

ICF has initiated an ambitious program to propagate these cranes in captivity, so that they ultimately may be restocked in the wild. Its plan: reintroduce the Siberian crane as a winter migrant to Iran. Today, Iran has a comprehensive conservation program with the ambitious goal of reestablishing all species of birds and mammals once native to the country. To accomplish this, the Iranians have established many refuges to protect remaining wildlife. Thus, in 1975, Iran's Department of the Environment agreed to adopt the Foundation's plan.

ICF believes that if the Siberian cranes can be "tricked" into migrating to Iran for the winter, the bird and its habitat will be adequately protected. The plan is to place eggs of the Siberian crane in the nests of the common crane, a species which also nests in Siberia. The common cranes would hatch these foster chicks and lead them to their wintering grounds in Iran. The Foundation's involvement is essential to the success of this operation, because common cranes already have hatched their chicks by the time Siberians are laying eggs. By artificially altering the light (day-night) schedule of the Siberian cranes, ICF can induce them to lay their eggs at the same time that wild common cranes are nesting. Then, these eggs would be flown to Siberia for substitution.

Retrieving eggs from wild Siberian cranes brought its share of problems. The act was the culmination of over two years of international negotiations. Importing the eggs of this rare bird involved extensive application and permit approval under the Endangered Species Act. Dr. Vladimir Flint, a Soviet crane expert, was able to find only five unhatched Siberian eggs on the 1977 expedition. These were relayed to an ICF agent in Moscow, and immediately sent to a special hatchery at the University of Wisconsin in Madison. Of the five eggs, two survived. Ron Sauey, a co-founder of ICF, named one Vladimir after Flint and the other Kita, a Russian name for the crane.

In 1978, the operation was repeated. Four out of seven eggs hatched successfully. In 1979, the Russians hatched four chicks in Moscow which they named after ICF members.

With six young cranes and two adult ones obtained from zoos, the Foundation has a captive population of breeders which will be artificially inseminated to produce eggs. Within four years, the offspring of these rare cranes could embark on a 10,000-mile journey back to Siberia—the most promising, and perhaps last chance for their continued existence.—Lynn Giroux, *National Wildlife Federation*

American Attitudes about Wildlife

What do Americans really think about saving endangered species, hunting, and other issues that affect wildlife? The first

report on a comprehensive study of American attitudes toward wildlife has revealed some interesting answers.

The report analyzes initial findings of a three-year study by Stephen Kellert of the Yale School of Forestry and Environmental Studies. Kellert conducted the study under a research grant from the Interior Department's U.S. Fish and Wildlife Service. The study is based largely on a questionnaire administered nationally in interviews with 3,107 people during the fall of 1978. The questionnaire dealt with specific issues, such as the tuna/porpoise controversy, as well as with general issues such as attitudes toward hunting.

Among the study's findings: Of eight selected wildlife issues, the public knew the most about "killing baby seals for fur" (43 percent knowledgeable) and "effects of pesticides such as DDT on birds" (42 percent knowledgeable). The least recognized issue was "use of steel shot versus lead shot by waterfowl hunters" (14 percent knowledgeable). Only 34 percent indicated that they had some knowledge about the Endangered Species Act, and only 17 percent were knowledgeable about the much publicized snail darter/Tellico Dam controversy.

On a variety of questions, a majority favored protecting wildlife even at the expense of jobs, housing, and development projects. Fifty-five percent opposed the principle of building an industrial plant on a marsh needed by a rare bird species even if the plant would help solve an unemployment problem. Fifty-seven percent disapproved of building houses on marshes used by ducks and other nonendangered wildlife. Seventy-six percent thought cutting trees for lumber and paper should be done in ways that help wildlife even if it resulted in higher lumber prices.

The public's support for endangered species protection when it would increase costs for an energy project depended on the animal involved and the nature of the project. Americans overwhelmingly supported protecting the bald eagle, eastern mountain lion, American crocodile, and an endangered butterfly. They opposed protecting an endangered plant, snake, or spider if it increased costs for an energy project. On a snail darter-type question, most people opposed blocking a hypothetical water project designed for essential uses such as drinking water, hydroelectric power, or irrigation to protect an unknown fish species. But nearly 60 percent opposed construction of a dam for "nonessential" purposes such as making a recreational lake if it would endanger a fish. In general, support for protecting endangered species depended on such factors as the animal's attractiveness, close biological relationship to humans, reason for endangerment, economic value, and importance in American history.

In a surprising finding, 77 percent approved killing whales for a useful product if the species hunted was not endangered. But on another intelligent sea mammal, the porpoise, 69 percent said they would rather pay a higher price for tuna fish than see the tuna industry continue killing porpoises in their nets. The researchers said the apparently contradictory responses may be related to the tradition of whaling in the United States.

On the controversial issue of animal damage control, the public was not altogether opposed to controlling coyotes that prey on livestock, but strongly preferred nonlethal control methods or hunting only individual coyotes known to have killed livestock. Most were strongly opposed to poisoning, and were also opposed to shooting and trapping as many coyotes as possible.

Attitudes toward hunting depended on the purpose of the hunt. The public overwhelmingly supported traditional native American subsistence hunting and also supported hunting exclusively for meat, regardless of who hunted. Sixty-four percent approved of hunting for recreation if the meat was used, but about 60 percent opposed hunting just for sport or recreation. Over 80 percent opposed hunting exclusively for a trophy.

Although some observers have linked anti-hunting sentiment with an anti-wildlife management attitude, results of the study did not support this. Sixty percent of members of humane organizations and 61 percent of those opposed to sport hunting supported government management programs to "control" populations of deer and ducks.

When asked about possible sources of funding for wildlife management programs, the public indicated stronger support for taxes on "consumptive" activities, such as buying fur, than on "nonconsumptive" uses such as birdwatching. Eighty-two percent favored a sales tax on fur clothing from wild animals; 75 percent favored entrance fees to wildlife refuges and other public wildlife areas; and 71 percent favored a sales tax on off-road vehicles. Fifty-seven percent favored increasing the amount of general tax revenues for wildlife management; the same number favored sales taxes on backpacking and camping equipment; and 54 percent favored taxes on birdwatching supplies and equipment.

Most Americans wanted to preserve wildlife values on public lands. Two thirds—including 77 percent of Alaskans—were opposed to hypothetical oil development in Yellowstone National Park if it would harm the park's wildlife. Fifty-six percent thought national forest land should be set aside to protect grizzly bears even if it resulted in some loss of jobs and building materials.

Attitudes toward many issues varied 23

considerably according to the respondent's age, sex, educational level, place of residence, and other factors. For example, support for protecting endangered species was strongest among the highly educated, people under 35, residents of areas with more than one million population, people with higher incomes, professionals, and residents of the Pacific Coast and Alaska. Older persons, those with less than an eighth grade education, farmers, rural residents, and Southerners were more likely to oppose protecting endangered species. On the animal damage control issue, residents of the South—not the Rocky Mountain states, where predator damage is higher—expressed greatest support for shooting or trapping as many coyotes as possible. Residents of Pacific Coast states indicated the most protectionist sentiment.

Of all regions, Alaskans were the most knowledgeable about and supportive of wildlife. Their support was based on understanding of wildlife and ecology, rather than on emotional or sentimental notions about animals. As a group, Alaskans ranked third in level of knowledge, following only Ph.D.s and those with other graduate education. They also expressed greater willingness to forego personal benefits such as recreation and jobs in order to preserve wildlife habitat and endangered species.

Rabid Bats in Texas Classrooms

Bats were not found in the belfry during a recent fly-in at the University of Texas, but they were to be found in the communications building. The recent occupation by hundreds of the animals was not taken lightly, for roughly one-third of the 100-150 captured each week were found to be rabid. During the day the animals were customarily quiet; but just one solitary bat flying about a crowded classroom was enough to create a semblance of havoc.

School administrators responded to the situation by calling in state park and wildlife experts on bats; posted instructions on how to pick up a rabid bat without risking rabies infection; advised students and faculty to clear classrooms upon discovery of a bat; and to duck when bats swooped too close for comfort. There was no report of anyone contacting rabies or being bitten during the bats' takeover of the building.

Wild Pets and Rabies

In 1977 an Oklahoma shop foreman took home a baby skunk that two of his workers had caught in the woods. Since it was

skunk with an eyedropper and often put her fingers into its mouth to keep it from choking. In moments of play, the couple allowed the animal to crawl over their four-month-old son. When word got out that a skunk was in the neighborhood, six children came over to play with it. The skunk crawled over all of them and lightly bit one girl on the hand.

Days later the skunk died. The shop foreman sensed something wrong and had it checked for rabies. The result was positive—the skunk had the disease.

In an unrelated incident, a two-year-old, descended, vaccinated pet skunk bit a man and exposed two children before it was killed and taken to a lab. The animal was also positive for rabies.

As a result of these exposures to skunks, the 15 persons involved had to undergo a total of 360 injections at a cost of \$7,500, not to mention the time lost and discomfort involved. Happily all survived; but was the pleasure of owning a wild pet worth it?

Wild animals are just that—*wild*. They are not domesticated and they do not make good pets in the same sense that dogs and cats do. Outwardly, the young are as cute and fetching as any baby animal. Inwardly, though, wild pets are still untamed, and have the same wild instincts, urges, and shortcomings as their free relatives in the field.

They cause a profusion of problems depending on what kind you happen to have. Previously tame deer may attack without warning as they mature. Monkeys will bite and have even killed small children. Skunks like to nip fingers. Raccoons get into everything unless you chain them. Wild pets are unpredictable, sometimes biting and attacking for no apparent reason. Even if you can live with their uncertain personalities, the threat of rabies, especially with foxes, skunks, and raccoons, overshadows all other concerns.

A skunk owner might argue indignantly, "If I take my pet to a veterinarian for all the proper shots, why should rabies even be a consideration?" The answer to this question is as simple as it is surprising—*There is no licensed rabies vaccine for wildlife!* What protects dogs and cats does not necessarily protect wild animals. Vaccines that immunize domestic animals may even prolong or mask existing rabies infections in wild animals. In fact, live virus rabies vaccines, developed and proven to protect domestic animals for as long as three years, have actually caused rabies in wild pets—for this reason, such vaccines must never be used in wildlife.

The progress of rabies and its clinical signs in domestic animals is fairly predictable. Should a dog encounter a rabid fox, the virus in the fox's saliva will enter the dog's body at the location of any bite wound. The virus multiplies, penetrates a nerve cell, and slowly moves up the

nerve at no more than 3mm per hour to the spinal cord and then to the brain. From the brain, the virus moves to the salivary glands. At this point the dog becomes dangerous—if he bites now he can transmit the disease by his infected saliva. Normal time for the virus to move from the bite wound to the salivary glands is 15-25 days after exposure. Indications of rabies in the dog include one or more of the following behavioral and physical changes: restlessness, aggressiveness, lethargy, change in vocal quality, persistent howling, paralyzed lower jaw, convulsions, profuse ropy saliva, and paralysis. Dogs usually die in ten days or less after the virus reaches the salivary glands. That is the reason for watching dogs closely after they bite someone. If the dog shows no symptoms and survives 10 days after the biting incident, it does not have the disease. The 10-day waiting period is very reliable in dogs . . . but not in wildlife.

Rabies in wild animals is considerably less predictable. An infected animal can undergo a variable incubation period where the virus remains long dormant in the wound. Furthermore, when the animal does become infective, it may not show any symptoms of the disease while still releasing great amounts of virus. No 10-day waiting period here. By the time the animal becomes ill, the person who has been bitten could be beyond help.

Wildlife may show some or none of the signs of rabies until the final stages. In general, a wild animal which shows aggressiveness or an unusual lack of fear is suspect. Raccoons in particular are dangerous because they are less likely to display furious behavior—but this is not a consistent finding either. The only constant among the signs of rabies are the inconsistencies. As in domestic animals and man, death is the usual end result of the disease in all wildlife species.

Rabies is a worldwide infection primarily affecting dogs, cats, and other carnivores, but man and all warm-blooded animals are susceptible. Canada's three main reservoirs of rabies are foxes, skunks, and bats. In Mexico, where pet vaccination requirements and leash laws are lax or nonexistent, most of the reported rabies cases occur in dogs, cattle, and cats. From Mexico through Uruguay, vampire bats comprise a huge reservoir of rabies. They infect and kill from 0.5-1 million cattle a year at a cost to ranchers of \$250 million annually.

Most cases of rabies in man and domestic animals in the United States today originate from contact with an infected wildlife host—mostly skunks, bats, raccoons, and foxes. Fox rabies was once a serious problem in this country, but fox hunting and trapping, as well as habitat reduction, have probably contributed to the appreciable reduction of fox rabies cases. Rabies seems to be more associated with particular species in cer-



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