constituents: birders and waterfowl hunters. Wildlife Society Bulletin 25:653-660.
- Adams, C.E., R. A. Stone, and J. K. Thomas. 1988. Conservation education within informational and education divisions of state natural resource agencies. Wildlife Society Bulletin 16:333-338.
- Adams, C. E., and J. K. Thomas. 1998. Statewide survey of the Texas public for Texas outdoors: a vision of the future. Texas A&M University, Department of Wildlife and Fisheries Sciences, College Station, Texas, USA.
- Adams, C. E., J. K. Thomas, Pei-Chien Lin, and B. Weiser. 1987. Urban high school students' knowledge of wildlife. Pages 83-86 *in* D. L. Adams, and D. L. Leedy, editors. Integrating Man and Nature in the Metropolitan Environment. National Institute for Urban Wildlife, Columbia, Maryland, USA.
- Barnes, T. G. 1997. State agency oversight of the nuisance wildlife control industry. Wildlife Society Bulletin 25:185-188.
- Barnes, T. G. 1995a. Survey of the nuisance wildlife control industry with notes on their attitudes and opinions. Proceedings of the Great Plains Wildlife Damage Control Conference. 12:104-108.
- Barnes, T. G. 1995b. A survey comparison of pest control and nuisance wildlife control operators in Kentucky. Proceedings of the Eastern Wildlife Damage Control Conference 6:39-48.

- Beran, G. W., Editor. 1994. Handbook of zoonoses. Volume 1. Second edition. CRC, Boca Raton, Florida, USA.
- Berryman, J. H. 1994. Animal damage management: responsibilities of various agencies and the need for coordination and support. Proceedings of the Eastern Wildlife Damage Control Conference 5:12-14.
- Bisseru, B. 1967. Diseases of man acquired from his pets. Lippincott, Philadelphia, Pennsylvania, USA.
- Borgia, L. 2001. Changes in scope and demography of NWRA membership between 1992 and 1997. Proceedings of the National Wildlife Rehabilitation Association Annual Meeting 19:151-158.
- Braband, L. A. 1995. The role of the nuisance wildlife control practitioner in urban wildlife management and conservation. Proceedings of the Eastern Wildlife Damage Control Conference 6:38.
- Bright, A. D., J. Lipscomb, and L. Sikorowski. 1997. A cognitive analysis of intergroup attitudes of state wildlife agency personnel and wildlife rehabilitators. Human Dimensions of Wildlife 2:47-67.
- Conover, M. R. 1997. Wildlife management by metropolitan residents in the United States: practices, perceptions, costs, and values. Wildlife Society Bulletin 25:306-311.
- Conover, M. R., and D. J. Decker. 1991. Wildlife damage to crops: perceptions of agricultural and wildlife professionals in 1957 and 1987. Wildlife Society Bulletin 19:46-52.
- Conover, M. R., W. C. Pitt, K. K. Kessler, T. J. DuBow, and W. A. Sanborn. 1995. Review of human injuries, illnesses, and economic losses caused by wildlife in the United States. Wildlife Society Bulletin 23:407-414.
- Decker, D. J. 1985. Agency image: a key to successful natural resource management. Transactions of the Northeast Section of the Wildlife Society 41:43-56.
- Decker, D. J., and T. L. Brown. 2001. Understanding your stakeholders. Pages 109-132 in D. J. Decker, T. L. Brown, and W. F. Siemer, editors. Human dimensions of

- wildlife management in North America. The Wildlife Society, Bethesda, Maryland, USA.
- Decker, D. J., T. L. Brown, B. L. Driver, and P. J. Brawn. 1987. Theoretical developments in assessing social values of wildlife: toward a comprehensive understanding of wildlife recreation involvement. Pages 76-95 *in* D. J. Decker and G. R. Goff, editors. *Valuing wildlife: economic and social perspectives*. Westview, Boulder, Colorado, USA.
- Decker, D.J., and C.A. Loker. 1996. Human dimensions insights for successful wildlife damage management in suburban environments. *The Wildlife Society Annual Meeting Symposia on Wildlife Damage*, October 1-5.
- Dillman, D. A. 2000. *Mail and internet surveys, the tailored design method*. John Wiley and Sons, New York, USA.
- Dubois, S., and D. Fraser. 2003a. Conversations with stakeholders: goals, impediments, and relationships in wildlife rehabilitation. *Journal of Wildlife Rehabilitation* 26: in press.
- Dubois, S., and D. Fraser. 2003b. Conversations with stakeholders: contentious issues in wildlife rehabilitation. *Journal of Wildlife Rehabilitation* 26: in press.
- Duda, M. D., B. J. Gruver, S. Jacobs, T. Mathews, A. Lanier, O. Augustus, and S. J. Bissell. 1998. *Wildlife and the American mind: public opinion on and attitudes towards fish and wildlife management*. Responsive Management, Harrisonburg, Virginia, USA.
- Dunlap, T. R. 1988. *Saving America's wildlife*. Princeton University Press, Princeton, New Jersey, USA.
- Fleishman-Hillard Research. 1994. *Attitudes of the uncommitted public toward wildlife management*. Fleishman-Hillard, St. Louis, Missouri, USA.
- Gilbert, D. 1971. *Natural resources and public relations*. The Wildlife Society, Washington, DC, USA.
- Gray, G. 1993. *Wildlife and people: the human dimensions of wildlife ecology*. University of Illinois, Urbana, Illinois, USA.

- Hadidian, J., M. R. Childs, R. H. Schmidt, L. J. Simon, and A. Church. 1999. Nuisance-wildlife control practices, policies, and procedures in the United States. Pages 165-168 *in* R. Field, R. J. Warren, H. K. Okarma, and P. R. Sieverd, editors. *Wildlife, land, and people: priorities for the 21st century*. Proceedings of the 2nd International Wildlife Management Congress. The Wildlife Society, Bethesda, Maryland, USA.
- Harper, S. 2002. VDOT trying kinder method of beaver control. *The Virginian-Pilot*. 22 June 2002.
- Hass, K. B. 1998. A history of wildlife conservation and rehabilitation. *Wildlife Rehabilitation Today* 9:26-31.
- Hesselton, W. T. 1991. How governmental wildlife agencies should respond to local governments that pass anti-hunting legislation. *Wildlife Society Bulletin* 19:222-223.
- Hewitt, D. G., and T. A. Messmer. 1997. Responsiveness of agencies and organizations to wildlife damage: policy process implications. *Wildlife Society Bulletin* 25:418-423.
- Horton, R. H. 1987. Public education by the National Wildlife Rehabilitation Association: a survey report. *Proceedings of the National Wildlife Rehabilitation Association Conference* 6:127-140.
- International Association of Fish and Wildlife Agencies Fur Resources Committee. 1993. Ownership and use of traps by trappers in the United States in 1992. Fur Resources Committee of the International Association of Fish and Wildlife Agencies and The Gallup Organization, Washington, D.C.
- Jensen, P. G., P. D. Curtis, M. E. Lehnert, and D. L. Hamelin. 2001. Habitat and structural factors influencing beaver interference with highway culverts. *Wildlife Society Bulletin* 29:654-664.
- Jolma, D. J. 1994. *Attitudes toward the outdoors: an annotated bibliography of U.S. survey and poll research concerning the environment, wildlife, and recreation*. McFarland, Jefferson, North Carolina, USA.

- Kania, G. S., and M. R. Conover. 1991. Another opinion on how governmental agencies should respond to local ordinances that limit the right to hunt. *Wildlife Society Bulletin* 19:222-223.
- Kellert, S. R. 1980. American's attitudes and knowledge of animals. *Transactions of the North American Wildlife and Natural Resources Conference* 45:111-124.
- Kellert, S. R. 1996. *The value of life: biological diversity and human society*. Island Press, Washington, DC, USA.
- Landau, D., and S. Stump. 1994. *Living with wildlife: how to enjoy, cope with, and protect North America's wild creatures around your home and theirs*. Sierra Club Books, San Francisco, California, USA.
- Leedy, D. L., and L. W. Adams. 1984. *A guide to urban wildlife management*. National Institute for Urban Wildlife, Columbia, Maryland, USA.
- Leopold, A. 1933. *Game management*. Charles Scribner's Sons, New York, USA.
- Loker, C. A., J. Shanahan, and D. J. Decker. 1999. The mass media and stakeholders' beliefs about suburban wildlife. *Human Dimensions of Wildlife* 4:7-26.
- Lovell, C. D. 1997. The United States Air Force bird avoidance model for low-level training flights. Pages 162-170 *in* C.D. Lee and S.E. Hygnstrom, editors. 13th Great Plains Wildlife Damage Control Workshop Proceedings. 16-19 April 1997, Nebraska City, Nebraska, USA.
- Lowery, M. D., and W. F. Siemer. 1999. Resource agencies as effective sources of information on wildlife damage prevention and control: overcoming the obstacles. *Abstracts of The Wildlife Society Annual Conference* 6:141-142.
- Manfredo, M. J., and H. C. Zinn. 1996. Population change and its implications for wildlife in the New West: a case study of Colorado. *Human Dimensions of Wildlife* 1:62-74.
- Mankin, P. C., R. E. Warner, and W. L. Anderson. 1999. Wildlife and the Illinois public: a benchmark study of attitudes and perceptions. *Wildlife Society Bulletin* 27:465-472.

- Marion, W. R. 1989. Wildlife rehabilitation: its role in future resource management. *Transactions of the North American Wildlife Natural Resource Conference* 54:476-482.
- McLean, R. G. 1994. Wildlife diseases and humans. Nebraska Cooperative Extension Service, Lincoln, Nebraska, USA.
- McMath, R. M. 1989. The bird watching boom. *Adweek's Marketing Week* 30:32-33.
- Payne, N. F., and R. P. Peterson. 1986. Trends in complaints of beaver damage in Wisconsin. *Wildlife Society Bulletin* 14:303-307.
- Penland, S. 1987. Attitudes of urban residents toward avian species and species' attributes. Pages 77-82 in L. W. Adams and D. L. Leedy, editors. *Integrating man and nature in the metropolitan environment*. National Institute for Urban Wildlife, Columbia, Maryland, USA.
- Reiter, D. K., M. W. Brunson, and R. H. Schmidt. 1999. Public attitudes toward wildlife damage management and policy. *Wildlife Society Bulletin* 27:746-758.
- Richardson, W. J. and T. West. 2000. Serious bird strike accidents to military aircraft: updated list and summary. *Proceedings of International Bird Strike Committee* 25:67-98.
- Romin, L. 1994. Factors associated with mule deer highway mortality at Jordanell Reservoir, Utah. Thesis, Utah State University, Logan, Utah, USA.
- Rossi, A. N., and J. B. Armstrong. 1999. Alabamian's wildlife-related activities, wildlife management perceptions, and hunting behavior. Pages 1-178, Alabama Game and Fish Division.
- Rue, L. L., III. 1989. *The deer of North America*. Outdoor Life Books, Danbury, Connecticut, USA.
- San Julian, G. J. 1987. The future of wildlife damage control in an urban environment. *Proceedings of the Eastern Wildlife Damage Control Conference* 1:229-233.
- Schmidt, R. H. 1998. Required knowledge. *Wildlife Control Technology* 5:6-7.
- Siemer, W. F., T. L. Brown, P. P. Martin, and R. D. Stumvoli. 1992. Tapping the potential of the wildlife rehabilitation community for public education about wildlife

- damage management. Proceedings of the Eastern Wildlife Damage Control Conference 5:143-147.
- Stout, R. J., D. J. Decker, and B. A. Knuth. 1992. Evaluating citizen participation: creating a communication partnership that works. Transactions of the North American Wildlife and Natural Resource Conference 57:135-140.
- Thorpe, J. 1996. Fatalities and destroyed civil aircraft due to bird strikes 1912-1995. Proceedings of International Bird Strike Committee 23:17-31.
- United States Department of Commerce, United States Census Bureau. 1982. 1980 National Survey of Fishing, Hunting and Wildlife-Associated Recreation. United States Government Printing Office, Washington, D.C., USA
- United States Department of Commerce, United States Census Bureau. 1993. 1991 National Survey of Fishing, Hunting and Wildlife-Associated Recreation. United States Government Printing Office, Washington, D.C., USA
- United States Department of Commerce, United States Census Bureau. 1997. 1996 National Survey of Fishing, Hunting and Wildlife-Associated Recreation. United States Government Printing Office, Washington, D.C., USA
- United States Department of Commerce, United States Census Bureau. 2001. 2001 National Survey of Fishing, Hunting and Wildlife-Associated Recreation. United States Government Printing Office, Washington, D.C., USA
- United States Centers for Disease Control and Prevention. 2001. Morbidity and mortality weekly report, summary of notifiable diseases, United States, 2001. United States Department of Health and Human Services, Centers for Disease Control, Atlanta, Georgia, USA. 108pp.
- VanDruff, L. W., E. G. Bolen, and G. S. San Julian. 1994. Management of urban wildlife. Pages 507-530 *in* T.A. Bookhout, editor. Research and Management Techniques for Wildlife and Habitats. The Wildlife Society, Bethesda, Maryland, USA.

- Wildlife Services. 2001. Wildlife Services assistance at airports. United States Department of Agriculture, Animal and Plant Health Inspection Service, Washington, D.C., USA.
- Witter, D. J. 1990. Wildlife management and public sentiment. Pages 162-172 *in* J.M. Sweeney, editor. Management of dynamic ecosystems. North Central Section, The Wildlife Society, West Lafayette, Indiana, USA.
- Witter, D. J., and W. W. Shaw. 1979. Beliefs of birders, hunters, and wildlife professionals about wildlife management. Transactions of the North American Wildlife and Natural Resource Conference 44:298-305.
- Young, C. 1991. Fostering residential participation in urban wildlife management: communication strategies and research needs. Page 203-209 *in* L.W. Adams and D.L. Leedy, editors. Wildlife conservation in metropolitan environments. National Institute for Urban Wildlife, Columbia, Maryland, USA.

APPENDIX A: INSTITUTIONAL REVIEW BOARD APPROVAL



Office of Research Compliance

November 5, 2002

Administration and
Special Programs

Academy for
Advanced
Telecommunications
and Learning
Technologies

Institute for
Scientific Cooperation

Laboratory Animal
Resources and Research

Microscopy and
Imaging Center

Office of
Business Administration

Office of Graduate Studies

Office of Sponsored Projects

Texas A&M University
Research Park

MEMORANDUM

TO: Kieran J. Lindsey
WFSC
MS 2258

SUBJECT: Who Ya Gonna Call? A National Assessment of the Transfer of
Wildlife Information to the Public
2002-538

Approval Date: November 5, 2002 to November 4, 2003

The Institutional Review Board – Human Subjects in Research, Texas A&M University has reviewed and approved the above referenced protocol. Your study has been approved for one year. As the principal investigator of this study, you assume the following responsibilities:

Renewal: Your protocol must be re-approved each year in order to continue the research. You must also complete the proper renewal forms in order to continue the study after the initial approval period.

Adverse events: Any adverse events or reactions must be reported to the IRB immediately.

Amendments: Any changes to the protocol, such as procedures, consent/assent forms, addition of subjects, or study design must be reported to and approved by the IRB.

Informed Consent/Assent: All subjects should be given a copy of the consent document approved by the IRB for use in your study.

Completion: When the study is complete, you must notify the IRB office and complete the required forms.



Texas A&M
University

3112 TAMU


Dr. E. Murl Bailey, Chair
Institutional Review Board –
Human Subjects in Research

APPENDIX B: SURVEY INSTRUMENT

A National Assessment of the Transfer of Wildlife Information to the Public

Urbanization in the United States has created significant changes in wildlife habits and habitats, as well as in the public's understanding of and attitudes toward wildlife. Much of our population is at least three generations removed from rural life and a familiarity with the natural world. As a result, there may be an emerging public need for information about wildlife.

The goal of this study is to determine how information about wildlife is delivered to the public by state and Federal natural resource agencies. In other words, when the public has questions about wildlife how does your agency respond?

I know your time is valuable so every attempt has been made to keep the survey as brief as possible. This questionnaire consists of 15 questions, 6 of which have 4 sub-questions. Respondent's answers will be kept confidential. By completing the survey you voluntarily agree to participate in the study.

This research study has been reviewed and approved by the Institutional Review Board – Human Subjects Research, Texas A&M University. For research-related problems or questions regarding subjects' rights, the Institutional Review Board may be contacted through Dr. Michael W. Buckley, Director of Research Compliance, Office of the Vice President for Research at (979) 845-8585 (mwbuckley@tamu.edu). Comments or questions regarding survey administration or the questionnaire, contact Dr. Clark E. Adams, Department of Wildlife and Fisheries Sciences, Texas A&M University at (979) 845-8824 (clark.adams@tamu.edu)

Thank you for participating in this study.

Kieran Lindsey

Answer by typing your response in the space provided or place an “X” in the space requesting one or more responses. When asked to provide specific information simply type it in the space provided.

1. To what degree is providing the public with information about wildlife and wildlife issues part of your agency’s mission? (Choose one)

- a. a fundamental part of this agency’s mission
- b. a significant part of this agency’s mission
- c. part of this agency’s mission
- d. a minor part of this agency’s mission
- e. not part of this agency’s mission

2. Does your agency keep permanent records of public inquiries about wildlife?

yes no

3. Does your agency receive requests from the public for information about human-wildlife conflict issues? (examples include: eviction and exclusion of wildlife from buildings; damage to gardens/trees/landscaping; threats to companion animals/livestock)

yes no [if no, go to Question #4]

3a. By what means are human-wildlife conflict questions received by your agency? (Place an X by all that apply)

- a. telephone
- b. email
- c. website
- d. U.S. mail
- e. in person
- f. other (please list below)

3b. On average, how often does your agency receive questions about human-wildlife conflict issues from the public? (Choose one)

- a. daily
- b. weekly
- c. monthly
- d. every other month
- e. several times a year
- f. less than once a year

3c. Does your agency have a formal protocol for handling human-wildlife conflict questions?

yes no

3d. How does your agency respond to questions about human-wildlife conflict issues? (Place an X by all that apply)

- a. refer to specific person(s) within your agency
- b. refer to agency website FAQs
- c. pre-recorded telephone message(s)
- d. printed informational brochures
- e. refer to a different governmental agency (please list below)
- f. refer to Non-Governmental Organization(s) (please list below)
- g. other (please describe below)

4. Does your agency receive requests from the public for information about wildlife and human health and safety? (examples include: zoonotic diseases (e.g. rabies, West Nile); traffic hazards (e.g. deer crossings, flooding of roads by beaver); sanitation problems (e.g. rodents, roosting birds))

yes no (if no, go to Question #5)

4a. By what means are public health and safety questions concerning wildlife received by your agency? (Place an X by all that apply)

- a. telephone
- b. email
- c. website
- d. U.S. mail
- e. in person
- f. other (please list below)

4b. On average, how often does your agency receive questions about public health and safety issues concerning wildlife? (Choose one)

- a. daily
- b. weekly
- c. monthly
- d. every other month
- e. several times a year
- f. less than once a year

4c. Does your agency have a formal protocol for handling public health and safety questions?

- yes no

4d. How does your agency respond to questions about health and public safety issues concerning wildlife? (Place an X by all that apply)

- a. refer to specific person(s) within your agency
- b. refer to agency website FAQs
- c. pre-recorded telephone message(s)
- d. printed informational brochures
- e. refer to a different governmental agency (please list below)
- f. refer to Non-Governmental Organization(s) (please list below)
- g. other (please describe below)

- 5. Does your agency receive requests from the public for information on how to attract wildlife?** (examples include: which plants to use in a butterfly garden; methods for attracting birds; how to wildscape a backyard)

yes no (if no, go to Question #6)

- 5a. If yes, by what means are questions about how to attract wildlife received by your agency?** (Place an X by all that apply)

- a. telephone
- b. email
- c. website
- d. U.S. mail
- e. in person
- f. other (please list below)

- 5b. On average, how often does your agency receive questions on how to attract wildlife?** (Choose one)

- a. daily
- b. weekly
- c. monthly
- d. every other month
- e. several times a year
- f. less than once a year

- 5c. Does your agency have a formal protocol for handling attracting wildlife questions?**

yes no

5d. How does your agency respond to questions about how to attract wildlife?

(Place an X by all that apply)

- a. refer to specific person(s) within your agency
- b. refer to agency website FAQs
- c. pre-recorded telephone message(s)
- d. printed informational brochures
- e. refer to a different governmental agency [please list below]

- f. refer to Non-Governmental Organization(s) [please list below]

- g. other [please describe below]

6. Does your agency receive requests from the public for information on wildlife viewing opportunities? (examples include: where can I see whooping cranes?; when is the best time to see monarch butterflies migrating?; how can I learn more about nature photography?)

yes no (if no, go to Question #7)

6a. By what means are wildlife viewing questions received by your agency?

(Place an X by all that apply)

- a. telephone
- b. email
- c. website
- d. U.S. mail
- e. in person
- f. other (please list below)

6b. On average, how often does your agency receive wildlife viewing questions from the public? (Choose one)

- a. daily
- b. weekly
- c. monthly
- d. every other month
- e. several times a year
- f. less than once a year

6c. Does your agency have a formal protocol for handling wildlife viewing questions?

yes no

6d. How does your agency respond to wildlife viewing questions? (Place an X by all that apply)

- a. refer to specific person(s) within your agency
- b. refer to agency website FAQs
- c. pre-recorded telephone message(s)
- d. printed informational brochures
- e. refer to a different governmental agency [please list below]

- f. refer to Non-Governmental Organization(s) [please list below]

- g. other [please describe below]

7. Does your agency receive requests from the public for general information about wildlife? (examples include: How long does it take mourning dove eggs to hatch?; what do coyotes eat?; what kinds of venomous snakes live in this state?)

yes no (if no, go to Question #8)

7a. By what means are general wildlife information questions received by your agency? (Place an X by all that apply)

- a. telephone
- b. email
- c. website
- d. U.S. mail
- e. in person
- f. other (please list below)

7b. On average, how often does your agency receive general wildlife interest questions from the public? (Choose one)

- a. daily
- b. weekly
- c. monthly
- d. every other month
- e. several times a year
- f. less than once a year

7c. Does your agency have a formal protocol for handling general wildlife interest questions?

- yes no

7d. How does your agency respond to general wildlife interest questions? (Place an X by all that apply)

- a. refer to specific person(s) within your agency
- b. refer to agency website FAQs
- c. pre-recorded telephone message(s)
- d. printed informational brochures
- e. refer to a different governmental agency [please list below]
- f. refer to Non-Governmental Organization(s) [please list below]
- g. other [please describe below]

8. Does your agency receive requests from the public for information on how to help injured, sick or orphaned wildlife?

- yes no (if no, go to Question #9)

8a. By what means are questions about injured, sick or orphaned received by your agency? (Place an X by all that apply)

- a. telephone
- b. email
- c. website
- d. U.S. mail
- e. in person
- f. other (please list below)

8b. On average, how often does your agency receive questions about injured, sick or orphaned wildlife from the public? (Choose one)

- a. daily
- b. weekly
- c. monthly
- d. every other month
- e. several times a year
- f. less than once a year

8c. Does your agency have a formal protocol for handling questions about injured, sick or orphaned wildlife?

- yes no

8d. How does your agency respond to questions about injured, sick or orphaned wildlife? (Place an X by all that apply)

- a. refer to specific person(s) within your agency
- b. refer to agency website FAQs
- c. pre-recorded telephone message(s)
- d. printed informational brochures
- e. refer to a different governmental agency [please list below]
- f. refer to Non-Governmental Organization(s) [please list below]
- g. other [please describe below]

9. Does your agency receive requests for wildlife-related information other than the types discussed above?

- yes (please list below) no

10. Rank (1-7 where 1 = most important) each type of public inquiry according to the amount of time your agency spends on each type.

Inquiry	Rank
a. human-wildlife conflict	[]
b. human health & safety	[]
c. attracting wildlife	[]
d. wildlife viewing opportunities	[]
e. general information	[]
f. injured, sick & orphaned wildlife	[]
g. other questions	[]

11. What is your job title?

12. What is the highest level of education you have completed?

- a. [] High school diploma or GED
- b. [] Military or trade school
- c. [] Some college
- d. [] Bachelors degree
- e. [] Masters degree
- f. [] Ph.D.

13. Was the majority of your academic training in a natural resource discipline?

[] yes [] no

14. For how many years have you had your present position?

- a. [] less than 1
- b. [] 1 – 4
- c. [] 5 – 9
- d. [] 10 or more

15. For how many years have you been employed with this agency?

- a. [] less than 1
- b. [] 1 – 4
- c. [] 5 – 9
- d. [] 10 or more

Thank you for participating. Please return your response to k-lindsey@neo.tamu.edu.

APPENDIX C: RESPONDENT COMMENTS

General Comments

1. “I would be glad to discuss any questions you might have. If you need, please feel free to call on me at...”
2. “[agency keeps permanent records about] bear/human conflicts.”
3. “[agency has formal protocol for handling questions about] public health.”
4. “Referrals from others.”
5. “[It] is difficult to rank because we have different offices that handle these different requests. For example: my job is to handle most of the media inquiries that come to any of our offices. Our Nongame Section office handles most requests for wildlife viewing and wildlife attracting. So, each of us may spend more of our time on one particular request than other offices.”
6. “We have protocols for all of these but not ‘Formal’ in the strict sense.”
7. “The word “formal” is confusing. We have regulations that provide framework. We have some internal operating procedures that guide us. However, there is no comprehensive ‘Sick/injured wildlife policy’.”
8. “I don’t have enough information to do the ranking. I’m sure that the majority of our public information time is spent on hunting recreation and fishing recreation inquiries. Beyond that I would be simply speculating. We defer on most issues of human health and safety to the Dept. of Health, however we have our own Hunter Education program that has significant public inquiry. “
9. [Respondent added “hunting” to category list and ranked it #1.]
10. “We do keep some records if the inquiry relates to a controversial issue or a law enforcement issue, particularly one with an ongoing case.”
11. “The Department makes an effort to share information about its programs and services, as well as about wildlife and wildlife-related recreation, through a variety of media, including the web site, printed publications, press releases,

public events and exhibits, and by responding to phone calls and emails requesting information. “

12. “This [existence of formal protocols] depends on what you refer to as formal. Our mission is caring for the land and serving people. When people ask we respond. Many calls are taken by our receptionist and information office. If they cannot answer it they refer the request to me the Forest Wildlife Program Manager. I will provide or get the information and respond by mail, phone call or email, whichever is most appropriate. I do not deal with every call.”

Communication Methods

1. “At workshops, presentations, and trainings.”
2. “On site questions.”
3. “FYI, internet is increasingly more important to us. Our web site gets an estimated 780,000 user sessions annually with an average length of nine minutes each.”
4. “Via county Cooperative Extension offices.”
5. “A local newspaper has a column dealing with practical questions from readers on home and yard issues. The person handling the column calls me and I provide her written information, and my assessment and suggestions, which are then printed in her column.”
6. “Referrals from others.”
7. “Live call-in radio program, workshops, etc.”
8. “Informational brochures.”
9. “We receive many questions at educational programs conduct for various organizations, as well as at public exhibits conducted at the National Western Stock Show, the State Fair, and other venues.”
10. “Meetings, presentations, demonstrations and exhibits.”
11. “Email comes in via web-site contact info.”
12. “At programs.”

13. “During presentations on other topics or at other venues.”
14. “Through County Extension Agent referrals.”
15. “Use of news media/magazine and sport shows and expositions to disseminate.”
16. “Conferences, radio, workshops.”
17. “Referred from other federal and state agencies.”
18. “At conferences, public meetings, such as city council meetings and through referrals by local, state, and federal government offices.”
19. “Other contacts are made at educational seminars and trade show where we staff booths or instruct.”
20. “We receive requests for general wildlife information when we staff booths at trade shows or instruct at these shows or other educational programs.”
21. “Referrals from other agencies, clubs and organizations. They may pass along contact information and questions and then we follow up with the concerned citizen(s).”
22. “Request through other persons, at meetings and by networking through other persons.”
23. “NEPA—public meetings, public comment; media relations, community outreach, Video News Releases, limited press releases, exhibits at fairs and stock shows, working with various industry.”

Human-wildlife Conflict

1. “Most of the time the questions will be answered by the person that answered the phone. Some solutions involve us conducting the work ourselves under a Cooperative Service Agreement. These Agreements provide for reimbursement of government costs for conducting the work.”
2. “Officially, all of our educational programs are ‘informal’, but we do have a consistent process for handling inquiries. We have not elevated this to the status of a ‘protocol’, but because these issues are handled by our specialists they are

probably addressed with more rigor, consistency, and practicality, than in most other agencies.”

3. “Hard to say [how often human-wildlife questions are received] as calls do not come to one individual location. The agency has 2 depredation biologists and 20 management biologists, 3 research stations and the central office staff. All take calls of this type and for the other types of [questions] requested by this survey.”
4. “Information about human-wildlife conflicts provided to the public through the news media. e.g., in response to drought induced human-bear conflicts, information re. storing food while camping, homeowners use of bear-proof trash containers etc. was provided to citizens using the state’s news media. Also community outreach through clubs, homeowners associations and sport shows and expositions.”
5. “We either give them technical support or we go out and look at the problem and identify a solution.”
6. “Site visits, training sessions.”
7. “Many contacts are made at our county extension offices who provide information. If they don’t know the answers, they contact me (state Wildlife Extension Specialist).”
8. “We respond directly. In person; direct response via telephone and/or in person, handle complaint directly through direct agency interaction/management and/or provide individual with technical assistance via demonstration, instructional session, or over the phone/ in person.”
9. “We would answer the questions.”
10. “Talk with the person by phone or email.”
11. “Referral is to most appropriate source for assistance based on nature of request.”
12. “We deal with the offending animal, which could range from monitoring the situation to capture/relocation or destroying the animal either of which depends on the situation.”

13. “Because we no longer have a wildlife specialist, I am answering some of the more common questions but for detailed questions we may or may not provide personalized assistance. Some problems such as beavers, coyotes go to animal damage control.”
14. “Informational videos and closed-circuit satellite broadcasts to schools for ongoing issues and initiatives.”
15. “Each county Extension office has a copy of “Prevention and Control of Wildlife Damage” handbook and CD, which is a comprehensive guide published by a University Extension office about various methods for responding to human-wildlife conflict issues.”
16. “We give the public information to alleviate wildlife damage. The requester has three choices to apply the information: 1) They can solve the problem themselves, 2) hire a private company, or 3) contract with Wildlife Services. If they choose to hire a private company we provide the names of companies/individuals or refer them to a source to obtain these companies or individuals.”

Governmental Referrals

1. “State fish and wildlife agency or USDA-APHIS.”
2. “Texas Wildlife Damage Management Program.”
3. “Alaska Department of Fish & Game, USFWS.”
4. “If the species is federally protected, they are referred to the appropriate federal agency.”
5. “Oregon Department of Fish and Wildlife, USDA –Wildlife Services.”
6. “Idaho Department of Fish & Game.”
7. “USDA Wildlife Services, State Department of Public Health, Town Conservation Commission, Town Bureau of Health.”

8. “U.S. Fish & Wildlife Service for certain Migratory bird issues, State Fish and Wildlife Agencies for certain state managed game/non-game issues, State Health departments for certain disease related wildlife questions or concerns.”
9. “USDA-APHIS Animal Damage Control Unit, Massachusetts Division of Fisheries and Wildlife.”
10. “USDA – Wildlife Services.”
11. “USDA Wildlife Services, State Wildlife Agency.”
12. “State Agriculture, U.S. Fish and Wildlife Service, State Wildlife and Fisheries.”
13. “State Wildlife, APHIS, and Wildlife Research Center.”
14. “Wildlife Services, USDA.”
15. “USDA Wildlife Services in Concord, New Hampshire.”
16. “Utah Division of Wildlife Resources.”
17. “Wildlife Services.”
18. “USDA-APHIS-Wildlife Services, Nebraska Game and Parks Commission, Nebraska Department of Health, Lincoln-Lancaster County Animal Control.”
19. “USDA- Wildlife Services.”
20. “Arizona Game & Fish Department.”
21. “Maine Department of Inland Fisheries and Wildlife (MDIFW): wildlife or fisheries biologists in their regional offices; trained wildlife rehabilitators, listed by MDIFW, municipal animal control offices.”
22. “All full-time wildlife employees are trained to respond to questions from the public.”
23. “APHIS (Animal Plant Health Inspection Service), any of the State Department of Natural Resource Agencies associated with a specific national forest, University Extension Services.”
24. “U.S. Fish and Wildlife Service, Michigan Department of Natural Resources.”
25. “Arkansas Game and Fish Commission provides assistance with resident species.”

26. "State wildlife agency."
27. "USDA-Wildlife Services, USFWS."
28. "USDA Animal Damage Control for goose complaints."
29. "Local government animal control if needed."
30. "State Department of Natural Resources, Centers for Disease Control, U.S. Fish and Wildlife Service, local county conservation boards, etc. when appropriate (NOTE: state and county agencies also refer questions to us.)"
31. "Other state and federal agencies throughout the nation."
32. "South Carolina Department of Natural Resources, US Fish & Wildlife Service."
33. "Arkansas Game and Fish Commission provides assistance with resident species; we work on migratory bird problems."
34. "USDA – Wildlife Services."
35. "Department of Agriculture."
36. "Arizona Game and Fish, U.S. Fish and Wildlife Service, county animal control."
37. "Depending upon the question or concern, some problems will be addressed by other Federal or State agencies (e.g., harassment of eagles or threatened/endangered required, game animals, such as deer, are managed by the State game agency, requiring a State permit)."
38. "New Mexico Department of Game and Fish."
39. "Colorado Division of Wildlife, Colorado Department of Agriculture, U.S. Fish and Wildlife Service"
40. "USDA-APHIS-WS."
41. "U.S. Wildlife Services, county weed and pest boards."
42. "County Animal Control offices (if they will handle)."
43. "USDA Wildlife Services."
44. "USFWS, USGS, Idaho Department of Fish and Game (IDFG)."
45. "Some problems are referred to APHIS/Wildlife Services."

46. “USDA Wildlife Services, state wildlife agency.”
47. “APHIS/Wildlife Services.”
48. “USDA-APHIS-Wildlife Services, Kentucky Department of Fish and Wildlife.”
49. “Pennsylvania Game Commission, Wildlife Services.”
50. “APHIS – USDA.”
51. “USFWS, Humane Society—City/County.”
52. “U.S. Fish & Wildlife Service, U.S. Geological Service, U.S. Department of Agriculture, APHIS, Wildlife Services, U.S. Department of Health (CDC), state wildlife agency.”
53. “North Carolina Wildlife Resources Commission’s web site with certified WDC agents, USDA Wildlife Services if beaver problems.”
54. “USDA-WS if appropriate species and problem.”
55. “Texas Wildlife Damage Management Service.”
56. “U.S. Army Corps of Engineers, state departments of natural resources, Environmental Protection Agency, U.S. Forest Service, U.S. Geological Survey.”
57. “State departments of game and fish, APHIS-Wildlife Services.”
58. “California Department of Fish and Game, USDA Wildlife Services.”
59. “USDA-WS.”
60. “Inquiries about species that are not federal trust responsibilities are referred to the state; inquiries about how to remove wildlife are often referred to USDA’s Wildlife Services (formerly Animal Damage Control).”
61. “It could be that an issue might be handled at the state or local level or by the Fish and Wildlife Service.”
62. “USDA Wildlife Services, Michigan Department of Natural Resources--Wildlife Division.”
63. “Indiana Department of Natural Resources.”
64. “USDA Wildlife Services.”

65. "Florida Fish and Wildlife Conservation Commission."
66. "State Division of Wildlife, or US Fish and Wildlife Service."
67. "Oregon Dept. Fish and Wildlife, USDA APHIS Wildlife Services."
68. "Arizona Game and Fish Department."
69. "Routine: Wildlife Services & County Animal Control."
70. "U.S. Fish and Wildlife Service."
71. "Mostly land-based agencies including USDA, EPA, COMMERCE, NPS, BLM. Also, all State fish and wildlife agencies and departments of natural resources."
72. "Many—as appropriate."
73. "USDA Wildlife Services."
74. "USDA Wildlife Services, Arkansas Game and Fish Commission, USDA ARS, USDA Natural Resource Conservation Service, U.S. Fish & Wildlife Service, AR Natural Heritage Commission, University of Arkansas faculty and graduate students."
75. "USDA Wildlife Services (formerly Animal Damage Control)."
76. "In some situations, the requester is referred to government agencies that offer specialized programs to alleviate damage. An example would be referring the requester to the Virginia Department of Game and Inland Fisheries for a Population Management permit to reduce the overabundance of deer living in a town's corporate limits. "
77. "USDA Wildlife Services, provide websites for – Utah State University, North Carolina State University/Cooperative Extension (wildlife damage control), Municipal Animal Control Departments, VA Department of Health. May refer to biologist/professor at university who is considered "expert" about a particular species or group of species."
78. "Idaho Fish and Game, U.S. Fish and Wildlife Service."
79. "USDA APHIS-Wildlife Services, Missouri Department of Conservation."
80. "800 hotline in state run by USDA-ADC."

81. “Arkansas Game and Fish commission, Health department.”
82. “Some issues are referred to USDA Wildlife Services or to Georgia Wildlife Resources Division.”
83. “USFWS, Arkansas Game and Fish Commission, NRCS, depending on the most appropriate.”
84. “Oregon Department of Fish and Wildlife.”
85. “Alaska Department of Fish and Game.”

NGO Referrals

1. “Pest control services, wildlife rehab centers.”
2. “Problem Animal Control specialists permitted by the agency.”
3. “Nuisance wildlife control operators (private individuals that charge for their services to deal with nuisance wildlife).”
4. “Private animal control operators if available and qualified.”
5. “Animals in Distress, a non-profit rehabilitation and rescue group.”
6. “USDA Wildlife Services”
7. “Raptor Recovery, Wildlife Rescue, Private pest management (Critter Control, Stetson Wildlife Management), Internet.”
8. “Volunteers or professionally licensed Nuisance Wildlife Control Operators.”
9. “Wildlife rehabilitators depending on question.”
10. “Maine Audubon.”
11. “Private animal control businesses, wildlife rehabilitators.”
12. “Private conservation organizations and private NWC companies.”
13. “Utah Division of Wildlife Resources, APHIS – Wildlife Services”
14. “Universities, Michigan animal damage control businesses.”
15. “Wildlife damage control agents, Wildlife Rehabilitators.”
16. “When appropriate, to Bat Conservation International; occasionally, I will refer people to local contractors that can do work on their homes (i.e. bat exclusion)

but rarely to specific people, only to certain subjects in their yellow pages, once I've identified the problem for them.”

17. “Various NGOs.”
18. “Nuisance Wildlife Control Operator.”
19. “Private conservation organizations and private NWC companies.”
20. “Individual businesses that resolve non-protected wildlife issues.
21. “Nuisance wildlife permit holders, Illinois Trappers Association, National Trappers Association.”
22. “Some questions received concern specific products provided by private vendors or specific services provided by vendors. These questions may be referred to the vendor for answering. We also refer people to private individuals or companies for services when our agency cannot provide the services requested by the caller.”
23. “Sandia Mountain BearWatch.”
24. “Rehabilitation groups, nuisance wildlife control operators.”
25. “Sometimes to private companies for ground squirrel/gopher eradication.”
26. “Licensed nuisance wildlife trappers.”
27. “Nuisance wildlife control operators.”
28. “The yellow pages under ‘Pest Control’.”
29. “Private nuisance wildlife control officers.”
30. “Private wildlife damage control operator.”
31. “Vermont Trappers Association members.”
32. “Individual animal control agents, animal rescue groups.”
33. “Yellow Pages.”
34. “In the case of raccoons, squirrels, etc being problems in dwellings, we refer to a private animal nuisance company.”
35. “Private NWCOs.”
36. “Nuisance Wildlife Control companies -field services.”

37. “If it is a service request in urban areas, we typically suggest they look under PCO’s but do not recommend one over the other. Some of the local Wildlife Rehabilitation Centers in our state will also assist.”
38. “Nuisance pest control operators, trapping assoc., rehabilitators.”
39. “Occasional: Humane Society & County or Non-profit Animal Shelters, Routine: Private Wildlife Rehabilitators who are operating under authority of Utah Division of Wildlife Resources’ Certificate of Registration.”
40. “Any of the major hunting, fishing and conservation NGO’s.”
41. “One example, for bird rescue/rehab, The Bird Treatment & Learning Center; for Exxon Valdez oil spill info, the Trustee Council.”
42. “Private Nuisance Wildlife Control Operators (NWCOS) who provide services for a fee. A list of these individuals is maintained for South Carolina.”
43. “Private Nuisance Wildlife Control Operators, Arkansas Association of Wildlife Rehabilitators, Catfish Farmers Association.”
44. “We will on occasion refer the requestor to a list of companies providing specialized services not provided by the Wildlife Services program. We also refer the requester to companies that sell supplies to alleviate wildlife damage problems.”
45. “Wildlife Rehabilitators – private individuals, Humane Society, SPCA, Wildlife Center of Virginia, Local Nature Centers, Local birding clubs/butterfly clubs, Local herpetological societies, VA Audubon Society, VA Natural History and Living Museum(s).”
46. “Audubon, Trappers Association, Wildlife Federation.”
47. “Audubon Society.”

Human Health and Safety

1. “Most of the time the questions will be answered by the person that answered the phone. Some solutions involve us conducting the work ourselves under a

Cooperative Service Agreement. These Agreements provide for reimbursement of government costs for conducting the work.”

2. “[Frequency of queries] depends on media coverage and perceived threat of the issue.”
3. “[Response] depends on the question and the type of caller (media handled different than individuals).”
4. “Give technical assistance or we go look at the problem.”
5. “We respond directly. In person; direct response via telephone and/or in person, handle complaint directly through direct agency interaction/management and/or provide individual with technical assistance via demonstration, instructional session, or over the phone/ in person.”
6. “Informational websites.”
7. “Talk with the person by phone or email.”
8. “Protocols are species, disease or situational specific.”
9. “This [category] would not be [ranked] so high except for CWD.”

Governmental Referrals

1. “County or State Health Department.”
2. “Texas Department of Health.”
3. “Alaska Department of Health, Office of Epidemiology.”
4. “West Nile virus questions are referred to public health agency.”
5. “State Departments of Health, Centers for Disease Control and Prevention (CDC).”
6. “Massachusetts Division of Fisheries and Wildlife, Massachusetts Department of Public Health.”
7. “Public Health Department, U.S. Fish and Wildlife Service.”
8. “Wildlife Services, State agency.”
9. “State health department, state wildlife department.”
10. “Centers for Disease Control, Colorado Division of Wildlife.”

11. "Calls about mercury in fish are referred to the state Department of Health and Welfare."
12. "USDA Wildlife Services, Indiana Department of Health."
13. "NH Fish and Game Department or NH Department of Health and Human Safety."
14. "State Department of Health."
15. "USDA-APHIS-Wildlife Services, Nebraska Game and Parks Commission, Nebraska Department of Health, Lincoln-Lancaster County Animal Control."
16. "Public Health."
17. "Refer to public health department."
18. "Arizona Game & Fish Department."
19. "Department of Health, Maine Department of Inland Fisheries and Wildlife."
20. "APHIS (Animal Plant Health Inspection Service), any of the State Department of Natural Resource Agencies associated with a specific national forest, University Extension Services."
21. "Michigan Department of Natural Resources, Michigan Department of Agriculture, Michigan Department of Community Health."
22. "State Dept. of Health, State Wildlife Agency (both Utah state government.)"
23. "Utah Division of Wildlife Resources, APHIS – Wildlife Services."
24. "Department of Health."
25. "Michigan Department of Agriculture, Michigan Department of Community Health, U.S. Department of Agriculture."
26. "Department of Health, State Veterinarian."
27. "State DNR, Centers for Disease Control."
28. "Other state and federal agencies with information on subject."
29. "South Carolina Department of Natural Resources, US Fish & Wildlife Service, FAA, South Carolina Department of Environmental Quality."
30. "State Department of Agriculture, State Veterinarians Office."

31. North Dakota Department of Health, North Dakota Board of Animal Health, North Dakota Game & Fish Department.”
32. “Department of Agriculture, Department of Transportation, Department of Public Health, Department of Environmental Protection Agency.”
33. “Depending upon the question or concern, some problems will be addressed by other Federal or State agencies.”
34. “Colorado Division of Wildlife, Colorado Health Department.”
35. “Department of Health, Department of Agriculture.”
36. “Arizona Health Services.”
37. “Sometimes the state veterinary lab, state Department of health.”
38. “Department of Health and Human Services, county health departments.”
39. “Department of Agriculture and DNR when appropriate.”
40. “Local health department.”
41. “USFWS, APHIS-VS, IDFG, Idaho Department of Health and Welfare, County Departments of Health, Nez Perce Tribe.”
42. “New York State Department of Health.”
43. “USDA Wildlife Services, state wildlife agency.”
44. “Arkansas Department of Health, APHIS/Wildlife Services.”
45. “Nevada Department of Agriculture State Veterinarian.”
46. “Wildlife Services, Health Department, Department of Agriculture, Pennsylvania Game Commission.”
47. “APHIS-USDA.”
48. “Colorado Department of Health, Colorado Department of Agriculture.”
49. “National Wildlife Health Center, CDC, USDA-APHIS, state/county health department.”
50. “SCWDS (Southeastern Cooperative Wildlife Disease Study – UGA), NC Wildlife Resources Commission about issues with game species.”
51. “Texas Veterinary Diagnostic Medical Lab, Texas Wildlife Damage Management Service.”

52. "U.S. Army Corps of Engineers, state departments of natural resources, Environmental Protection Agency, U.S. Forest Service, U.S. Geological Survey."
53. "State Departments of Game and Fish, State Departments of Health, APHIS-Wildlife Services."
54. "State health department."
55. "In some cases the responding agency would be the Ohio Dept. of Agriculture or the Ohio Dept. of Health."
56. "California Department of Fish and Game, California Health Department."
57. "DNR, Dept. of Health & Family Services."
58. "Certain types of questions are referred to the local or state Departments of Health."
59. "Depending on the public safety issue, a request may be referred to a local or state agency; examples include, animal control, Department of Natural Resources."
60. "USDA Wildlife Services, Michigan Department of Natural Resources - Wildlife Division."
61. "Indiana Department of Health."
62. "USDA Veterinary Services, Nebraska Human Health Department."
63. "Florida Department of Environmental Protection."
64. "State department of health when appropriate."
65. "Oregon Dept. Fish and Wildlife, USDA APHIS Wildlife Services, US EPA, County Health Departments."
66. "Federal Aviation Administration, Arizona Department of Health Services, Arizona Game and Fish Department."
67. "State Health Department."
68. "Utah Department of Agriculture, U.S. Fish & Wildlife Service, Utah State University's Wildlife Department."

69. “West Nile requests were referred to department of health and Oklahoma Department of Wildlife Conservation.”
70. “Kansas Department of Health and Environment.”
71. “PHS, the State, CDC (on West Nile virus, for example).”
72. “Arkansas Department of Health, Southern Cooperative Wildlife Disease Study (may be non-governmental, not sure), Arkansas Game and Fish Commission.”
73. “State Department of Health, County Health Dept.”
74. “We will refer the requester to the appropriate local, regional, or state health department if warranted.”
75. “Virginia Department of Health, USDA Wildlife Damage Control, USGS National Wildlife Health Center.”
76. “Department of Health & Division of Natural Resources.”
77. “Idaho Fish and Game, U.S. Fish and Wildlife Service.”
78. “At times we may refer to public health departments, etc.”
79. “Missouri Department of Health, Missouri Department of Agriculture.”
80. “Arkansas Game and Fish commission, Health department.”
81. “Some questions are referred to Southeast Cooperative Wildlife Disease Study unit on campus. Sometimes a caller is directed to the CDC website. This does not happen often.”
82. “Centers for Disease Control, Arkansas Game and Fish Commission.”
83. “County Health, CDC, State Game and Fish agencies, State Agricultural Agencies.”
84. “State Fish and Wildlife Agencies.”
85. “Alaska Department of Fish and Game.”

NGO Referrals

1. “Problem Animal Control specialists permitted by the agency.”
2. “Raptor Recovery, Wildlife Rescue, Private pest management (Critter Control, Stetson Wildlife Management), Internet.”

3. “Their veterinarian! Their doctor! The emergency room!”
4. “All full-time wildlife employees are trained to respond to questions from the public; Michigan Department of Community Health, local health department, Michigan Department of Natural Resources, Bovine TB Eradication Project, Michigan State University.”
5. “Universities.”
6. “North Carolina Department of Health and Human Services, North Carolina Department of Agriculture, North Carolina State University or other research college/department.”
7. “Nuisance wildlife permit holders, Illinois Trappers Association, National Trappers Association.”
8. “Some questions received concern specific products provided by private vendors or specific services provided by vendors. These questions may be referred to the vendor for answering. We also refer people to private individuals or companies for services when our agency cannot provide the services requested by the caller.”
9. “University vet school.”
10. “State veterinarians.”
11. “Nuisance Wildlife Control companies.”
12. “Animal Damage Control Agents, animal control officers, Audubon.”
13. “Private Veterinarians, usually on contract for one of the aforementioned agencies. Private Wildlife Rehabilitators who are operating under authority of Utah Division of Wildlife Resources’ Certificate of Registration.”
14. “Chronic Wasting Disease Alliance, University of Georgia – Southeastern Cooperative Wildlife Disease Study.”
15. “Audubon Society.”

Attracting Wildlife

1. Calls fielded by different people from different types of constituents. Non-game questions handled by diversity staff generally and game species by management and research staff.”
2. “Personal knowledge.”
3. “Provide information over the phone.”
4. “Other useful informational websites.”
5. “Talk with the person by phone or email.”
6. “NOTE: We do have publications we provide regarding plantings and bird feeding, but our standard answer regarding feeding big game at or near residential areas (primarily deer) is “don’t,” since we want rangeland carrying capacity to regulate numbers.”
7. “Occasional news coverage gives guidance, we save and re-use.”
8. “Refer to DNR books Wild About Birds, Woodworking for Wildlife, Landscaping for Wildlife, and Lakescaping for Wildlife and Water Quality.”
9. “Our agency has a Backyard Wildlife Habitat program.”

Governmental Referrals

1. “Local fish and wildlife offices.”
2. “Massachusetts Division of Fisheries and Wildlife.”
3. “State wildlife agency.”
4. “Colorado Division of Wildlife, US Fish and Wildlife Service.”
5. “Indiana Department of Natural Resources, USDA-NRCS, USFWS.”
6. “New Hampshire Fish and Game Department, books available from other states.”
7. “Nebraska Game and Parks Commission.”
8. “Any of the State Department of Natural Resource Agencies associated with a specific national forest, University Extension Services.”
9. “Arkansas Game and Fish Commission, U. S. Fish and Wildlife Service.”

10. "Utah Division of Wildlife Resources."
11. "North Carolina State University, North Carolina Department of Agriculture."
12. "State DNR, NRCS, county conservation boards."
13. "State and federal agencies with knowledge on this subject."
14. "South Carolina Department of Natural Resources."
15. "Arkansas Game and Fish Commission; U.S. Fish and Wildlife Service."
16. "Pheasants Forever, Wild Turkey Federation, Illinois Audubon Society."
17. "Generally the State game agency."
18. "Colorado Division of Wildlife, Colorado State University Extension Offices."
19. "NRCS, conservation district, extension service."
20. "County extension offices."
21. "DNR."
22. "USFWS, Idaho Department of Fish and Game."
23. "Referred to county extension agents."
24. "Pennsylvania Game Commission."
25. "State wildlife agency, U.S. Fish & Wildlife Service."
26. "North Carolina Wildlife Resources Commission."
27. "Refer to Texas Parks & Wildlife if the individual requires On-site technical support."
28. "State departments of natural resources."
29. "State Departments of Game and Fish, Natural Resources Conservation Service, Fish and Wildlife Service."
30. "State parks, state forestry."
31. "DNR."
32. "Inquiries about species that are not federal trust responsibilities are referred to the state."
33. "Michigan Department of Natural Resources - Wildlife Division."
34. "Indiana Department of Natural Resources."
35. "County Extension offices and NRCS and conservation district offices."

36. "Oregon Dept. Fish and Wildlife, other state wildlife departments and universities."
37. "Arizona Game and Fish Department."
38. "Kansas Department of Wildlife and Parks."
39. "South Carolina Department of Natural Resources, U.S. Fish and Wildlife Service."
40. "Arkansas Game and Fish Commission, Arkansas Natural Heritage Commission, USDA Natural Resources Conservation Service, U.S. Fish & Wildlife Service, University of Arkansas faculty and graduate students."
41. "We provide what limited assistance we can and then frequently refer the requester to the appropriate federal or state agency that wildlife enhancement is their core mission. We will refer a requester wanting information about non-game birds and reptiles to specific professors at state colleges."
42. "Virginia Department of Conservation and Recreation."
43. "Game & fish departments, USFWS, etc."
44. "Missouri Department of Conservation."
45. "Arkansas Game & Fish."
46. "State Fish and Wildlife Agencies, NOAA."

NGO Referrals

1. "National Wildlife Federation, National Audubon Society."
2. "Bat Conservation International, Native Plant Society."
3. "New England Wildflower Society, The Nature Conservancy."
4. "National Wildlife Federation, Audubon, Rocky Mountain Bird Observatory."
5. "Quail Unlimited, Pheasants Forever, National Wild Turkey Federation."
6. "Audubon Society of New Hampshire, National Wildlife Federation."
7. "Nebraska Audubon, Pheasants Forever, Whitetails Unlimited, private management consultants, Internet."
8. "Conservation organizations and private local experts."

9. “National Wild Turkey Federation; Rocky Mountain Elk Foundation, Ruffed Grouse Society, Pheasants Forever.”
10. “National Wildlife Federation.”
11. “Natural Resources Conservation Service, Pheasants Forever, Ruffed Grouse Society, Wild Turkey Federation.”
12. “Pheasants Forever, Ducks Unlimited, National Wild Turkey Federation; when they are looking for seed or woody plants, sometimes to commercial suppliers in their area to get local genotype.”
13. “Various NGOs.”
14. “Conservation organizations and private local experts.”
15. We may suggest private entities (e.g., Audubon Society) as a reference. We will provide the answer to the question if we have it. We may also suggest searching the internet.”
16. “National Wildlife Federation, Wild Birds Unlimited.”
17. “Refer to various wildlife conservation groups (such as Hummingbird Associations, Audubon Society, etc.).”
18. “Local Audubon Society chapters.”
19. “Pheasants Forever.”
20. “Colorado Bird Observatory, Colorado Wildlife Federation, Local Audubon chapters.”
21. “National Wild Turkey Federation, Ducks Unlimited, Quail Unlimited, The Nature Conservancy, National Wildlife Federation, Isaac Walton League.”
22. “Refer to Ducks Unlimited or other NGO if they have program assistance and cost-share funds available.”
23. “Wild Birds Unlimited, Audubon, University Extension Service.”
24. “Department of Natural Resources.”
25. “Environmental education associations.”
26. “Some of the local garden stores and bird food stores do a pretty good job.”
27. “NWF, Audubon, others.”

28. “Conservation organizations like the National Wild Turkey Federation.”
29. “Audubon Society, Arkansas Chapter of the National Wild Turkey Federation, Ducks Unlimited, Arkansas Waterfowl Association, The Nature Conservancy, Quail Unlimited.”
30. “If the requester’s questions are specific enough to what they want to achieve we may refer them to an advocacy group such as Ducks Unlimited for wetland enhancement, Quail Unlimited for upland habitat enhancement for small game.”
31. “Local Nature Centers, Local birding clubs/butterfly clubs, Local herpetological societies, VA Audubon Society, VA Natural History and Living Museums, VA Native Plant Society.”
32. “Local groups such as Audubon, etc.”
33. “Audubon and National Wildlife Federation websites.”

Viewing Wildlife

1. “We will provide the answer to the question if we have it.”
2. “Personal knowledge.”
3. “Questions are answered by county agents or referred to the State Wildlife Extension Specialist.”
4. “Talk with the person by phone or email.”
5. “NOTE: Check out Utah’s Wildlife Viewing Guide, which highlights 92 good spots to go.”
6. “We get calls in cycles that correspond to migrating wildlife or increased visibility.”
7. “Refer to the DNR book Traveler’s Guide to Wildlife in Minnesota.”
8. “We have developed the Virginia Birding and Wildlife Trail for the entire state. We have a lot of information available about this trail and have formed numerous partnerships in order to put the trail together. We may, at any time, refer questions to one or many of our partners in developing the trails.”

Governmental Referrals

1. "Wildlife refuges."
2. "Idaho Dept of Fish and Game."
3. "USFWS Refuges."
4. "State wildlife department."
5. "Colorado Division of Wildlife."
6. "New Hampshire Fish and Game Department."
7. "Wildlife Viewing Guide."
8. "Nebraska Game and Parks Commission, US Fish and Wildlife Service."
9. "Arizona Game & Fish Department."
10. "Any of the State Department of Natural Resource Agencies associated with a specific national forest, University Extension Services."
11. "Arkansas Game and Fish Commission, Arkansas State Parks."
12. "Utah Division of Wildlife Resources."
13. "Various city or state parks and/or Federal wildlife refuges."
14. "State DNR, county conservation boards."
15. "State and federal agencies with knowledge on this subject."
16. "Arkansas Game and Fish Commission; Arkansas State Parks."
17. "Arizona Game and Fish, U.S. Fish and Wildlife Service."
18. "We refer them to the State game agency."
19. "DNR."
20. "USFWS, IDFG, BLM, U. S. Forest Service."
21. "Appropriate agency; USFWS, USFS, State Wildlife Agency, etc."
22. "USFWS, BLM, Colorado Division of Parks and Outdoor Recreation, USFS, National Park Service."
23. "State wildlife agency."
24. "Texas Parks & Wildlife."

25. “State Departments of Game and Fish, Fish and Wildlife Service, National Park Service.”
26. “USFWS/Federal.”
27. “California Department of Fish and Game, US Fish and Wildlife Service, Bureau of Land Management.”
28. “DNR.”
29. “Inquiries about species that are not federal trust responsibilities are referred to the state.”
30. “Indiana Department of Natural Resources.”
31. “USFWS, U. S. Forest Service, Dept. of Tourism.”
32. “As appropriate: state division of wildlife, National and state parks, BLM.”
33. “Arizona Game and Fish Department.”
34. “Utah Division of Wildlife Resources hosts about 50 different wildlife viewing events or festivals annually.”
35. “Kansas Department of Wildlife and Parks.”
36. “State.”
37. “Arkansas Game and Fish Commission.”
38. “U.S. Fish and Wildlife Service.”
39. “Idaho Fish and Game, U.S. Fish and Wildlife Service.”
40. “Arkansas Game & Fish.”
41. “State fish and wildlife orgs.”

NGO Referrals

1. “Natural History clubs, bird clubs, partners identified in agency-sponsored wildlife viewing guide.”
2. “Audubon Society of New Hampshire.”
3. “Nebraska Audubon, Internet.”
4. “Conservation organizations.”
5. “Utah Ornithological Society.”

6. "South Dakota Ornithologists' Union."
7. "Audubon, Iowa Ornithological Union."
8. "Various NGOs."
9. "Conservation organizations."
10. "Illinois Audubon Society."
11. "Arizona Sonora Desert Museum."
12. "We may refer them to a private entity (e.g., the Audobon Society)."
13. HawkWatch International, Central New Mexico Audubon Society."
14. "Audubon, The Nature Conservancy."
15. "Refer to various wildlife conservation groups (such as Hummingbird Associations, Audubon Society, etc.)."
16. "Local Audubon Society chapters."
17. "Audubon groups, Colorado Wildlife Federation, organized sportsmen's groups, Colorado Bird Observatory, Colorado Museum of Science and Nature, local community groups established for watchable wildlife purposes....particularly prairie grouse and sandhill cranes."
18. "Audubon, Bat conservation International, private outfitters."
19. "Albuquerque Biopark."
20. "Watchable Wildlife Inc."
21. "DNR."
22. "Audubon Society."
23. "Audubon Society, The Nature Conservancy."
24. "Nature conservancy and non- governmental wildlife refuges."
25. "Audobon Society, Oklahoma Department of Wildlife Conservation, The Wildlife Society, US Fish and Wildlife Service, Nature Society."
26. "Many."
27. "Local birding/butterfly clubs, Local herpetological societies, Local nature centers, VA Natural History and Living Museums, The Nature Conservancy."

General Curiosity

1. “We will provide the answer to the question if we have it.”
2. “Personal knowledge.”
3. “Directly provide information over the phone and/or in person.”
4. “Talk with the person by phone or email.”
5. “Refer to most appropriate source of information.”
6. “Most, if not all, inquirers are directed to the conservation database on our web site, where species specific information & distribution maps are available.”
7. “Refer to reference books in the office. Each county Extension office has a series of books published by the Arkansas Game and Fish Commission about wildlife management on private lands.”
8. “We have developed an online information system which is available through the Virginia Department of Game and Inland Fisheries’ website at www.dgif.state.va.us through “Wildlife”, “Wildlife Information and Mapping Services”, “Wildlife Information Online”. This system, the Virginia Fish and Wildlife Information Service (VAFWIS) contains information on over 2,300 of Virginia’s wildlife species. Information in the VAFWIS includes life history, food habits, environmental associations, distribution and location information. The VAFWIS is used by the general public, landowners, engineers, consulting firms, transportation and general planners and other state agencies to access information on the location and ecology of Virginia’s wildlife species. The VAFWIS is used by a wide range of users from school-aged children and teachers finding information for a homework assignment to our Department of Environmental Quality and the US Fish and Wildlife Service for permit reviews. It is a the most comprehensive and current source of information about Virginia’s wildlife.”

Governmental Referrals

1. “USFWS, other state conservation agencies as applicable (calls from Michigan refer to Michigan).”
2. “Oregon Department of Fish and Wildlife.”
3. “Idaho Department of Fish and Game.”
4. “State Fish and Wildlife Departments, U.S. Fish and Wildlife Service for certain migratory bird questions.”
5. “Massachusetts Division of Fisheries and Wildlife.”
6. “State and Federal agencies.”
7. “State wildlife department or U.S. Fish and Wildlife Service.”
8. “Indiana Department of Natural Resources, USDA-NRCS.”
9. “New Hampshire Fish and Game Department.”
10. “USDA-APHIS-Wildlife Services, Nebraska Game and Parks Commission, US Fish and Wildlife Service.”
11. “Arizona Game & Fish Department.”
12. “Maine Department of Inland Fisheries and Wildlife.”
13. “Michigan Department of Natural Resources, US Fish and Wildlife Service.”
14. “Any of the State Department of Natural Resource Agencies associated with a specific national forest, University Extension Services.”
15. “USFWS, Michigan Department of Natural Resources.”
16. “Arkansas Game and Fish Commission, U. S. Fish and Wildlife Service.”
17. “US Fish and Wildlife, Utah Division of Wildlife Resources, Bureau of Land Management, Forest Service.”
18. “Utah Division of Wildlife Resources, U.S. Fish and Wildlife Service.”
19. “North Carolina Museum of Natural Sciences, North Carolina State University or other.”
20. “State DNR, county conservation boards, NRCS, U.S. Fish and Wildlife Service.”
21. “State and federal agencies with knowledge on this subject.”

22. "South Carolina Department of Natural Resources, US Fish & Wildlife Service."
23. "Arkansas Game and Fish Commission; U.S. Fish and Wildlife Service."
24. "North Dakota Game & Fish Department, U.S. Fish & Wildlife Service."
25. "Arizona Game and Fish, U.S. Fish and Wildlife Service."
26. "We refer them to the State game agency."
27. "New Mexico Department of Game and Fish."
28. "Colorado Division of Wildlife."
29. "DNR when appropriate."
30. "USFWS, Idaho Department of Fish and Game."
31. "State Veterinarian."
32. "USFWS, USFS, Division of Parks and Outdoor Recreation (State), NPS, BLM."
33. "Depends on nature of the topic."
34. "North Carolina Wildlife Resources Commission, especially for game species."
35. "State Departments of Game and Fish, Fish and Wildlife Service."
36. "California Department of Fish and Game."
37. "DNR etc."
38. "Inquiries about species that are not federal trust responsibilities are referred to the state."
39. "It depends on the issue, but they could be referred to state Department of Natural Resources or animal control also U.S. Fish and Wildlife service."
40. "Michigan Department of Natural Resources - Wildlife Division."
41. "Indiana Department of Natural Resources."
42. "Florida Fish and Wildlife Conservation Commission."
43. "State division of wildlife."
44. "Oregon Dept. Fish and Wildlife."
45. "Arizona Game and Fish Department, U.S. Fish and Wildlife Service."
46. "NMFS, State, Forest Service, etc."

47. "South Carolina Department of Natural Resources."
48. "Arkansas Game and Fish Commission, University of Arkansas faculty and graduate students."
49. "PA Game Commission, Penn State Extension."
50. "USDA Wildlife Services (formerly Animal Damage Control)."
51. "If there are government agencies with expertise in the subject or animal we will also refer the requester to this person or agency. We will refer the requester to a specific professor at state colleges to answer the requester's questions."
52. "Virginia Department of Agriculture and Consumer Services, State Colleges and Universities, Virginia Department of Conservation and Recreation."
53. "Division of Natural Resources."
54. "Idaho Fish and Game, U.S. Fish and Wildlife Service."
55. "Fish & game, USFWS, universities, etc."
56. "Missouri Department of Conservation."
57. "Arkansas Game & Fish."
58. "Federal wildlife agencies, state wildlife agencies."
59. "State fish and wildlife agencies."
60. "Alaska Department of Fish and Game, National Marine Fisheries Service."

NGO Referrals

1. "Peregrine Fund."
2. "[refer to] www.enature.com and www.wildlifedamage.unl.edu."
3. "Audubon Society of New Hampshire, published books."
4. "U.S. Fish and Wildlife Service."
5. "Nebraska Audubon, Internet."
6. "Conservation organizations."
7. "National Wildlife Federation, Utah Ornithological Society."

8. “Bat Conservation International, Ducks Unlimited, Peregrine Fund, National Wild Turkey Federation, Iowa Natural Heritage Foundation, Audubon, Cornell Lab of Ornithology, and others.”
9. “National Wildlife Federation, Defenders of Wildlife, etc.”
10. “Conservation organizations.”
11. “Arizona Sonora Desert Museum.”
12. “We may refer them to a private entity (e.g., the Audubon Society).”
13. “Refer to various wildlife conservation groups (such as Hummingbird Associations, Audubon Society, etc.).”
14. “The variety of species related organizations such as Ducks Unlimited, and Rocky Mountain Elk Foundation.”
15. “Depends on nature of the topic.”
16. “Department of Natural Resources.”
17. “Depends on questions.”
18. “Local nature centers.”
19. “State agencies.”
20. “Many.”
21. “Local birding/butterfly clubs, Local herpetological societies, Local nature centers, VA Natural History and Living Museums.”
22. “Defenders of Wildlife, HSUS, etc.”
23. “Audubon Society.”

Injured, Ill and Orphaned Wildlife

1. “We explain that injured, sick or orphaned wildlife are part of the natural process. If the animals are state or federal T&E species we refer the calls to the appropriate agency (see above).”
2. “We will provide the answer to the question if we have it.”
3. “Talk with the person by phone or email.”

4. “We usually pick up birds, the State usually deals with moose, bears, other mammals.”
5. “We are currently developing web content to address this interest.”

Governmental Referrals

1. “Refer to University Wildlife Rehabilitation Center.”
2. “Oregon Department of Fish and Wildlife.”
3. “Idaho Dept of Fish and Game.”
4. “State Fish and Wildlife Agency for state managed game/non-game species.”
5. “State and Federal agencies.”
6. “Refer to animal control, refer to licensed wildlife rehabilitators.”
7. “Colorado Division of Wildlife.”
8. “Animals in Distress.”
9. “USDA-Wildlife Services.”
10. “New Hampshire Fish and Game Department.”
11. “U.S. Fish and Wildlife Service.”
12. “Utah Division of Wildlife Resources.”
13. “USDA-APHIS-Wildlife Services, Nebraska Game and Parks Commission, Lincoln-Lancaster County Animal Control.”
14. “Local wildlife rehabilitators.”
15. “Maine Dept. of Inland Fisheries and Wildlife, Warden Service or licensed wildlife rehabilitators listed by IF&W.”
16. “Michigan Department of Natural Resources, US Fish and Wildlife Service.”
17. “Any of the State Department of Natural Resource Agencies associated with a specific national forest, University Extension Services.”
18. “Michigan Department of Natural Resources.”
19. “Arkansas Game and Fish Commission, U. S. Fish and Wildlife Service, Little Rock Zoo.”
20. “Utah Division of Wildlife Resources.”

21. "State wildlife agency."
22. "Utah Division of Wildlife Resources."
23. "Wildlife Care Clinic at the Iowa State University Vet College"
24. "South Carolina Department of Natural Resources."
25. "Arkansas Game and Fish Commission, U.S. Fish and Wildlife Service, Little Rock Zoo."
26. "North Dakota Game & Fish Department, U.S. Fish & Wildlife Service."
27. "Arizona Game and Fish, U.S. Fish and Wildlife Service."
28. "We refer them to the State game agency."
29. "New Mexico Department of Game and Fish."
30. "Colorado Division of Wildlife."
31. "Department of Health."
32. "USFWS, IDFG, local Humane Society."
33. "University Research Animal Care personnel."
34. "Local wildlife rehabilitation hospital."
35. "Refer to North Carolina Wildlife Resource Commission's web page with rehabilitators for different counties in the state."
36. "State departments of natural resources."
37. "State Departments of Game and Fish, Fish and Wildlife Service."
38. "California Department of Fish and Game."
39. "USFWS."
40. "Inquiries about species that are not federal trust responsibilities are referred to the state."
41. "U.S. Fish and Wildlife Service."
42. "Michigan Department of Natural Resources - Wildlife Division."
43. "State division of wildlife."
44. "Arizona Game and Fish Department."
45. "Licensed wildlife rehabilitators, state or federal agency."

46. “Oklahoma Department of Wildlife Conservation if there is a question about the legality of maintaining a species in captivity.”
47. “Kansas Department of Wildlife and Parks.”
48. “Arkansas Game and Fish Commission.”
49. “We will refer the public to the Fish and Wildlife Service – Law Enforcement or Virginia Department of Game and Inland Fisheries since these agencies permit, regulate, and maintain lists of rehabilitators. This way the public can locate the closest or most appropriate rehabilitator.”
50. “Municipal Animal Control departments.”
51. “Idaho Fish and Game, U.S. Fish and Wildlife Service.”
52. “Wildlife rehab centers, etc.”
53. “Some questions are referred to Georgia Wildlife Resources Division.”
54. “Arkansas Game and Fish Commission and US Fish and Wildlife Service depending on species and jurisdiction.”
55. “City/County agencies, wildlife state agencies, wildlife federal agencies.”
56. “State fish & wildlife agencies.”
57. “Alaska Department of Fish and Game.”

NGO Referrals

1. “Licensed wildlife rehabilitators are listed on our website.”
2. “Refer to list of permitted wildlife rehabilitators.”
3. “Chintimini Wildlife Rehab Center.”
4. “Refer to Wildlife Rehabilitators permitted by the agency.”
5. “Rehabilitators that are licensed/authorized to deal with specific types of species ranging from state-managed game/non-game species to federally protected, usually migratory bird, species.”
6. “State licensed rehabilitators.”
7. “Wildlife Rehabilitators.”
8. “Licensed animal rehabber.”

9. "Audubon Society of New Hampshire."
10. "Licensed rehabilitators (under permit from our agency)."
11. "Raptor Recovery, Wildlife Rescue."
12. "Permitted volunteers."
13. "Wildlife Care Foundation."
14. "Wildlife rehabilitators."
15. "Wildlife rehabilitators."
16. "Wildlife rehabilitators in the area."
17. "Refer to state certified and monitored wildlife rehabilitators."
18. "Hawkwatch International, Tracy Aviary (privately funded aviary), individual rehabilitators."
19. "Refer to permitted wildlife rehabilitators."
20. "Licensed wildlife rehabilitators."
21. "Referred to one of the wildlife rehabilitators that we license."
22. "Wildlife Rehabilitators."
23. "Iowa Rehabilitators Association; licensed rehabbers in their area."
24. "Wildlife Rehabilitators in the area; appropriate local experts."
25. "Licensed wildlife rehabilitators."
26. "Various wildlife rehabilitators."
27. "We may refer them to a private entity (e.g., the Audobon Society)."
28. "Raptor rehab centers, Wildlife Rescue Center."
29. "Rehabilitation groups, individual rehabbers."
30. "Licensed wildlife rehabilitators."
31. "Licensed rehabilitation centers."
32. "Local nature center with rehab facilities--Lakeside Nature Center."
33. "Local wildlife rehabilitators."
34. "Wildlife rehabilitators."
35. "List of rehab facilities in the state."
36. "Local rehabilitator."

37. "Permitted wildlife rehabilitators."
38. "Refer to a local veterinarian."
39. "Refer to rehab centers."
40. "Wildlife rehabilitation centers."
41. "The Wildlife Center in Espanola and the Wildlife Rescue in Albuquerque."
42. "Sometimes refer to a local (permitted) wildlife rehabilitator."
43. "Local animal rescue groups."
44. "Rehab institute/local vet."
45. "May be referred to licensed wildlife rehabilitators in the local community."
46. "Universities, ex. Purdue University, local humane society or animal rescue operations."
47. "Animal rehabilitators."
48. "Florida Wildlife Care (local rehab organization)."
49. "Nature centers licensed to take injured or orphaned animals."
50. "Local wildlife rehabilitation center."
51. "Rehabilitators."
52. "Refer to private Wildlife Rehabilitators who are operating under authority of Utah Division of Wildlife Resources' Certificate of Registration."
53. "There are over 200 licensed care and rehab facilities in California."
54. "Usually refer them to one of the wildlife rehabilitators in their area."
55. "Bird TLC."
56. "Private and volunteer wildlife rehabilitators."
57. "Arkansas Association of Wildlife Rehabilitators."
58. "State licensed private rehabilitators."
59. "Wildlife rehabbers."
60. "Two raptor rehabilitation centers in state, local veterinarians."
61. There are a few recognized professional wildlife rehabilitators with veterinarians on staff or call that we will refer the public too for treatment of

sick or injured wildlife. We discourage the public from picking up “orphaned” wildlife.”

62. “VA Humane Society, SPCA, Wildlife Center of Virginia, Permitted Wildlife Rehabilitators – private individuals, Local veterinarians who treat injured wildlife, Local Nature Centers, Local birding/butterfly clubs, Local herpetological societies.”
63. “Local wildlife rehabilitator.”
64. “Rehabilitation organizations.”
65. “Audubon Society.”

Other Questions

1. “Wildlife identification, Wildlife interaction with domestic wildlife.”
2. “Where can I go to hunt (species)?”
3. “Where to donate dead animals for scientific purposes.”
4. “Hunting related questions (i.e. where are game animals, hunter success etc...).”
5. “Relationship between livestock grazing (sometimes other activities) and the habitats quality or use by wildlife, particularly large ruminant species and sage grouse.”
6. “Hunting, fishing, trapping inquiries, scientific collection, possession as pets, rare species, biodiversity and regulatory (environmental review) questions relating to wetlands and endangered species statutes. There is one aspect which was not included that we feel needs to be added to the survey. Please include this in our agency response. Question 9 asks: Does your agency receive requests for wildlife-related information other than the types discussed above? Our answer is Yes. Many people want to know about the legality of owning wildlife as pets in Massachusetts, whether native or "exotic" wildlife. We have strict regulations and issue permits possession by people involved in scientific or educational settings not for "pets". We will be posting this information on

our website in February 2003. For purposes of the ranking on Question 10-- We receive a high volume of requests on this issue and spend more time on it than inquiries regarding attracting wildlife and wildlife viewing opportunities as ranked [above]. Our state has very strict rules on this whole situation. Other states are beginning to see this as a bigger issue and are having difficulties figuring out if they or another agency (commonly the agriculture department) have jurisdiction, etc.”

7. “Where and how to hunt and fish, and related topics.”
8. “Land conservation strategies for protecting habitat and biodiversity, techniques for mitigating road and highway impacts on wildlife, regulatory protection for wildlife and rare/endangered species, wildlife habitat evaluation, general identification (especially snakes).”
9. “Exotics.”
10. “Anything wildlife related—hunting seasons, sightings, etc.”
11. “Land use and habitat.”
12. “Purchase of upland game birds, wildlife regulations.”
13. “Wildlife habitat management, community land conservation – how to complete a natural resources inventory (or more specifically a wildlife habitat inventory) using Geographic Information Systems to prioritize land protection.”
14. “Habitat management, privatization, game farming, lease operations, wildlife diseases.”
15. “We are responsible for all wildlife related issues.”
16. “Requests on enhancing and managing habitat for many species, in an integrated way, not necessarily species specific, and including preventing conflicts with wildlife as a result of habitat enhancement.”
17. “Importing and exporting of wildlife.”
18. “The full range, including calls for local dog catchers. [We are] service oriented, while many entities are not. We are a catch all.”

19. “We regularly get requests from agricultural producers and groups asking for professional opinions regarding the impacts related to endangered species restoration/ introductions. This isn’t wildlife/human conflicts in the strict sense, but rather relates to their fears related to ESA species.”
20. “During hunting season we are asked where the animals are and where is a good place to hunt.”
21. “Hunting opportunities.”
22. “Information regarding possession requirements (permits), info on hunting, fishing for various species, info on how to protect wildlife from impact of development projects.”
23. “Various fish/fishing related questions, hunting questions, hunting/fishing license, vessel registration and boating questions.”
24. “Endangered species... impact of endangered species on development.”
25. “Everything related to hunting, trapping and fishing regulations.”
26. “Wildlife/cattle grazing conflicts, many requests for information concerning how our management (grazing and many other activities) affects wildlife as contained in biological assessments and evaluations, NEPA documents.”
27. “Distribution of species, federal and state regulations pertaining to wildlife, how to have dead animals removed, what permits are required to handle, transport or own animals; you name it ... we likely have had a call about it.”
28. “Presentations to schools, conservation groups and requests for opportunities to work on improvement projects with partners.”
29. “Hunting/fishing, wildlife law.”
30. “Special events organized by ourselves (such as Weekend for Wildlife-fundraiser for Nongame Section) and requests for participation in special events (such as hunting or fishing expos), media requests.”
31. “Coping with ESA regulations, legalities of handling wolf and grizzly depredations, dealing with environmental extremists, developing statewide wildlife management programs.”

32. "Hunting regulations, laws, and rules; research, animal welfare issues, animal rights issues."
33. "Lots of queries related to hunting and trapping regulations and opportunities."
34. "Abundant.....hunting, fishing, camping, vehicle use."
35. "Anything and everything that people want to know about wildlife ends up here."
36. "Frequently get questions about observed animal behavior (ex. bear followed me to my tree stand. Should I be worried? I saw one turkey with its head down the throat of another turkey. What was going on? etc., etc.)"
37. "Wildlife policy, game & fish laws & regulations, endangered species inquiries, exotic/native interactions, wildlife-habitat interactions, effects of supplemental feeding, wildlife tax valuation, wildlife management planning. "
38. "Hunting season questions."
39. "Threatened and endangered species; information on hunting and fishing and on fishing conditions; info wildlife ranching and parks."
40. "Photographing wildlife."
41. "Hunting and fishing regulations, where to go, and how-to information."
42. "Agriculture- wildlife conflicts (ex. beavers flooding timber or row crops. etc.), natural resource protection (ex. hogs eating endangered sea turtle eggs etc.)"
43. "There is not a wildlife-related question I haven't received in 25 years as extension specialist."
44. "Managing farm and forest for wildlife, endangered and rare species, wetlands wildlife, income opportunities from wildlife."
45. "Wildlife management; prosecution for violations of wildlife laws; recovery of endangered species; federal laws regarding wildlife."
46. "I know your study is focused on urban issues, but WS also does a lot of work to protect agriculture from wildlife damage and to protect and preserve our nation's natural resources, such as threatened and endangered species."
47. "Hunting and laws and regulations about wildlife management."

48. "Requests for lists of native wildlife found locally, and how to minimize attraction of bears when camping."
49. "Migration patterns and movements that would relate to hunting and fishing."
50. "Where to hunt and fish."
51. "How to do it & where to do it relative to hunting, fishing & trapping; regulations relative to harvest, collection, importation or transportation of protected wildlife and exotic species."
52. "These questions relate to recreational leases, most generally hunting leases."
53. Hunting/fishing licenses, hunting seasons and bag limits. Import/export of wildlife parts and products. Obtaining eagle feathers for Native American usage."
54. "Identification of something someone has seen. Most famous example "Big Bird," a Stellar's sea eagle."
55. "Every issue regarding management and use of wildlife."
56. "Very rarely, sometimes get requests for assistance with funding, e.g., elephant farm, "back yard" research study."
57. "Requests to speak to schools, civic groups, sportsmen's groups, etc."
58. "The public occasionally requests information about hunting seasons, bag limits, and requirements to hunt a specific species."
59. "Trout Stream locations and stocking information, Information about Wildlife Management Areas, Regulations regarding hunting and fishing, Regulations regarding capture, handling, displaying, raising, breeding and transport of wildlife, Regulations regarding threatened and endangered species, Locations of species for project review (EIS, NEPA, etc), GIS coverages for use within agency and by other agencies and organizations, Where to hunt and fish, Wildlife collection permitting information, Too many topics to list."
60. "Where to hunt."
61. "Requests for wildlife/timber management assistance, habitat improvement (food plots, thinning, farming, etc.). Also requests for identification of wildlife

– usually submitted on-line as digital photograph or sent by mail to wildlife extension specialist.”

62. “Hunting and fishing, bird watching.”

VITA

Kieran Lindsey received a B.Sc. in Wildlife and Fisheries Sciences from Texas A&M University in 1997. Kieran accepted a position as Executive Director for a wildlife rehabilitation and education center in Houston, Texas, and became interested in urban wildlife and human dimensions issues as a result. In 1999 she started Natural Assets Consulting to focus on the development of educational materials to address these issues. Current and former clients include universities, federal conservation agencies, and non-governmental organizations. Ms. Lindsey may be contacted through Natural Assets Consulting, P.O. Box 1443, Cedar Crest, New Mexico 87008-1443 (Tel. 505-286-3699, Email: urbanwildlife@aol.com).