

# To Everything (Tern, Tern, Tern) There Is a Season

*Even fooling Mother Nature. Which is how biologists are solving the stubborn problem of seabird repopulation.*

LATER THIS MONTH, SOMETHING EXCITING IS likely to happen on Seal Island, a tiny, nearly barren rock in outer Penobscot Bay east of Portland, Maine. A few puffins will flutter ashore, and if everything goes right they will do what no puffins have done on the island for more than a century: choose mates, nest, and produce baby puffins. If they do what might appear on the surface to be what all birds do, these adults and chicks will actually be pioneers in a curious new method of repopulating former habitats. The scientists involved in this experiment are counting on the method to reverse the decline of seabird populations around the United States, a decline that had seemed both tragic and irreversible—until now.

The problem has been nothing short of an ecological Catch-22 that requires actually fooling Mother Nature. The catch goes like this: Seabirds won't nest on an island unless there's already a colony of their own kind there. If followed to its natural conclusion, a trend like this—in a world where urbanization, pollution, and so on can render many environments unattractive—could lead to the eventual disappearances of entire species. Puffins, for example, were wiped out on Seal Island in the 1880s because of the demand for puffin feathers for women's hats. No one is much interested in such puffery today, but the birds can't get started again where once they disappeared.

But now a team from the National Audubon Society is finding that exquisitely crafted visual and auditory replicas can be the siren song that draws puffins back to breed. On Seal Island and some of the surrounding islets, ornithologists hand-reared puffins and then used elaborately painted decoys and solar-powered boom boxes playing tape recordings of puffin calls. The result has been successes at nearby islands, hence this summer's optimism for the Seal Island experiment. And, of course, this is just the beginning.

The consensus among wildlife managers is that as many as 30 colonial coastal seabirds, already on the list of endangered species, could be brought back in number with this and other deceptive methods that biologists are developing. Sam

Droege, a wildlife biologist who heads the U.S. Fish and Wildlife Service's bird-monitoring program, says terns, clapper rails, pelicans, albatrosses, and petrels are among the hardest hit—along, of course, with the puffins. "Gulls and cormorants are doing okay, but terns in particular, and most of the other coastal birds in the United States, are going to hell," laments Droege.

The idea for the decoy scheme, part of the "Puffin Project" sponsored by the Audubon Society and the Canadian Wildlife Service, came from Steven Kress, an ornithologist at the National Audubon Society. Twenty years ago, Kress wondered if it might be possible to attract a colony of puffins to Eastern Egg Rock, near Seal Island, thereby expanding the bird's range beyond the few colonies on Newfoundland where it had been driven by the turn-of-the-century puffin hunters. Together with ecologist Richard Podolsky, Kress spent several years in the 1980s learning that 2 months after hatching, puffin chicks stumble to the shore, take wing, and head to sea. After that, they vanish for 2 to 3 years.

Even today, no one knows where they go, but the journey must be a hard one because

the mortality rate can approach 95%. When the survivors of this brutal odyssey return to the North Atlantic coast, they start searching for a colony to join—though they won't actually breed until a year or two later, when the birds are 5 years old. If there's no colony to rejoin, they keep looking—even if they were born in the place. This fact had stymied ornithologists from simply introducing new hatchlings into an abandoned site and hoping they would return one day to set up their own family.

So the key was to establish the appearance of a colony. In the initial stages of their work, Kress and Podolsky found they could entice young puffins to explore sites containing decoys—the birds even went so far as to bring fish to "feed" the stationary decoys—and so they decided to include decoys as an integral part of any attempt to repopulate the Maine islands. For added help, Kress decided to use recorded bird calls to make the decoys seem more lifelike.

Researchers and volunteer members of the Puffin Project painted more than 100 wooden decoys in various puffin stances, paying painstaking attention to the birds' characteristic orange, yellow, and gray triangular bill. In addition, Kress, now a visiting scholar at Cornell University, turned to the Library of Natural Sounds at the Cornell University Laboratory of Ornithology, the world's largest collection of recorded bird calls. The staff there helped him assemble puffin sounds into a tape to serve as an auditory enticement to go with the visual lure of the decoys.

Then, from the summer of 1984 through the summer of 1989, the Puffin Project team, which by then included more than 100 graduate students, student interns, and volunteers, transplanted 2000 puffin eggs from Great Island to Seal Island and Eastern Egg Rock; the islets had been cleared of gulls (which eat puffin eggs and chicks) by the U.S. Fish and Wildlife Service. The workers hand-reared baby puffins in sod burrows and attached yellow, coded bands to the chicks' legs before the young birds waddled off to sea.

The first few years of the project were disappointing: Only a few puffins fledged at Eastern Egg Rock and Seal Island returned, and none nested. The only good news was that some unbanded adult puffins not reared on the islands did nest on Eastern Egg Rock, lured by the decoys, taped calls, and freedom from gulls. But in 1988 and 1989 researchers began spotting young puffins sporting the yellow legs bands on Eastern Egg Island. And last year, 52 Seal Island transplants returned to either their birthplace or neighboring Matinicus Rock in July and spent the

**Puffery.** Real puffin (right) meets imitations.





## Outfoxing the Foxes

Sometimes the threat to dwindling seabird species comes not from greedy developers or wanton polluters, but from a group that should be the birds' best friends: animal rights activists. Take the California least tern and light-footed clapper rail. These West Coast species are in such trouble that they are on the Federal Endangered Species List; they could be tempting subjects for the new decoy methods. But in trying to save the birds, researchers have been thwarted by what some conservation biologists consider misguided efforts by animal rights activists.

The main problem for these shore birds has been habitat loss, due to overdevelopment on the California coast. Fortunately for the birds, one of the few remaining nesting sites is inside the 5000-acre boundaries of the U.S. Naval Weapons Station and the adjoining 911-acre Seal Beach National Wildlife Refuge in northwest Orange County. Both are protected from human encroachment, which should give the endangered birds a glimmer of hope of surviving. The problem, however, is that non-native red foxes love to feast on the birds' eggs and chicks.

As a result of the new research, "we know how to make this area attractive to both clapper rails and terns," says U.S. Fish and Wildlife biologist Richard Zembal, "but until we can get rid of the foxes, it's unethical to attract more birds to the sites."

And that's where the animal rightists come in. In 1986, a Fish and Wildlife Service survey found that only five pairs of clapper rails were left in the refuge, so biologists from the Service, in collaboration with the Navy and with the support of a number of wildlife organizations, began trapping and killing red foxes. In the first 2 years alone, 250 red foxes were killed, a number that far exceeded expectations. "With that kind of fox population, it's no



**Last but not...** *California least tern (below) and the light-footed clapper rail (above) are both on the Federal Endangered Species List.*



ruled in favor of the government effort, so ALVO sued again, forcing the two agencies to develop a more comprehensive environmental impact statement (though the judge allowed the fox hunt to continue during the interim). The environmental impact statement was ready last September, and U.S. District Judge Robert J. Kelleher ruled the report adequate.

Intriguingly, one ally of the endangered shore birds in California could be the coyote—an animal the management plan calls for reintroducing after further study. It seems coyotes are effective at keeping red foxes (and other predators such as skunks) in check. But coyotes don't seem to bother terns or clapper rails. "In other places, coyotes and shore birds coexist just fine," explains Zembal. "It may be that these birds, which evolved in the presence of the coyote, have developed adaptations that allow them to escape predation. The red fox, however, is a recent addition to the area, and the birds have not done well at all."

■ J.A.

summer. In addition, many unbanded birds also joined the colony. This year, researchers hope that when they come back, they'll take the final extra step and breed.

It's still too early to tell if these colonies will be stable, but Kress is optimistic: Fifteen pairs of puffins nested at Eastern Egg Rock last summer and this summer some of the Seal Island puffins will be old enough to mate. "It's going to be an exciting summer on Seal Island," he says. "Last summer, some of the young birds explored the rock crevices on the island, suggesting that they were already beginning to prospect for nesting burrows. We'll just have to see what they do next."

Even these qualified successes have raised the hopes of bird lovers everywhere. Michael Erwin, a colonial seabird specialist with the U.S. Fish and Wildlife Service's Patuxent Wildlife Research Center in Maryland, says that Kress, Podolsky, and their colleagues "have shown that with dedication, a tremendous amount of hard work, and some

ingenuity, it is possible to restore coastal seabirds to old habitats." And indeed, their methods, modified for particular circumstances, are now being applied in far-flung locations.

For example, in the Galapagos Islands, the National Audubon Society, Galapagos National Park, and the Charles Darwin Research Station are working together to save the dark-rumped petrel, an albatross-like bird that has been all but eliminated by non-native rats. During the past 3 years, Richard Podolsky has been testing various tape recordings to see which are most attractive to the petrels. In addition, he and his colleagues have been digging more than 100 artificial burrows in areas cleared of rodents. Last summer, petrels occupied the new burrows for the first time, and four pairs produced eggs. Unfortunately, either the eggs or chicks fell victim to hungry rats. This summer, the researchers plan to implement a more aggressive rat-control program.

Certainly, the new methods for re-es-

ablishing seabird colonies aren't without problems. Yet they're a great advance over anything available before, and they're raising hopes that the discouraging downward population trends can be reversed before all the colonies of shore birds have disappeared. "What we're trying to do is give these endangered birds as many high-quality nesting sites as possible to provide a buffer against both natural and manmade disasters that can so easily devastate fragile bird populations," says Barbara Massey, an adjunct professor at the California State University at Long Beach.

Clearly, now that it's been shown that such methods can work, what's needed is a good sense of where effort should be applied. To provide such a map, the Fish and Wildlife Service is preparing to begin a rigorous assessment of coastal bird populations. And if that survey goes well, perhaps there will be more birds fluttering ashore to re-establish their colonies after long lapses, as the puffins of Seal Island may be doing at this very moment.

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