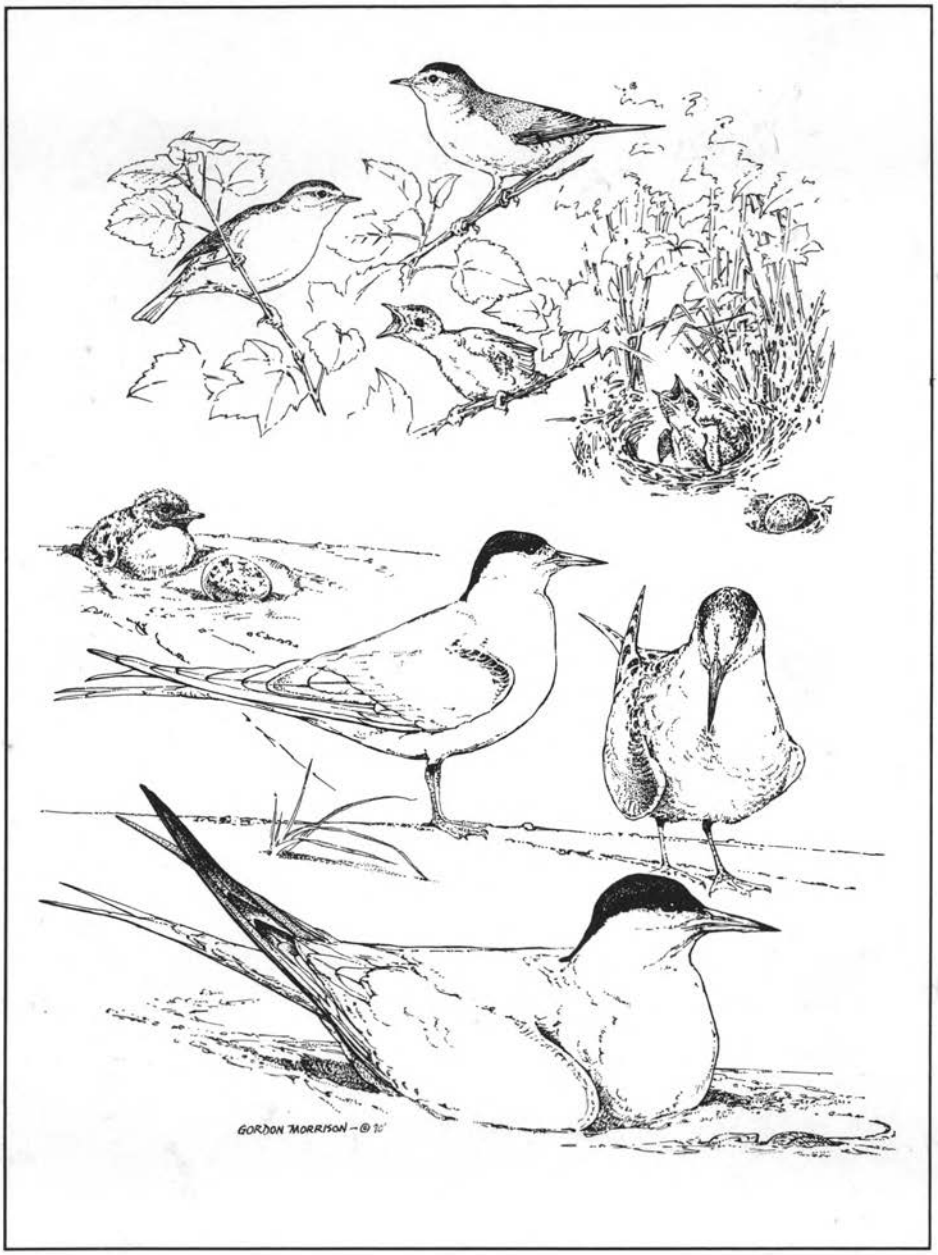
BIRD OBSERVER



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Cover Illustration: Common Tern and Wilson's Warbler by Gordon Morrison

NOTICE TO OUR READERS

With this issue, *Bird Observer* has a new editor, Martha Steele. Dorothy Arvidson, editor of *Bird Observer* since 1983 and an important member of the editorial staff since 1978, decided to step down after the February 1991 issue. She presided over many changes in *Bird Observer* that have substantially enhanced the journal. She maintained the highest standards of quality for which we are all most grateful.

In September 1990, Martha Steele agreed to serve as guest editor of this issue. On March 14, 1991, the Board of Directors appointed her as editor in chief and approved a new organizational structure in which heads of various *Bird Observer* departments will report to her. The Board of Directors and staff wish to congratulate Dorothy Arvidson on a job well done and wish Martha Steele well in her new role. William E. Davis, Jr., President

INTRODUCTION TO THE 1990 AFO/WOS SYMPOSIUM: THE AMATEUR IN ORNITHOLOGY

by Edward H. Burtt, Jr.

Editor's Note. *"The Amateur in Ornithology" was one of two major symposia at the Joint Meeting of the Association of Field Ornithologists (AFO) and the Wilson Ornithological Society (WOS), held from May 31 to June 2, 1990 at Wheaton College in Norton, Massachusetts. In this issue,* Bird Observer *is pleased to publish the four papers given for the symposium. Edward H. Burtt, Jr., co-chair of the scientific program for the meeting and president of AFO, provides* Bird Observer *readers with an introduction to the series of papers. The meeting was attended by 187 registrants from thirty-one states, one Canadian province, the District of Columbia, Puerto Rico, and the Philippines.*

I can hardly remember not watching birds, something that most ornithologists, professional or amateur, can perhaps say. Most professional ornithologists continue to watch birds for the sheer joy of seeing them, a joy they share with their amateur colleagues. Field trips are an integral part of both professional and amateur meetings and conversations between papers integrate science with enthusiasm for birds.

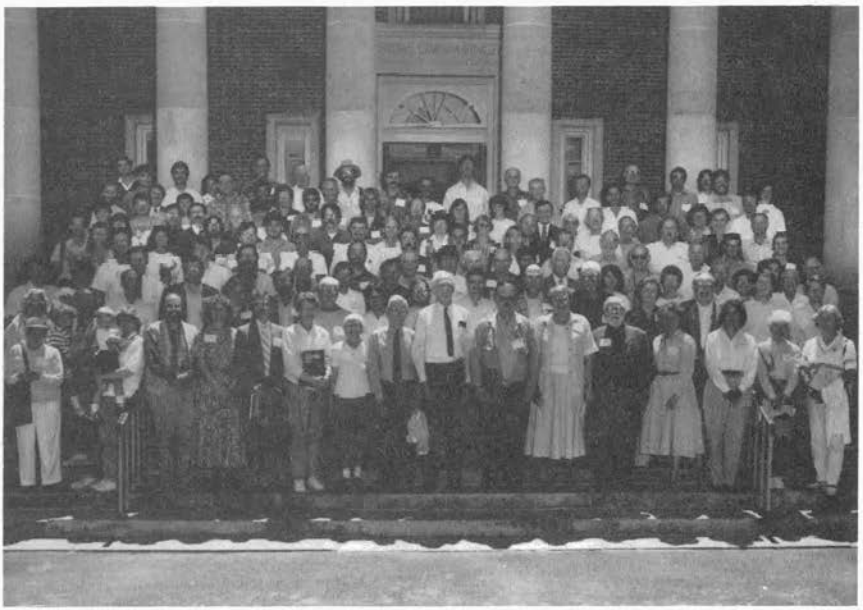
Amateur ornithologists feature prominently in ornithological history. The first ornithological textbook was written by Frederick II (1194-1250), Holy Roman emperor and king of Sicily. Gilbert White (1720-1793), a parish cleric in Selborne, England, was a keen observer of nature in general and birds in particular. His *Natural History of Selborne*, published in 1789, is still in print. The grace of White's language along with his remarkable insights into natural history make the book a delight to read. Charles Darwin (1809-1883) supported his theory of evolution with observations of Galapagos finches and domestic pigeons, but he never occupied a professional position in biology. Margaret Morse Nice (1883-1974) pioneered the use of color bands in her *Life History of the Song Sparrow* (1937), a work that established a new standard of excellence in the study of the life history of a single species. Harold Mayfield, a successful and innovative businessman, found time to become the foremost authority on Kirtland's Warbler, to develop the Mayfield method for assessing nesting success, and to serve as president of three major ornithological societies. The role of the amateur in ornithology is secure. A multitude of skilled amateurs participated in the state bird atlas projects. Thousands participate in Breeding Bird Surveys, Breeding Bird Censuses, and Winter Bird Population Studies, and tens of thousands participate in the annual Christmas Bird Counts. These distribution and population studies provide the data with which to assess the impact of global warming, ozone depletion, and habitat fragmentation. These vital data form the foundation on which to construct policies to help preserve

birds and their habitats for future generations.

Not all amateur contributions are based on finding and watching birds in the field. Banding stations, such as the Manomet Bird Observatory, depend on dedicated amateurs who donate many hours to banding and recording data from captured birds. In communities throughout North America, enthusiastic amateurs are a resource for local schools and for the neighborhood child fascinated by birds. The energy, skill, and enthusiasm that amateurs bring to ornithology are as vital to its health as the depth of knowledge and conceptual framework provided by professional ornithologists.

The papers and authors in this issue of *Bird Observer* affirm the shared enthusiasm and goals of amateur and professional ornithologists. It is a view of science that is particularly well expressed by Jacob Bronowski (J. Bronowski, 1977, *A Sense of the Future*, Cambridge, Massachusetts: MIT Press, p. 4):

> Let no one tell you again that science is only for specialists; it is not. It is no different from history or good talk or reading a novel; some people do it better and some worse; some make a life's work of it; but it is within the reach of everybody.



AFO/WOS 1990 Meeting Participants
Wheaton College, Norton, Massachusetts

THE IMPORTANCE OF CONTRIBUTIONS BY AMATEURS TO AMERICAN ORNITHOLOGY: A SHORT HISTORY

by Mary H. Clench

In a short paper, the contributions of amateurs to American ornithology must necessarily be treated briefly. Until comparatively recently, virtually all of American ornithology was the product of amateurs. That is a lot of territory to cover in a few pages.

Amateur or avocational ornithologists can be defined as individuals whose salary and career are essentially independent of their ornithological activities (King and Bock 1978). In my research on amateurs in ornithology, I have had to rely heavily on the financial aspect to distinguish between amateurs and professionals. Many people made their livings as physicians, explorers, surveyors, dentists, or schoolteachers, or had other financial support. Yet, these people may now be known almost entirely for their contributions to avian biology, particularly during the time before there was an ornithological profession.

Christopher Columbus may be the first amateur who made a contribution to knowledge of North American birds. One of Queen Isabella's orders to Columbus was to bring back birds from the new lands he found. In 1493 Columbus arrived back in the Spanish court with several live parrots and a few skins. Columbus' predecessors in the New World, various Scandinavian explorers and Portuguese fishermen, made no reports of the wildlife they saw on the North American coast or made only brief notations of seabird colonies (none of which can be identified today). Of course their voyages were not intended to be natural history surveys, and the early explorers' sheer struggle to survive precluded any scholarly pursuits.

A few of the later Spanish, French, and English explorers were interested in natural history, although we know little of their discoveries of New World wildlife. For instance, the French navigator, Jacques Cartier, cruised in what are now Canadian and American coastal waters three times in the early 1500s and mapped and named features of much of the coast. Yet all we know about the bird life he encountered is an "Island of Birds" off Newfoundland, where in thirty minutes he loaded a huge number of large white birds, probably Great Auks, into his boats for food.

Samuel de Champlain, another French explorer and soldier, had wider interests, including hunting and fishing. He left us with much more detailed descriptions of some of the wildlife he encountered, such as turkeys, introduced into Europe by Spanish explorers in the early 1500s and apparently abundant on the Massachusetts coast when the Pilgrims first landed (Champlain sailed into Plymouth Harbor in 1605, nine years before Captain John Smith and fifteen years before the Pilgrims). Champlain wrote:

> We saw also a sea-bird with a black beak, the upper part slightly aquiline, four inches long in the form of a lancet; namely, the lower part representing the handle and the upper the blade, which is thin, sharp on both sides, and shorter by a third than the other, which circumstance is a matter of astonishment to many persons who cannot comprehend how it is possible for this bird to eat with such a beak. It is of the size of a pigeon, the wings being very long in proportion to the body, the tail short, as also the legs, which are red; the feet being small and flat. The plumage on the upper part is gray-brown, and on the under part pure white. They go always in flocks along the sea-shore, like the pigeons with us (Allen 1951, p. 431).

Not a bad description of Black Skimmers.

The early explorers, soldiers, and missionaries usually wrote only fragmentary reports on wildlife they saw during the centuries of exploration. One possible exception to this pattern was Gonzalo Fernandez de Oviedo y Valdez who could be called the first real natural historian of the New World. Oviedo lived in Santo Domingo, on the island of Hispaniola, from 1514 to 1522. He was a gentleman and a writer on many topics. He wrote romances as well as a *Summary of the Natural History of the Indies*, which included the first descriptions of many New World species. Unfortunately, because the book also included a good deal of hearsay material that Oviedo reported as factual (such as the "monstrous bird with one webbed foot and the other foot armed with talons" [Allen 1951, p. 427]), his work is largely discredited.

The tendency to include sensational tidbits in early writings from the New World can be found in other works as well. Nicolas Denys, a French naturalist in the fish, fur, and lumber business in Acadia (French Canada), published his *Description and Natural History of the Coasts of North America* in 1672. This book was unknown until 1908 when it was translated into English. While the book contained some accurate descriptions, it also included folklore and hearsay which were not distinguished from factual material. For example, he described Barred Owls as "harbouring and caring for live mice" (Allen 1951, p. 436).

It was not uncommon during this period to write to please readers, or not to admit that everything reported in a book was known through personal experience to be true. Even John James Audubon committed this sin several times in his *Ornithological Biographies* (Todd 1963). In Europe a great deal of interest in the "curiosities" being reported from the New World existed, interest capitalized on by explorers and writers who had to build financial support for their travels and books. So perhaps we cannot blame the English sailor David Ingram, a member of Sir John Hawkins' expedition who, in 1568, walked about 2000 miles over Indian trails from the Gulf of Mexico to Cape Breton (in northeastern Nova Scotia). His description of the trip was a mixture of fact and fiction as illustrated by the following notes on birds:

> Ther ys great plenty of Gynney hennes which are tame birds and prog to the inhabitannts as bigg as geese very black of Colour having fethers like downe. (Prairie Chickens? Grouse?) . . .

> Ther is also a birde called a fflamingo whose feathers are verie red and is bigger than a goose billed like a Shovelle and is very good meate. (probably Roseate Spoonbill) . . .
> Ther ys also a verie straunge byrde ther as bigge as an Eagle verie bewtifull to beholde his feathers are more orient than a peacocks feather, his eyes as glistering as any hawks eyes but as great as a mans eyes his heade and thighe as bigg as a mans heade and thighe. It hathe a crest or tufte of feathers of sondrie Colours on the tope of the heade like a lapwing hanging backwards his beake and talents in proportion like an Eagle but verie huge and large. (beyond identification or even conjecture) (Allen 1951, pp. 443-444).

I do not want to leave the impression that none of the early ornithological reports from the New World were accurate. John White, an English painter and former tutor of Sir Walter Raleigh, was the geographer of Raleigh's second expedition to Virginia and produced the first known drawings of American birds. His eighty-six accurate drawings are now in the British Museum and include one of a flicker done 150 years before the species was described! John White eventually became Governor of Raleigh's Second Roanoke Colony in 1587 and was the grandfather of Virginia Dare, the first English child born in the New World.

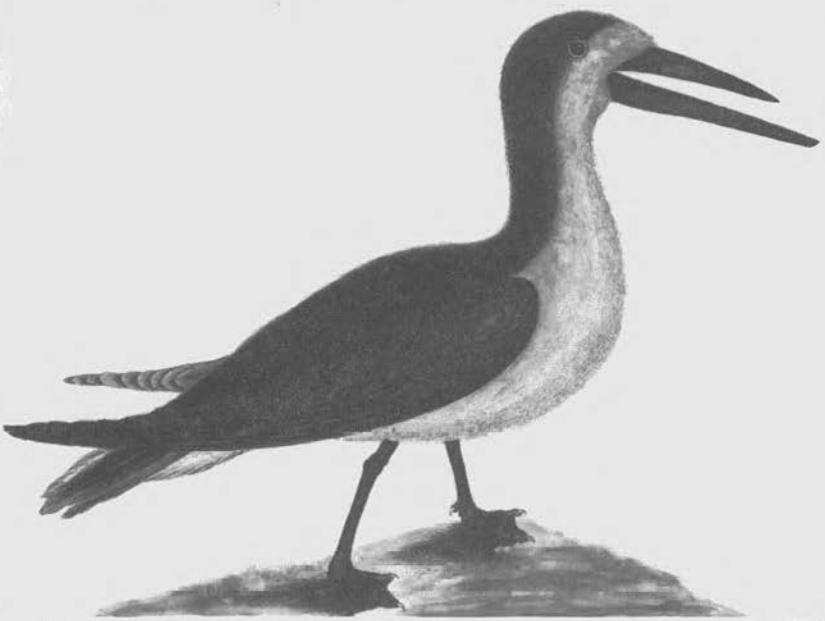
The abundance of game was especially noted by the early colonists in North America because food availability was so important. Captain John Smith's report in 1612 from the Jamestown Colony was typical:

> Of birds, the Eagle is the greatest devourer. Hawkes there be of diverse sorts as our Falconers call them, Sparrowhawkes, Lanarets, Goshawkes, Falcons and Osperays; but they all pray most upon fish. Partridges there are little bigger than our Quails, Wild Turkies are as bigge as our tame. There are woosels or blackbirds with red shoulders, thrushes and diverse sorts of small birds, some red, some blew, scarce so bigge as a wrenne, but few in sommer. In winter there are great plenty of Swans, Craynes, grey and white with black wings, Herons, Geese, Brants, Ducks, Wigeon, Dotterell, Oxeies, Parrots and Pigeons. Of all those sorts great abundance and some other strange kinds to us unknown by name. (Allen 1951, p. 450).

Among the later colonists, references to birds appear in religious treatises, poetry, and hunting accounts, but there was no interest in birds per se until the New World became more settled and the fundamentals of living were not so all-consuming. At the end of the seventeenth century, Mark Catesby became the first American naturalist and ornithologist. Catesby was an English gentleman, a man of leisure but no great wealth, who traveled to the New World as a naturalist sponsored by a group of wealthy men. At the time, botany was becoming a true science, but zoology was still undeveloped and was engaged in by only a few botanical collectors. Catesby was a collector who, because of the demands of his sponsors, studied birds only when he had time while searching for new and interesting plants. Nevertheless, he studied and drew a wealth of animals, including birds and fish. His *Natural History of Carolina, Florida, and the Bahama Islands*, published from 1731 to 1743, is the first major milestone in

American ornithology. It contains 118 colored plates of birds, seventy-four of which were later used by Linnaeus as the basis for the formal descriptions of those species. For the time, the plates are remarkable in their beauty, accuracy, and detail, perhaps all the more so because Catesby was a self-taught artist and naturalist who also taught himself engraving in order to produce his book. If you want to give yourself a treat, search out an original copy of his book, several of which are in major libraries in the United States, and look at his magnificent plates, now more than 250 years old. Catesby also contributed significantly to the field of botany introducing the catalpa, acacia, horse chestnut, and other plants into England and Europe.

After Catesby, there was a hiatus in American ornithology except for naturalist travelers such as Johann Forster (father and son, who accompanied Captain Cook on his voyage up the west coast of North America), and "gentleman naturalists," such as Thomas Jefferson, who included a list of seventy-seven species of birds in his *Notes on the State of Virginia* (1781), and Benjamin Smith Barton. Barton was a botanist, physician, and professor of *materia medica* at the University of Pennsylvania. He is primarily known for his



Cut Water by Mark Catesby.
From M. Catesby. 1731. Natural History of Carolina, Florida, and the Bahama Islands. *Reprinted with permission from the Department of Rare Books and Manuscripts, Boston Public Library, Boston, MA. Photo by David Smith.*

botanical writings, but he also published *Fragments of the Natural History of Pennsylvania* (1799), the first paper devoted entirely to American birds. It includes careful observations on bird migration—how birds appear and leave in relation to seasonal vegetational changes. Barton also had a strong influence through his teachings at the University of Pennsylvania, especially on one of his students in natural history, Thomas Nuttall.

The American "school" of ornithology began with America's first resident naturalist, William Bartram of Philadelphia. Bartram's landmark book, *Travels through North and South Carolina*, was published in 1791. His father, John Bartram, was a farmer and self-taught botanist. John traveled widely in the eastern states, collecting plants, seeds, and roots, and shipping them to wealthy Englishmen to supply the burgeoning English gardens being established at that time. John Bartram also included animal material, such as bird nests and eggs, in his shipments because of the interest in "curiosities" from the New World.

William's travels with his father on the botanical collecting trips and then alone to the Carolinas, Georgia, and Florida, formed the basis of *Travels Through North and South Carolina.* His income, however, was always based on his work in botany despite the fact that his primary interest lay with drawing and birds. William Bartram's most significant ornithological publication was the *Catalogue of Birds of North America*, listing 215 species, including migratory species and permanent residents, with detailed observations on song, nesting, and migration. William Bartram was a pioneer in that he was a student of living birds. He transcended collecting specimens and naming species, which would soon become the focus of the early professional ornithologists in America. Instead, he observed living birds and their habits and behavior, setting the precedent for later ornithological contributions by amateurs. Bartram's importance also lay in the combination of scientific knowledge and aesthetic appreciation expressed in his writing: literary prose with true scientific substance.

Bartram had a strong influence on the next generation of young naturalists in the United States, especially Alexander Wilson. Wilson represented a new type of ornithologist, a person who began as an amateur, but through self-education and independent study, gradually evolved into a professional. Wilson began life as a weaver, became a schoolmaster (he hated both occupations), and later took miscellaneous other jobs, such as peddler, surveyor, and editor, to make a living until he could devote himself entirely to poetry and natural history studies. He also taught himself to draw and later to engrave, enabling him to prepare the plates for his landmark book, *American Ornithology*, published in nine volumes beginning in 1808.

With Alexander Wilson's work and that of John James Audubon, American ornithology reached its first climax. Subsequently, American ornithology began to change its character as the first American museums were founded, bird

collections became important, and a person could find employment (however poorly paid) in ornithology. The beginning of professional ornithology in America can perhaps be linked to the founding of the Academy of Natural Sciences by Philadelphia naturalists in 1812, the United States National Museum, started through James Smithson's grant in 1846, and the Museum of Comparative Zoology at Harvard University in 1859.

Most of the early curators of those institutions, however, were men of means and were not paid by the museums. They also had no formal university training in zoology but learned their trade through apprenticeships, a practice that remained for many years. Later giants in the profession, such as Frank Chapman at the American Museum of Natural History, Robert Ridgway at the Smithsonian, and W. E. Clyde Todd at Carnegie Museum, all learned their skills through museum apprenticeships. It was not until the twentieth century that universities began to give courses in ornithology, thereby laying a formal foundation to the science and establishing another source of employment for the graduates. In 1915 Cornell University became the first university to appoint a professor of ornithology, Arthur Allen. Today, some fifty United States universities have Ph.D. programs dealing with birds.

But to return to the influence of the early museums, each institution conducted research by its own staff and enlisted field collectors who were often amateurs. Classic examples of amateur field collectors were army physicians enlisted by Spencer Fullerton Baird of the Smithsonian Institution and sent on western United States exploration expeditions or to staff far-flung army posts. The physicians sent back a wealth of material to the Smithsonian. Their ranks included no fewer than thirty-six names, including Charles Bendire, James G. Cooper, Elliott Coues, A. L. Heerman, Edgar Mearns, Robert Shufeldt, Casey Wood, Leonard Wood, and John Xantus.

Elliot Coues was commissioned an assistant surgeon in the United States Army in 1864. He served for nineteen years in the military, stationed in eastern and western forts, from which he collected and observed birds and wrote reports on his findings. During his army career, Coues wrote and illustrated *Key to North American Birds* (published in five editions from 1872 to 1903), *Checklist of North American Birds* (1873), *Birds of the Northwest* (1874), and *Birds of the Colorado Valley* (1878). His importance to American ornithology is almost incalculable. Nor was he alone. Charles Bendire, a United States Army major and later a founder of the American Ornithologists' Union, had a long career in the West. His two-volume *Life Histories of North American Birds* was later taken up, expanded, and largely completed by another "amateur," Arthur C. Bent. James G. Cooper (for whom the Cooper Ornithological Society was named) was an Army surgeon attached to the northern division of the Pacific Railroad Survey. He collected birds between the forty-seventh and forty-ninth parallels and wrote the first *Ornithology of California*. A. L. Heerman (the gull

was named for him by Cassin) was also a member of the Pacific Railroad Survey, but in its southern division. Heerman was killed near San Antonio, Texas, in 1865 at the age of thirty-eight when he stumbled and fell while collecting birds and his gun accidentally discharged.

In addition to the influence of their collections, museums have had, and continue to have, a stimulating effect on area amateurs, often through independent societies formed by amateurs and nurtured by museums. Examples include the Nuttall Ornithological Club begun in 1873 in Boston, the Linnaean Society established in 1878 in New York, and the Delaware Valley Ornithological Club founded in 1890 in Philadelphia. From these societies, young people interested in birds found stimulation and encouragement. Some became professionals, like Roger Tory Peterson and Joseph Hickey who began in the Linnaean Society. Others have made important contributions to the science as amateurs: William Brewster, J. E. Thayer, C. F. Batchelder, Outram Bangs, John C. Phillips, and Arthur C. Bent were all alumni of the Nuttall Ornithological Club. Some became integral members of museum staffs, such as Rudolph Meyer de Schauensee and James Bond at the Philadelphia Academy, and Eugene Eisenmann (a lawyer) and Charles Vaurie (a dentist) at the American Museum.

Amateur ornithologists have made vital contributions to the field through more independent work. Crawford Greenewalt studied hummingbirds, bird flight, and vocalizations. Laurence Walkinshaw studied cranes; Albert Brand, bird song; William Schorger, the Passenger Pigeon; Harold Mayfield, Kirtland's Warbler; and Robert Yunick, many banding studies.

I did not list Margaret Morse Nice here, although she is often heralded as the consummate amateur who made a landmark study of Song Sparrows, published by the Linnaean Society of New York in 1937 and 1943. Mrs. Nice once told me that she did not regard herself as an amateur. She was university trained and it was beside the point that she was a housewife during the period in her life that she conducted the sparrow studies. Another woman who certainly did consider herself an amateur was Erma J. Fisk. "Jonnie" Fisk did not begin a serious interest in birds until she found herself a widow with grown children. After seeking the advice of what she always called "the experts," she established a well-focused banding program and produced several highly regarded banding studies, a pioneer investigation of rooftop nesting in birds, and a series of delightful books about banding and the serious and not-so-serious study of birds.

It is impossible to name all the people who have contributed in important ways to ornithology without financial rewards. I hope I have not offended any readers by omitting a favorite name or subject. I have concentrated on the early history in order not to overlap with the other papers in this symposium. I also omitted mention of many other kinds of contributions by amateurs, such as the enormous body of knowledge amassed by banders and the founding of societies.

After all, the Wilson Ornithological Society was begun in 1888 by a group of very young, very amateur boys drawn together by their interest in birds. Amateur members of many other younger societies, bird clubs, and Audubon chapters continue to add significantly to our science. But I think my point has been made. Ornithology is almost uniquely blessed by the truly vital contributions made by its amateurs. I say "almost uniquely" because lepidopterology has a similar history—birds, butterflies, and moths seem to have an intrinsic appeal that leads people to study them. And we are fortunate in that.

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MARY H. CLENCH is a professional ornithologist and bander. She served for eighteen years as a curator of birds at the Carnegie Museum of Natural History in Pittsburgh and has conducted banding-related research. After editing *The Living Bird* for the Cornell Laboratory of Ornithology, she began research in avian physiology and is currently Assistant Professor of Internal Medicine (Research) at the University of Texas Medical Branch at Galveston. Long interested in the contribution of amateurs to ornithology, Dr. Clench served on the Board of Directors of the National Audubon Society and the councils or boards of the Florida Ornithological Society, Manomet Bird Observatory, the Eastern Bird Banding Association, the Cooper Ornithological Society, and the American Ornithologists' Union. She is the immediate past president of the Wilson Ornithological Society.

THE AMATEUR: FINDING A NICHE IN ORNITHOLOGY

by Harold F. Mayfield

(Previously published in *The Loon*, Summer 1990)

While amateurs developed astronomy, physics, and chemistry, those sciences have today moved beyond the reach of individuals working with their own resources. Many sciences require elaborate apparatus, staff assistance, and institutional or government support.

In ornithology, however, the amateur is still a significant figure. Perhaps no other branch of science owes so much to the amateur, not only in current contributions of data and understanding but also in producing professionals of the future. Can we think of another field where we could make a similar statement? In other fields, most eminent individuals did not meet the subjects of their ultimate specialization until they were launched in their professional careers. Even in biology, it would be hard to find a scientist who traces his origins to an early love of fruit flies or mice.

Throughout this paper, I use the term amateur to mean someone who studies birds as a part-time avocation while carrying on a full-time occupation in another field. Instead of speculating on the roles the amateur might play in ornithology, I will focus on amateurs whom I have known personally and who have been in the forefront of ornithology. Another author would have picked other individuals. The possible examples are almost innumerable.

My first category of amateurs is the keeper of the records. These are the people who chronicle bird life in each locality and thus provide records of changes over the decades. They are the monitors of populations, and without them, historians, ecologists, public health officials, and other scientists would be groping to appraise long-term trends in our environment.

For my prime example, I take my friend Louis W. Campbell. For more than sixty years, he has presided as the acknowledged authority on birds of the Toledo, Ohio region. Through his own observations and meticulous screenings of the reports of others, he built a complete account of birds in this locality. His more important observations have been recorded in national journals and items of local interest were published in newspapers, particularly the former *Toledo Times*, where he wrote an outdoor column for thirty-three years. The public also knows Louis from hundreds of lectures. His bird records are still being summarized annually in the *Toledo Naturalists' Association Yearbook*, and comprehensive accounts have appeared in his 1940 monograph, *Birds of Lucas County*. In 1968, Louis authored *Birds of the Toledo Area*. Both accounts are models of completeness and accuracy.

Louis Campbell's grasp of the local scene embraces not only its birds, but also its history, geology, botany, and zoology. Needless to say, he has been an inspiration to generations of young naturalists. Yet, at no time was Louis

employed as a naturalist or biologist. He worked for fifty years until retirement as transportation engineer for the local transit company.

My second category of amateurs is the life history specialist. The focus and pace of modern biology has pushed life history studies into the background among professional ornithologists. The comprehensive study of a single species is slow, often unexciting, and not a quick way to fame. It is usually beyond the time allotted to the graduate student, and it does not always yield the profound insights esteemed in professional circles. Testing narrow hypotheses is quicker.

Nonetheless, some individuals are well known for their life history studies. We must mention Margaret Morse Nice and Arthur Clevelend Bent. Neither individual, however, exactly fits the model I am presenting. Nice, the library scholar and Song Sparrow authority, could hardly be called a part-time ornithologist. She herself bridled at being labeled a housewife. While she did not ever provide the family livelihood, she did arrange her personal affairs in order to spend countless hours and days on her field studies. Bent, on the other hand, had been a businessman, but during the decades he devoted to the *Life Histories of North American Birds*, he was financially secure and gave all his time to this task.

For my model of the life history specialist, I will single out Lawrence H. Walkinshaw, a full-time dentist with a flourishing practice in Battle Creek, Michigan. I first met him in his office and the way I tell it, he came out to talk birds with me leaving a patient with a mouthful of instruments. Of course, he denies this. He had a lifelong passion for the living bird. He was a genius at finding nests and he was tireless in the field. His notes were models of thoroughness, and he published his findings scrupulously. He did much of his field work before other people were up in the morning, and much of his writing while other people were in bed at night.

Larry concentrated on birds near at hand. Perhaps his greatest study was a definitive work on the Field Sparrow centered on an abandoned field near his home. Within his county, he found nesting Sandhill Cranes, and his decades of work with them led to four books on this species. He was living at the very northern limit of the range of the Prothonotary Warbler, but he was still able to conduct a major study of this species. On weekends and vacations, Larry studied the Kirtland's Warbler, which nested only a few hours' drive away. His nest records for Kirtland's Warbler spanned more than fifty years and provided material for two books on this rare bird.

Another category in which amateurs continue to make their mark is editing, or perhaps I should say nurturing, regional journals. If you glance at any collection of state bird journals, you will find that nearly all are produced by dedicated amateurs. The contribution of amateurs to editing is not limited to the regional journals. No modern list should omit mention of George Hall, editor of the *Wilson Bulletin* for ten years. His adult life has been spent as professor of

chemistry at West Virginia University. He will also be remembered as the authority on the birds of that state and author of *West Virginia Birds*.

For my prime example of an editor, I single out Robert B. Janssen of Minneapolis. As editor of *The Loon* (formerly *The Flicker*), the journal of the Minnesota Ornithologists' Union, for thirty-two years, he is perhaps the senior ornithological editor in the U.S. From that post, he has provided leadership for a variety of activities, heading the state records committee and initiating a telephone hotline for spreading news of notable occurrences. This work made possible his 1987 *Birds in Minnesota*. Bob's lifetime fascination with birds has not prevented him from pursuing a successful career in business. He worked as a salesman and executive in a company manufacturing envelopes.

Few amateurs can travel to the ends of the earth in their studies, but many, especially those in large cities, have access to fine libraries. This brings me to my next category of amateurs, the library scholar. A sparkling example was the late A.W. Schorger of Madison, Wisconsin. Bill Schorger spent untold hours in late afternoons and evenings in the dusty shelves of the state historical society library, combing through old newspapers for eyewitness accounts of birds in pioneer days. A wary librarian once said to him, "I have moved more tons of paper for you than for any other person in the state of Wisconsin." Years of delving into newspaper archives formed the basis of his definitive works on the Passenger Pigeon and the Wild Turkey, long after both species had been extirpated from his region. Among his business associates, Bill was known as an executive in paper manufacturing and a distinguished paper chemist with many inventions to his credit.

A particularly valuable cohort of amateurs and professionals in ornithology consists of those who are competent in the physical sciences and mathematics, talents that are in short supply among biologists. A recent recipient of the Brewster Award for the most important recent contribution to the birds of the Western Hemisphere was Charles Sibley, a professional ornithologist, who brought physical chemistry to the study of the relationships between species.

Among amateurs, I think first of my friend, the late Frank W. Preston of Butler, Pennsylvania. He was a glass technologist and mathematician who approached every bird question from a novel, analytical angle, with conclusions that were always out of the ordinary. He was a problem solver, intrigued by statistical aspects of seemingly mundane subjects, such as the mathematical representation of egg shapes, the distribution of the heights of bird nests, and atmospheric phenomena aiding birds in long-distance flights. In his professional life, he established and directed a consulting firm doing research in glass technology and testing devices for the glass industry throughout the world.

Another distinguished member in this category is Crawford Greenewalt, chemical engineer and business executive, whose inventive use of high-speed photography led to new insight into the hummingbirds. He produced a beautiful

and scholarly book on hummingbirds that is a collector's item. His analysis of bird sounds led him to examine the mechanism by which birds produce sounds. His study of bird flight led him to consider the relationship between size and shape of birds, and the aerodynamics of flapping flight. He treated each of these topics in highly respected monographs. During much of this time, he was president of DuPont de Nemours of Wilmington, Delaware.

Such examples ought to inspire birders to ask themselves if they have a special expertise that might be brought to bear on ornithological research.

Finally, I mention with particular respect the legion of anonymous birders who are the foot soldiers of ornithology. No large cooperative project, often led by professionals, would be possible without amateurs. Cooperative projects include censusing, banding, preparation of atlases, and the building of historical records for each locality. The birders who assist in such projects seldom find their names in bibliographies. They are the unknown soldiers of ornithology.

In summary, I have enumerated examples of amateurs who have found a niche in ornithology by the application of individual talent and opportunity: (1) the keepers of the local records, (2) people who have made particular birds their own by life history studies, (3) editors who have guided local and regional journals throughout the decades, (4) library scholars combing the archives for historical information, (5) people with training in the physical sciences and mathematics who have turned these talents toward ornithology, and (6) the legion of anonymous helpers who make all large cooperative projects possible.

HAROLD F. MAYFIELD is one of the foremost amateur ornithologists in North America. A successful businessman, he took early retirement to devote more time to conservation and ornithology. His accomplishments are extraordinary for the depth and breadth of knowledge and activity. His most notable of more than 200 publications was his definitive book on the Kirtland's Warbler, one of America's rarest birds. This brought him the highest honor in American ornithology, the Brewster Memorial Award, for "the most important work on the birds of the Western Hemisphere." Mayfield is the only person to have served as president of three of the four major professional ornithological societies: the American Ornithologists' Union, the Wilson Ornithological Society, and the Cooper Ornithological Society. Other honors include the Arthur H. Allen Award, presented by the Cornell Laboratory of Ornithology to a professional or amateur for broad and outstanding contributions to ornithology, and election to the Ohio Conservation Hall of Fame.

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BANDERS AS AN ORNITHOLOGICAL RESOURCE

by Robert P. Yunick

Ornithology is a unique science. Perhaps more than any other natural or physical science, ornithology benefits from the participation of a vast group of amateur volunteers and practitioners. Geology has its rock hounds and astronomy its amateur stargazers, but ornithology has its legions of birders who gather an immense amount of data used for studying and monitoring avian populations. Events such as Christmas Bird Counts and Breeding Bird Surveys attract many professional and amateur volunteers and generate a database that is subsequently analyzed to further our understanding of avian ecology.

Amateur ornithologists contribute more than just population data from field observations. For example, over fifty years ago, a young artist, Roger Tory Peterson, turned his love for bird artistry into a series of field guides that would revolutionize the art of field identification of birds and other fauna and flora. Nearly ninety years ago, a New York physician, Jonathan Dwight, published a landmark treatise, recently reprinted, on passerine molt that remains an authoritative exposition on the subject.

Amateur birdbanders have also made substantial contributions to ornithology. Two renowned amateur birdbanders were Dr. Oliver Austin, Sr., a physician, and Margaret Morse Nice, a housewife. While banding is often conducted within a classic research framework, amateurs who bring a diverse collection of skills to their avocation have contributed in other unique ways, such as by developing new banding equipment.

But above all, there is one common attribute to amateur ornithologists: volunteerism. Amateurs volunteer considerable time, effort, and resources to their ornithological pursuits. For example, in 1955, Jim Baird, a professional biologist, started a volunteer network of coastal banding stations to coordinate the collection of passerine migration data. It was called "Operation Recovery." In its first season of existence, autumn 1955, about 1500 birds were banded.

Many banders, most of whom were amateurs, participated in Operation Recovery, giving of their weekends, vacation time, and family time to operate the stations. Operation Recovery stations became educational and public outreach centers for teaching improved banding techniques and identification skills.

By 1963, the annual total of birds banded under Operation Recovery exceeded 85,000, with nearly 32,000 banded at Island Beach, NJ. Island Beach and other coastal stations became autumn meccas for persons interested in banding. Under the initial direction of the late Elise Dickerson and Mabel Warburton, two housewives with an intense and dedicated interest in banding, many people came to Island Beach to learn and contribute. At least three current

professional ornithologists, Joe Jehl, Burt Murray, and Scott Wood, learned their banding skills at Island Beach.

In 1968, Operation Recovery tallied a peak of over 102,000 birds banded. In 1969, forty-six stations operated in eighteen states and two Canadian provinces.

Beyond the sheer numbers of birds banded, the improved understanding of autumn migration, and the upgrading of bander skills from the Operation Recovery program, there was some unanticipated fallout. One person who became involved in Operation Recovery was Kathleen Anderson, a professional biologist for the Encephalitis Field Station of the Massachusetts Department of Public Health. She enlisted weekend volunteers to run an Operation Recovery station in eastern Massachusetts. Among those she encountered were two extraordinary people from Petersham, MA: Rosalie Fiske, an amateur bander, and her husband, John Fiske. The Fiskes had recently moved from New York City where John had retired as Chairman of the Board at Fiduciary Trust Co. and where Rosalie had been a volunteer at the American Museum of Natural History.

When Kathleen's encephalitis project terminated in 1965 and she and other volunteers wanted to continue their Operation Recovery endeavors, they sought out a new banding location. Kathleen knew of a good spot known as the Ernst property in Manomet, MA. A conversation between Kathleen and Rosalie revealed that this particular Ernst was Rosalie's cousin. In 1966, 1967, and 1968, Ruth Ernst's property was an Operation Recovery station.

During the same time period, the Fiskes went to Scotland and visited the Fair Isle Bird Observatory, returning home with an idea for an east coast observatory in the United States. Through the Fiskes' efforts, Ruth Ernst deeded the property to a trust, and through John's financial background and business contacts in New York and Boston, funding was obtained and Manomet Bird Observatory (MBO) was born.

As the mist nets were being taken down at the conclusion of the 1968 Operation Recovery season, the Fiskes offered the directorship of MBO to Kathleen, and as Kathleen tells it, "I didn't pause long before agreeing that it sounded exciting and challenging and something I would like to do." On August 4, 1969, MBO officially opened with one salaried director and a flock of volunteers.

Much has happened at MBO since 1969. MBO has a staff of over fifty, a volunteer list of over 150, an annual budget of $1.6 million, and assets of $2.6 million. Its staff authored thirty-seven publications in 1989. From the small Operation Recovery base, MBO has expanded its program to include sixteen projects dealing with shorebird and landbird populations, tropical forests, colonial waterbirds, Ospreys, marine mammals, fisheries, Antarctic seabirds, field biology training which grants college credit, and environmental education.

When you visit MBO, overlooking Plymouth Bay, think of it as a monument to the collective efforts of extraordinary people, both professional and non-professional, who conceived, nurtured, and operated the facility. Ornithology is the richer for their efforts.

Another notable eastern ornithological landmark is the Cape May Bird Observatory (CMBO), organized in 1976 and operated by the New Jersey Audubon Society. CMBO is well-known for its hawk banding, hawk watch, and public demonstration programs. It began independently and very humbly in 1967 with Bill Clark, an amateur bander from Virginia. Bill was employed in the computer field and was a roadside raptor trapper. Knowing about the migrational fame of Cape May, he came for a week in 1967 and set up a bow net and a mist net at Higbee Beach near Cape May. Later that fall, he returned to set up a temporary blind in a lima bean field at Cape May. That field location is still used and is known as "North Blind." He banded 140 hawks in his first season. In 1968, he convinced other banders to join him in operating an expanded North Blind for six weeks, banding 248 birds.

By the close of the 1989 season at Cape May, a total of 74,591 diurnal raptors of fifteen species had been banded since 1967, with annual totals ranging from 3500 to 5600. In 1989, thirty-two banders and assistants operated five blinds and over 5000 people attended weekend demonstrations to see hawks and falcons in the hand and to learn about their importance. Since 1983, the public has participated in "Project Wind Seine" where one can "buy" a bird of prey and thereby help support the raptor project. For between $25 and $150, based on species, a certificate noting the species, age, sex, and date of banding is given to the contributor with the understanding that any recovery information on the bird will be shared with the contributor.

Bill Clark's involvement did not end with the founding and directing of the hawk watch and banding operation, which today may rank as the largest of both activities in the world. Several years ago, Bill wrote *Hawks*, part of the Peterson Field Guide Series and the only field guide devoted solely to raptors in North America. In a career change, he also founded and operates a raptor tour guide service, which takes clients all over the world in search of raptors.

For *Hawks*, Bill collaborated with artist Brian Wheeler, an amateur bander living in Colorado. Brian came to Cape May in 1980 to a blind that another bander and I were operating and asked permission to measure and photograph our birds for his life-size paintings. Brian's skills were very impressive and led to his collaboration with Bill on *Hawks*.

Two other amateur banders whose lives have been consumed by their avocational interest in raptor banding are Mary Forness of Cuba, NY, and Len Soucie of Millington, NJ. For twenty-two years, Mary worked as an accountant and housewife raising four children. Once the children were through college, Mary turned to banding and wildlife rehabilitation. At the urging of two western

New York banders, Dr. Stephen Eaton and Don Clark, she applied for a banding permit in the early 1970s. In 1973, she was one of only seven raptor "rehabbers" in the U.S. Also in 1973, she attended an Eastern Bird Banding Association meeting, met Bill Clark, and, in 1974, became the first woman assigned a blind at Cape May.

Among Mary's other ornithological accomplishments is the operation of the Hawk Hideaway Rehabilitation Center and the organization of the Cattaraugus Bird Club in western New York. In addition, she and her husband, John, organized the New York State Wildlife Rehabilitation Council in 1980. It has over 100 members out of the over 500 rehabbers in NY. Because of this effort, she was asked to be on the board of the National Wildlife Rehabilitators Association whose members are from the United States, Canada, Europe, and Turkey. For thirteen years, she captively bred Rough-legged Hawks. Starting with five birds from McGill University in Montreal, she developed a population of fifty-eight birds. She is the first person in the United States, and only the second one in North America, to accomplish captive breeding of Rough-legged Hawks. The birds were kept for molt, weight, and behavioral studies before being distributed in 1988 to other study centers.

Mary's extraordinary accomplishments all began with the desire to be a birdbander.

Len Soucie's story is an equally interesting saga of a person who became dedicated to an ornithological career with a unique contribution to ornithology. Len left school at age 14, went through an apprentice program between the ages of 15 and 18 to become a tool and diemaker and engraver, and then entered the army. After returning to civilian life, he became interested in birdwatching. He met Bob Wilson, a birdbander, who was looking for Screech Owls inside Wood Duck boxes in a New Jersey swamp. Len became Wilson's subpermittee, and in 1969, Len and Bob founded the Kittatinny Mountain Raptor Banding Station. A year later, Bob left the area, and Len became a master permittee still operating the station each September through December. Through the efforts of fourteen subpermittees, the Kittatinny Mountain Raptor Banding Station has gathered migration data on one-half million passing raptors, and has banded nearly 11,000 birds of fourteen species. They band about 500 to 700 birds per year and, in 1982, had the distinction of capturing and banding the first Gyrfalcon in New Jersey. Len still vividly remembers that experience.

In the late 1960s, Len took in an injured Red-tail, launching him on his rehabber avocation. In 1981, Len founded Raptor Trust, Inc. on his fifteen acre property. In 1989, Raptor Trust handled 2500 wild bird emergencies involving 130 species, with 500 emergencies involving raptors. Raptor Trust has three full-time year-round employees, three full-time summer employees, and a 1990 budget of $200,000.

In June 1990, a new Raptor Education Center will open at a cost of

$400,000, funds Len privately raised. It will have a classroom, office, library, and rest rooms and will be used for public education, especially for children.

Occasionally, Len works at his business, Eagle Engraving Company, which he founded thirty-five years ago. Using his skills as a machinist, he developed a leg gauge to determine band size for a bird's tarsus. He designed and made the gauge because he knew how difficult it was to remove an improperly sized band. He distributed the gauges to other banders, initially at no cost and later for a small fee. Recently, when the U.S. Fish and Wildlife Service (USFWS) sent George Jonkel to India to assist in the development of a national banding program, George called upon Len to make 50 leg gauges corresponding to Indian band sizes. His gauges are used worldwide.

Len Soucie is not the only bander who has used personal skills and spare time to design improved banding equipment. Chris Rose, an amateur birdbander and a teacher of industrial arts in a New Jersey school, developed, makes, and sells the Rose wing rule, which measures the wing chord. Roger MacDonald in Massachusetts developed, makes, and sells banding pliers for opening and locking butt-end bands. Joe Imbrogno, a Pennsylvania bander, is a trap maker, taking over the business from Walt Bigger, a bander and retired army officer.

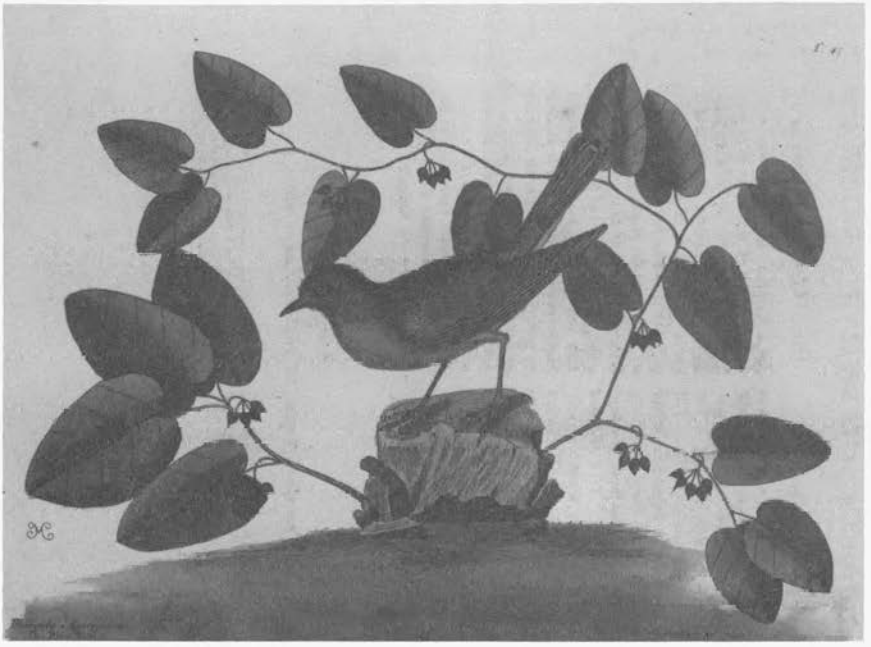
Other amateur banders have played an equally important role in making mist nets available to birdbanders and batbanders. For example, the late Eleanor Dater, a housewife from New Jersey, ran the mist net business for the Eastern Bird Banding Association for many years. She was also instrumental in moving the U.S. Congress to pass legislation signed by President Kennedy in October 1962 to exempt imported mist nets from customs duty.

Another bander who played a similar role for the Association of Field Ornithologists' predecessor organization, the Northeastern Bird Banding Association (NEBBA), was Alex Bergstrom, an insurance underwriter in Connecticut. As mist nets became more commonly used, Alex assumed responsibility in July 1956 for NEBBA's small mist net business previously run by Dr. Oliver Austin. For seventeen years until his untimely death in 1973 at age fifty-four, Alex greatly expanded the mist net business, earning substantial income for NEBBA. Alex also served from 1952-1971 as editor of NEBBA's growing publication, *Bird-Banding*, now known as the *Journal of Field Ornithology*. His generous efforts on behalf of NEBBA has been appropriately memorialized by the E. Alexander Bergstrom Research Fund which provides grants for amateur and student research in ornithology.

While Eleanor Dater and Alex Bergstrom represent two people who contributed their talents and efforts to help manage two birdbanding associations dedicated to education and research, other amateur banders have played similar roles. Betty Downs, a Vermont housewife, held the dual position of NEBBA treasurer and keeper and seller of *Bird-Banding* back issues for sixteen years. Jim Seamans was NEBBA president from 1973 to 1978 and lent considerable

financial experience to the management of NEBBA funds. The late John Kennard, a New Hampshire physician with an interest in avian longevity records, was NEBBA president from 1971 to 1973. The late Lawrence Chapman, an active Tree Swallow bander and professor of marine engineering at MIT, was NEBBA president from 1941 to 1948.

My remarks give a brief and geographically limited sampling of examples of amateur bander contributions to ornithology. While much of my information was gathered through personal acquaintance and recollection, I am confident that were one to survey the records of banders and banding associations, similar instances of substantial and unique contributions to the field of ornithology can be located. I suggest that the U.S. Fish and Wildlife Bird Banding Laboratory consider documenting these activities in order to justify, as it must frequently do, the funding required to maintain its program. Few of our public administrators recognize the national benefit to conservation, education, and research resulting from the government's direct investment in the banding program. Administrators need to know the extent to which matching funds from private pockets are benefiting the public.



Bluebird by Mark Catesby.
From M. Catesby. 1731. Natural History of Carolina, Florida, and the Bahama Islands. *Reprinted with permission from the Department of Rare Books and Manuscripts, Boston Public Library, Boston, MA. Photo by David Smith.*

Before concluding, let me return briefly to the more classical aspect of banding: gathering and using data. At the 1989 Eastern Bird Banding Association annual meeting, John Tautin, Chief of the Bird Banding Laboratory, talked about how the Laboratory is evaluating the banding program. As of January 1990, the program had 2460 U.S. master permit holders and 1644 subpermittees, or a total of 4104 banders. Canada had 296 master permittees and about 150 subpermittees, making the continent total about 4550, representing a sizable resource. These people are banding 1.1 million birds per year, 70% of which are nongame birds.

In January 1990, a conference held by the Bird Banding Laboratory and attended by representatives of organizations interested in birds and birdbanding was held in Washington, D.C. The purpose of the conference was to discuss the banding program and its objectives. While the Bird Banding Laboratory proceeds through this evaluation program, I urge that it take a serious look at how cooperative projects with professional guidance, such as the Breeding Bird Survey, Christmas Bird Count, and Operation Recovery, have demonstrated how volunteer resources can be harnessed for collective benefit. Operation Recovery gathered worthwhile data and resulted in improved banding skills through greater use of mist nets and greater familiarity with species previously not handled in large numbers. Many of these species have taken on new importance in connection with studies of tropical habitats and population impacts caused by habitat modification.

Programs similar to Operation Recovery and organized and directed by public agencies or private institutions can add to ornithology. Given the opportunity, amateur banders can and will participate in such studies. It is encouraging to see the subject of banding discussed openly today and by the U.S. Fish and Wildlife Service at its recent meeting. Planning the future of banding requires dialogue to help direct federal policies on banding activities.

ROBERT P. YUNICK is an amateur birdwatcher and birdbander from Schenectady, NY. A chemist by profession, he has contributed over seventy-five publications to ornithological journals and banded over 140,000 birds. Dr. Yunick is a co-author of *Identification Guide to North American Passerines*. He has served in prominent positions in birding and conservation groups in the Schenectady area, including the Hudson-Mohawk Bird Club, and he is a past president of the Eastern Bird Banding Association and the Association of Field Ornithologists. Dr. Yunick would like to acknowledge the following people, in alphabetical order, for responding to inquiries and information requests: Kathleen Anderson, William Clark, Mary Forness, Kathryn McNaughton, Chandler Robbins, Leonard Soucie, and John Tautin.

THE AMATEUR BIRDBANDER: THE BIRD BANDING LABORATORY PERSPECTIVE

by John Tautin

Birdbanding is an indispensable technique for studying birds. Aside from the curious naturalist's own powers of observation, few other means of studying birds have produced the information that banding has.

Amateurs have played an important role in North American birdbanding since it began early in the twentieth century. In 1902, Paul Bartsch, whose hobby was ornithology, began systematically banding Black-crowned Night-Herons in the District of Columbia. Amateurs were also involved from the beginning in Canada, where the first bird, an American Robin, was banded in 1905. Amateurs were instrumental in the founding and direction of the American Banding Association in 1909 (Cleaves 1913). In 1920, the Bureau of Biological Survey, forerunner to the U.S. Fish and Wildlife Service, assumed responsibility for the birdbanding program in the United States (Lincoln 1921), and Canada's banding office was established in 1923. These events followed the signing of the Migratory Bird Treaty between Canada and the United States and, in the United States , the enactment of the 1918 Migratory Bird Treaty Act which remains the foundation of federal involvement with migratory birds. Although the direction of birdbanding shifted from the private to the public sector in the 1920s, amateurs continue to be an integral part of birdbanding.

The Contributions of Amateur Birdbanders

Many amateur birdbanders have made outstanding contributions to ornithology and migratory bird conservation efforts. Amateurs have published scientific papers, some of which are standard references on particular subjects or species, in excellent refereed ornithological journals. Some amateurs have written books adding to our understanding and appreciation of birds. *Peacocks of Baboquivari* (Fisk 1983) and *Parrots' Wood* (Fisk 1985) by the late Erma Fisk come to mind. She listed her occupation as housewife when she applied for a birdbanding permit.

Some amateur banders, while not publishing major works themselves, accumulated significant data sets that proved of value to others later. Charles Broley, a well-known eagle bander of the 1940s and 1950s and a banker by profession, is an example. Another example is Edward McIlhenny who studied vultures and waterfowl at Avery Island, Louisiana. McIlhenny was a businessman and his family's name still appears on Tabasco sauce bottles.

Amateur birdbanders developed practical techniques and equipment for capturing and studying birds. The McCamey chickadee trap, the Rose wing measure, and Soucie's leg gauge are good examples of practical devices that

have aided professional and amateur banders (Anonymous 1990). Amateur banders have developed many of the accepted criteria for aging and sexing bird species (e.g., Olyphant 1972). Some have helped compile this information into larger references (e.g., Yunick in Pyle et al. 1987). Amateur banders have even developed statistical techniques for analyzing ornithological data. What began as Harold Mayfield's intuitive estimator (Mayfield 1961) is widely used today as a maximum likelihood estimator in survival studies. Mayfield, a personnel manager before his retirement, is best known for his work on the rare Kirtland's Warbler. Today, amateur banders are developing software for managing banding records.

Publications, equipment, and techniques are all examples of tangible contributions to ornithology made by amateur birdbanders, but amateurs have also made important intangible contributions to bird conservation through banding. Amateur banders are often in the forefront of local conservation projects and movements. On some occasions their work has resulted in the preservation of local habitats important to birds. Amateur banders are involved with conservation education, enlightening others about birds through lectures, demonstrations, and newspaper articles. Amateurs were also instrumental in the founding and operation of bird observatories and regional banding associations.

Unquestionably, some amateur banders have made outstanding contributions to ornithology and migratory bird conservation. It is easy to focus on their achievements and success and indeed a pleasure to acknowledge them. Many other amateur banders, however, have not been so productive and successful and their activities need to be considered as well in an objective discussion on the amateur bander.

A Study of Banders

Methods. The U.S. Fish and Wildlife Service's Bird Banding Laboratory conducted a study of banders to learn more about who they are, why they band, and what their banding activities are. Our study covered both professional and amateur banders. We randomly sampled ten percent of all master banders in the U.S. who had active permits at the end of 1987. We chose 1987 because it is the most current year for which we can assume that virtually all bandings have been reported and are in the database. Our ten percent sample included 265 banders.

Based mainly on information in their original applications for a permit, we categorized banders as institutions, university associates, biologists, amateurs, students, or undetermined. Institutions included national wildlife refuges, bird observatories, consulting firms, and others typically having station permits. University associates included faculty or research associates at colleges and universities. Typically, these were biology or ornithology professors. Biologists included banders employed in a non-academic position (such as a state or federal conservation agency) or having college-level training in ornithology,

zoology, wildlife science, or a closely related field. Amateurs were banders without college-level training in ornithology or related fields. Not surprisingly, the amateur category included people from many vocations. Students included those enrolled in graduate degree programs related to ornithology. Finally, the undetermined category was for banders whose occupation was unknown.

We next examined why individuals band, based primarily on subjective judgments of the reasons given by the bander at the time of application for a permit. We created three categories: banding for vocational reasons (job-related), banding for avocational reasons (personal desire to study birds), and banding for unknown reasons.

In the last part of our study we tabulated species and number of birds banded according to the category of bander and reason for banding.

Results. How many amateur banders are there? Many have speculated that most banders are amateurs. In our study, however, only 30% of master banders were amateurs. Biologists composed 28% of banders, faculty 21%, institutions 14%, students 4%, and unknown 3%.

For what reasons do amateurs band? As expected, almost all amateurs banded for avocational reasons unrelated to job requirements. Nearly all faculty and institutional banders banded for job-related reasons. It was surprising that approximately half of the banders in the biologist category banded for avocational reasons.

What species and how many birds do amateurs band? First, 35% of our amateur sample banded no birds in 1987. A similar percentage of the other categories also banded no birds. Those amateurs who did band in 1987 tended to be generalists, banding an average of 700 birds of thirty-five different species. Most banded common and easily accessible birds that frequent feeders or can be caught at migration stopovers. The four species most frequently banded by amateurs were Dark-eyed Junco, House Finch, Pine Siskin, and American Goldfinch. These four species alone accounted for 22% of all birds banded by amateurs. Bluebirds, Gray Catbirds, and White-throated Sparrows were also frequently banded. Amateurs banded 36% of all birds banded in 1987, 50% of all nongame birds, and high percentages (>75%) of many passerine species.

The species and numbers of birds banded suggest that a significant portion of amateur banders are likely not contributing to advancements in ornithology and the conservation of birds. Many appear to be banding on an incidental or opportunistic basis and not following well-developed study plans. The same is likely true for portions of other categories of banders as well.

The Future Role of Amateur Birdbanders

The amateur bander has been part of birdbanding in North America since its beginning over seventy years ago. Thirty percent of all banders today are amateurs. But with the changes occurring in the migratory bird field, many are

wondering about the future of the amateur birdbander. The Bird Banding Laboratory, the U.S. Fish and Wildlife Service, and the Canadian Wildlife Service do not have a uniform and clear view of the future. Nongame bird programs in both countries are in early stages of evolution and neither banding needs nor the role of various parties involved are well-defined. Consequently, we can only speculate on the future role of amateur birdbanders.

We envision a continuing but gradually changing role for amateur birdbanders. Fewer amateur banders will likely be involved in independent studies and more in cooperative studies, a trend consistent with developments in nongame bird research and management. These developments are occurring in many areas. Nongame bird programs are in place in most states and both state and federal programs are expanding. Government expansion will continue as funding grows.

Ornithological work in the academic community is also expanding. Many universities and colleges have Ph.D. level ornithologists on their staffs. They are graduating more students with degrees in biology and ornithology. As a result, increasing numbers of professionals are available for ornithological work.

An increasing number of consulting firms and individual consultants are conducting ornithological research, particularly on environmental contaminants and birds. Advancements in population surveys and field techniques such as radio-telemetry continue to be made. Statisticians are creating change by designing better experiments and developing new and powerful techniques for analyzing data. In short, nongame bird research and management is becoming more sophisticated and scientific.

Some amateur banders will keep pace with changes in nongame bird research and management, particularly those banders who are professionals in other disciplines such as medicine where progressive change is the norm. Some banders, however, will find that work once considered to be useful research does not compare favorably with contemporary work. For example, longevity records (maximum observed life span) were sometimes used in the past as indicators of how long birds lived. Longevity records are simple to obtain and require no analyses. Life table analyses of recovery/recapture data have also been used frequently by amateurs and professionals alike to estimate survival. Today these approaches to studying bird survival are being replaced by superior methods. There now exists a series of sophisticated statistical models for estimating survival and population sizes. The models produce good estimates given sufficient data. The models are complex, however, and most biologists cannot use them without assistance. It is hard to envision many amateurs using these models in their bird studies.

As a consequence of the changes in nongame bird research and management, we believe that we will see fewer amateurs conducting independent research on birds. Instead, more amateurs will likely be involved in

cooperative studies collaborating with professionals. For example, several banders are assisting health departments on studies of birds as carriers of ticks which cause Lyme disease. There is increasing interest among public agencies and private institutions in banding as a technique for population monitoring. The Monitoring Avian Productivity and Survivorship (MAPS) scheme proposed by the private Institute for Bird Populations is an example. MAPS is similar in concept and operation to the British Constant Effort Scheme where standardized banding of local bird populations occurs during the breeding season. MAPS is not fully developed nor has it been endorsed as a monitoring scheme by either the U.S. Fish and Wildlife Service or the Canadian Wildlife Service. Nonetheless, it is off to a modest start and some amateur banders are already participating. If it or similar schemes become more widespread, the assistance of numerous amateur banders would be needed.

In another aspect of population monitoring, the U.S. Fish and Wildlife Service is presently investigating the value of fall migration banding as a means of monitoring some bird populations. Several amateur banders who kept good long-term data sets are collaborating on this study.

In the future, more amateurs will likely operate in groups conducting joint projects or collectively producing data for use by museums, bird observatories, or other groups studying regional or local bird questions. For example, the Ottawa Bander's Group in Ontario, Canada has formed a network of professional and amateur banders working together to collect data.

As agency nongame bird programs develop and information needs are identified, we may see general calls for banders to target selected species of interest. Amateurs who otherwise might not have good reason for banding would be able to band and make a contribution. They often have time and skills that agencies and institutions needing banding data do not. Recaptures, which can be many, as opposed to recoveries which are few, are the data sought by increasing numbers of professional banders. Much work is required to get them. Amateurs may be encouraged to collect recapture data for analysis by professionals. Such a partnership could enable large scale studies of species that to date have only been studied locally.

Conclusion

Amateur birdbanders have played an important role in North American birdbanding since its beginning in 1902. Through their writing of books and papers, their development of techniques and equipment, and their involvement in conservation projects and education, many banders have made outstanding contributions to ornithology and bird conservation. Others have had more modest success as banders, while some have not made contributions. Thus, no single definitive statement can be made about amateur banders.

Amateurs remain prominent in banding today. The future role of amateur

banders may be speculative at this point, but we are optimistic that there will be a continuing role. That role will likely change but in the long run the change could be for the better, with banders, agencies, institutions, programs, and birds all benefiting.

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JOHN TAUTIN is Chief of the U.S. Fish and Wildlife Service's Bird Banding Laboratory in Laurel, Maryland. In cooperation with the Canadian Wildlife Service, the Laboratory serves the needs of some 2,600 banders, processing, storing, and disseminating data from more than 1,000,000 bandings and 50,000 recoveries annually.

OPPORTUNITIES FOR LOCAL AMATEURS

Bird Observer is pleased to publish the accompanying articles on the contributions of amateurs to ornithology. Below, we suggest a few activities or organizations which may be of interest to *Bird Observer* subscribers. The list is not meant to be comprehensive. We welcome additional suggestions from our readers.

• **Breeding Bird Survey (BBS)**, U.S. Fish and Wildlife Service (USFWS). The purpose of the BBS, conducted in June of every year, is to produce a long-term database valuable in estimating population trends of many species of birds that migrate across international boundaries and nest in North America. The method uses roadside sampling of prescribed twenty-five mile routes randomly selected by the USFWS and covering diverse habitats. Every one-half mile along the route, observers stop and record all birds seen and heard. The information gathered includes: (1) short-term population changes that can be correlated with specific weather incidences; (2) recovery periods following catastrophic declines; (3) normal year-to-year variations; (4) long-term population trends; and (5) invasions of exotics. For further information contact Wayne Petersen, State Coordinator, Massachusetts Audubon Society, South Great Road, Lincoln, MA 01773 (617-259-9500).

• **The North American Nest Record Card Program**, Cornell Laboratory of Ornithology. The purpose of the program is to record on cards supplied by the Laboratory the locations of nests for all species, including common ones, and to monitor the status of the young birds throughout the nesting period. Completed cards are sent to the Laboratory for collection and subsequent data analysis. For further information contact Pixie Senesac, Cornell Laboratory of Ornithology, 159 Sapsucker Woods Road, Ithaca, NY 14850 (607-254-2416).

• **Resident Bird Counts**, including the Breeding Bird Census (BBC) and the Winter Bird Population Study (WBPS). The BBC was started by the National Audubon Society in 1937 and is one of the oldest continuous programs to measure bird populations in North America. The WBPS was created as the winter analog to the BBC in 1948. The BBC and WPBS can be used to determine the species and density of birds found in habitat types throughout North America, to measure the effects of various land-use practices on bird populations, and to quantify the amount of yearly variation in densities of birds occupying various habitat types. Results of the BBC and WBPS are published in an annual supplement to the *Journal of Field Ornithology*. For count instructions and data forms contact Robert Marshall, Cornell Laboratory of Ornithology, Bird Population Studies, 159 Sapsucker Woods Road, Ithaca, NY 14850 (607-254-2441).

• **Christmas Bird Count (CBC)**, coordinated by the National Audubon Society. The CBC is held throughout North America over a three week period

in December of every year. Its purpose is to count over a twenty-four hour period the total number of birds by species seen by observers within a designated area. Many individuals serve as compilers of the CBC. Results are published annually in *American Birds*. For the Greater Boston area contact Robert H. Stymeist, 98 Boylston Street, Watertown, MA 02172 (617-926-3603).

• **Eastern Massachusetts Hawk Watch.** Each spring and fall, volunteers are needed to assist in a count of hawks from the summit of Wachusett Mountain in Princeton. EMHW also conducts coordinated weekend watches at coastal and other inland locations. Volunteers are needed to report the level of hawk activity from any site in Eastern Massachusetts or Rhode Island on any of the weekend dates. You do not need to be an expert to participate. For additional information contact Paul Roberts, 254 Arlington Street, Medford, MA 02155 (617-483-4263).

• **Take a Second Look (TASL).** TASL is a Boston Harbor monitoring program consisting of winter censuses of birds in the harbor from land vantage points from Nahant to Hingham, MA. The census is conducted at least three times per winter (November, January, and February), and results are tabulated and published in a newsletter. In addition, a summer census of herons and shorebirds in the harbor is conducted. Volunteers are also needed for a summer census of herons at Belle Isle Marsh, Revere, MA. For further information contact Soheil Zendeh at 617-861-0192, or Maury Hall at 617-268-7571.

• **Natural Heritage and Endangered Species Program**, Small Research Contracts, Massachusetts Division of Fisheries and Wildlife. The objective of the Small Research Contracts Program is to support field inventories and scientific research which will contribute to our ability to protect rare and endangered wildlife and plants and their habitats in Massachusetts. The annual grants (awarded in March of each year) range from $100 to $3000 per proposal. A priority topic in 1991 was to locate and estimate the size of all breeding colonies of Cliff Swallows. For further information contact the Massachusetts Division of Fisheries and Wildlife, 100 Cambridge Street, Boston, MA 02202 (617-727-9194).

• **Breeding Bird Survey**, Massachusetts Audubon Society (MAS) Sanctuaries. Each June, MAS works in conjunction with local bird clubs and other volunteers to census breeding bird populations in some of their sanctuaries throughout the state. For further information contact the MAS sanctuary in your area.

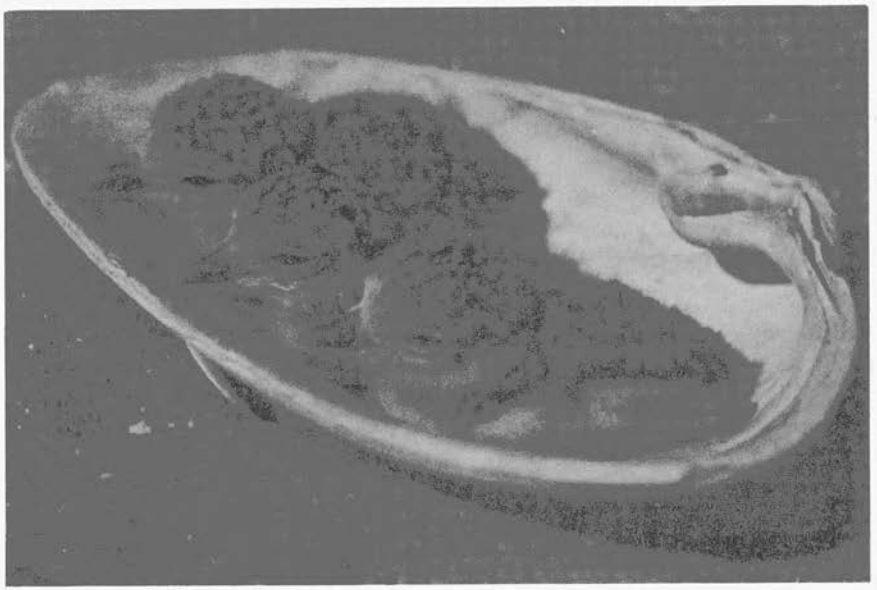
• **Coastal Waterbird Program (CWP)**, Massachusetts Audubon Society. CWP's purpose is to protect nesting areas of terns, Piping Plovers, egrets, herons, and other waterbirds. CWP hires interns in the summer to oversee protection of nesting areas. In addition, volunteers help monitor nesting areas, particularly on Cape Cod and the South Shore of Massachusetts. Volunteers go to beaches on a regular schedule, looking for damage to signs or fences and for

evidence of predation. The CWP also sponsors "volunteer days" where a full day is devoted to constructing a fence or clearing vegetation in nesting areas. Nonfield volunteer activities include building Roseate Tern nesting boxes or tern decoys. For further information contact Scott Hecker, Massachusetts Audubon Society, South Great Road, Lincoln, MA 01773 (617-259-9500).

• **Volunteer Programs, Manomet Bird Observatory (MBO).** Volunteers are needed to work in MBO libraries, to help with data entry from programs such as the International Shorebird Survey, to assist with outreach activities such as the Planting for Birds program, and to assist with other programs such as the Western Hemisphere Shorebird Reserve Network. For further information contact Volunteer Coordinator, Manomet Bird Observatory, Box 936, Manomet, MA 02345 (508-224-6521).

• **Cape Cod Bird Club Lake and Pond Waterfowl Survey.** This survey censuses waterfowl on ponds and lakes on Cape Cod during the first weekend in December. Volunteers are needed to assist in the census. For further information contact Blair Nikula, 2 Gilbert Lane, Harwichport, MA 02646 (508-422-6348).

• **E. Alexander Bergstrom Research Fund**, Association of Field Ornithologists (AFO). For amateurs interested in research projects, AFO awards small Bergstrom research grants for studies pertaining to avian biology. For further information contact AFO, c/o Bruce Beehler, NHB Room 336, Smithsonian Institution, Washington, D.C. 20560.

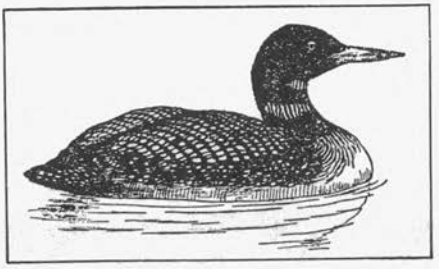


Piping Plover chicks on a barrier beach
Photo by O. S. Pettingill, Jr.
Courtesy of MAS

• **Project FeederWatch**, Cornell Laboratory of Ornithology. The continent-wide survey of birds at backyard feeders is a joint project of the Laboratory and Long Point Bird Observatory, Port Rowan, Ontario. Participants make observations at biweekly intervals from November through March, record information on forms, and send the forms to Project FeederWatch. In return, participants receive expert information on feeding birds and analyses of the abundance and distribution of feeder birds across the continent. Contact Project FeederWatch, Cornell Laboratory of Ornithology, 159 Sapsucker Woods Road, Ithaca, NY 14850 (607-254-2473).

• **The Massachusetts Division of Fisheries and Wildlife** is looking for volunteers to report new breeding sites of rare species in Massachusetts, such as the Bald Eagle, Peregrine Falcon, Sedge Wren, Golden-winged Warbler, Mourning Warbler, Henslow's Sparrow, and others. For further information contact Brad Blodgett, State Ornithologist, Massachusetts Division of Fisheries and Wildlife, Westboro, MA 01581 (508-792-7270).

• **Cornell Library of Natural Sounds**, Cornell Laboratory of Ornithology. The library solicits any field recordings of bird songs. If you record bird songs and would be interested in providing a copy of the recording, please contact the Cornell Library of Natural Sounds. If you are interested in learning about recording bird songs, the Laboratory gives an annual Bird Sounds Recording Workshop. In 1991 the workshop will be held in the Sierra Nevada Mountains in California in June. Contact the Cornell Library of Natural Sounds, Cornell Laboratory of Ornithology, 159 Sapsucker Woods Road, Ithaca, NY 14850 (607-254-2404).



FIELD RECORDS

DECEMBER 1990

by George W. Gove and Robert H. Stymeist

The temperature averaged 40.7 degrees in December, a new record. This was 7.0 degrees above the normal and surpassed the old record of 40.4 degrees in December 1891. There were seven days in the 60s, with a high of 67 on December 23. Christmas Bird Counters on that day found that spring peepers calling made it difficult to hear owls. Rainfall totaled 3.18 inches, 1.30 inches less than normal. Snowfall was just 1.2 inches, 6.3 inches below the normal and the least since 1973, a year with only a trace of snow.

These December reports do not include Christmas Bird Count (CBC) results. The summary of the CBCs appears elsewhere in this issue. R.H.S.

LOONS THROUGH ALCIDS

Red-throated and Common loons were noted on the ferry crossing from Hyannis to Nantucket. About 25,000 gannets were estimated at Monomoy as were 100,000 eider and 25,000 Red-breasted Mergansers. Snowy Egrets and Glossy Ibises were present as late as December 9 and 16, respectively. A **Barnacle Goose** was reported and photographed in Lexington, and male Eurasian Wigeons spent the month in Chatham and Plymouth.

A Turkey Vulture was noted in Randolph late in the month, and Ospreys were present through midmonth. Bald Eagles were noted at six locations in addition to the usual Quabbin birds. **Gyrfalcons** were reported from Plum Island and Chatham.

In early December, abnormally high tides in conjunction with a storm yielded both Virginia and Clapper rails at Fort Hill in Eastham. Common Moorhens were noted at three locations with 3 seen at Nantucket at month's end. Among shorebird reports were 2 Western Sandpipers and 5 Long-billed Dowitchers. Gull reports included an adult Little Gull at Nantucket and 2 **Mew Gulls**, one at Winthrop and another at Quincy, both present from midmonth on. On the alcid front, 7 Dovekies were reported from Provincetown as well as individuals from four other locations, and 4 were found dead. Other alcid reports included 3 or 4 individual Common Murres and about 4660 Razorbills seen in one hour at Provincetown.

The Cape Cod Bird Club's eighth annual Lake and Pond Waterfowl Survey (CCBC-LPWS) was conducted on the weekend of December 1-2 and recorded 11,982 individuals of 28 species. Thirty-nine observers censused 328 ponds, 40 more than in previous years. The weather preceeding the survey was mild, and no icing was present. Four species were found in record numbers: American Black Duck (2004), Mallard (1911), Gadwall (151), and Hooded Merganser (720). Only one species, the American Coot, with just 15 individuals, established a record low. G.W.G.

DATE	LOCATION	NUMBER	OBSERVERS	DECEMBER 1990
Red-throated Loon				
2, 24	Rockport, Rochester	3, 1	R. Stymeist#, M. Maurer	
29, 31	Hyannis-Nantucket, Wellfleet	25, 3	G. d'Entremont, R. Stymeist#	
Common Loon				
2	Newburyport, Rockport (A.P.)	6, 5	G. d'Entremont	
29; 30	Hyannis-Nant., Nant.; P.I.	30, 110; 8	G. d'Entremont, S. Perkins#; BBC (J. Nove)	
Pied-billed Grebe				
1-2	Cape Cod	43	CCBC-LPWS	
1-16, 12	Arlington, Plymouth	3 max 12/1, 4	L. Taylor, T. Aversa	
15-30, 23	Cambridge (F.P.), Southboro	2, 1	D. Flood, E. Taylor	
Horned Grebe				
1, 9	Winthrop	19, 7-10	P. + F. Vale	
8, 9	Wachusett Res., Quabbin (G37)	8, 8	M. Lynch#	
Red-necked Grebe				
1, 2	Quincy, Rockport (A.P.)	2, 3	G. d'Entremont#	
17, 29	Winthrop, Nantucket	5, 20	T. Aversa, S. Perkins#	

DATE	LOCATION	NUMBER	OBSERVERS DECEMBER 1990
Northern Gannet			
1, 2	Eastham, Rockport (A.P.)	60, 50	J. Hoye, G. d'Entremont#
3	off Monomoy	25,000	W. Bailey
Great Cormorant			
2, 3	Rockport, Chatham	54, 86	M. Lynch#, W. Bailey
13, 31	Sherborn, Nantucket	2 imm, 4	E. Taylor, G. d'Entremont#
Double-crested Cormorant			
13, 29	Quincy, Nantucket	1, 3	G. d'Entremont#
American Bittern			
6, 16-18	Squantum	1, 1	K. Ryan, D. Brown#
Great Blue Heron			
9, 15	Newburyport, Weymouth	4, 21	J. Berry, R. Campbell
12-31	Reports of individuals from 4 locations.		
Snowy Egret			
7, 9	Quincy, E. Boston (Logan)	1, 1	K. Ryan, N. Smith
Glossy Ibis			
2, 5	P.I.	1, 1	G. d'Entremont#, S. Perkins#
7, 16	Squantum, Winthrop	2, 1	K. Ryan, R. Stymeist#
Mute Swan			
1-2, 1-22	Cape Cod, Arlington	137, 1	CCBC-LPWS, L. Taylor
Snow Goose			
1, 10-31	N. Monomoy, Medfield	1, 1	B. Nikula#, P. Iarrobino
Brant			
9, 22	Revere, Winthrop	70, 250	P. + F. Vale
Barnacle Goose			
6-7	Lexington	1 ph (details)	L. Batchelder + v. o.
Canada Goose			
thr	Cambridge (F.P.), Wakefield	159, 200	D. Flood, P. + F. Vale
thr, 1-2	Sherborn, Cape Cod	435, 961	E. Taylor, CCBC-LPWS
1, 17	Worcester, P.I.	743, 440	M. Lynch#, W. Drew#
Wood Duck			
23	Randolph	1	T. Raymond
Green-winged Teal			
1-2, 1-25, 18	C. Cod, Arlington, Halifax	30, 15 max, 26	CCBC-LPWS, L. Taylor, T. Aversa
American Black Duck			
thr	P.I.	1200 max 12/14	M. Lynch# + v. o.
thr	S. Dart. (Allens Pd)	314 max 12/20	LCES (J. Hill)
1-2	Cape Cod	2004	CCBC-LPWS
Mallard			
1-2	Cape Cod	1911	CCBC-LPWS
Northern Pintail			
1-2, 2, 6-26	C. Cod, S. Monomoy, P.I.	48, 11, 30 max	CCBC-LPWS, S. Perkins#, P. + F. Vale
Northern Shoveler			
2	S. Monomoy	74	S. Perkins#
Gadwall			
1-2; 12, 26	C. Cod; Plymouth, E. Gloucester	151; 21, 3	CCBC-LPWS; T. Aversa
Eurasian Wigeon			
thr	Chatham, Plymouth	1 m, 1 m	v. o.
American Wigeon			
1-2, 1-22	Cape Cod, Arlington	86, 43 max 12/22	CCBC-LPWS, L. Taylor
Canvasback			
thr, 1-2	Cambridge (F.P.), Cape Cod	36 max 12/7, 727	D. Flood, CCBC-LPWS
1, 26-31	Southboro, Marlboro	1, 2-7	E.Taylor, R. Graefe
23, 28	Randolph, Nantucket	56, 150	T. Raymond, S. Perkins#
Redhead			
12, 17; 28	Plymouth (Billington Sea); Nant.	6, 10; 80	T. Aversa, R. Forster; S. Perkins#
28	Nantucket	80	S. Perkins#
Ring-necked Duck			
1-2	Cape Cod	109	CCBC-LPWS
1; 15, 22	Southboro; Framingham	25; 25	E. Taylor; G. Gove
7; 15, 31	Cambridge (F.P.); W. Newbury	8; 14, 22	D. Flood; A. + B. Delorey
24, 31	Stoneham, Lakeville	4, 35	T. Aversa, K. Anderson
Greater Scaup			
1-2	Cape Cod	907	CCBC-LPWS
1-20, 23	Cambridge (F.P.), Natick	8 max 12/7, 20	D. Flood, E. Taylor
Lesser Scaup			
11, 13	Lincoln (Cambr. Res.), Cambr. (F.P.)	4, 1	R. Forster#, D. Flood
Common Eider			
2, 10	N. Monomoy	30,000, 100,000	S. Perkins#, W. Bailey

DATE	LOCATION	NUMBER	OBSERVERS	DECEMBER 1990
Harlequin Duck				
thr, 2-31	E. Orleans, Rockport (A.P.)	1, 11 max 12/16	v. o.	
Oldsquaw				
2; 6, 20	N. Monomoy; Newburyport	1000; 75, 20	S. Perkins#; P. + F. Vale	
Black Scoter				
2, 29	Rockport, Nantucket	21, 300	M. Lynch#, S. Perkins#	
Surf Scoter				
2, 28	N. Monomoy, Nantucket Sound	250, 420	S. Perkins#	
White-winged Scoter				
26	P.I.	200	T. Young	
Common Goldeneye				
thr, 1-2, 9	Winthrop, C. Cod, Rockport	30 max, 267, 28	P. Vale#, CCBC-LPWS, T. Young	
Barrow's Goldeneye				
1, 1-16	Quincy, Cape Ann	1 m, 1 m	D. Brown#, BBC (S. Bolton)	
28	Nantucket	4	S. Perkins	
Bufflehead				
1-2	Cape Cod	1645	CCBC-LPWS	
2; 23, 31	Newbypt; Wakefield, Winthrop	125; 30, 45	G. d'Entremont#; P. + F. Vale	
Hooded Merganser				
thr, 1-2	Stoneham, Cape Cod	21 max 12/24, 720	T. Aversa, CCBC-LPWS	
1-13, 1-22	Arlington Res., Arlington (Spy Pd)	18 max, 42 max	L. Taylor	
2, 9	S. Monomoy, Ipswich	30, 40	S. Perkins#	
Common Merganser				
thr	Stoneham	209 max 12/16	T. Aversa	
1-25, 1-22	Arlington Res., Arlington (Spy Pd)	10 max, 15 max	L. Taylor	
7, 9	Lakeville, Quabbin (G37)	55, 183	K. Anderson, M. Lynch#	
Red-breasted Merganser				
2, 29	Monomoy, Nantucket	25,000, 8000	S. Perkins#	
Ruddy Duck				
thr, 1-13	Arlington (Spy Pd), Arlington Res.	2, 20 max	L. Taylor	
2, 23	S. Monomoy, Framingham	30, 20	S. Perkins#, E. Taylor	
Turkey Vulture				
27	Randolph	1	T. Aversa	
Osprey				
1, 8-17	Carver, Wellesley	1, 1 or 2	M. Maurer#, C. Quinlan	
Bald Eagle				
2	Eastham, Middleboro	1 imm, 1 imm	R. Stymeist#, M. Maurer#	
9	Newburyport, Quabbin (G37)	1 imm, 13	S. Perkins#, M. Lynch#	
7-15, 16	Chatham, Boylston	1, 1 ad	W. Bailey, E. Salmella	
23	Randolph	1 ad	T. Raymond	
Northern Harrier				
thr, 2	P. I., Monomoy	5 max, 9	v. o., S. Perkins#	
2, 5	Halifax, Salisbury	5 or 6, 8	M. Maurer#, T. Aversa	
Sharp-shinned Hawk				
1, 29	Groveland, Nantucket	1, 2	D. F. Oliver#, S. Perkins#	
1-31	Reports of individuals from 14 locations.			
Cooper's Hawk				
1, 11, 26	Stoneham, Boston, P.I.	1 imm, 1 imm, 1	T. Aversa	
7, 22	Chatham, Orleans	1, 1	W. Bailey, J. Young	
29-30	Nantucket	1 ad	G. d'Entremont# + v. o.	
Northern Goshawk				
13	Milton, Forestdale	1 ad, 1	S. Perkins, P. Trimble	
Red-shouldered Hawk				
9, 13	E. Middleboro, Lynnfield	1, 1 ad	K. Anderson, C. Leahy	
Red-tailed Hawk				
1, 2	Bridgewater, Middleboro-Halifax	4, 4	M. Maurer#	
25	Norton-Franklin (Rt. 495)	4	K. Anderson	
Rough-legged Hawk				
6, 30	P. I., Newburyport	1, 1	P. + F. Vale	
12, 26	Middleboro, Essex	2, 1	T. Aversa	
24, 28	Ipswich, Nantucket	1 dk, 1 dk	T. Young, S. Perkins#	
American Kestrel				
1, 2	Bridgewater, Middleboro	2, 3	M. Maurer#	
2, 6	P.I., Newburyport	3, 4	G. d'Entremont, P. + F. Vale	
Merlin				
1, 6	Cape Ann, Lynnfield	1, 1	BBC (S. Bolton), P. + F. Vale	
10, 31	Provincetown, Nantucket	1, 1	K. Jones, G. d'Entremont#	
1-29	Reports of individuals from 4 locations.			

DATE	LOCATION	NUMBER	OBSERVERS DECEMBER 1990
Peregrine Falcon			
1-26, 2	N. Monomoy, Chatham	1, 4	W. Bailey + v. o., S. Perkins# + v. o.
14, 26, 30	P.I.	1 imm, 1, 1	M. Lynch#, T. Aversa#, BBC (J. Nove)
24	Essex	1	R. Humphrey
Gyrfalcon			
2, 15	P.I., Chatham	1 (details), 1	R. Bradbury#, P. Bailey
Ruffed Grouse			
9, 30	Hamilton, Ipswich	1, 1	J. Berry
27, 30	W. Bridgewater, Easton	5, 1	T. Aversa#, K. Ryan
Wild Turkey			
30	Barre	37	M. Lynch#
Clapper Rail			
2	Eastham (F.H.)	1	C. Ewer
Virginia Rail			
2, 31	Eastham (F.H.), Nantucket	2, 2	C. Ewer, G. d'Entremont
Common Moorhen			
1; 30	Chatham, Cotuit; Nantucket	1, 1; 3	P. Trimble#, B. Nikula#; G. d'Entremont#
American Coot			
1-2, 1-22	Cape Cod,Arlington (Spy Pd)	15, 27-29	CCBC-LPWS, L. Taylor
12, 29	Plymouth, Nantucket	230, 15	T. Aversa, S. Perkins#
Black-bellied Plover			
thr	Quincy	8 max 12/1	G. d'Entremont
Killdeer			
1, 2	Worcester, Provincetown	1, 1	M. Lynch#, K. Jones
6, 11	Marlboro, Lincoln	1, 4	R. Graefe, R. Forster#
Greater Yellowlegs			
18, 30	Nauset, P.I.	2, 1	K. Jones, BBC (J. Nove)
2-21	Reports of individuals from 4 locations.		
Ruddy Turnstone			
1, 4	Quincy, Winthrop	2, 4	G. d'Entremont#, T. Aversa
Red Knot			
4	Winthrop	2	T. Aversa
Sanderling			
2, 4	S. Monomoy, Winthrop	800, 65	S. Perkins#,. T. Aversa
25	Quincy	5	G. d'Entremont
Western Sandpiper			
4	Winthrop	2	T. Aversa
Purple Sandpiper			
1, 4	Winthrop	27, 2	P. + F. Vale, T. Aversa
26	P.I.	2	T. Aversa
Dunlin			
2, 9	S. Monomoy, Revere	700, 100	S. Perkins#, P. + F. Vale
6, 31	P.I., Winthrop	30, 28	W. Drew#, P. + F. Vale
Long-billed Dowitcher			
6	P.I.	5	W. Drew#
Common Snipe			
26	Newburyport	2	T. Aversa
Little Gull			
31	Nantucket	1 ad	G. d'Entremont#
Common Black-headed Gull			
1, 22	Lynn	1 ad	J. Quigley
4, 22-26	Provincetown	1 (2W), 1 (1W)	K. Jones
9, 17	Winthrop, E. Boston	6, 2	P. + F. Vale, T. Aversa
Bonaparte's Gull			
thr	Provincetown	80 max 12/10	K. Jones
1, 4	Quincy, Winthrop	500, 240	G. d'Entremont#, T. Aversa
10, 30	Lynn	400	J. Quigley
Mew Gull			
17-31, 16-31	Quincy, Winthrop	1 ad, 1 ad	R. Abrams, S. Perkins#
Ring-billed Gull			
3	Lynn	350	J. Quigley
Iceland Gull			
13-31	Provincetown	7 max 12/13	K. Jones
2-25	Reports of individuals from 5 locations.		
Lesser Black-backed Gull			
1, 5, 22	Lynn, Provincetown, Truro	1, 1 (2W), 1	J. Quigley, K. Jones, J. Young
Glaucous Gull			
2, 13	Gloucester, Provincetown	1, 1 (2W)	J. Quigley, K. Jones
29	Nantucket Sound	1 ad	G. d'Entremont#

DATE	LOCATION	NUMBER	OBSERVERS
Black-legged Kittiwake			
2	Rockport (A.P.), N. Monomoy	75, 300	G. d'Entremont#, S. Perkins#
Dovekie			
thr, 1	P'town, Rockport (A.P.)	7 max, 1 eaten by gull	R. Stymeist# + v.o., BBC (S. Bolton)
4, 6; 29	Andover; Osterville	1 dead, 1 dead; 1 dead	fide T. French; R. Barber
1-22	Reports of individuals from 4 locations.		
Common Murre			
2, 9	Rockport (A.P.), Chatham	1, 1 oiled	F. Burrill, W. Bailey#
24, 31	Provincetown	1, 1 (ph)	K. Jones, R. Stymeist#
Thick-billed Murre			
10-31, 26-31	P'town, Rockport H.	2, 1	K. Jones + v. o., v. o.
Razorbill			
2, 24	Rockport (A.P.), P'town	25, 4660 in 1 hour	G. d'Entremont#, K. Jones
29, 31	Nantucket	200, 300	S. Perkins#, G. d'Entremont#
Black Guillemot			
2, 19	Rockport (A.P.)	3, 3	G. d'Entremont#, T. Young
21, 26; 29	Provincetown; Nantucket	1, 2; 1	K. Jones; S. Perkins#

OWLS THROUGH FINCHES

There was a good showing of Short-eared Owls with maxima of 6 at Salisbury and 7 in the Cumberland Farms area of Halifax and Middleboro. A **Black-backed Woodpecker** was found in Upton early in the month and was seen off and on through the end of the month, foraging on a dead pine. The crow roost in Framingham reached an estimated 6000 individuals by the end of the month, and Fish Crows were noted among them. There was a good flight of Northern Shrikes. At least 17 individuals were reported from a wide area.

Nantucket birders found several warblers on the island, notably 2 Orange-crowned, and late Prairie and Wilson's warblers. A late Northern Waterthrush was present early in the month in Waltham. A male **Painted Bunting** was present at a feeder in North Falmouth for five days. Other December highlights included a Dickcissel on Nantucket, Clay-colored and Lark sparrows in Forestdale, and a Grasshopper Sparrow in Halifax. Winter finch reports were discouraging with just a few siskins, one flock of Red Crossbills, and two flocks of White-winged Crossbills. R.H.S.

Barn Owl			
19, 29	W. Roxbury, Nantucket	1, 2	T. Aversa, G. d'Entremont#
Eastern Screech-Owl			
1, 2	Groveland, Essex	1, 3	I. Giriunas, T. Young
Great Horned Owl			
	Reports of 1-3 birds (total 11) from 7 locations.		
Snowy Owl			
thr	P.I., Boston (Logan)	1 or 2, 1 or 2	v. o.
2, 20	S. Monomoy, P'town	2, 2	W. Bailey#, D. Sealy
Barred Owl			
19	Norwell	1	D. Brown
Long-eared Owl			
18; 19, 23	Harwich; Clinton	1; 1, 4	R. Fisher, E. Salmela#
24, 27; 29-31	Essex; Nantucket	2, 2; 1	T. Young; G. d'Entremont#
Short-eared Owl			
thr	P.I., Salisbury	1 or 2, 3-6	v. o.
thr	Boston, Halifax-Middleboro	1-3, 6 or 7	N. Smith, T. Aversa + v. o.
2	Chatham, Eastham	2, 2	W. Bailey#, K. Griffis#
7, 24	Wellfleet, Essex	2, 1	R. Everett, R. Humphrey
Northern Saw-whet Owl			
9	Petersham, Hamilton	2, 1	M. Lynch#, J. Berry
15; 26	Weymouth, Norwell; P.I.	1, 1; 1	D. Brown; T. Young
Red-bellied Woodpecker			
thr, 16	S. Orleans, Chatham	1, 1	G. Martin + v. o., M. Tuttle#
29-31, 31	Canton, Marlboro	1, 1	B. Blakely, J. Fraser
Yellow-bellied Sapsucker			
1, 9	Natick, S. Orleans	1, 1	E. Taylor, G. Martin
Black-backed Woodpecker			
10-31	Upton	1	A. St. Cyr + v. o.
Northern Flicker			
12, 29	DWWS, Nantucket	5, 25	T. Aversa, S. Perkins
Pileated Woodpecker			
9	Quabbin (G37)	2	M. Lynch#
Eastern Phoebe			
16	E. Orleans	1	R. Forster#

DATE	LOCATION	NUMBER	OBSERVERS
Western Kingbird			
1, 7; 2	Nantucket; Eastham (F.H.)	1; 1	E. Andrews, B. Vigneau; C. Ewer
Horned Lark			
3, 5	N. Middleboro, Newbury	30+, 250	K. Holmes, S. Perkins#
American Crow			
thr	Framingham	6000 max 12/29	E. Taylor
Fish Crow			
1, 11, 14	Braintree, Framingham, Natick	10+, 50, 50	G. d'Entremont, R. Forster, E. Taylor
Red-breasted Nuthatch			
9	Quabbin (G37)	44	M. Lynch#
Carolina Wren			
Reports of 1 or 2 birds (total 13) from 8 locations.			
House Wren			
3	Rochester	1	M. Maurer
Winter Wren			
thr, 30, 31	Stoneham, Ipswich, Winchester	2, 1, 1	T. Aversa, J. Berry, T. Aversa
Marsh Wren			
2, 30	Middleboro, Nantucket	1, 2	M. Maurer, D. Brown#
Eastern Bluebird			
12	Millis, E. Middleboro	2, 2	P. Iarrobino, K. Anderson
28-30, 31	Taunton, Sudbury	3, 5	N. Rasmussen, H. Tapply
American Robin			
27	Nantucket	100	S. Perkins#
Gray Catbird			
22, 30-31	Falmouth, Nantucket	1, 8	K. Ryan, G. d'Entremont#
Cedar Waxwing			
9	Lexington	27	L. Taylor
Northern Shrike			
thr	P.I., P'town	2 or 3, 3 ind	v. o., K. Jones + v. o.
1, 2	Groveland, Waltham	1, 1	I. Giriunas#, L. Taylor
2, 9	Eastham (F.H.), Concord (N.A.C.)	1, 1	B. Nikula, R. Forster
9, 15	Easton, Stoneham	1, 1	K. Ryan, T. Aversa
17, 26	Rowley, Ipswich	1, 1	J. MacDougall, T. Young
26, 27	M. V., W. Bridgewater	2, 1	fide V. Laux, T. Aversa
Orange-crowned Warbler			
29, 31	Nantucket	1, 2	K. Jones + v. o.
Black-throated Green Warbler			
6	Chatham (Morris I.)	1	W. Bailey
Pine Warbler			
3-30	E. Middleboro	3	K. Anderson
Prairie Warbler			
31	Nantucket	1	D. Brown#
Palm Warbler			
12	DWWS	1	T. Aversa
Northern Waterthrush			
2	Waltham	1	L. Taylor
Common Yellowthroat			
2, 16	Gloucester	1, 1	M. Lynch#
Wilson's Warbler			
29	Nantucket	1	S. Perkins#
Yellow-breasted Chat			
22, 31	Orleans, Nantucket	1, 1	E. Salmela, G. d'Entremont#
Northern Cardinal			
29	Nantucket	30	S. Perkins#
Painted Bunting			
10-14	N. Falmouth	1 m	M. McCloskey#
Dickcissel			
1	Nantucket	1	F. Reed#
Clay-colored Sparrow			
7; 15, 16	Forestdale; E. Falmouth, Harwich	2; 1, 1	P. Trimble; B. Nikula#
Field Sparrow			
13, 16	Forestdale, N. Middleboro	6, 8	P. Trimble, K. Holmes
Vesper Sparrow			
7	Forestdale	1	P. Trimble
Lark Sparrow			
13	Forestdale	1	P. Trimble
Savannah Sparrow			
13, 18	Forestdale, Halifax	24, 28	P. Trimble, T. Aversa
Grasshopper Sparrow			
12	Halifax	1	T. Aversa

DATE	LOCATION	NUMBER	OBSERVERS	DECEMBER 1990
Sharp-tailed Sparrow				
20	S. Dart. (Allens Pd)	1	LCES (J. Hill)	
Seaside Sparrow				
29	P.I.	1	J. Berry	
Fox Sparrow				
9, 18	Wakefield, Upton	1, 1	P. + F. Vale, T. Aversa	
Swamp Sparrow				
12, 19	Halifax, W. Roxbury	4, 3	T. Aversa	
White-crowned Sparrow				
13	Forestdale	1	P. Trimble	
Dark-eyed Junco				
3, 20	N. Middleboro, Watertown	25, 18	K. Holmes, R. Stymeist	
24, 31	Reading, Lakeville	17, 25	I. Giriunas, K. Anderson	
Lapland Longspur				
5, 29	Newbury, P.I.	80, 20	S. Perkins#, J. Berry	
Red-winged Blackbird				
21	Wayland	15	R. Forster	
Eastern Meadowlark				
2	Salisbury, Eastham (F.H.)	20, 25+	P. Roberts, B. Nikula#	
14, 18	S. Dart. (Allens Pd), Halifax	3, 3	LCES (J. Hill), T. Aversa	
Brown-headed Cowbird				
1-16, 13	Stoneham, Lexington	110 max 12/1, 20	T. Aversa, R. Forster	
13, 29	Quincy, N. Middleboro	75, 12	G. d'Entremont#, K. Holmes	
Northern Oriole				
1; 16	Eastham; Framingham, Boston	1; 1, 1	J. Hoye; R. Unger., P. Iarrobino#	
Pine Grosbeak				
16	Clinton	1	E. Salmela	
Purple Finch				
9, 12	Braintree, DWWS	1, 3	G. d'Entremont, T. Aversa	
19, 29	Holliston, Rochester	1, 3	T. Aversa, M. Maurer#	
Red Crossbill				
9	Quabbin (G37)	6	M. Lynch#	
White-winged Crossbill				
16, 30	Sterling, Upton	5, 24	E. Salmela, R. Stymeist#	
Pine Siskin				
28, 29	E. Middleboro, Wakefield	1, 4	K. Anderson, P. + F. Vale	
Evening Grosbeak				
2, 3	Rockport, Wayland	7, 13	G. d'Entremont, H. Parker	
7, 8	E. Middleboro, N. Andover	10, 1	K. Anderson, J. MacDougall	
9, 12	Hamilton, DWWS	2 or 3, 8	J. Berry, T. Aversa	

HOW TO CONTRIBUTE BIRD REPORTS TO *BIRD OBSERVER*

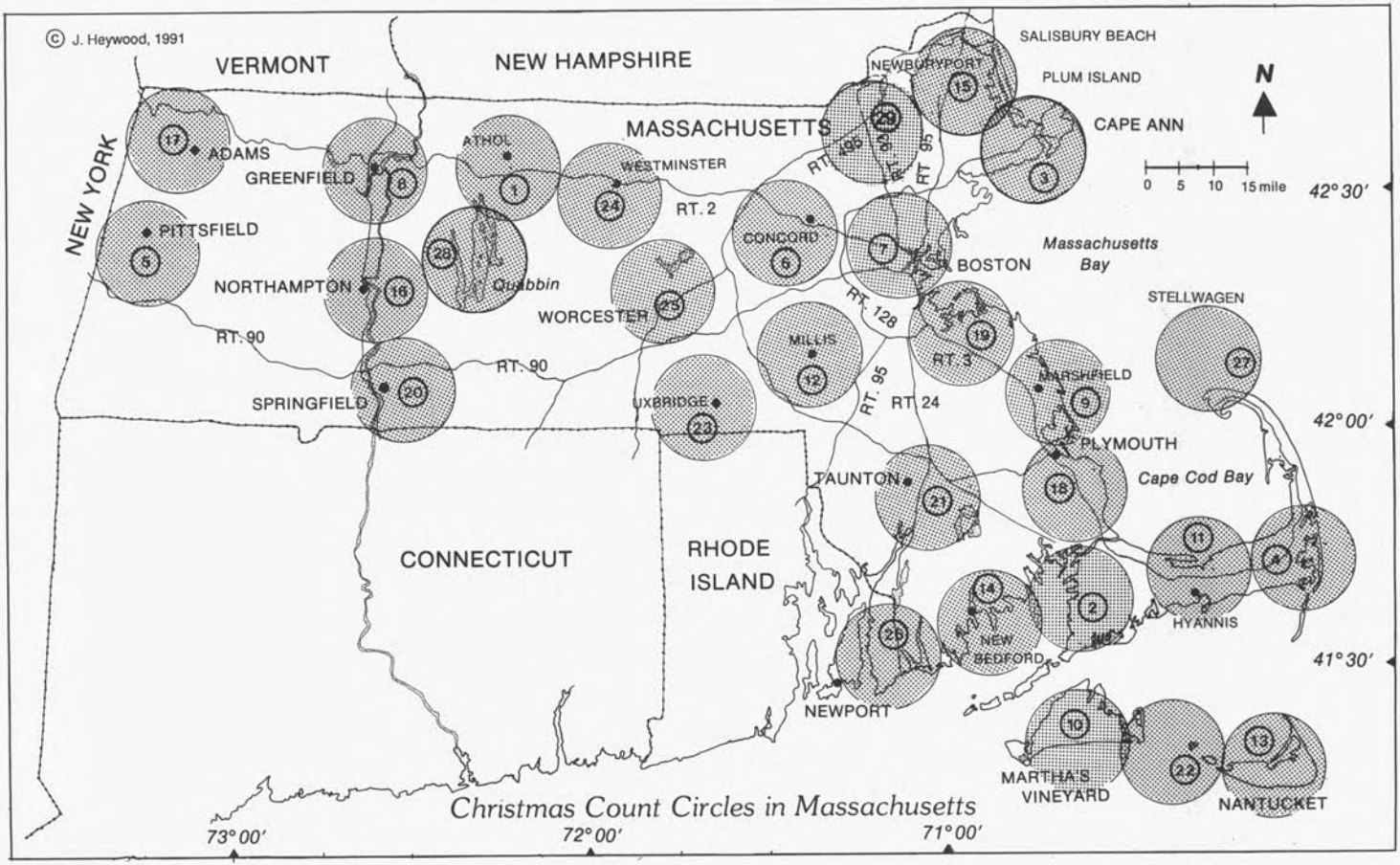
This publication prints monthly compilations of reports of birds seen in eastern Massachusetts. Space does not permit the inclusion of all material submitted. However, field reports sent to Bird Observer are archived at Massachusetts Audubon Society. Our compilers select and summarize for publication sightings that document early and late dates for migratory species, maximum counts of migrants, high or low numbers of some common birds, and species found beyond their normal ranges.

Sightings for any given month must be reported in writing by the eighth of the next month. Send to Bird Reports, Robert H. Stymeist, 98 Boylston Street, Watertown, MA 02172. Organize reports by month and by species in current A.O.U. checklist order. Include name and phone number of observer, common name of species, date of sighting, location, number of birds, number of observers, and information relevant to age, sex, morph, etc.

Reports of difficult identifications, vagrants, and rarities should include, in addition to the above information, time of day and light available, wind and weather conditions, the optics used and approximate distance from the bird, length of observation, the observer's prior experience with the species, and field guide or other reference used. Provide a description of the bird based solely on personal observation. Comment on the distinguishing field marks (observed and unobserved), vocalizations, activity, general behavior, the habitat in the immediate vicinity, and other birds present. Include with your report documentation such as copies of the observer's field notes and sketches.

LIST OF ABBREVIATIONS

ad	adult
alt	alternate
b	banded
br	breeding
dk	dark (phase)
f	female
fl	fledged
imm	immature
ind	individuals
juv	juvenile
loc	location
lt	light (phase)
m	male
max	maximum
mi	mile
migr	migrating
n	nesting
ph	photographed
pl	plumage
pr	pair
S	summer (1S = first summer)
thr	throughout
v.o.	various observers
W	winter (2W = second winter)
w/	with
yg	young
#	additional observers
A.A.	Arnold Arboretum
A.P.	Andrews Point, Rockport
B.	Beach
B.I.	Belle Isle, E. Boston
B.R.	Bass Rocks, Gloucester
Buzz.	Buzzards Bay
C.	cape as in Cape Cod
Cambr.	Cambridge
C.B.	Crane Beach, Ipswich
Corp. B.	Corporation Beach, Dennis
C.P.	Crooked Pond, Boxford
E.P.	Eastern Point, Gloucester
F.E.	First Encounter Beach, Eastham
F.H.	Fort Hill, Eastham
F.M.	Fowl Meadow
F.P.	Fresh Pond, Cambridge
F.Pk	Franklin Park, Boston
F.S.F.	Federation State Forest
G37 or 40	Gate 37 or 40, Quabbin
H.	Harbor
I.	Island
M.V.	Martha's Vineyard
Mt.A.	Mount Auburn Cemetery, Cambridge
N.A.C.	Nine Acre Corner, Concord
Nant.	Nantucket
Newbypt	Newburyport
P.I.	Plum Island
Pd	Pond
P'town	Provincetown
Quab.	Quabbin
Res.	Reservoir
R.P.	Race Point, Provincetown
S. Dart.	South Dartmouth
S.F.	State Forest
S.N.	Sandy Neck, Barnstable
S.P.	State Park
Stellw.	Stellwagen (Bank)
BBC	Brookline Bird Club
BMB	Broad Meadow Brook, Worcester
BOEM	Bird Observer of Eastern Massachusetts
CBC	Christmas Bird Count
CCBC	Cape Cod Bird Club
DFWS	Drumlin Farm Wildlife Sanctuary
DLSP	Demarest Lloyd State Park
DWWS	Daniel Webster Wildlife Sanctuary
EMHW	Eastern Massachusetts Hawk Watch
FCBC	Felix Cutler Bird Club
GMNWR	Great Meadows National Wildlife Refuge
IRWS	Ipswich River Wildlife Sanctuary
LCES	Lloyd Center for Environmental Studies
MAS	Massachusetts Audubon Society
MBO	Manomet Bird Observatory
MDFW	MA Division of Fisheries and Wildlife
MNWS	Marblehead Neck Wildlife Sanctuary
NEHW	New England Hawk Watch
ONWR	Oxbow National Wildlife Refuge
PRNWR	Parker River National Wildlife Refuge
SRV	Sudbury River Valley
SSBC	South Shore Bird Club
TASL	Take A Second Look Harbor Census
USFWS	US Fish and Wildlife Service
WBWS	Wellfleet Bay Wildlife Sanctuary
WMWS	Wachusett Meadow Wildlife Sanctuary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ATHOL
WESTMINSTER
WORCESTER
Quabbin
CONCORD
MILLIS
UXBRIDGE
BOSTON
Massachusetts Bay
NEWBURYPORT
SALISBURY BEACH
PLUM ISLAND
CAPE ANN
MARSHFIELD
STELLWAGEN
PLYMOUTH
Cape Cod Bay
TAUNTON
NEW BEDFORD
HYANNIS
NEWPORT
MARTHA'S VINEYARD
NANTUCKET
RT. 2
RT. 90
RT. 95
RT. 128
RT. 3
RT. 24
N
0 5 10 15 mile
42°30′
42°00′
41°30′
73°00′
72°00′
71°00′
Christmas Count Circles in Massachusetts

CHRISTMAS BIRD COUNT, 12/15/90-1/2/91

Compiled by Robert H. Stymeist

The Ninety-first Annual Christmas Bird Count (CBC) sponsored by the National Audubon Society was held from December 15, 1990, to January 2, 1991. In eastern Massachusetts and a portion of Rhode Island, there are twenty-four count areas (see map). New this year is the Andover count sponsored by the Merrimack Valley Bird Club. The Tuckernuck count results were unavailable for inclusion in this article.

A total of 180 species, plus "Ipswich" Savannah Sparrow and two exotics, a Mandarin Duck in Newburyport and a Budgerigar in Worcester, was recorded on these twenty-three counts. This was two species more than the total the previous year. The Greater Boston CBC led the counts with 119 species, followed by the Cape Cod CBC with 117. The Glossy Ibis found on the Greater Boston count was the first ever reported on a Massachusetts CBC. Four additional species were found during the CBC period but were not recorded on any area count, Common and Thick-billed murres on the Stellwagen count and Prairie Warbler and Common Redpoll on the Nantucket count.

We wish to thank all of the compilers who contributed their time to prepare the results for this summary. They are as follows: **Gene Ballard,** Andover (December 29); **Dave Small**, Athol (December 15); **Richard Harlow**, Buzzards Bay (December 15); **John Nove**, Cape Ann (December 16); **Blair Nikula**, Cape Cod (December 16); **Richard Walton**, Concord (December 30); **Robert Stymeist**, Greater Boston (December 16); **Warren Harrington**, Marshfield (December 30); **Sue Whiting**, Martha's Vineyard (December 30); **Peter Trimble**, Mid Cape Cod (December 22); **Donna Munafo**, Millis (December 15); **Edith Andrews**, Nantucket (December 30); **Hope Atkinson**, New Bedford (December 30); **Jim Berry**, Newburyport (December 23); **Trevor Lloyd-Evans**, Plymouth (December 27); **Scott Surner**, Quabbin (December 29); **Bob Abrams**, Quincy (December 15); **Simon Perkins**, Stellwagen (December 22); **John Kricher**, Taunton-Middleboro (December 23); **Richard Hildreth**, Uxbridge, MA/RI (December 29); **John Williams**, Westminster (December 22); **Fran McMenemy**, Worcester (December 15); **Dave Emerson**, Newport County, RI/Westport, MA (December 15).

Map on facing page: Each Christmas Count Circle was located by the latitude and longitude (in degrees and minutes) of its center. Athol (1), Buzzards Bay (2), Cape Ann (3), Cape Cod (4), Central Berkshire (5), Concord (6), Greater Boston (7), Greenfield (8), Marshfield (9), Martha's Vineyard (10), Mid Cape Cod (11), Millis (12), Nantucket (13), New Bedford (14), Newburyport (15), Northampton (16), Northern Berkshire (17), Plymouth (18), Quincy (19), Springfield (20), Taunton-Middleboro (21), Tuckernuck Island (22), Uxbridge, MA/RI (23), Westminster (24), Worcester (25), Newport County, RI/Westport, MA (26), Stellwagen Bank (27), Quabbin (28), and Andover (29).

91st CHRISTMAS BIRD COUNT, 12/15/90-1/2/91

species	And.	Athol	B. B.	C. Ann	C. Cod	Conc.	Gr. Bos.	Marsh.	M. V.	Mid C.	Millis
Red-throated Loon	0	0	0	11	23	0	4	11	9	3	0
Common Loon	0	1	16	55	46	0	5	37	68	43	0
Pied-billed Grebe	0	0	4	0	10	1	1	0	0	12	0
Horned Grebe	0	2	95	39	19	0	42	21	4	42	0
Red-necked Grebe	0	0	0	7	8	0	11	50	8	10	0
Northern Gannet	0	0	1	58	34683	0	0	12	0	4	0
Great Cormorant	1	0	109	274	204	0	75	2	77	5	1
Double-cr. Cormorant	1	0	3	3	2	0	11	0	3	1	0
American Bittern	0	0	0	0	2	0	2	0	0	0	0
Great Blue Heron	0	0	76	8	110	14	51	19	36	42	12
Green-backed Heron	0	0	0	0	0	0	0	1	0	0	0
Black-cr. Night-Heron	0	0	4	0	3	0	6	0	3	0	0
Glossy Ibis	0	0	0	0	0	0	1	0	0	0	0
Tundra Swan	0	0	0	0	0	0	0	0	4	0	0
Mute Swan	0	0	59	2	11	0	2	2	103	18	2
Snow Goose	0	0	5	0	0	0	0	0	0	0	1
Brant	0	0	164	0	3580	0	571	378	16	242	0
Canada Goose	1421	57	689	1674	714	5211	2456	396	320	543	2766
Wood Duck	0	1	5	0	0	1	0	0	0	0	3
Green-winged Teal	0	0	6	4	4	2	36	3	4	37	10
American Black Duck	14	13	1656	557	2256	192	3460	2665	363	739	271
Mallard	478	10	494	583	238	1050	1613	313	624	459	651
Northern Pintail	0	0	0	0	2	0	2	6	6	61	0
Blue-winged Teal	0	0	0	0	0	0	0	0	0	2	0
Northern Shoveler	0	0	0	0	0	0	0	0	1	1	0
Gadwall	0	0	3	10	9	0	1	5	11	85	0
Eurasian Wigeon	0	0	0	0	1	0	0	0	0	1	0
American Wigeon	0	0	3	3	59	5	82	8	37	68	1
Canvasback	2	0	88	0	59	2	1	1	3	190	0
Redhead	0	0	20	0	0	0	0	0	0	0	0
Ring-necked Duck	17	0	41	0	50	68	31	14	5	11	28
Greater Scaup	0	0	2191	4	114	0	210	45	237	8	0
Lesser Scaup	0	0	4	0	1	0	0	0	0	0	5
scaup species	0	0	0	0	0	1	0	0	0	5	0
Common Eider	0	0	28	291	13379	0	2176	8662	868	2637	0
King Eider	0	0	0	0	1	0	0	2	0	0	0
Harlequin Duck	0	0	0	11	2	0	0	2	31	0	0
Oldsquaw	0	0	80	31	58	0	1	66	18	18	0
Black Scoter	0	0	46	21	12	0	5	38	230	12	0
Surf Scoter	0	0	172	51	18	0	2	7	4	564	0
White-winged Scoter	0	0	322	483	549	0	158	326	184	95	0
Common Goldeneye	49	19	404	401	191	23	443	386	336	217	4
Barrow's Goldeneye	0	0	1	1	0	0	1	0	0	0	0
Bufflehead	0	0	1869	412	1016	18	912	197	557	687	0
Hooded Merganser	0	0	287	2	46	4	180	0	97	72	0
Common Merganser	40	2	62	17	280	76	296	3	21	62	11
Red-br. Merganser	6	0	1207	553	11853	0	525	371	828	198	0
Ruddy Duck	0	0	0	0	0	11	29	0	2	1	0
Turkey Vulture	0	0	0	0	0	0	0	0	0	0	0
Osprey	0	0	0	0	0	0	0	0	0	0	1
Bald Eagle	0	3	0	0	2	0	0	0	0	0	0

91st CHRISTMAS BIRD COUNT, 12/15/90-1/2/91

species	Nant.	N. B.	Newbpt.	Ply.	Quab.	Quin.	Stell.	Tau-Mb.	Uxbr.	Wstm.	Worc.	Nwp.RI*
RTLO	13	3	9	5	0	5	3	0	0	0	0	18 / 5
COLO	45	10	36	70	4	10	2	0	0	0	10	48 / 12
PBGR	1	1	0	5	0	3	0	9	1	0	0	0 / 0
HOGR	6	47	12	28	30	48	0	0	0	0	1	86 / 15
RNGR	6	0	3	7	0	54	0	0	0	0	1	1 / 0
NOGA	139	0	0	4	0	0	0	0	0	0	0	22 / 0
GRCO	5	0	8	11	0	221	0	0	0	0	0	1101 / 3
DCCO	5	8	0	3	0	4	0	1	0	0	0	0 / 1
AMBI	0	0	0	0	0	0	1	0	0	0	0	0 / 0
GBHE	20	15	4	30	0	37	2	1	3	0	3	15 / 20
GRHE	0	0	0	0	0	0	0	0	0	0	0	0 / 0
BCNH	7	0	0	4	0	3	0	0	0	0	0	0 / 0
GLIB	0	0	0	0	0	0	0	0	0	0	0	0 / 0
TUSW	0	0	0	0	0	0	0	0	0	0	0	0 / 0
MUSW	81	98	16	95	0	2	0	12	0	0	0	127 / 42
SNGO	0	0	0	0	0	0	0	0	1	0	0	0 / 0
BRAN	0	94	0	447	0	1490	0	0	0	0	0	12 / 0
CAGO	146	625	4142	693	3	699	0	1422	499	128	1380	3887 / 910
WODU	0	0	0	6	0	0	0	0	0	0	1	0 / 0
GWTE	16	0	22	2	2	2	0	0	0	0	0	59 / 3
ABDU	207	377	3044	886	290	1720	64	126	209	207	352	1336 / 466
MALL	394	527	857	816	95	482	95	374	243	247	966	451 / 165
NOPI	1	0	34	8	0	0	0	0	2	0	0	32 / 3
BWTE	0	0	0	0	0	0	0	0	0	0	0	1 / 0
NOSH	0	0	0	0	0	0	0	0	0	0	0	0 / 0
GADW	0	0	34	23	0	0	0	0	2	0	1	11 / 0
EUWI	0	0	0	1	0	0	0	0	0	0	0	0 / 0
AMWI	18	30	3	119	0	9	0	0	0	0	10	9 / 8
CANV	131	0	12	6	0	22	0	52	2	0	0	471 / 29
REDH	4	2	0	8	0	0	0	0	0	0	0	1 / 0
RNDU	4	0	13	166	0	0	0	143	49	0	22	36 / 0
GRSC	273	1046	21	35	0	360	0	18	0	0	41	1612 / 174
LESC	3	0	2	22	2	0	0	46	0	0	0	121 / 0
sc. sp.	75	0	0	0	0	0	0	0	0	0	0	0 / 0
COEI	3774	9	38	2624	0	5568	210	0	0	0	0	3 / 3
KIEI	0	0	0	0	0	1	0	0	0	0	0	0 / 0
HADU	7	0	0	0	0	0	0	0	0	0	0	44 / 0
OLDS	32479	90	66	48	1	197	0	0	0	0	0	3 / 4
BLSC	34	1	87	42	0	1	0	0	0	0	0	54 / 6
SUSC	10	67	9	105	0	6	0	0	0	0	0	6 / 41
WWSC	43	32	254	297	3	624	4	0	0	0	0	54 / 110
COGO	133	298	386	363	105	485	0	64	6	0	52	657 / 208
BAGO	0	0	0	1	0	1	0	0	0	0	0	2 / 0
BUFF	379	307	252	206	9	848	3	30	0	0	3	363 / 119
HOME	63	2	21	30	105	62	0	17	0	0	38	55 / 0
COME	8	0	56	250	331	44	15	3	152	8	89	82 / 37
RBME	7535	182	240	417	0	823	635	19	0	0	2	747 / 552
RUDU	0	0	4	0	0	97	0	0	0	0	0	200 / 0
TUVU	0	10	0	0	0	0	0	0	0	0	0	0 / 4
OSPR	0	0	0	0	0	0	0	0	0	0	0	0 / 0
BAEA	0	0	3	0	16	0	0	0	0	0	0	0 / 0

* Figures shown in Newport County, RI/Westport, MA CBC column are broken down by state: RI / MA.

species	And.	Athol	B. B.	C. Ann	C. Cod	Conc.	Gr. Bos.	Marsh.	M. V.	Mid C.	Millis
Northern Harrier	0	0	4	8	25	0	3	21	7	13	1
Sharp-shinned Hawk	2	2	3	6	9	14	2	6	2	2	0
Cooper's Hawk	0	0	0	1	0	2	0	2	0	0	1
Northern Goshawk	0	1	0	0	0	3	0	0	0	0	0
accipiter species	0	0	0	0	1	0	0	0	0	0	0
Red-shouldered Hawk	0	0	0	0	1	0	0	1	0	0	1
Red-tailed Hawk	18	7	2	18	12	110	50	20	9	2	49
Rough-legged Hawk	0	0	0	2	0	1	1	3	0	0	0
American Kestrel	1	0	5	3	9	11	12	10	1	1	10
Merlin	1	0	0	0	1	0	1	0	0	1	1
Peregrine Falcon	0	0	0	0	0	0	2	0	1	0	0
Gyrfalcon	0	0	0	0	0	0	0	0	0	0	0
falcon species	0	0	0	0	1	0	0	0	0	0	0
Ring-necked Pheasant	6	2	5	7	1	17	30	0	4	1	11
Ruffed Grouse	4	4	0	2	0	16	0	2	0	2	13
Wild Turkey	0	67	0	0	0	0	0	0	0	0	0
Northern Bobwhite	0	0	37	0	20	2	0	0	5	44	0
Virginia Rail	0	0	1	0	4	0	0	6	2	3	0
Common Moorhen	0	0	0	0	0	0	0	0	0	0	0
American Coot	0	0	0	1	7	0	9	0	0	3	2
Black-bellied Plover	0	0	4	1	9	0	7	5	0	0	0
Killdeer	0	0	7	0	6	0	2	0	0	1	0
Greater Yellowlegs	0	0	1	0	1	0	1	0	0	4	0
Ruddy Turnstone	0	0	0	0	0	0	5	1	0	0	0
Red Knot	0	0	0	0	0	0	0	9	0	1	0
Sanderling	0	0	0	2	27	0	9	64	259	139	0
Purple Sandpiper	0	0	0	15	0	0	15	79	12	0	0
Dunlin	0	0	0	37	241	0	24	553	22	36	0
Common Snipe	0	0	2	0	5	1	1	0	0	4	0
American Woodcock	0	0	0	0	1	0	1	0	1	2	1
Laughing Gull	0	0	0	0	0	0	1	0	0	1	0
Little Gull	0	0	0	0	0	0	0	0	0	0	0
Common Bla.-hea. Gull	0	0	0	2	0	0	12	0	0	0	0
Bonaparte's Gull	0	0	93	242	108	0	1002	232	40	31	0
Mew Gull	0	0	0	0	0	0	1	0	0	0	0
Ring-billed Gull	792	0	183	224	801	214	3586	571	55	395	288
Herring Gull	485	837	1555	11651	8339	2311	11082	5863	3349	5339	1610
Iceland Gull	0	1	1	3	3	0	1	0	0	0	0
Lesser Bla.-bac. Gull	0	0	1	1	0	0	0	0	0	0	0
Glaucous Gull	0	1	0	1	0	0	0	0	1	0	0
Great Bla.-bac. Gull	148	106	230	3411	2218	366	925	999	613	932	186
Black-legged Kittiwake	0	0	1	8	965	0	0	0	0	0	0
gull species	150	0	0	0	0	0	0	0	0	0	0
Dovekie	0	0	0	0	2	0	0	0	0	0	0
Razorbill	0	0	0	0	1078	0	0	14	3	0	0
Black Guillemot	0	0	0	6	2	0	0	0	0	0	0
Rock Dove	830	765	232	1046	42	1096	3318	281	40	617	525
Mourning Dove	300	437	287	294	344	1517	255	117	453	262	664
Barn Owl	0	0	0	0	0	0	0	0	3	0	0
Eastern Screech-Owl	0	0	7	3	0	39	15	6	2	7	35
Great Horned Owl	1	5	0	4	12	14	3	1	0	9	32

species	Nant.	N. B.	Newbpt.	Ply.	Quab.	Quin.	Stell.	Tau-Mb.	Uxbr.	Wstm.	Worc.	Nwp.RI
NOHA	9	3	24	5	0	0	3	4	1	0	0	7 / 1
SSHA	3	1	8	6	4	1	2	0	4	0	2	5 / 0
COHA	1	0	2	1	0	0	0	1	1	0	0	1 / 0
NOGO	0	0	4	0	1	0	0	0	0	0	0	0 / 0
ac. sp.	0	0	0	0	0	0	0	0	0	0	0	0 / 0
RSHA	0	0	0	0	0	0	0	0	0	0	0	0 / 0
RTHA	6	5	46	15	10	16	0	14	25	8	29	17 / 1
RLHA	0	0	6	0	0	0	0	1	0	0	0	0 / 0
AMKE	2	5	18	5	0	2	0	3	2	0	2	14 / 2
MERL	1	0	0	0	0	1	0	0	0	1	0	1 / 0
PEFA	0	1	1	0	0	0	0	0	0	0	0	0 / 0
GYRF	0	0	1	0	0	0	0	0	0	0	0	0 / 0
fa. sp.	0	0	0	0	0	0	0	0	0	0	0	0 / 0
RNPH	31	0	27	2	2	2	3	0	4	2	4	4 / 0
RUGR	0	0	4	3	4	0	0	2	13	6	5	0 / 0
WITU	0	0	18	0	1	0	0	0	0	1	49	0 / 0
NOBO	1	0	0	9	0	0	0	0	0	0	0	0 / 0
VIRA	6	0	3	0	0	0	0	0	0	0	0	3 / 0
COMO	3	0	0	0	0	0	0	0	0	0	0	0 / 0
AMCO	9	5	0	258	0	4	0	0	0	0	0	29 / 4
BBPL	3	0	9	0	0	1	0	0	0	0	0	0 / 0
KILL	3	0	1	2	0	1	0	3	6	0	0	0 / 0
GRYE	1	4	1	0	0	0	0	0	0	0	0	0 / 0
RUTU	124	12	0	0	0	3	0	0	0	0	0	10 / 0
REKN	0	0	0	0	0	0	0	0	0	0	0	0 / 0
SAND	306	0	26	0	0	1	8	0	0	0	0	125 / 24
PUSA	0	3	76	0	0	14	0	0	0	0	0	119 / 2
DUNL	0	0	158	0	0	40	0	0	0	0	0	0 / 42
COSN	2	0	1	1	0	0	0	1	0	0	2	11 / 0
AMWO	0	0	2	0	0	0	1	0	0	1	0	1 / 0
LAGU	0	0	0	0	0	0	0	0	0	0	0	0 / 0
LIGU	0	0	0	1	0	0	0	0	0	0	0	0 / 0
CBHG	1	0	0	0	0	1	1	0	0	0	0	0 / 0
BOGU	350	50	183	20	0	802	15	0	0	0	0	71 / 92
MEGU	0	0	0	0	0	0	0	0	0	0	0	0 / 0
RBGU	7	655	499	524	34	1774	48	392	21	14	546	704 / 415
HEGU	11301	1153	5642	2349	280	7217	2180	1399	354	968	1997	2210 / 417
ICGU	33	0	1	0	0	1	6	0	0	0	0	0 / 0
LBBG	0	0	0	0	0	0	0	0	0	0	0	0 / 0
GLGU	4	0	0	0	0	0	1	0	0	0	1	0 / 0
GBBG	1721	345	1324	556	47	698	1830	100	56	307	531	930 / 25
BLKI	8	0	3	1	0	0	5	0	0	0	0	0 / 0
gull sp.	0	0	0	0	0	0	0	0	4	0	0	0 / 0
DOVE	0	0	0	0	0	0	1	0	0	0	0	3 / 0
RAZO	157	0	0	2	0	1	0	0	0	0	0	7 / 0
BLGU	0	0	0	0	0	0	0	0	0	0	0	0 / 0
RODO	62	377	937	361	5	483	225	414	705	387	390	1058 / 6
MODO	421	246	929	147	185	102	13	640	751	262	376	837 / 53
BROW	2	0	0	0	0	0	0	0	0	0	0	0 / 0
EASO	0	3	7	3	2	10	0	1	45	0	7	3 / 1
GHOW	0	2	8	4	6	6	1	0	18	2	5	3 /0

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species	And.	Athol	B. B.	C. Ann	C. Cod	Conc.	Gr. Bos.	Marsh.	M. V.	Mid C.	Millis
Snowy Owl	0	0	0	0	0	0	2	1	0	0	0
Barred Owl	0	5	0	0	0	0	0	0	0	0	0
Long-eared Owl	0	0	1	0	0	0	0	0	0	0	0
Short-eared Owl	0	0	2	0	4	0	3	0	1	0	0
Northern Saw-whet Owl	0	4	0	0	1	0	0	0	1	0	1
Belted Kingfisher	1	1	23	6	15	10	9	8	14	24	14
Red-hea. Woodpecker	0	0	0	0	0	0	0	0	1	0	0
Red-bel. Woodpecker	1	0	0	0	2	4	1	0	7	0	0
Yellow-bel. Sapsucker	0	0	0	0	0	0	0	0	0	0	0
Downy Woodpecker	74	71	36	51	31	399	124	41	21	40	169
Hairy Woodpecker	13	39	2	2	5	98	11	3	3	3	30
Black-bac. Woodpecker	0	0	0	0	0	0	0	0	0	0	0
Northern Flicker	3	0	46	12	75	11	19	22	55	36	7
Pileated Woodpecker	0	2	0	4	0	7	0	0	0	0	0
Eastern Phoebe	0	0	0	0	1	1	0	0	0	0	0
Horned Lark	0	0	8	72	42	36	46	4	0	20	0
Blue Jay	244	1535	392	222	181	914	275	85	111	173	958
American Crow	372	407	582	572	349	2286	1140	442	864	513	1750
Fish Crow	0	0	1	0	0	394	1	0	0	0	66
Common Raven	0	0	0	0	0	0	0	0	0	0	0
Black-cap. Chickadee	369	1434	1048	816	968	3651	914	585	528	737	1399
Tufted Titmouse	149	145	203	126	47	1017	171	107	0	100	604
Red-br. Nuthatch	76	106	4	4	4	301	59	2	18	10	82
White-br. Nuthatch	85	135	41	60	31	521	97	34	95	25	254
Brown Creeper	5	22	13	3	4	54	22	3	2	3	24
Carolina Wren	0	1	128	8	58	7	4	11	83	78	12
House Wren	0	0	1	0	0	0	0	0	0	1	0
Winter Wren	0	0	6	3	4	5	3	0	0	4	1
Marsh Wren	0	0	1	0	1	1	4	1	3	13	1
Golden-cr. Kinglet	1	16	174	24	157	37	52	60	52	120	53
Ruby-crowned Kinglet	0	0	8	0	1	0	2	0	3	0	0
Eastern Bluebird	0	0	0	0	0	0	0	0	7	0	25
Hermit Thrush	0	0	10	1	7	0	1	1	5	5	0
American Robin	14	2	415	46	436	10	111	102	144	167	20
Gray Catbird	1	0	4	1	6	0	2	0	15	7	0
Northern Mockingbird	51	23	109	93	58	285	189	52	31	69	129
Brown Thrasher	0	0	1	0	0	0	0	0	1	2	0
American Pipit	0	0	0	0	0	1	0	0	0	0	0
Bohemian Waxwing	0	0	0	0	0	0	0	0	0	0	0
Cedar Waxwing	51	496	75	0	64	349	194	28	47	231	328
Northern Shrike	0	3	0	3	1	7	1	1	0	0	3
European Starling	1439	1112	697	6916	6753	5178	166900	3621	928	1829	6827
Orange-cro. Warbler	0	0	0	0	0	0	0	0	0	0	0
Nashville Warbler	0	0	0	0	0	0	0	0	0	0	0
Yellow-rumped Warbler	0	1	71	11	308	0	6	49	441	55	0
Pine Warbler	0	0	0	0	0	0	0	0	0	1	1
Palm Warbler	0	0	0	0	1	0	1	0	0	0	0
Common Yellowthroat	0	0	1	1	0	0	1	0	3	2	0
Wilson's Warbler	0	0	0	0	0	0	0	0	0	0	0
Yellow-breasted Chat	0	0	0	1	1	0	1	0	0	1	0
Northern Cardinal	66	51	243	119	230	393	189	42	81	195	183

91st CHRISTMAS BIRD COUNT, 12/15/90-1/2/91

species	Nant.	N. B.	Newbpt.	Ply.	Quab.	Quin.	Stell.	Tau-Mb.	Uxbr.	Wstm.	Worc.	Nwp.RI*
SNOW	0	0	2	1	0	0	0	0	0	0	0	0 / 0
BAOW	0	0	3	0	6	1	0	1	1	0	1	0 / 0
LEOW	1	0	0	0	0	0	0	0	0	0	0	0 / 0
SEOW	3	0	4	1	0	1	0	0	2	1	1	0 / 0
NSWO	2	0	0	0	15	1	0	0	0	0	0	0 / 0
BEKI	1	5	9	10	4	5	1	5	9	4	8	3 / 0
RHWO	0	0	0	0	0	1	0	0	0	0	0	0 / 0
RBWO	2	1	1	0	0	0	0	0	2	0	0	1 / 0
YBSA	1	0	0	0	0	0	0	0	0	0	0	0 / 0
DOWO	6	26	127	62	65	25	3	39	102	55	105	24 / 2
HAWO	0	2	13	5	18	1	0	6	21	16	14	2 / 0
BBWO	0	0	0	0	0	0	0	0	1	0	0	0 / 0
NOFL	99	13	10	18	1	15	4	17	11	0	0	42 / 3
PIWO	0	0	0	0	20	0	0	0	0	0	5	0 / 0
EAPH	0	0	0	0	1	0	0	0	0	0	0	1 / 0
HOLA	14	8	423	0	28	0	5	0	29	0	21	32 / 56
BLJA	40	219	376	537	557	99	4	286	1130	415	492	119 / 117
AMCR	392	118	1124	230	103	554	14	378	420	228	555	280 / 68
FICR	0	0	0	0	0	0	0	0	0	0	0	0 / 0
CORA	0	0	0	0	15	0	0	0	0	2	0	0 / 0
BCCH	301	176	1762	613	1099	242	111	527	1173	938	808	241 / 75
TUTI	0	109	315	202	158	62	1	245	415	101	212	39 / 10
RBNU	32	2	94	13	218	6	0	6	81	34	115	0 / 0
WBNU	7	33	158	93	113	33	2	63	168	89	141	18 / 5
BRCR	4	0	27	16	33	6	0	27	17	15	21	4 / 0
CAWR	2	27	2	36	2	2	2	46	13	0	5	79 / 13
HOWR	0	1	0	0	0	0	0	0	0	0	0	0 / 0
WIWR	1	0	1	3	1	0	0	1	0	0	0	1 / 0
MAWR	8	0	0	2	0	0	0	0	0	0	0	5 / 0
GCKI	88	27	109	102	68	22	11	126	45	6	20	36 / 8
RCKI	6	0	2	0	0	0	2	0	1	0	1	0 / 0
EABL	4	0	0	1	7	0	0	13	29	0	0	0 / 0
HETH	3	0	0	6	0	1	0	0	0	0	0	3 / 0
AMRO	187	398	48	157	6	47	17	35	42	11	2	191 / 53
GRCA	18	1	0	4	0	1	0	0	0	0	0	18 / 3
NOMO	22	45	93	79	39	45	5	67	75	18	59	81 / 10
BRTH	1	0	0	0	0	0	0	0	0	0	0	1 / 0
AMPI	0	0	0	0	0	0	0	0	0	0	0	1 / 0
BOWA	0	0	0	0	0	0	0	0	0	1	0	0 / 0
CEWA	53	78	240	63	110	29	8	77	104	115	8	28 / 179
NOSH	3	0	4	1	5	1	1	0	0	2	2	0 / 0
STAR	3668	2376	13666	1520	380	40400	72	3475	2805	1049	1757	6063 / 746
OCWA	4	0	0	0	0	0	0	0	0	0	0	0 / 0
NAWA	0	0	1	0	0	0	0	0	0	0	0	0 / 0
YRWA	2340	16	32	167	0	19	122	53	3	0	0	259 / 76
PIWA	2	0	0	0	1	0	0	0	0	0	0	0 / 0
PAWA	1	0	0	0	0	0	1	0	1	0	0	2 / 0
COYE	1	0	0	0	0	0	0	0	0	0	0	0 / 0
WIWA	1	0	0	0	0	0	0	0	0	0	0	0 / 0
YBCH	0	0	0	1	0	0	0	0	0	0	0	1 / 0
NOCA	84	94	113	142	37	30	10	99	207	30	114	124 / 13

* Figures shown in Newport County, RI/Westport, MA CBC column are broken down by state: RI / MA.

91st CHRISTMAS BIRD COUNT, 12/15/90-1/2/91

species	And.	Athol	B. B.	C. Ann	C. Cod	Conc.	Gr. Bos.	Marsh.	M. V.	Mid C.	Millis
Dickcissel	0	0	0	0	0	1	0	0	0	0	0
Rufous-sided Towhee	0	0	15	0	2	2	1	1	18	4	0
Amer. Tree Sparrow	69	219	43	154	7	746	293	65	21	22	281
Chipping Sparrow	0	0	1	0	0	1	2	0	0	3	1
Clay-colored Sparrow	0	0	1	0	1	0	0	0	0	0	0
Field Sparrow	2	0	26	2	10	20	14	4	21	12	18
Vesper Sparrow	0	0	0	0	0	0	0	0	0	0	0
Savannah Sparrow	1	0	31	3	5	11	6	1	15	19	0
"Ipswich" Sparrow	0	0	0	1	1	0	1	1	0	1	0
Sharp-tailed Sparrow	0	0	0	0	1	0	0	0	0	2	0
Fox Sparrow	2	0	1	0	2	0	2	1	0	2	1
Song Sparrow	34	17	273	118	195	200	449	117	131	235	135
Swamp Sparrow	0	0	11	7	28	20	5	14	17	37	9
White-thr. Sparrow	16	10	226	56	57	206	179	27	73	142	42
White-cr. Sparrow	0	1	1	0	0	0	0	0	0	0	0
Dark-eyed Junco	253	313	155	173	24	1123	696	108	18	48	902
Lapland Longspur	0	0	0	0	0	0	0	0	0	0	0
Snow Bunting	0	0	4	67	0	16	125	5	0	0	0
Red-winged Blackbird	7	1	1	0	7	73	63	44	3	6	43
Eastern Meadowlark	0	0	4	2	4	0	13	12	63	9	0
Rusty Blackbird	0	0	0	0	0	11	0	1	0	0	0
Common Grackle	0	0	0	5	3	27	2	2	14	1	22
Brown-headed Cowbird	0	0	6	0	0	9	30	1	3	0	6
Northern Oriole	0	0	0	0	0	0	1	0	0	0	0
Pine Grosbeak	0	0	0	0	0	12	0	0	0	0	0
Purple Finch	17	5	1	0	0	52	1	1	0	0	18
House Finch	146	379	428	278	615	974	338	234	99	258	422
Red Crossbill	0	0	0	0	0	0	0	0	0	0	0
Pine Siskin	9	1	2	2	0	1	3	0	0	0	6
American Goldfinch	199	196	179	242	169	850	293	95	96	154	424
Evening Grosbeak	27	748	3	0	0	13	0	0	22	4	12
House Sparrow	449	835	716	1230	279	1740	1522	414	278	815	650
number of species	55	56	108	95	117	82	119	98	101	108	76
total birds	9013	10679	19349	34082	95166	34498	208372	29368	14459	21285	23130
	And.	Athol	B. B.	C. Ann	C. Cod	Conc.	Gr. Bos.	Marsh.	M. V.	Mid C.	Millis

And. =	Andover CBC	December 29, 1990
Athol =	Athol CBC	December 15, 1990
B. B. =	Buzzards Bay CBC	December 15, 1990
C. Ann =	Cape Ann CBC	December 16, 1990
C. Cod =	Cape Cod CBC	December 16, 1990
Conc. =	Concord CBC	December 30, 1990
Gr. Bos. =	Greater Boston CBC	December 16, 1990
Marsh. =	Marshfield CBC	December 30, 1990
M. V. =	Martha's Vineyard CBC	December 30, 1990
Mid C. =	Mid Cape Cod CBC	December 22, 1990
Millis =	Millis CBC	December 15, 1990

91st CHRISTMAS BIRD COUNT, 12/15/90-1/2/91

species	Nant.	N. B.	Newbpt.	Ply.	Quab.	Quin.	Stell.	Tau-Mb.	Uxbr.	Wstm.	Worc.	Nwp.RI*
DICK	0	0	2	0	0	0	0	0	0	0	0	0 / 0
RSTO	2	6	0	3	0	0	0	1	2	0	0	3 / 5
ATSP	0	18	363	76	444	121	6	283	431	66	234	87 / 4
CHSP	0	0	0	1	0	0	0	0	0	0	0	0 / 0
CCSP	0	0	0	0	0	0	0	0	0	0	0	0 / 0
FISP	0	9	4	20	1	21	0	93	41	0	4	20 / 8
VESP	0	0	0	0	0	0	0	0	0	0	0	1 / 0
SASP	26	4	7	3	0	4	0	1	8	0	0	79 / 2
"IPSP"	0	0	0	2	0	0	0	0	0	0	0	0 / 0
STSP	0	0	1	0	0	0	0	0	0	0	0	0 / 0
FOSP	1	1	0	1	0	0	0	0	0	0	0	0 / 2
SOSP	336	62	107	234	43	118	6	111	180	8	81	320 / 16
SWSP	17	10	4	42	3	15	2	22	11	0	3	97 / 1
WTSP	56	51	25	89	7	16	0	31	77	27	15	293 / 54
WCSP	0	0	0	0	0	0	0	0	0	0	0	15 /2
DEJU	44	162	268	344	261	187	11	389	1242	185	367	172 / 7
LALO	0	0	50	0	0	0	0	0	8	0	0	0 / 0
SNBU	0	0	24	8	2	0	22	0	0	1	0	0 / 0
RWBL	1	1	1	0	0	0	0	0	17	0	2	420 / 0
EAME	3	0	8	0	0	0	10	43	0	0	0	43 / 1
RUBL	0	0	0	0	0	0	0	0	1	0	0	0 / 0
COGR	3	2	2	0	0	0	0	12	2	0	14	455 / 0
BHCO	3	35	0	0	0	75	0	4	26	0	28	149 / 3
NOOR	0	0	0	0	0	0	0	0	0	0	0	1 / 0
PIGR	0	0	0	0	0	0	0	0	0	0	0	0 / 0
PUFI	9	7	6	1	1	3	0	1	7	0	1	0 / 0
HOFI	226	218	501	161	169	115	21	137	224	79	295	362 / 30
RECR	0	4	0	0	5	0	0	0	0	2	0	0 / 0
PISI	0	0	11	2	3	0	0	4	9	10	13	0 / 0
AMGO	72	121	476	125	35	130	18	137	265	115	202	28 / 18
EVGR	0	0	1	29	355	0	0	5	73	275	9	0 / 0
HOSP	153	167	1502	417	417	326	40	455	1058	492	577	354 / 45
# of species	113	80	109	104	69	92	58	69	73	47	70	110
total birds	68997	11404	41779	17801	6433	67889	5909	12633	13768	6939	13230	34124
	Nant.	N. B.	Newbpt.	Ply.	Quab.	Quin.	Stell.	Tau-Mb.	Uxbr.	Wstm.	Worc.	Nwp.RI

* Figures shown in Newport County, RI/Westport, MA CBC column are broken down by state: RI / MA.

Nant. =	Nantucket CBC	December 30, 1990
N. B. =	New Bedford CBC	December 30, 1990
Newbpt. =	Newburyport CBC	December 23, 1990
Ply. =	Plymouth CBC	December 27, 1990
Quab. =	Quabbin CBC	December 29, 1990
Quin. =	Quincy CBC	December 15, 1990
Stell. =	Stellwagen CBC	December 22, 1990
Tau-Mb. =	Taunton-Middleboro CBC	December 23, 1990
Uxbr. =	Uxbridge, MA/RI CBC	December 29, 1990
Wstm. =	Westminster CBC	December 22, 1990
Worc. =	Worcester CBC	December 15, 1990
Nwp. RI =	Newport County, RI/ Westport, MA CBC	December 15, 1990

Focus on Nature TOURS

What's a Cocha? More importantly, what's a Cocha Antshrike?

Cochas are small oxbow lakes near rivers in the Amazonian jungle of South America. The **Cocha Antshrike** is a bird that until a few months ago was known only from one specimen, a female, obtained years ago in eastern Ecuador. Late in 1990, the species was "rediscovered," and a male was seen for the first time. A few weeks ago the species was found at **La Selva** (*the jungle*) **Lodge** on the Napo River in eastern Ecuador. During our recent trip to Ecuador in February, most of our group either heard or saw the bird during our stay at La Selva.

But our best birding there was atop the new hundred-foot tower attached to a giant Ceiba tree. From there, incredible bird activity — in the treetops, exciting views of bright, colorful birds: **Macaws, Toucans, Trogons, Barbets** and an array of tanagers including the beautiful **Paradise Tanager** bathing in water in bromeliads. We were eye-to-eye with gems such as the **Spangled Cotinga** and the **Great Potoo** (although the eyes of the Potoo, during the day, were closed).

One of the many highlights, however, was below the tree and a few yards away: a mother **Long-tailed Potoo** seen at close range, sitting as still as could be, aside a tree stem, with its deep brown eyes, and its single young, with clear white eyes, nestled by her side. At night, birds heard, and some seen, in the jungle were: **Gray Potoo, Nocturnal Curassow, Tinamous, Trumpeters,** and **Owls: Black-banded, Crested, Spectacled, Mottled, Tawny-bellied Screech** and **Ferruginous Pygmy.**

In all, over **425** species of birds were seen or heard throughout the trip. There'll be another **Focus on Nature Tour** to **Ecuador July 19 – 31**, for $1240 plus airfare. (July is prime time for the **Zigzag** and **Agami herons.**) In addition to La Selva, other top birding spots in Ecuador will be visited with Juan Carlos Matheus, one of the best birding guides in the country.

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ABOUT THE COVER: COMMON TERN AND WILSON'S WARBLER

Common Terns and Wilson's Warblers, nest, chicks, and adults. One could legitimately ask, what forces conspired to bring these two very different bird species together on the same plate? One guess could be that the picture was intended to illustrate the life cycles of a species with altricial young (the warbler) compared with one with precocial young (the tern), a good subject for any ornithology textbook. Or perhaps the intention was to compare a landbird species with a bird of the seashore. Or maybe the artist just likes grouping species that have black caps on their heads.

Any of the above guesses, while each logical, would be wrong. The picture is intended to illustrate the symbolic species of two venerable American ornithological organizations, the Wilson Ornithological Society (Wilson's Warbler) and the Association of Field Ornithologists (Common Tern). The picture was created by noted wildlife artist Gordon Morrison as a banquet gift for each registrant at the joint meeting of the WOS and AFO which was held from May 31 through June 2, 1990 at Wheaton College in Norton, MA. In addition to the symposium on the Role of Amateurs in Ornithology (the papers of which appear in this issue) and another on American Avian Zoogeography, the meeting featured fifty-nine contributed papers and posters.

Gordon Morrison's vibrant picture illustrates the life cycles of the species that symbolize each organization. The picture conveys a sense of balance and growth, a fitting description of the two societies, both of which have contributed substantially, as amateurs and professionals alike, to the growth and maturity of American ornithology.

John C. Kricher

MEET OUR COVER ARTIST

Bird Observer's cover was last graced with Gordon Morrison's artwork in December 1988. He continues to provide illustrations for periodicals, such as *Bird Watcher's Digest*, and books, such as the Peterson's *Field Guide to Eastern Forests* and the forthcoming *Field Guide to Western Forests*, both authored by John C. Kricher. His exhibits and collections have appeared throughout New England and in Washington, D.C., Pennsylvania, and Florida. Recently, he provided twenty-four pieces of artwork for the Tropical Rainforest Exhibit of the Missouri Botanical Gardens. From April 7 to June 30, 1991, Gordon will be having an exhibit at the Massachusetts Audubon Society Moose Hill Wildlife Sanctuary in Sharon, MA, celebrating its seventy-fifth anniversary. If readers are interested in purchasing limited editions of the cover print ($15 per 6.25" x 8.25" print), please contact Gordon Morrison at 52 Bulfinch Street, North Attleboro, MA 02760.

Martha J. Steele

February's mystery bird represents a member of the group of birds, both popular and unpopular among field observers, commonly called "sea gulls"—family Laridae. In this age of ornithological enlightenment, most birders now acknowledge the grim reality that "indeed, a gull is not just a gull." Gulls traditionally challenge, frustrate, or delight serious birdwatchers, and there is nothing like a motley immature gull to cause consternation among the most avid devotees. Mercifully, the pictured gull need not create such ambivalence.

As with all gulls, an important starting point in the identification process is to determine the age of the individual in question. In this case, the task is simplified by the presence of an unmarked yellow bill on the mystery bird. Because immatures of virtually all North American gulls have dark or bicolored bills, the pictured bird is clearly an adult. At this point, the choices are limited to three species: Mew Gull, Black-legged Kittiwake, and Red-legged Kittiwake. The Red-legged Kittiwake is essentially confined to the Pribilof and Aleutian islands in Alaska and can therefore be dropped from the list of viable possibilities. The mystery gull is apparently a Mew Gull or a Black-legged Kittiwake.

A comparison between an adult Mew Gull and an adult Black-legged Kittiwake requires examination of bill pattern and shape, eye color, head coloration, and primary pattern. The pictured bird appears to have a dark eye and a fairly dark mantle, characteristics shared by both species. More important, therefore, is the presence of the dusky spot behind the eye and the absence of streaks on the head and nape. These two features are typical of a kittiwake in winter plumage and, when combined with solid black primary tips with no internal white spots (mirrors) and a stout, unmarked bill with no suggestion of a notch on the lower mandible (gonys), the identification of the mystery photograph as a Black-legged Kittiwake (*Rissa tridactyla*) is assured.

Black-legged Kittiwake *Photo by Roger Everett*

AT A GLANCE

Photo by Wayne R. Petersen

Can you identify this bird?
Identification will be discussed in next issue's AT A GLANCE.

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