



Egg Rock Update

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Newsletter of the Fratercula Fund of the National Audubon Society

FROM EGG ROCK TO THE GALAPAGOS ISLANDS

New Project Offers Help to the Endangered Dark-rumped Petrel

Since the Puffin Project began in 1973, it has become increasingly apparent that the techniques developed for restoring puffin, tern and Leach's Storm-petrel colonies to islands off the Maine Coast could also have broad application to other seabirds—including many endangered species.

This past summer marked the beginning of our first international endangered species project. Funded by the Rolex Award for Enterprise (see *Egg Rock Update* 1987) and a grant from the Anne S. Richardson Fund, Stephen Kress and Richard Podolsky set off for the Galapagos Islands this past May equipped with tape recorders, waterproof speakers and recordings of the endangered Dark-rumped Petrel. The goal of the project was to determine if these rare, nocturnal birds could be attracted to recorded Dark-rumped vocalizations and to use such recordings to lure the petrels into artificial burrows.

Dark-rumped Petrels are about the size of a crow. They have black wings, rump and tail with a gray back and black neck and cap. Their forehead and underparts are snowy white. These strong-winged birds spend most of their lives at sea, but when they reach nesting age, they start visiting land, usually returning to breed near their own hatching place.

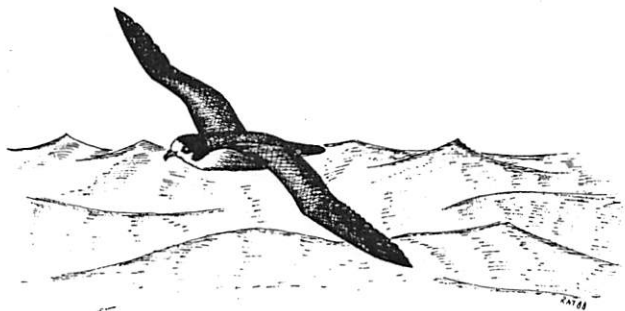


Illustration by Conrad Field

Although Dark-rumped Petrels were once widespread and abundant in both the Hawaiian and Galapagos Islands, their numbers are now greatly reduced because of intense predation from introduced predators such as black rats and dogs. In Hawaii, only about 1000 pairs remain and these are restricted to only 2 or 3 islands. Likewise, in the Galapagos, recent studies found that rat predation was so severe that even the largest colonies were declining at the rate of 30%/year.

Today, relic populations nest in the humid highlands of four Galapagos Islands. Like other members of the albatross and petrel order, their long breeding period brings them to land for as much as 8 to 9 months each year—the remainder of the time is spent at sea. While on land, the eggs, chicks and even adults are vulnerable to introduced predators. Such predation, especially by pigs, has eliminated the petrels from all but the most protected nest sites, such as rock crevices and stream banks. Because such scattered nests are difficult to protect, some biologists predict that without effective management, the Dark-rumped Petrel could disappear from the Galapagos Islands in just 10–15 years.



photo by Richard Podolsky

A Dark-rumped Petrel peers from an artificial burrow on Santa Cruz Island.

With this concern in mind, National Audubon initiated a joint program with the Galapagos National Park and the Charles Darwin Research Station. The intent of the project is to bring the experience of the Maine Coast Puffin Project to the Galapagos Islands and to help devise a unique recovery program for this very threatened species.

Richard Podolsky, co-principal investigator for the Project, headed up a team of 2 Ecuadorian students and 1 American assistant. The program also benefited from the assistance of Tina and Felipe Cruz, two veteran Dark-rumped Petrel biologists. The team camped from May through mid-August in the rain-soaked, lush highlands of Santa Cruz Island. To determine the response of the petrels to recorded Dark-rumped Petrel vocalizations, we presented 7 different recordings in a random manner for 1/2 hour intervals from 10 PM to 6 AM. The recordings were played from two speakers set midway between six large mist nets. In this way, the team netted petrels and calculated the relative attractiveness of the different tapes by seeing how many birds hit the nets.

Although the team captured more Short-eared Owls than petrels in the first days of the project, the petrel activity increased as the season proceeded and by mid-August, a total of 282 different Dark-rumped Petrels were netted and banded. Judging by their feather condition, we believe that most of the birds attracted to the recordings were nonbreeding birds. The project rests on the hypothesis that first time breeding petrels prefer to nest near established breeders and that the loud vocalizations which they hear at colonies help the young birds to locate a nest site.

If young petrels visit the Santa Cruz highlands to search for a colony, we predicted that we would capture more birds when we played recordings of colony sounds than when we played tapes of individual birds. The results strongly support our hypothesis, since more than twice as many petrels were captured when we played a

Continued next page

recording from a large colony than during control periods without recordings. Likewise, of the seven tapes, the tape with the greatest attraction was a double intensity recording of normal colony sounds recorded over itself to simulate an exceptionally large colony.

In addition to the capture experiment, the Galapagos team also began the first phase of a colonization project within the crater of a long extinct cinder cone volcano called Mirador. To test the role of artificial burrows enhanced by petrel calls, 80 burrows were dug within the volcanic rim and 4 speakers were set out to play the double intensity petrel tape. This advertised the presence of the burrows from 10 PM to 6 AM each night. The burrows were then checked for activity each morning.

Petrel footprints were found at the mouth of one of the burrows the day after the experiment started. One can imagine the excitement on that misty volcano when, 5 days after the start of the

experiment, an adult petrel was discovered peering out of one of the hand-dug burrows. By the end of the summer, over 61% of the burrows showed signs of petrel activity, such as digging, tracks or excrement and 16 petrels were found in the burrows. Although no eggs or chicks were produced, the results from this first field season offer ample encouragement to continue the project next year.

Before the 1989 breeding season, the Galapagos National Park intends to install a fence along the rim of Mirador to keep out dogs and it will also conduct an intense rat-poisoning program inside the volcano.

The petrel project has already demonstrated that Dark-rumped Petrels can be attracted with recordings and these will lure birds into artificial nest sites. Our goal is to encourage nesting inside Mirador and to create a predator free "island" within the sea of introduced dogs, cats, rats, cows, horses and pigs that currently threatens the surviving birds. Ultimately, it may be possible to lure some of the petrels to real predator-free islands where they can enjoy complete safety from exotic mammals.

ROSEATE TERNS INCREASE AT EASTERN EGG ROCK AND STRATTON ISLAND

The elegant Roseate Tern claims the unfortunate distinction of being the most recent addition to the federal endangered species list.

Although there are more than 3000 pairs of Roseate Terns nesting in New England, 94% of the population is concentrated on just four islands. Small numbers also nest in Europe and on certain tropical islands, but the species has its largest nesting population in New England where its vulnerability to a local disaster is very alarming. Such concentrated numbers are susceptible to contagious diseases such as avian cholera, pollution or impact from predators. Such threats could easily destroy a significant part of the remaining population.

At present, the largest Roseate Tern colony is on Bird Island in Buzzard's Bay, Massachusetts where nearly half of the birds nest; the second largest colony is Great Gull Island in Long Island Sound. Compared to the total population, the Maine coast has relatively few Roseate Terns. The largest colony is on Petit Manan National Wildlife Refuge off Milbridge where 42 of the state's 74 pairs nest. This year the remaining pairs attempted to nest with Common Terns at 7 other colonies.

Roseate Terns increased this summer at Eastern Egg Rock and Stratton Island thus demonstrating an encouraging response to active tern management. In 1988, as many as 24 Roseate Terns were observed at Eastern Egg Rock, the Allan D. Cruickshank Wildlife Sanctuary, and at least 5 pairs nested. The Roseate increase reflects the general rise in tern numbers at Egg Rock this year. Common Terns increased from 268 pairs in 1987 to 599 pairs this summer and Arctic Terns increased from 30 to 50 pairs.

These increases are due mainly to recent efforts to keep gulls from breeding on the island (by destroying nests and eggs) and to control tall, rank vegetation. At Egg Rock, rock salt has been used to keep vegetation such as timothy grass and goldenrod from overrunning tern habitat (see *Egg Rock Update* 1986). In addition, this summer a 15'x 50' area of timothy was opened for tern nesting by digging up the sod and replacing it with low-growing seaside bentgrass (*Agrostis maritima*). Sixteen pairs of Common Terns soon nested in the shortgrass plot.

The picture for Roseate Terns is even more encouraging at Stratton Island, National Audubon's Phineas W. Sprague Memorial Sanctuary. In the 1930's, Stratton Island was the largest tern colony in southern Maine. Tern numbers have fluctuated over the years, but about 300 Common and 75 Roseate Terns nested there as recently as 1981. However, like most of Maine's tern colonies, Stratton lost its breeding birds when their nesting habitat was encroached by hundreds of pairs of Great Black-backed and Herring Gulls.

The effort to restore terns to Stratton Island began in 1987, when decoys and tape recordings were set in the historic tern habitat and gulls were displaced by destroying nests and eggs and by occasional shooting of adults. This effort succeeded in attracting 5 pairs of Common Terns. A similar gull control effort con-



photo by Stephen Kress

Roseate Terns courting at Eastern Egg Rock.

tinued this summer and the results were very exciting as the colony increased to 136 pairs of Common Terns and 11 pairs of Roseate Terns.

The return of Roseate Terns to Stratton Island was especially heartening. They had not nested there since 1981 and recent attempts to nest elsewhere off mid-coast and southern Maine have usually proved unsuccessful due to predation by gulls at historic sites and to losses from high water and human disturbance on ledges and islands too near the mainland.

PUFFIN BOAT TOURS INTRODUCE THOUSANDS TO MAINE SEABIRDS

This summer National Audubon sponsored seven boat tours each week to Eastern Egg Rock. Over two thousand passengers heard Audubon biologists Evie Weinstein and Rose Borzik provided narration to groups aboard the PINK LADY (which departed from Boothbay Harbor) and the HARDY II (which departed from New Harbor). In addition to puffins, the participants viewed terns, gulls, eiders, guillemots, ospreys, seals and an occasional minke whale. They also learned about the ecology and conservation of marine resources in the Gulf of Maine. The tours benefit Maine Coast wildlife by providing financial support to the Puffin Project and National Audubon's Maine Coast Sanctuary program.

To learn more about the 1989 Audubon Puffin Tours, contact: R.N. Fish, Inc., P.O. Box 660, 65 Atlantic Ave., Boothbay Harbor, Maine 04538 and Hardy Boat Cruises, R.R. 1, Box 53, Shore Rd., N. Edgecomb, Maine 04556.

A MINK AT EGG ROCK!

In mid-June we were shocked to hear Sue Schubel's excited voice over the CB radio—"we have a predator on Egg Rock—I think it's a mink!"

Eastern Rock is located 5 miles from the nearest mainland and 2 miles from the closest island, so we had assumed that we were safe from 4-legged mammals. Certainly, the fate of the seabirds at Egg Rock depends on their isolation from mammal predators who could easily sniff out nest sites and kill adults and young. Mink are among the most dangerous seabird predators, since they can swim among islands and can create havoc in a seabird colony.

Sue's mink sighting also solved a mystery, since we recently discovered 31 dead terns (including 5 Roseates) and 9 dead Leach's Storm-Petrels. Most of these had bloody necks, apparently victims of the mink. After several days of trauma in the tern colony (during which most of the Roseate Terns abandoned the island), Sue snuck to within 12 feet of the mink and shot it. Soon after, the tern colony settled back to normal. Fortunately, we were able to remove the mink before it started killing puffins.

One of the Common Terns killed by the mink was banded in Lagoa do Peixe, a coastal lagoon in southern Brazil, on April 1, 1987 as a juvenile. This was the first recovery of a Brazilian-marked tern in Maine.

The mink incident at Egg Rock was a potent reminder of the vulnerability of seabirds at their nesting colonies. The incident also warns that without alert warden/biologists, even a single predator can devastate a seabird colony and cancel years of management effort.

16 PUFFIN PAIRS NEST AT EASTERN EGG ROCK

The Egg Rock puffin colony contained 16 pairs this summer, down two pairs from 1987. Twenty-six of the breeders were transplanted to the island as chicks and the oldest of these was 12 years old this summer. The average age of the transplanted birds is now 10 years old, but since some puffins are known to live to 34 years, it is likely that the transplants are still far from old age. Their breeding effort this year certainly supports their vitality, since all sixteen pairs successfully reared their single chick.

Three transplanted puffins did not return to Egg Rock this year. This is a higher than normal winter loss, but their mates all survived and each found a new mate and successfully reared a chick. Once puffins start breeding at an island, they rarely visit other colonies, but this summer, one 11-year-old transplant (Y75) decided to take the summer off from breeding and was seen at Egg Rock, Matinicus Rock and even at Petit Manan Island (about 75 miles east of Egg Rock). Meanwhile, its mate for the past three years, Bi83, moved to a new burrow and mated with an unbanded bird.

Unbanded puffins continue to comprise an important part of the Egg Rock population. This summer, six of the sixteen breeding pairs contained an unbanded puffin. The origin of the unbanded puffins remains a mystery, but they are likely native young produced at Egg Rock or young produced at Matinicus Rock, the nearest puffin colony.

1988 PUFFIN TRANSPLANT

The effort to restore puffins to Seal Island National Wildlife Refuge in outer Penobscot Bay continued this year when 199 puffin chicks were transplanted from Great Island, Newfoundland to Seal Island. This year the chicks averaged 14 days old, a full week younger than the 1987 transplant group. One hundred and eighty-eight of the chicks successfully fledged. They were reared in artificial burrows and fed silverside fish supplemented with vitamins by a team of 4 assistants who spent their summer on the island rearing chicks and watching for returning birds. Before they were released, all of the chicks were banded. Several unbanded adult puffins and a razorbill were observed exploring rock crevice nesting habitat at Seal Island this summer, but so far none have nested.

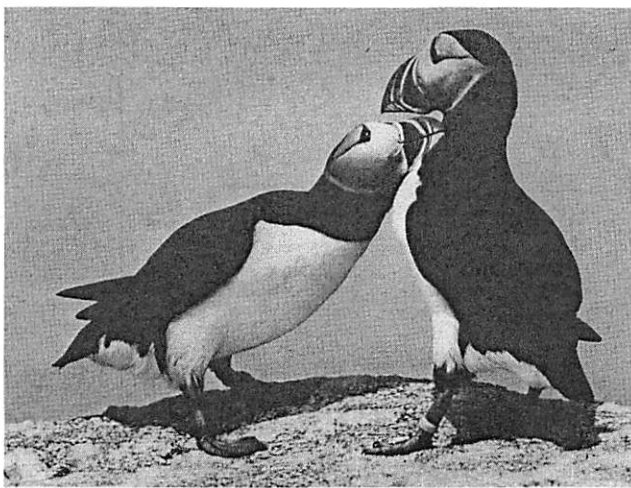


photo by Stephen Kress

The color leg bands on the Egg Rock puffins are revealing fascinating details about puffin social life. The puffin on the left (Bi45) and the puffin on the right (Bi98), were photographed billing at Egg Rock in 1982 when they were 4-year-olds. The two did not mate, but six years later, they continue to return to Egg Rock. Bi45 (a female) mated first when she was six years old with a five year old male, En07. They mated for four consecutive years, rearing chicks in 2 of the 4 years. En07 did not return to Egg Rock in 1988 and Bi45 moved into a new burrow with EN25, whose mate of the past two summers was seen a few times at Egg Rock this summer, but did not breed. Bi98, a male, mated with En65 when she was five years old and he was six years old. They have nested together in the same burrow at Egg Rock for the past five years and have successfully reared a chick each year.

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