



## PUFFINS NEST AT SEAL ISLAND NWR AFTER 105-YEAR ABSENCE

**A**tantic Puffins nested at Seal Island National Wildlife Refuge this summer ending a 105-year absence from their largest historic nesting site south of the Canadian border. The 1992 nesting of seven pairs at Seal Island is the culmination of an eight-year effort to repopulate the birds to this 100-acre national wildlife refuge, located 20 miles east of Rockland off the midcoast region of Maine.

Puffins last nested at Seal Island in 1886. According to Arthur Norton, former Curator of the Portland Society of Natural History, puffins were hunted intensively for food at Seal Island during the 1850s. Parties visited the colony at dusk to spread herring nets over the rocks to entangle birds emerging from their burrows in the morning. By 1886, the colony was reduced to 25 to 30 pairs. Norton observed that "their final extermination was probably effected the following year by milliners' agents who carried on a most destructive season's work."

The puffin restoration project at Seal Island began in 1984, co-sponsored by the National Audubon Society (NAS), the Canadian Wildlife Service (CWS) and the United States Fish



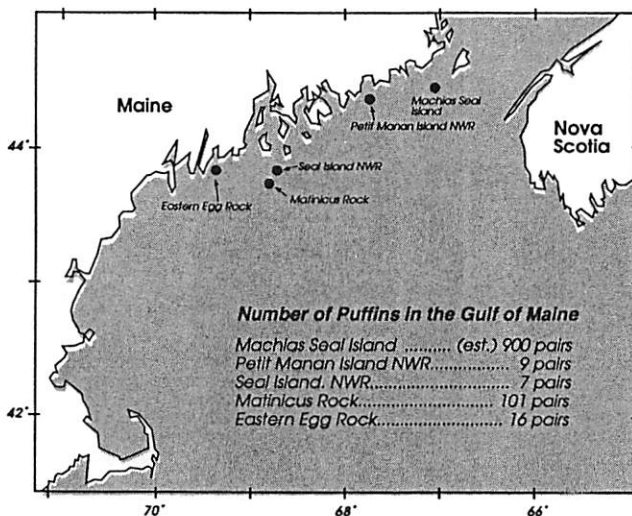
Richard Kilgore

*A puffin delivers food to its chick in a rock burrow at Seal Island NWR, confirming the first puffin nesting at the island in 105 years.*

and Wildlife Service (USFWS). Over the six-year period, 1984 to 1989, 950 puffins were transplanted to the island from Great Island, Newfoundland—Canada's largest puffin colony, where approximately 160,000 pairs nest. The transplanted puffins were approximately two weeks old when they were moved to Seal Island. They were hand reared in sod burrows, banded and fledged when they were about six weeks old.

During the six-year transplant period, 912 of the relocated chicks successfully fledged, but since puffins spend their first two or three years at sea, it is a slow process to follow up the results of the transplants. Returns from the first years of the Seal Island project were disappointing, but the 1988 and 1989 transplant groups are now making strong showings. To date, 92 (49%) of the 188 puffins that fledged in 1988 have been resighted, and 47 (25%) of the 190 chicks transplanted in 1989 have returned. In total, 152 transplanted puffins have returned to Seal Island or one of the other Gulf of Maine puffin colonies.

Increasing puffin numbers led to the exciting events of this summer. On July 8th, Seal Island



1992 Puffin colonies in the Gulf of Maine.



Susan Schubel

"A1," the first puffin chick banded on Seal Island NWR.

supervisor Rick Schaffler sighted a puffin with its beak crammed with small fish circling above a jumble of boulders. After several passes, the bird scrambled into a rock crevice to deliver the meal to its single chick.

That first fish delivery was proof that after 105 years puffins were nesting again on Seal Island. Before the season was over, six additional nests were discovered—all clustered on the northwest corner of the island. Of the 14 breeding birds, 10 were transplants from Newfoundland. These included nine four-year-olds and one five-year-old. The remaining four were birds native to other colonies, one four-year-old was banded as a chick at nearby Matinicus Rock. Six of the seven pairs each successfully reared a chick, and two of these chicks were banded.

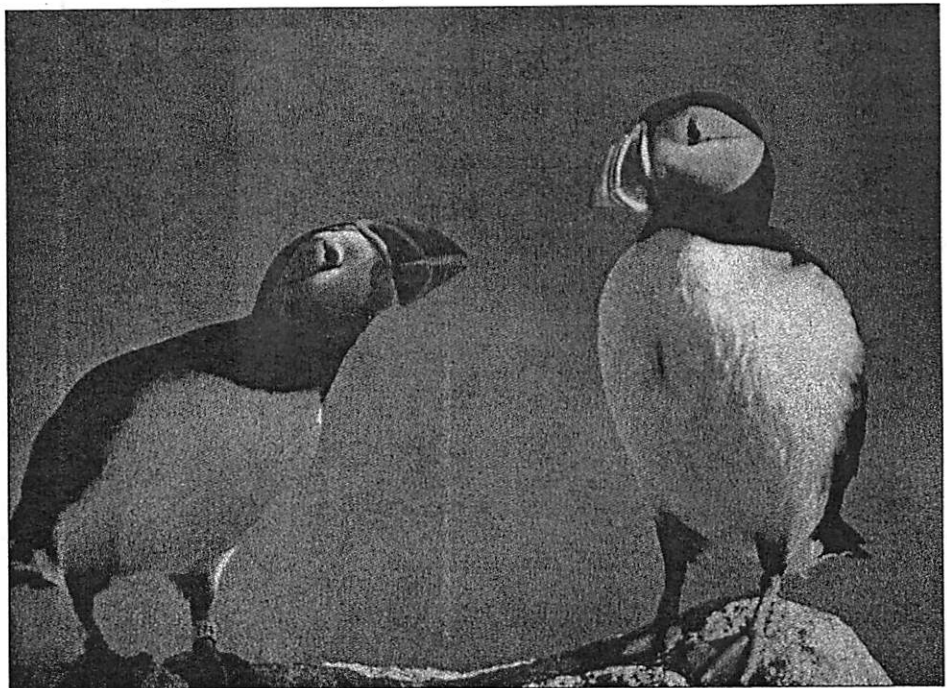
The presence of many unbanded puffins at Seal Island is important, since the unbanded birds will help to boost the size of the colony and increase chances for long-term viability. There were 1.4 times as many unbanded puffins as banded puffins, suggesting that the banded, transplanted birds serve as living decoys to help lure other puffins to the island. Several birds banded on Matinicus Rock (only six miles west) and Machias Seal Island (59 miles east) were also sighted, indicating

movement between colonies. As many as 16 unbanded puffins were seen at a time on Seal Island this summer.

The recolonization of puffins to Seal Island NWR is important because of the abundant nesting habitat and the island's close proximity to rich feeding areas. Observers at Seal Island have noted in the past that puffins from Matinicus Rock fly to the vicinity of Seal Island to obtain food. This observation was further supported by a telemetry study that followed nesting puffins from Matinicus Rock (see *Egg Rock Update*, 1989). The island is also notable for its absence of predatory land mammals such as mink, skunk, fox, raccoons and rats.

Equally important, Seal Island is a National Wildlife Refuge, administered by the USFWS which has a partnership with the National Audubon Society to actively manage and protect birds from human disturbance during the critical summer breeding season. The successful puffin recolonization at Seal Island demonstrates that the techniques for restoring puffin colonies (which led to the restoration of the Eastern Egg Rock colony in 1981) are replicable when given enough time and effort.

When Project Puffin began in 1973, Machias Seal Island and Matinicus Rock were the only puffin nesting islands in the Gulf of Maine. This concentration made Maine puffins very vulnerable to catastrophic events such as oil spills, disease and predation. Due to the efforts of many groups, puffins are now protected on five islands in four distinct regions. These islands and their protectors are Machias Seal Island (CWS); Matinicus Rock (National Audubon Society), Petit Manan Island National Wildlife Refuge (USFWS and College of the Atlantic), Eastern Egg Rock (National Audubon Society and Maine Department of Inland Fisheries and Wildlife), and Seal Island National Wildlife Refuge (National Audubon Society and USFWS). ■



Stephen Kress

Transplanted puffins, such as #776, are serving as living decoys to help lure unbanded puffins to Seal Island NWR. Four unbanded puffins were among the pioneers of this new colony.



## MURRE RESTORATION BEGINS AT MATINICUS ROCK

Common Murres have not nested along the Atlantic Coast of the United States for 150 years, but a project started this summer on the ledges of Matinicus Rock offers hope that they may return to the southern limit of their historic range.

Common Murres are penguin-shaped members of the auk family that come to shore for the sole purpose of nesting. They once bred along the Atlantic coast of North America as far south as Penobscot Bay, Maine but their small numbers and surface-nesting habits made them especially vulnerable to egg collectors and hunters. Excessive hunting led to their disappearance on the Maine coast by 1840.

At present, there is only one nesting colony in the Gulf of Maine, a small Canadian Island known as Murre Ledge—approximately 75 miles east of Matinicus Rock. Elsewhere in the western North Atlantic, Common Murres are densely concentrated, with 90% of the population nesting at just two sites in eastern Newfoundland and one in southern Labrador.

The Common Murre is one of the most abundant and widespread seabirds in northern oceans, but because of dense colonial nesting habits, it is usually the species that suffers the most from oil spills. Many murre populations have declined during the 1980's and these declines are often related to oil spills. Murre populations have declined recently in Norway, Britain, Faeroes, Ireland, Spain and Portugal. In North America, murre populations in Central California near San Francisco and the offshore Farallon Islands have declined following several oil spills. Likewise, the Common Murre was the seabird showing highest mortality following the tragic Exxon Valdez spill in Prince Williams Sound, Alaska.

When murres cease breeding at a traditional site, the location is rarely recolonized quickly. New colonies of murres form slowly because young murres usually return to their natal

site to nest. In this way, existing colonies grow while new colonies usually form only after available breeding habitat becomes saturated. Like terns, puffins, petrels and many other colonial nesting seabirds, murres require a "critical mass" of individuals before they start breeding. This social facilitation is necessary to encourage birds to start breeding, but once birds

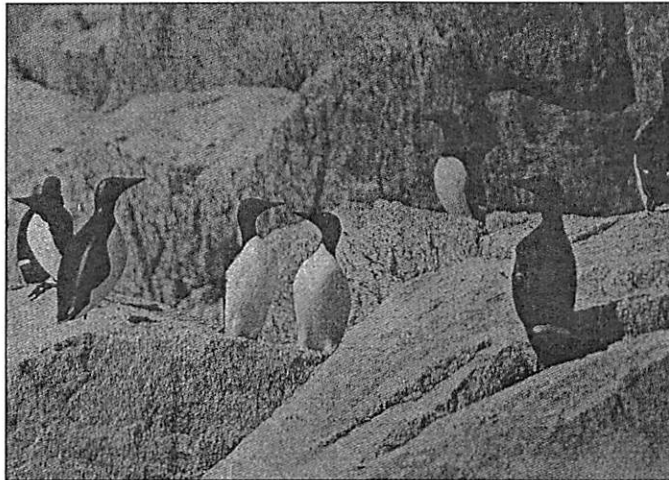
commit to a new colony they continue nesting at the same site and 90% will lay their single egg on the same rock year after year.

As many as eight murres have been observed at Matinicus Rock at any one time in recent years. Usually they associate with razorbills (about 25 pairs nest at the island) at loafing ledges or raft on the water below the cliffs. The murre attraction project began this year on May 10, when Sue Schubel, Trip Dennis, Steve Hess and Kaz Thea set out 15 life-size murre decoys. The decoys, carved by the Maine Wildlife Woodcarvers Association, were clustered together in suitable habitat.

One week after the decoys were positioned, a tape-player system was set up to broadcast an endless recording of Common Murre colony sounds day and night. The recordings were provided by the Library of Natural Sounds at the Cornell Laboratory of Ornithology. Within two days of starting the recordings, Sue and her team were amazed to see a murre land among the decoys!

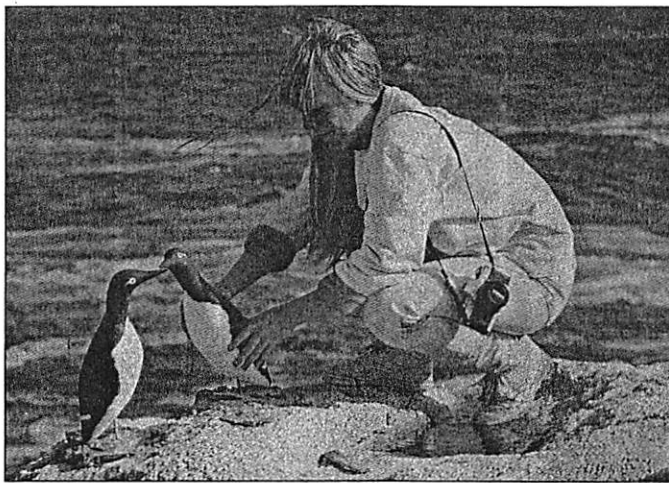
Up to four murres were sighted at one time among the decoys and at least two birds were present throughout May and June, courting and

copulating among their wooden peers. These were likely pre-breeders, still too young to nest, but perhaps the familiarization experienced this summer will lead to breeding in summer 1993. Plans are already taking form to cluster more decoys on the potential nesting ledge and begin the attraction program earlier in the season next year. ■



Four common Murres interact among decoys at Matinicus Rock. Such interactions may precede future nesting.

Susan Schubel

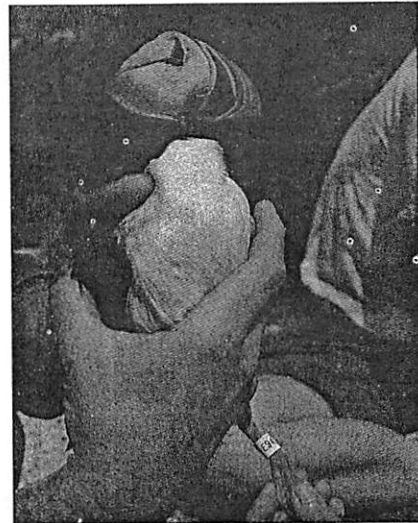


Kristen Williamson positions a murre decoy at Matinicus Rock near a speaker that broadcasts an endless recording of Common Murre vocalizations.

Stephen Kress

## EGG ROCK PUFFINS

**T**hirty-one out of 32 breeding puffins from the 1991 nesting season returned to their burrows on Eastern Egg Rock in 1992. Only puffin EN+96 failed to return to his nest. His mate, U03 (a non-transplant) was back on station prospecting with a new non-transplant mate, U05. We intensified our effort this summer to trap as many of the breeding birds as possible to reband them with new engraved plastic bands. Each puffin wears two bands, one engraved plastic with a unique number that is readily sighted with a spotting scope and a USFWS stainless steel band. Plastic bands usually wear out after about four or five years, necessitating occasional rebanding. Some of our oldest puffins (now 15 years old) are wearing their third plastic band and second stainless steel band. Fifteen of the 16 breeding pairs successfully fledged a chick this summer.



Susan Schwartz

Laura Gill rebands an adult puffin on Eastern Egg Rock.

## ADOPT-A-PUFFIN

Help support Project Puffin by "adopting" one of the Eastern Egg Rock puffins. An adopted puffin makes a unique birthday or holiday gift! Or, adopt a puffin as a school project to learn more about the oceans and wildlife conservation.

For each \$100 gift, we will select one of the Egg Rock puffins for you to sponsor. You will receive a certificate suitable for framing and a color photo and biography of your puffin.

Write to Adopt-A-Puffin, National Audubon Society, 159 Sapsucker Woods Road, Ithaca, NY 14850 U.S.A.

## EGG ROCK TRANSPLANTED PUFFIN DISCOVERED ON PEARL ISLAND

**A**t the invitation of the Canadian Wildlife Service and the Province of Nova Scotia, Peter Duley and Trip Dennis spent two weeks studying the seabirds on Pearl Island in Mahone Bay near Halifax, Nova Scotia. Reports of increasing puffin numbers on the island suggested that some of the birds might have been from among those transplanted from Newfoundland. Although Peter and Trip found no evidence of birds from the recent Seal Island transplants, they discovered puffin W-42 nesting on the island. W-42 was transplanted to Eastern Egg Rock as a two-week-old chick in 1975 and had not been seen since fledging. Puffins are known to live to 29 years, so W-42 will likely live for many more years at Pearl Island with the nearly 100 other puffins observed there.

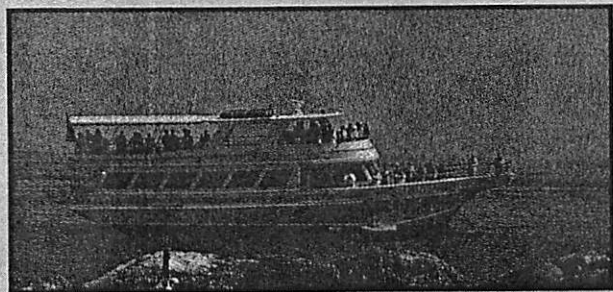
## PUFFIN WATCHING

**A** total of 1,904 puffin watchers took part in Audubon field trips to see the puffins at Eastern Egg Rock, Matinicus Rock and Seal Island NWR this summer. While many joined the trips to see puffins, they also learned about terns, gulls, eiders, guillemots and marine mammals such as harbor porpoise and minke whales. The trips were narrated by Audubon leaders who explained the biology and conservation challenges affecting Maine coast wildlife. Next summer the 10,000th puffin watching participant will board one of the Audubon puffin tours!

A portion of the fares from the following tours are donated to National Audubon Society's Puffin Project:

*For Eastern Egg Rock trip schedules and reservations:*

- R.N. Fish, Inc., P.O. Box 660, 65 Atlantic Ave., Boothbay Harbor, Maine 04538. (207)633-3244.
- Hardy Boat Cruises, R.R.1, Box 53, Shore Rd. North Edgecomb, Maine 04556. Trips leave from New Harbor. (207)677-2026



*For Trips to Matinicus Rock and Seal Island NWR:*

- Atlantic Expeditions, HCR 35, Box 290 St. George, Maine 04857. Trips leave from Rockland. (207)372-8621.



## **GALAPAGOS DARK-RUMPED PETRELS FLEDGE YOUNG**

Six pairs of endangered Dark-rumped Petrels successfully fledged chicks from artificial burrows in the highland region of Santa Cruz Island, Galapagos during the summer of 1991. This important landmark offers hope for the endangered petrels that are threatened by introduced mammals such as rats, dogs and pigs. The Dark-rumped Petrel Attraction Project began in 1988, directed by Richard Podolsky and Stephen Kress. It is co-sponsored by National Audubon Society, the Charles Darwin Research Station and the Galapagos National Park. From 1988 to 1990, tape recordings of petrel vocalizations were played near 160 artificial burrows (see *Egg Rock Updates* 1988 through 1990) with the hope that petrels would colonize the burrows where predator control could be more effective. Four pairs nested in the burrows in 1990, but rats killed the young. An intensified rat-poisoning program in 1991 paid off as six pairs successfully fledged young. The program continued in 1992, but it is too early to know the outcome of this season as the 1992 issue of *Egg Rock Update* goes to press.

## **NIGHT-HERON STUDY REVEALS VARIED DIET**

A detailed study of Black-crowned Night-heron feeding habits revealed that while most of the heron chicks on Stratton Island were reared on a diet of fish, shrimp, and frogs, some herons fed their young on birds, especially young gulls, terns, and the young of other heron species. The heron meals were collected from beneath nest trees or directly from the birds. A thorough search under most night-heron nests found only one nest where nestling herons were fed a diet of tern chicks—thus confirming night observations in the tern nesting colony. This lone heron was responsible for the predation of most of the tern chicks from 225 Common, Roseate and Arctic Tern nests on Stratton Island this summer. While terns are fiercely aggressive to herons and other predators in the daylight, they are ineffective at deterring nocturnal predators such as night-herons and owls.

## **TERN NUMBERS TRIPLE AT JENNY ISLAND**

In 1991, National Audubon and Maine Audubon began a program to establish a viable colony of terns on Jenny Island, a two-acre treeless island owned by the Maine Department of Inland Fisheries and Wildlife in western Casco Bay. Casco Bay terns have suffered chronic nesting failure for several decades due largely to competition with Herring and Great Black-backed Gulls (see *Egg Rock Update* 1991). Under the leadership of Jane Arbuckle and Stephen Kress, the project



*Six Dark-rumped Petrel chicks fledged from artificial burrows on Santa Cruz Island, Galapagos, in 1991. The rare seabirds were attracted to the burrows using tape-recorded vocalizations.*

Stephen Kress



*Scott Colgan (right) and Eric Kerschner collect a heron food sample at Stratton Island.*

Stephen Kress

got off to a good start in 1991 with a colony of 57 pairs of Common Terns. This number rose to 159 this summer under the watchful eye of Scott Hall, Island Supervisor. Terns from several small, chronically failing tern colonies near Jenny Island have apparently joined some of last year's breeders. The Jenny Island colony produced about 300 fledglings, which accounted for a remarkable 1.93 fledglings per nesting attempt, higher than any Maine tern colony this summer!

## INTERN NEWS

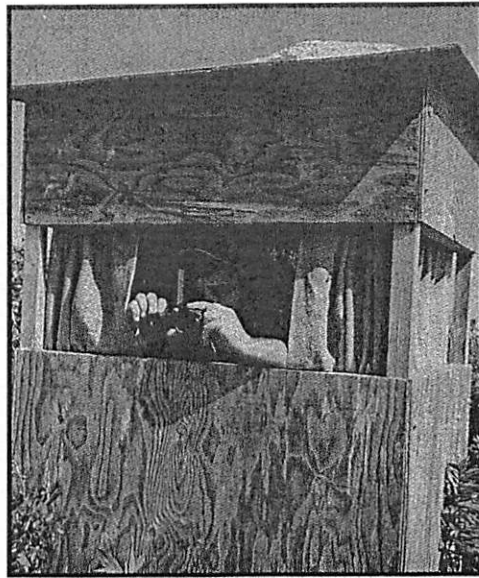
**Our sincere appreciation goes to the 1992 Maine seabird research interns and volunteers:**

### **Interns:**

Seth Benz  
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 Patricia D'Angelo  
 Trip Dennis  
 Peter Duley  
 Laura Gill  
 Scott Hall  
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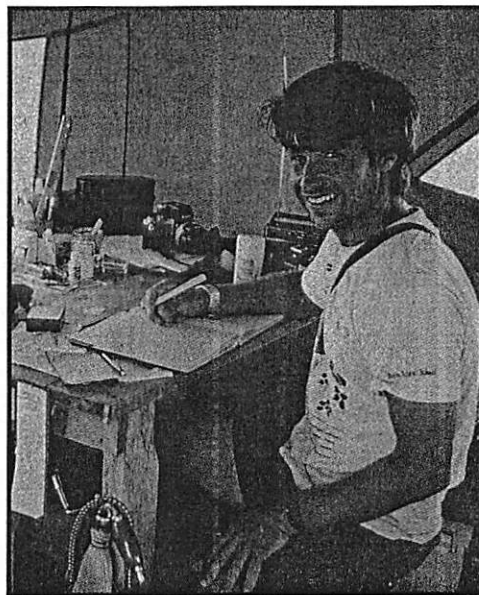
### **Volunteers:**

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 J. Michael Cothran  
 Sabina Ernst  
 Richard Godin  
 Wing Goodale  
 Mary R. Gunther  
 Susan Jones  
 J.B. Kavaliauskas  
 Sheila Kavanaugh  
 Richard Kilgore  
 John MacArthur  
 Jennifer Megyesi  
 Cornelia Melvin  
 Meredith Millman  
 Susan Musante  
 Nancy Packard  
 Barbara Rhoad  
 Susan Schwartz  
 Art Stackhouse  
 Dorie Stolley  
 Carol Strilich



*Eric Kershner observing Common Tern feeding habits at Jenny Island.*

Stephen Kress



*Scott Hall, island supervisor of Jenny Island, in his tent.*

Stephen Kress

**F**ourteen student interns and 22 volunteers assisted our seabird restoration research and sanctuary management program this summer. The interns and volunteers worked at five Audubon-managed Sanctuaries: Stratton Island, Jenny Island, Eastern Egg Rock, Matinicus Rock and Seal Island NWR. In cooperation with the Canadian Wildlife Service, interns were also placed on Pearl Island and Machias Seal Island.

Among the volunteers this summer were three staff from aquaria with puffin exhibits. These included Carol Strilich from Sea World in San Diego, J. Michael Cothran of Sea World in Orlando, and Mary Gunther from the National Aquarium in Baltimore—all working with captive alcid populations. Other volunteers included science teachers, university students and other keen birders from a wide range of backgrounds and experience.

Each island has a senior staff person in the role of Island Supervisor who stays on station at their island for most of the summer. Other interns rotate between two or three islands over the course of the summer, staying at each island for two to three weeks. The tasks vary among the islands, but may include blind stints to observe puffin bands, observation of feeding habits of terns, and all-night monitoring for night-heron predation. At each island, the interns and volunteers keep daily bird lists and a log of their observations. Journal entries reflect not only the careful observations of young biologists, but spirit, enthusiasm and dedication. A sample entry from this year's Jenny Island journal by Scott Hall is typical:

"The platform buzzes under my feet, I can feel the vibrations through the stool: as the rain increases the vibrations strengthen; thunder tears my ears. The world is charged, my body and mind are agitated by the sounds of rain and thunder. Oh so much better than caffeine! There is no wind. I am thinking of the terns ... if I could conjure some wind I would. The rain is like needles, trying to pierce the tent. Stop. Breathe. Experience.

"Don't write. Live. A bolt of lightning appears to have hit the north end rocks, and puts the terns up. I worry. The rain drives."

### **CLARA H. LEBOVITZ FUND ESTABLISHED**

The Clara H. Lebovitz Maine Coast Sanctuary Internship Fund was established in 1991 as an endowment to help support our student internship program. The fund was created by the family members, Mr. and Mrs. Saul Segal, Mr. and Mrs. Herbert Lebovitz, and recognizes Clara Lebovitz's concern for environmental education, wildlife and Maine's coastal islands. For further information about endowed gifts, tax benefits and bequest planning to help Audubon's Maine Coast Sanctuaries write: Fratercula Fund, National Audubon Society, 159 Sapsucker Woods Road, Ithaca, NY 14850.

## ACKNOWLEDGEMENTS

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We also thank the Endangered Species Program of Region 5 USFWS for supporting our Roseate Tern foraging study.

We thank the Maine Department of Inland Fisheries and Wildlife for permission to work on Eastern Egg Rock and Jenny Island and for field equipment, the US Coast Guard for the privilege of working on Matinicus Rock, the USFWS for allowing us to conduct our studies on Seal Island National Wildlife Refuge, and the Canadian Wildlife Service for cooperating with us at Machias Seal Island and Pearl Island. We also thank Mike Shannon for providing use of the Hog Island facilities and Joe Johansen of the Audubon Camp in Maine for his invaluable logistic support.

It is a special pleasure to acknowledge the generous assistance and gifts from the following people:

- Ted Berry and Radio Communications, Inc. of Portland, ME for donating radio telephone equipment and service
- John Drury for the use of his dory at Seal Island
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- Moss Tents for loaning an Optimum 200 tent for use on Stratton Island
- Chad Novelli for assisting with our newsletter
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- Eliot Robinson for building an electronic nest activity indicator for Stratton Island
- Clark Smith and the staff of the Prout's Neck Yacht Club and Norm Dugas of Black Point Inn for their assistance with Stratton Island logistics
- Walter Simmons and the Maine Wildlife Woodcarvers Assn for carving murre decoys used at Matinicus Rock and puffin decoys for Seal Island
- George Stanford for donating lumber for the Stratton Island tent platform

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