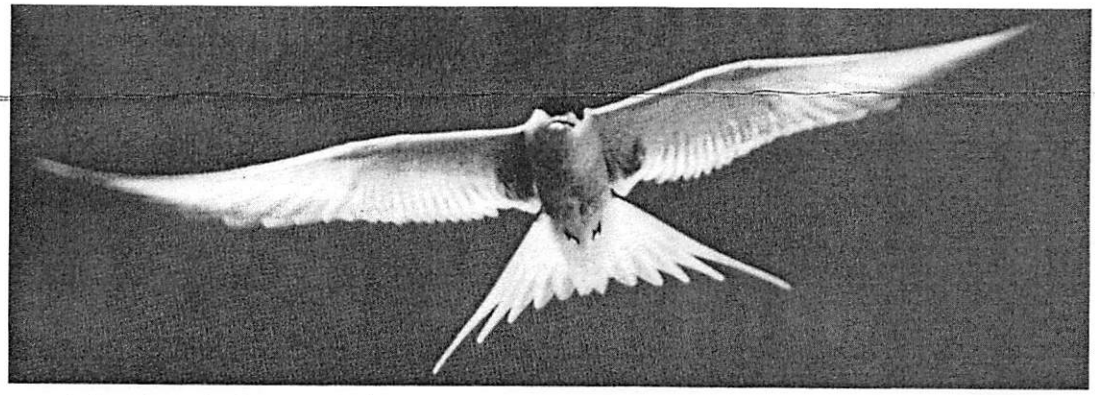
Egg Rock Update

1986 Report

Stephen W. Kress
Director

Newsletter of the Fratercula Fund of the National Audubon Society

ARCTIC TERN CHICK PRODUCTION TRIPLES AT MATINICUS ROCK



Arctic Tern populations have declined for the past 40 years in Maine, but this summer gull control efforts at Matinicus Rock, the largest U.S. colony, have greatly improved chick production.

After many years of poor reproduction and declining numbers, the Arctic Terns of Matinicus Rock have experienced an excellent season of chick production.

Matinicus Rock, located 22 miles off Rockland, Maine, has been an important Arctic Tern colony since at least 1850 when it was already a "large" colony. The terns were displaced in 1857 during lighthouse construction, but they recolonized the northern end of the island in 1868 and with protection from light keepers, their numbers spred from the island's northern tip to the lighthouse towers in the center of the island by 1875.

While terns were being slaughtered on most other Maine islands in the late 1880's to decorate fashionable ladies' hats, Capt. Wm. G. Grant, keeper of the Matinicus Light, prevented the milliner's agents from taking Matinicus Rock terns. With appointments as Wildlife Wardens from the American Ornithologists' Union and later the National Audubon Society, light keepers continued to protect the Matinicus terns, permitting their numbers to increase to approximately 3000 pairs by 1936.

However, in the fifty years following this peak of Arctic Tern numbers in the Gulf of Maine, these elegant birds have declined from approximately 8000 pairs in 1936, to 2890 pairs in 1984 (the most recent estimate for the Gulf of Maine). By 1986, the Matinicus Rock colony had declined to 774 pairs, but the important increase in chick production experienced at Matinicus this year may mark the end to this long decline.

In 1985, Gregg Transue, sitting atop the Matinicus Rock light tower, observed Herring Gulls flying from their colony on the northern end of the island into the tern colony which occupies the central and southern parts of the Rock. From this excellent vantage, he documented 63 cases of Herring Gull predation in 295 hours of observation at the rate of once every 4.75 hours.

Studies of chick production in nine study plots located throughout the tern colony found that plots closest to the gull colony had the lowest success (0.07 and 0.17 fledged chicks per pair), while the plots furthest from the gull colony produced 0.76 and 0.81 fledglings per pair. In 1985, the average production in all nine study plots was only 0.24 chicks per pair.

On May 30, 1986, at National Audubon's request, the U.S. Fish and Wildlife Service placed bread treated with the avicide DRC 1339 in the nests of 65 Herring Gulls and 3 Great Black-backed Gulls which were nesting on the northern end of Matinicus Rock. The avicide killed 62 Herring Gulls and 12 Great Black-backed Gulls and set the stage for a dramatic recovery in tern production.

Observations from atop the light tower in 1986 recorded only five cases of gull predation in 275 hours of observation or predation at the rate of only once every 55 hours. Chick production nearly tripled from 0.24 fledglings per nest in 1985 to an average of 0.68 chicks fledged per pair in 1986.

Perhaps the most convincing effect of the gull removal is the absence of a distance-success relationship with the former gull colony. Unlike 1985, in 1986 terns nesting close to the former gull colony were just as successful as pairs nesting in more remote locations. This supports the contention that gull removal led to the increased tern production rather than a seasonal effect such as weather, food, or other uncontrollable variables.

After the gull removal, the number of terns nesting in the northern part of the colony increased from 11 to 44 pairs and unlike previous years, terns were observed courting throughout much of the northern third of the island. This area is also important auk nesting habitat, but in previous years gulls dominated most of the tall roosting rocks. In 1986, there were often fifty to sixty puffins and many Razorbills loafing atop the same boulders that were used previously by Herring and Great Black-backed Gulls.

Egg Rock Update

CONTROLLING VEGETATION FOR TERNS

At Eastern Egg Rock, the preferred nest site for Common and Arctic Terns is the edge of a flat rock surface surrounded by short vegetation. Arctic Terns often nest in open expanses with sparse vegetation growing out of rock crevices, while Common Terns sometimes build a substantial nest out of dead plant stems on top of low vegetation. Both species, however, shun rank vegetation.

Since 1974, when the Puffin Project began at Eastern Egg Rock, the vegetation has become increasingly rank. Raspberry and elderberry have spread across much of the interior of the island, while timothy, terrel, and quack grasses now grow closer to the shoreline. These tall grasses are now overgrown with dense mats of bindweed and dodder, further reducing the liklihood that terns will nest in this habitat.

The intense winter storm of January 9, 1978 illustrates how sea conditions can clear vegetation and improve habitat for nesting terns. On this memorable day, 55 mph southeast winds pushed an extraordinarily high 15 foot tide up and over Eastern Egg Rock. Although there were no eyewitness accounts, the scattering of flotsum clearly showed that most of the island was under water.

This great storm rearranged boulders weighing several tons each and uprooted dense vegetation mats, especially on the southeast side of the island. The sea action exposed a large bank of gravel that was the area first colonized by terns in 1980. This habitat was used by nesting terns until 1983, but in recent years the vegetation has again become so rank that terns have been forced out of this favorite area.

Before most suitable tern nesting islands were taken over by the more dominant, earlier nesting Herring and Great Black-backed Gulls, occasional severe winter storms probably helped to keep prime tern nesting habitat open for terns. Today, however, approximately 90% of the Common and Arctic Terns in Maine are nesting on only six islands and there is a great need to manage these few safe islands as productive tern nesting sanctuaries.

In 1986 we began a program using prescribed burns and rock salt plots to improve tern nesting habitat at Eastern Egg Rock.

1986 Prescribed Burn

On March 18, following two days of 50 degree weather, we headed out to Eastern Egg Rock to burn the southern end of the island to improve it for tern nesting habitat. Our goal was to uncover potential tern nesting habitat by exposing bare rock surfaces which had over time accumulated more than a foot of dead vegetation.

With a 5-10 mile southerly breeze, we first lit a backfire that burned slowly from north to south and then set a head fire which quickly burned from the south. A four meter wide fire break half way up the island provided assurance that the fire would not spread over the entire island. This was important as vegetation control plots in the northern end of the island would be compared with burned areas.

Although several inches of accumulated plant material were removed in the burn, the lower layers of matted vegetation were still too wet to ignite. Comparison of vegetation in burned vs unburned study plots showed no noticeable differences attributed to the burn, and there was no apparent change in the distribution of tern nests. If more favorable conditions for a burn occur in early spring of 1987, we intend to try another burn as the technique offers great promise for improving tern nesting substrate.

Salt Plots

Another approach to improving tern habitat is to maintain open patches of bare soil or gravel by uprooting all existing vegetation and then treating the soil with a sterilant to keep rank plant growth from quickly reclaiming the area. Rock salt (halite) is a promising soil sterilant as it is the principal salt in seawater, and unlike chemical herbicides, it is already a natural component in tern nesting habitat.

To test the usefulness of rock salt for tern habitat management, we removed all of the vegetation overlying 10 gravel strips, each two meters wide by five meters long. These bared strips were separated by six equal-sized control plots of undisturbed vegetation. The strips were cleared from May 28 to June 1 and terns began landing and courting in the cleared areas immediately. The first tern nest in the salt plots was discovered on June 10 and before the summer was over, 23 pairs of Common and Arctic Terns nested in the six salted gravel plots. In contrast, only one nest was found in the six control strips where the vegetation was left undisturbed. In addition to the 23 pairs nesting in the salt plots, an additional 30 pairs nested in adjacent habitat on bare rock surfaces.

By checking the contents of each nest every third day, we noted that terns nesting in the salt plots had a 30% hatching success, while those nesting outside the plots had a similar hatching success of 33%. Although these are very poor hatching success rates, the similarity in hatching rates between the two areas suggests that the rock salt probably had no effect on hatching success.

While rock salt offers promise as a useful tool for managing tern nesting habitat, its long term effect will require continued monitoring. The poor nesting success of Egg Rock terns in 1986 is likely due to the mysterious nocturnal abandonment by most of the colony. Typically, parent terns incubate or brood their eggs and newly hatched young at night. In their absence, downy chicks become chilled and eggs cool below optimal incubation temperature. It is not clear why the terns are abandoning the colony at night, but it may be associated with nocturnal visits from predatory Black-crowned Night Herons, who occasionally visit the island in search of a tern meal.

Susan Schubel and Evelyn Weinstein add rock salt to tern nesting substrate at Eastern Egg Rock to retard the growth of rank vegetation. Right: one of ten gravel strips maintained by using rock salt. Tern nests are marked by placards.

Egg Rock Update

ISLAND UPDATES

19 Pairs of Puffins Breed at Egg Rock

The breeding population of puffins at the Allan D. Cruickshank Audubon Sanctuary on Eastern Egg Rock remained stable in 1986, with 19 pairs nesting. This is similar to the 20 pairs which bred there in 1985. Thirty-one of the breeding puffins wore leg bands identifying them as birds transplanted as chicks to Egg Rock from Newfoundland between 1976 and 1980. In addition to these, five breeders were unbanded, suggesting that they were from either nearby Matinicus Rock or Machias Seal Island, the only other puffin colonies in the Gulf of Maine.

Sixteen of the 19 puffin pairs nesting at Egg Rock in 1986 successfully fledged their single chicks—this fledging success of 84% is the best the colony has achieved since it was reestablished in 1981. Only one of the 19 pairs consisted of birds which had not previously bred at Egg Rock, while 13 pairs nested with the same mate in the same nest site occupied in 1985. Three additional pairs had new mates in 1986. Dawn to dusk feeding studies examined feeding frequencies, size of fish loads, and types of fish delivered to the native puffin chicks.

Puffin Feeding and Growth Study

The Canadian Wildlife Service study of the effects of diet on growth of transplanted Atlantic Puffin chicks, initiated in 1985 (see Egg Rock Update 1985), was continued in 1986. At Eastern Egg Rock, detailed studies were made of 50 chicks reared on capelin or small herring (25 birds each). These are the natural foods of puffins in Newfoundland (where the chicks originate) and Maine, respectively. The energy-and nutrient budgets of these chicks were measured by collecting their faeces for chemical analysis, and weighing and analysing their food. Each group of 25 birds was divided into 5 subgroups of similar age, each of which was given a short period of food stress at a different stage of growth.

This study was designed to help interpret the growth patterns found in Newfoundland, where puffins have suffered severe food shortages apparently brought about by overfishing of their food supply. In all these groups, the fledging period was extended by the food stress, but the most interesting feature was found in the different response of the chicks of different ages; unexpectedly, we found that younger chicks were more resistant to food stress (and possibly also regained weight faster) than older chicks.

Another important and unexpected finding was that the small herring—very similar in size to those brought to chicks by wild puffins in the Gulf of Maine and the Bay of Fundy—did not provide as much nutrient weight-for-weight as capelin (which are much larger-bodied). This suggests that even if small herring are relatively abundant near the colonies, the adult puffins still need to make frequent feeding trips to bring in enough to provide their chicks with an adequate diet. This is consistent with observations on Matinicus Rock and Eastern Egg Rock that wild puffins are delivering a surprisingly large number of feedings to their chicks.

Less detailed studies were carried out on Seal Island in Penobscot Bay as part of the effort to restore their historic puffin colony (see Egg Rock Update 1984). In one study, two groups of chicks were fed the same weight of food each day, but one group received its daily ration in a single meal while the other group received ten meals a day, as wild chicks might in the Gulf of Maine region; there was no detectable difference in weight, wing length, or age at fledging between these two groups. In the second study, an experimental group received a varying amount of food according to the chick's age, but here too, no difference was detected between experimental and control groups.

At the conclusion of the experiments, the chicks were permitted to fledge into the waters surrounding Eastern Egg Rock and Seal Island. Of the 200 chicks transplanted from Newfoundland, 40 successfully fledged from Eastern Egg Rock and 149 fledged from Seal Island, for a total fledging success of 95%.

These feeding and growth experiments are important not only to improve the effectiveness of the chick-rearing program, but also in increasing our understanding of the relationships beween breeding puffins, their food supplies, and the marine environments of which both are a part. These studies are opening up new and exciting possibilities for using our knowledge of seabird chick-growth and feeding biology to interpret—and perhaps even to predict changes in the herring fishery in the Gulf of Maine and the capelin fishery in Newfoundland waters.

A.W. Diamond and D.N. Nettleship, Seabird Research Unit, Canadian Wildlife Service, Bedford Institute of Oceanography, P.O. Box 1006, Dartmouth, N.S. Canada B2Y 4A2

Stratton Island Program Begins

Stratton Island, the Phineas W. Sprague Memorial Sanctuary of National Audubon Society, located in Saco Bay, is the northernmost North American nesting site for Glossy Ibis, Snowy Egret and Little Blue Heron. In 1986, with support from Prout's Neck Audubon Society, two warden/biologists lived on the island to census the wading birds and keep disturbance from large numbers of picnickers to a minimum. In the first thorough census to date, they found 110 pairs of Snowy Egret, 39 pairs of Glossy Ibis, 59 pairs of Black-crowned Night Heron, 2 pairs of Cattle Egret and 2 pairs of Little Blue Heron.

In Memory

Since the last issue of Egg Rock Update, two important friends of the Puffin Project have passed away. We will greatly miss our good friend Carl W. Buchheister who was a source of constant inspiration and encouragement for our seabird efforts from the earliest days of the Project. The love which he shared for Matinicus Rock and his successful efforts to arrange the Audubon license to protect "the Rock" are constant reminders of his enthusiasm for seabirds and wild places.

We will also miss our good friend Melville H. Ireland whose enthusiastic and generous support of the Puffin Project through the Ireland Foundation has made many of our accomplishments possible.

ACKNOWLEDGMENTS

Fratercula Fund projects are supported by the Science and Sanctuaries Division of the National Audubon Society. Special thanks go to the many friends and organizations who support our work so faithfully.

I also thank the Maine Department of Conservation for the lease which permits us to work on Eastern Egg Rock and I thank the U.S. Coast Guard for the privilege of working on Matinicus Rock. I also thank the U.S. Fish and Wildlife Service for permission to conduct our studies on Seal Island National Wildlife Refuge and for their assistance this summer with gull control efforts at Matinicus Rock and Seal Island. I also appreciate the continued cooperation of David N. Nettleship of the Canadian Wildlife Service who organized the collection of puffin chicks at Great Island.

It is a special pleasure to acknowledge the generous assistance of Drs. Bill and Betsy Brennan who have flown the collecting team to Newfoundland for the past three collecting trips. I also thank Dr. Christine Welch for donating vitamins for the transplanted puffin chicks and acknowledge Joe Johansen, Head Boatman of the Audubon Camp in Maine, for providing invaluable logistic support. I also thank Alexander Sprunt IV and John Ogden of National Audubon's Research Dept. for their support and I thank Charles Walcott and the entire staff of the Cornell Laboratory of Ornithology for their continued cooperation with Fratercula Fund projects.

My deepest appreciation goes to the 1986 research assistants and island supervisors who took meticulous care of the transplanted puffin nestlings and spent so many hours gathering the information presented here. I thank: Steve Baird, Diane DeLuca, Peter Duley, Conrad Field, Wesley Harris, Daniel Kearns, Joseph Kelly, Thomas Mahan, Susan Schubel, Virginia Tibaldi, Barry Transue, Brett Transue, Gregg Transue, Kirk Waterstripe and Evelyn Weinstein.

1985–1986 CONTRIBUTORS

BENEFACTORS

Burt Brent; R. N. Fish & Son, Inc.*; Harborside Shop*; In memory of Melville H. Ireland: Anne Ireland*, Kate Ireland* and the Ireland Foundation*; Islandwide Runner; Michael T. Martin*; Joseph & Jenny McIntyre*; Prout's Neck Audubon Society.

PATRONS

Fanchon Apfel; Atlantic Audubon Society*; Janet Balding*; Ann Biek*; Louise Borchelt*; William & Bess Brennan*; Broward Soil & Water Conservation District; John E. Carter*; Central Ohio Bag and Burlap Co., Inc.*; Donald F. Chandler; Pauline Spear Chapin; George & Ada Churchill; Thea D. Coburn; Helen Cruickshank*; Fanny Dale*; Wallace C. Dayton*; Deleware Audubon Society; Ronald & Lois DeLuca*; Detroit Audubon Society*; Brian Dewart; George & Betty Dudik*; Mark & Ellie Eakin*; Bill & Gerry Feild*; Firman Fund*; John & Barbara Fitch* (in memory of Mel Ireland); Gertrude R. Florini*; Gerry W. Gillispie; Paul & Eileen Growald*; Carolyn B. Haffenreffer; Hal & Larry Haglund*; Bill & Helen Halme*; Mrs. J.W. Hershey*; McCord & Marjorie Hinkel*; Betsey Holtzmann*; Jersey Shore Audubon Society*; Dorothy Johe*; John Burroughs Natural History Society*; Juniata Valley Audubon Soc.; Walter & Milred Karl*; Thomas & Patricia Keesee*; Charles C. Kingsley*; Lehigh Valley Audubon Society*; Barbara Levine & Students; Ron Light; Long Beach Community; Clive S. MacDonald*; John B. Madden*; Maine Dept. of Conservation; Natalie S. Major*; Ada C. Mass*; Monmouth County Audubon Society*; Duryea & Peggy Morton*; Sunny Murtha*; Rita J. Myrick*; Russell & Susan Petro; Emma B. Pitcher*; Alvin & Florence Podolsky*; Quittapahilla Audubon Society*; Nanthaniel P. Reed*; James & Celia Rutt*; Dorothea Schlechte*; Susan D. Schumann*; Herbert W. Sears*; Seven Mountains Audubon Society; Elizabeth A. Sexton; Neale & Webber Smith; South Mountain Audubon Society; Joan Stapleton; Will & Robin Tress*; Tom Troy; Valley Forge Audubon Society*; Washington Crossing Audubon Society*; Diane Watts; Mrs. Nathan Weinstein*; Timothy White*; Irma J. Wilhelm; Janet M. Wilson*; Sherman & Adele Wolfson*; York Audubon Society*; William & Ethel Yuhas*.

SUPPORTERS

John Alexander*; John A. Alic; J. Bruce Amstutz; Mr. & Mrs. John M. Anderson*; Carlos Araoz; Tania Assaykeen*; Dr. Frank Babbott*; Doris Balant*; Richard & Doris Baldwin*; Donna Barnes; Elaine T. Barnum; Philip H. Bartels*; Bartramiam Audubon Society; John M. Bataller*; Lucie Bauer*; Christine Baumann*; William Beckman; Nathan Belfer*; Ray Berquist, Jr.; Janet Betlejeski*; Belle G. Binin*; Diane & Richard Blair; Mr. & Mrs. Charles Bliss*; W.H. Bontiz; J. Gregory Bretz*; Jane Brown; Paul M. Brown*; Bonnie J. Burbano; Sylvia S. Burdick*; Elizabeth Burleigh; Mary Burton*; Mr. & Mrs. Bartram Cadbury*; Evangeline Caliandro; Joann Callaghan; Lydia Carmi; Lorraine Carson*; Dana E. Cartwright, Jr.; Timothy P. Chaucer*; Martha Chestem*; Adelaide Childs*; Gay Christensen-Dean*; Mary Jane Claerr*; Mary Clemeshe*; Norman Clevely, Jr.*; Saul H. Cohen*; Robert & Helen Coshland*; Marianna Crawford*; Bettymae Cronheim*; Kathryn Curtin; Alfred Custer*; Karl David*; Lev & Eugenie Davis*; Carol Davis*; Susanna Davy*; Clifford & Jane DeMayo*; Emily Derr; Erma DeWitt*; Nan & Ned Dillon*; Diane Doig; Wilbur G. Downs*; Sue Dudding*; Roberta Dunlap*; David Dykaar; Richard & Dianne Eakin*; Rose Marie Eck*; Edgar & Patricia Eckfeldt*; Samuel & Patricia Einhorn*; Jill Elliot; Elly Elmendorf*; Mary Engle*; Claire G. Engle*; Patricia Evans*; Marlene Fahey; Jerry & Dan Fales; Connie Farley; Evangeline Fingland; Maralyn Fleming*; Andrew T. Fondrk*; Patricia Fox; Jean Frank*; W. Todd Furniss*; Edwin Gamble*; Sallyann Garner; Charlene Gieck; Evelyn Gilmore*; John & Peggy Ginaven*; Caryl Ginsberg; Elinor Gipfel*; Glen Helen Assoc.*; Allison Sue Goldberg*; Stephen Gould*; Mr. & Mrs. Alan Gould*; Doris Gove*; Joseph & Carolyn Gray*; Marilyn Hackett; Elizabeth Hadden; Violet Hallett; Maureen Harris*; Arthur Harris*; Martha Hassell; Robert Hauslohner*; Mr. & Mrs. Richard Hawthorne*; Dennis Hendricks; Robert & Cornelia Henry*; Helen Herzlinger; Florence Heyl*; Anthony Heyl & Carolyn Shubert*; Virginia Hladki*; Jean Hodder*; Ruth Hoffman; Katie Housman*; Edith Huey*; William & Judith Jaffe*; Mr. & Mrs. Don Johnson*; Debby Johnson*; Daniel & Margery Johnson*; Marie Karanfilian*; Clare Kathmann; Eleanor Kendall*; Pat Keoughan*; Christine Kilesnik*; Frank Kilijanski; Robert Kinner*; Jeanne Kirsch; Kenneth & Betty Kitson*; Mikell Kloeters*; James & Sandra Kovanda, Jr.*; Clara Kriss; Doris Kuhns*; Lackawanna Audubon Soc.; Ethel Lake*; Robert Lathlaen*; Gudrun LeLash; David Leich*; Carol Leininger*; Pinky & Maryann Leitner*; Dr. & Mrs. W.R. Lenz*; Edith Leopold*; John & Maggie Leuzarder*; Mrs. Ralph Levy*; Vern Lewis; M.W. Lewis, III; Gwen Lighter; Millard & Marjorie Lindauer*; Bruce Lindeen; Marcia Lipson; Susan Lukin; Carlton & Jean Lynn*; Jean MacNevin*; Janet Maleski & Frank Getchell*; Gloria Markowitz*; Annette Mayer; Robert & Rose Maynard*; Mr. & Mrs. David McBane*; Julie McCartney; Lois McDowell*; Patricia McFadden*; Ellen McKeon*; Richard & Claire McKillip*; Constance McNally*; Esther Jane McNeil*; Douglas McVicar; Lawrence & Helen Mead*; Gordon & Jane Meade*; Joan Meaker*; Beverly & John Mentus*; David & Barbara Middleton*; Ruth Miles*; Holly & Wayne Mones; Helen Montgomery*; Dudley Morgan*; Marcia & Tom Morton*; Catherine Mueller*; Mr. & Mrs. L. Murphy*; National Aquarium in Baltimore*; Jean Neely; Elizabeth Nelson; Roberta Nelson*; Leroy & Frances Nelson*; John Nelson*; Moreen Nesbitt*; Donna Nye; Jane Olsen*; Olie & Jane Olsen*; Peter Osenton*; Edgar Oswald; Otter Creek Audubon Society; C.W. Eliot Paine; Dorothy & Earl Palmer*; Nicholas & Leslie Parsons*; Patricia Paul*; Barbara Pawlek-Brennan*; Betty Peabody*; Lanier & Diane Pearce; Phyllis Pellin*; Douglas Perkins & Christine Mendel; Olin Sewall Pettingill, Jr.*; Joan Philipp*; Lydia Phillips*; Becky Piske; Elizabeth Porter*; Portledge School; James Povero & Sandra Yahner; Prendergast Family; Mary Ellen Priest*; Nancy Proctor; Joseph Quarles*; Patti Ragan*; E. M. Ramsdell; Bayard Rea*; Dr. Rolland Reynolds; Judy Ribble; Sheila Rodrigues; George & Linda Rongner*; Ardis Rundlett*; Susan Russell*; Ardis Ryder*; Ken Salzman; Ruth Sanford*; Emery & Mary Santerre; Charles & Margaret Saunders*; Edward & Carole Schaefer*; Mrs. Robert Scheer; Leland Scopp*; Edith Seegers*; Linda Shaw; Penny Shaw; Steven Shaw*; William Shepherd; Lucie Shubert*; Alice & Wickham Skinner*; Karen Sloey*; Bernard & Mary Slofer*; Norman & MaryAlice Smith*; Sorrento Scientific Society*; Ruth & Howard Spendelow*; Mr. & Mrs. John Stehn*; Wallace & Joan Stephens; Edith & John Stephenson*; Carole & Edd Stepp*; Barry & Sharon Stoddard; Ronald Strothkamp*; Jennifer Sutliff*; Charles Sweatt; James Taft*; William Talpey*; Bonnie Michelle Tanoff; Jane & Tom Teague; Steve & Barbara Thomas; C. Hasty Thompson*; Nick Todoroff*; Adele Towbin*; John & Theo Turner*; Lucy Tyrrell*; Janet & Blaine Ulmer; Fred & Margaret Van Sant, Jr.*; Linda Vance; Don & Frances Vannoy*; Mary Vincent*; Patricia Wainright*; Barbara Warren*; Edward & Mary Weeks; Richard Weimer*; Gerry Weinberger; Evelyn Weinstein; Rosalie J. Coe Weir; Laurie Weltlin; Carole Wemyss*; Marian Werner*; Floyd & Marlene West*; Ellen & Ken Wexler*; Eleanor Whitney*; Wildlife Rehab. Center*; Muriel Wilhelm; Denice Wilkins; Tom & Beryl Wilson*; Robert & Claudine Wilson*; Janet Witherspoon*; Jane Wood*; Mr. & Mrs. DeGraaf Woodman*; William Wright; Alan Wyckoff; Craig Zwerling*.

*Continuing Contributors

Contributions continue to be an important source of income for the Fratercula Fund. Contributions of $15. or more will receive a subscription to future editions of *Egg Rock Update*. Checks should be made payable to the National Audubon Society and directed to the Fratercula Fund, 159 Sapsucker Woods Rd., Ithaca, N.Y. 14850.