Wildlife managers increasingly face this decision: whether to slaughter one species in order to save another

WEEDING THE GARDEN

BY ANDREW NEAL COHEN

FOUR MEN ADVANCED IN A RAGGED LINE ACROSS Green Island, a low, treeless bit of windswept land emerging from the Gulf of Maine. Eyes to the ground, the men called out to a fifth who trailed behind them, taking notes. Gulls floated lazily just overhead, while waves of sibilant chatter rose from a raft of eider ducks sheltered in the lee of the island, waiting for the men to depart. The rocks and grassy hummocks were thick with nests, and the searchers stepped gingerly.

"Eider nest. Eider nest."

"Yup."

"Gull nest."

"Yup."

"Eider nest."

"Gull nest."

"Yup."

"Eider nest. Eider flush."

A female eider leaped into the air and shot low over a tangled ridge to join the waiting raft. Four olive-drab eggs snuggled in a bowl of down that she had plucked from her own breast. Passing these nests, the men plucked at the down themselves in a token gesture at covering the unprotected eggs.

"Two eider nests."

"Gull nest."

"Gull nest."

The gull nests also held eggs—the larger eggs of great black-backed gulls and the slightly smaller eggs of herring gulls, both splotched with brown. Into each gull nest surgical-gloved hands deposited two or three "baits"—or little sandwiches made of margarine spread between cubes of bread.

"One eider nest."

"Gull nest. Wait—make that two gull nests."

Mixed into the margarine was a powdery white substance that Thomas Goettel, the U.S. Fish and Wildlife Service biologist in charge of the operation, had carefully measured out from a canister the day before. The label on the canister read RESTRICTED USE PESTICIDE. 1339 GULL TOXICANT 98% CONCENTRATE. DANGER—POISON. The label went on to describe human-health hazards, proper methods of application, and the toxicant's effect on gulls, causing death from kidney failure within twenty-four to forty-eight hours. It was Goettel's hope that the gulls flying overhead would return to their nests, eat the poisoned bait, and quietly keel over and die.

"You know, I didn't join Fish and Wildlife to kill gulls," Goettel says. He just wanted to save terns.

Striking Back

HERRING GULLS AND GREAT BLACK-BACKED gulls are notorious predators of the eggs and young of terns and other seabirds, and they easily outcompete the smaller and less aggressive terns for island nesting sites. Petit Manan Island, just half a mile south of Green Island and connected to it by a cobble beach at low tide, was historically one of the most important tern colonies in Maine. Petit Manan's flat terrain and low vegetation provided abundant nesting sites for terns, and the island's lighthouse keepers, perennially at war with the pestiferous gulls, killed any that tried to nest there. But when the Coast Guard automated Petit Manan Light, in 1972, and the last lighthouse keeper departed, the gulls took over and chased out the terns. Within a decade the Petit Manan tern colony had been wiped out.

In 1984 the Fish and Wildlife Service struck back. That spring Goettel

and his colleagues poisoned the Petit Manan gulls with Toxicant 1339, and in two weeks several hundred terns were claiming nesting sites on the island. More terns arrived in the following years, and Petit Manan is now once again one of Maine's largest tern colonies, with three species of nesting terns—common terns, arctic terns, and the endangered roseate terns—along with hundreds of nesting guillemots and thirteen nesting pairs of rare Atlantic puffins. It is in order to protect these birds that Tom Goettel routinely poisons the gulls on Green Island.

ED FOXES, HAWKS, AND OTHER PREDATORS HAVE BEEN KILLED TO PROTECT THE EGGS AND CHICKS OF ENDANGERED LEAST TERNS AND CLAPPER RAILS. COYOTES HAVE BEEN GUNNED DOWN FROM HELICOPTERS.

The use of Toxicant 1339 to kill gulls in New England was promoted by the National Audubon Society, which in 1971 asked Fish and Wildlife to clear the gulls off Matinicus Rock, on the coast of Maine, where they had been preying on a colony of Atlantic puffins. Since then gulls have been killed on several other islands in Maine and Massachusetts to allow for the recovery of puffin and tern colonies.

Ironically, in the past wildlife enthusiasts worked to protect gulls. In the late nineteenth century, after egg gatherers and plume hunters had nearly wiped out New England's gulls, local Audubon societies contributed money to hire wardens to guard the few colonies that remained. Despite these efforts, by the turn of the century only about 8,000 nesting pairs of herring gulls were left, confined to the outer islands of Maine. But with the passage of laws that banned seabird hunting and egg collecting, and that established seabird refuges, and with abundant new sources of food from landfills, sewage outfalls, and the discarded wastes of an expanding fishing industry, gull populations exploded. Gulls extended their nesting range down the Maine coast and into New Hampshire and Massachusetts by 1920, to New Jersey and Maryland by 1950, and to North Carolina by 1960. Current estimates place the nesting population at 150,000 pairs, and the total population at more than a million birds.

As their numbers soared, gulls increasingly became a nuisance. Flocks at airports posed a danger to planes on landing and takeoff, at reservoirs they were suspected of contaminating water supplies, and at garbage dumps and sewage ponds they were considered vermin—rats with wings. But most attempts to reduce their numbers have been dismal failures. From 1940 to 1953 the largest attempt ever made to control gulls began in Maine. Teams of workers sprayed nearly a million eggs with a mixture of oil and formaldehyde, which suffocated the developing embryos but preserved the eggs so that the parent gulls continued incubating them rather than laying new ones. At best, however, this effort only delayed the gulls' increase, and some researchers, noting a contemporaneous surge in the Massachusetts gull population, believe that the main effect was to encourage the gulls to spread southward.

Then, in the 1960s, William Drury, the research director for the Massachusetts Audubon Society, began a series of studies on methods of lethal gull control. He and his co-workers tore apart nests, broke eggs, harassed and shot gulls, introduced predators into gull colonies, and administered chemical sterilizers and poisons. Drury showed that although these methods would not reduce the overall gull population, under favorable conditions they could be used to remove some or all of the gulls from specific sites. He concluded that the most efficient and humane approach would be poisoning with Toxicant 1339, which was originally developed to kill starlings. Over the past two decades gull colonies on several islands have been treated with 1339 in order to allow other, rarer seabirds to flourish—an action that Drury (who died last spring) likened to "weeding a garden."

A Plague of Tree Snakes

IN RECENT YEARS WILDLIFE "GARDENERS" HAVE been hacking at an increasing number of weeds. In California red foxes, hawks, and other predators have been killed to protect the eggs and chicks of endangered least terns and clapper rails. Coyotes that kill San Joaquin kit foxes have been gunned down from helicopters. In Alaska the Fish and Wildlife Service has trapped and poisoned arctic foxes that prey on Aleutian Canada geese. Coyotes have been trapped and shot to protect whooping cranes in Idaho and greater sandhill cranes in Oregon. Ravens have been poisoned and shot to protect greater sandhill cranes and California desert tortoises. Cowbirds threaten many songbird populations through nest parasitism—removing songbird eggs from nests and laying their own eggs in place, which the unsuspecting songbirds then raise—and tens of thousands of cowbirds have been exterminated to protect endangered birds in California, Michigan, Oklahoma, Puerto Rico, and Texas. In Washington's Olympic National Park, rangers have proposed shooting hundreds of mountain goats whose disturbance of the soil threatens several rare plants that are unique to the Olympic Peninsula. In other places raccoons, skunks, opossums, ground squirrels, mountain lions, badgers, pigeons, meadowlarks, crows, shrikes, owls, northern harriers, and kestrels have been killed to prevent them from harming rare species.

When wildlife managers discuss these programs, certain themes recur. Often the population of a species was initially reduced by some direct human activity—overhunting or excessive collecting, destruction or degradation of critical habitat—and the current predator merely threatens to deliver the final blow. "This is the kind of mess we get into when we push animals to the brink of extinction," says Ronald Schlorff, an endangered-wildlife specialist with the California Department of Fish and Game. "Predator control is a necessary human intervention in a system that's out of balance. Predation is a normal part of the natural scene, but it's been concentrated, accentuated, and exacerbated by human activities."

Chief among the activities leading to a predatory imbalance are intentional or accidental introductions of predators to regions where they devastate native species that have few defenses against them. In Alaska, for example, eighteenth- and nineteenth-century fur trappers stocked hundreds of islands with arctic foxes and red foxes, which ravaged the many species of ground-nesting and burrow-nesting seabirds that had migrated to the isolated islands in order to breed in safety. Similarly, midwestern red foxes that were introduced to the interior valleys of California by hunters and fur farmers have spread to the coast, where they threaten endangered clapper rails and least terns. In other cases changes that human beings have made in the landscape, such as creating landfills, chopping up extensive forests into smaller wooded areas, and grazing livestock, have enabled a harmful species to expand its population and range dramatically. "What we're seeing is a general phenomenon of what we call 'garbage' animals," says Dave Wilcove, an ecologist with the Environmental Defense Fund, referring to the spread of gulls, ravens, raccoons, foxes, and coyotes. "We've made the world very nice for scavenging omnivores."

Whatever the ultimate causes, wildlife managers charged with protecting certain rare species believe that the imminent risk of extinction from predation is real. Events on the island of Guam provide a chilling example. The brown tree snake, a native of New Guinea and Australia, was accidentally brought to the island by cargo ships in the 1950s. With no natural predators and few competitors, the mildly venomous snake flourished, eating its way through the island's unique avifauna. "The brown tree snake has virtually wiped out the native forest birds of Guam," according to a Fish and Wildlife Service report. "Nine species of birds, some found nowhere else, have disappeared from this island, and several others persist in precariously low numbers close to extinction." Biologists managed to save and successfully breed one of these birds—the Guam rail—in captivity but are reluctant to return it to the snake-infested island, where it would have little chance of survival.

As far as predatory wildlife goes, the Department of Agriculture's Animal Damage Control unit holds the nation's principal license to kill. ADC's 1931 enabling act instructed it "to conduct campaigns for the destruction or control" of a long and nonexclusive list of predators and pests that farmers and ranchers found bothersome. Over the years ADC has pursued this mission with a single-minded zeal that, not surprisingly, has provoked unrelenting hostility from wildlife organizations. Today, however, ADC's savvier "gopher chokers" know that using their skills to protect endangered species is a way of gaining credibility with their environmental adversaries.

Peter Butchko, an ADC district supervisor, estimates that his former southern California ADC division, which just a few years ago concentrated on eradicating sheep-eating coyotes and cleansing the suburbs of skunks and raccoons, now spends at least a third of its time eliminating the predators of endangered prey. In a speech at the Fourteenth Annual Vertebrate Pest Conference, Butchko argued that these efforts have "allowed ADC to expand

THE ZEN OF CRIME

I advise her to shoplift something minor,
panties, perhaps, wad of silky sin in her hip pocket.

Or stroll away with coral earlobes, hands
full of jellies or pistachios in harmless white shells.

A side-by-side refrigerator, she says,
and I'll drag it off singing—so you better be there

to bail me out. I tell her of my friend
who stripped naked and climbed the bars of her cell

making chimp sounds to entertain the other women.
She tells me of her friend's run from the police

into a quarry where she ditched her Mustang
and swam beneath the yellow water to Wisconsin.

Now we begin to admit things: I applied at a topless bar.
I spoke to a madam in Chicago. I stole sirloins

from A&P. Like Bonnie and Clyde. Thelma and Louise. I
was Dillinger in a former life. I worked

on Wall Street. Seriously, I say,
what can you steal today to make yourself happy?

Ray-Bans, she says, for the eyes of blind Justice.
All the tea in America.

—Maureen Seaton

its influence and demonstrate its professionalism in new areas and to people not traditionally receptive to predator control." Indeed, when endangered prey is involved, it is no longer uncommon for environmental organizations to support the killing of wild predators. In these cases the traditional environmental demand of "Keep your hands off nature" has been replaced by an endorsement of the use of lethal force.

WHATEVER THE ULTIMATE CAUSES, WILDLIFE MANAGERS CHARGED WITH PROTECTING CERTAIN RARE SPECIES BELIEVE THAT THE IMMINENT RISK OF EXTINCTION FROM PREDATION IS REAL.

The Tortoise and the Raven

BUT THIS CHANGE HAS NOT COME WITHOUT CONflict, ranging from disputes within organizations to the filing of lawsuits to stop control programs that some environmentalists believe are urgent. The reasons for conflict have included technical concerns about the methodology of predator control, distrust of ADC and fears of overkill, reluctance to get involved in the killing of wildlife and the manipulation of nature, philosophical differences over animal rights and the expendability of non-native species, and political fears that predators may be blamed for problems that human society has created.

Science and politics were both at issue when the Humane Society of the United States sued the U.S. Bureau of Land Management to stop a project initially supported by Defenders of Wildlife and the Kern County Audubon chapter. With the consent of these two organizations, BLM was shooting and poisoning ravens to prevent them from preying on the young of California desert tortoises, whose population was rapidly declining.

"We're concerned about tortoises," says John Grandy, a vice-president of the Humane Society and a former vice-president of Defenders of Wildlife, "but we're absolutely opposed to random, unnecessary destruction of ravens." Grandy doesn't agree that there is adequate scientific justification for a broad program of raven killing, and argues that efforts should target only those ravens specifically known to eat juvenile tortoises. "There's urgency, but it's not so severe that we need to rush off and slaughter ravens willy-nilly. This is a problem that is associated with individual ravens. The raven experts we talked to suggest that raven predation on tortoises is a learned behavior, probably engaged in by a few resident birds."

The Humane Society also charged that by focusing on ravens the BLM was ignoring more-important threats to the tortoise's survival. Cattle grazing, off-road-vehicle use, military maneuvers, highway construction, and encroaching urban development have all been cited as contributing to the degradation and destruction of tortoise habitat. "One of our concerns is that the raven is being made a scapegoat for all the problems with the tortoises. The least politically powerful thing out there is the raven, the easiest thing to divert attention to."

Grandy also got involved when biologists at San Francisco Bay National Wildlife Refuge proposed to trap and kill red foxes that feed on endangered California clapper rails. The proposal created a temporary rift in the local Sierra Club when the club's wildlife committee sided with the foxes and its wetlands committee sided with the rails. "The red fox is a victim just as much as the clapper rail," one Sierra Club member wrote. "Trying to further manipulate nature by killing one species because another is favored only adds to the mistakes of the past."

One hotly debated issue was whether red foxes, having been introduced into California from the Midwest, merit less consideration than native species. "They couldn't ever just say 'the red fox,'" a wildlife-committee member complained. "It was always 'the *alien* red fox.' That kind of labeling really fanned up people's emotions." Wildlife jingoism aside, Grandy argues that it may make sense to remove non-native species from otherwise pristine areas, but in California, "where virtually everything is introduced, red foxes are nearly as natural as you're going to get." He adds, "There's something deeply troubling about us—we who've only been on this continent for three hundred and fifty years—talking about eradicating something because it's non-native. If we're so concerned about native species, then where are the Indians?"

Changing Attitudes

THE RESOLUTIONS OF THESE TWO SITUATIONS say different things about the necessity, urgency, and appropriateness of predator-control programs. A year after the Humane Society's lawsuit forced a temporary halt in the killing of desert ravens, BLM transferred control of the project from a herpetologist to an ornithologist. BLM "went after ravens first in part because it was easy," according to Bill Boarman, the new project manager. "Off-road-vehicle use and cattle grazing are politically charged and controversial issues, and it will take many years to get anywhere with them. Ravens seemed to have no constituency, and were easy to jump on." Although Grandy claims that this amounted to unfairly targeting the raven, to BLM it was simply a wise use of resources. Without enough funding and people to do all that it would like for the tortoise, BLM chose to work on an issue that promised quick results.

But, Boarman says, BLM has now rethought its priori-

ties. "It's important in the long run to control predation of juvenile tortoises. But in the short run the most important thing is saving the reproducing adults." The immediate threat to adults is a respiratory disease apparently brought on by poor nutrition, due to destruction of vegetation by six years of drought, by cattle grazing, and by off-road vehicles. While the agency focuses on fighting the disease, raven control has been put on indefinite hold.

In the other case, the San Francisco Bay National Wildlife Refuge is going ahead with a predator-control plan, albeit a modified one that will try to use nonlethal methods wherever possible. The precarious situation of the rails, whose population is down to fewer than 500 birds, ultimately persuaded the red fox's defenders to close ranks with other environmentalists and support the plan.

The difficulty of developing a consistent position on predator control is clearly illustrated by the Massachusetts Audubon Society's thirty years of experience with gulls and terns. In the 1960s and 1970s Massachusetts Audubon and the Fish and Wildlife Service experimented with eradicating gulls from islands that were potential tern colonies. Through these investigations William Drury, Massachusetts Audubon's research director, became the country's leading expert on killing and harassing gulls.

In 1968 Drury and his colleagues began studying nesting terns at the southern tip of Monomoy, a thirteen-mile-long island off the elbow of Cape Cod which was home to one of the largest tern colonies in the Northeast. Herring gulls had been moving onto the island in ever-increasing numbers. By the late 1970s the gulls reached a population of 18,000 pairs. They eliminated terns from the island except for a remnant colony at the northern end.

To make more room for terns, Fish and Wildlife proposed to clear gulls off the ends of Monomoy and, with the knowledge and apparent consent of Massachusetts Audubon (whose symbol is the tern), began to poison gulls in 1980. But when accounts of the killing appeared in the press, Audubon did an abrupt about-face. "We got stabbed in the back," one Fish and Wildlife biologist says. "Audubon made the original request for us to do the work, but then they came out in the newspapers and said we were terrible people. They said they would sue." Largely in response to Audubon's protests the program was halted, and the tern population continued to decline. Now, however, Audubon seems a little uncertain about its role in this. When I asked Gerard Bertrand, the president of Massachusetts Audubon, about his organization's turnabout, he downplayed it. "We may have questioned the program, but I don't think we ever officially opposed it. I never threatened a lawsuit."

Today there are no plans to disturb the gulls on Monomoy further, but in 1990 biologists began poisoning gulls on Ram Island, in Buzzards Bay, to create nesting space for endangered roseate terns. This time Massachusetts Audubon prepared a position statement supporting the project, but included a peculiar warning note that suggests the organization's continued wariness: "This position is for response to public inquiry only. We will make no announcement to the press or other media before or after the Ram Island action." Thus over a period of thirty years Massachusetts Audubon has changed from a leading researcher and promoter of lethal gull control to an aggressive opponent to a surreptitious supporter.

Drury, who left Audubon in 1976, believed that the organization's change of heart at Monomoy was due to a change in cultural attitudes. "In my early years with the Audubon societies, the Audubon leaders were mainly hunters—businessmen and moneymakers. These men looked on killing as much less of an anathema than environmentalists do today." Such aggressive intervention in nature, he argued, is necessary to preserve the species we care about. "Human beings have killed other organisms in their self-interest ever since we were hunter-gatherers, and I think that the philosophical question of killing one species to favor another was answered by the early agriculturalists who pulled up plants that inhibited the growth of their crops—they weeded their garden."

Not Just a Management Tool

In a world where population growth, economic pressures, and technological advances are continually degrading ecosystems and accelerating extinctions, and are beginning to alter the genetic basis of life, there are no easy answers to questions about managing nature. Although distasteful, the killing of predators may be necessary in some cases to preserve species brought to the very brink of extinction. I do not believe, however, that it is simply one more wildlife management tool. Each time that we resort to it is a sign of our continuing failure to live in harmony with the needs of our planet.

Two days after the nests were baited on Green Island, I returned with the Fish and Wildlife crew to collect poisoned gulls. Some looked as though they had merely gone to sleep on the nest, eyes closed, bills tucked gently under their wings. Others appeared to have died in greater distress, falling forward onto their breasts with wings askew and necks outstretched. Some of the bait hadn't been eaten—perhaps the gulls had learned from three years of poisoning that margarine sandwiches can be dangerous.

Despite the caution of a few gulls, this island that had teemed with life a few days before was now permeated by death. We all, I think, just wanted to finish our work and leave. Earlier I had been exhilarated by the sight of the thousands of birds that fly here each spring to mate and lay their eggs, doing so not in response to the goals and objectives of a federally sanctioned management plan, however well intentioned and scientifically defensible, but in response to animal impulses beyond human control or understanding. Now, trudging across the island with an armload of dead gulls, I felt less like a gardener tending his beds than like a vandal trampling on them. □