

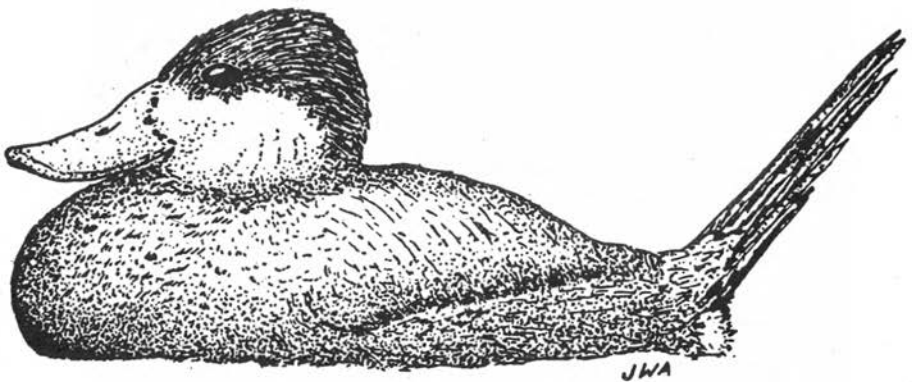
A LAKE AND POND WATERFOWL CENSUS

by John W. Andrews, Lexington

With the encouragement of Bird Observer magazine, a census of freshwater waterfowl was conducted in early November 1981. The purpose of this census was to determine the manner in which the various species of waterfowl were using lakes and ponds of different ecological character.

This project has acquired special significance with recognition of the growing threat of acid rain to freshwater ecosystems. Acid rain caused by emissions from smokestacks in the Middle West penetrates deep into wilderness regions of Canada and the northern United States. Waterfowl, especially the fish-eating species, may be facing a critical threat to their habitat. Here in Massachusetts, the Division of Fisheries and Wildlife has estimated that 38.5 percent of the state's ponds are endangered by acid rain. More than ten percent of these are classified as "critical," which means that their ability to neutralize acid precipitation has been nearly exhausted. Two lakes on the critical list - Lake Assawompsett and Billington Sea - were covered in this census.

For this census, nineteen observers visited 58 ponds and lakes in eastern Massachusetts within the period of November 6-10 and recorded the numbers of all loons, grebes, cormorants, ducks, geese, and coots using these areas. Only birds observed on the water or shores were counted; birds merely flying over the site were not recorded. A total of 5126 waterfowl of thirty different species were recorded. Some interesting statistics for the twenty sites having the largest counts are presented in Table 1. Counts by species are presented in Table 2. In order to fully achieve the study



Ruddy Duck

Illustration by John W. Andrews

Table 1. Twenty Sites with Highest Total Waterfowl Counts.

Site	No. of Species	Total Count	Percentage of Divers	Most Abundant Species and Its Percentage of the Total
Little Quittacus, Lakeville	10	574	99.1	Ring-necked Duck 52.3
Great Meadows NWR, Concord	9	462	0.6	Canada Goose 56.5
Breeds Pond, Lynn	4	380	5.3	Black Duck 92.1
Crystal Lake, Wakefield	5	344	0.0	Green-winged Teal 43.6
Pocksha Pond, Lakeville	10	284	98.9	Scaup (sp.) 70.4
Nagog Pond, Acton	5	279	30.8	Canada Goose 65.2
Arlington Reservoir, Arlington	8	245	12.7	Canada Goose 45.3
Flax Pond, Lynn	4	241	4.1	Mallard 53.9
Lake Quannapowit, Wakefield	3	198	0.0	Canada Goose 93.4
Fresh Pond, Cambridge	13	169	95.9	Canvasback 65.1
Big Springs Pond, S. Peabody	5	156	0.0	Mallard 38.5
Lake Assawampsett, Lakeville	9	147	95.9	Scaup (sp.) 44.2
Duck Feeding Pond, Newton	2	125	0.0	Mallard 99.2
Cambridge Reservoir, Waltham	7	110	95.5	Common Merganser 49.1
NN, Duxbury	5	96	1.0	Canada Goose 49.0
Hardy Pond, Waltham	2	84	95.2	Ruddy Duck 95.2
Winter Pond, Winchester	3	82	30.4	Canada Goose 54.9
Leverett Pond, Brookline	2	80	0.0	Mallard 53.8
Horn Pond, Woburn	9	75	21.3	Mallard 53.3
South Watuppa, Fall River	2	68	100.0	Ruddy Duck 98.5

Note: The category "divers" comprises mergansers, Ruddy Ducks, grebes, cormorants, loons, coots, scoters, and all ducks of the genus Aytha.

Table 2. Species Counts.

Species	Total Count	Number of Sites	Maximum Count and Location
Canada Goose	1099	13	261 Great Meadows NWR, Concord
Mallard	930	42	130 Flax Pond, Lynn
Black Duck	713	30	350 Breeds Pond, Lynn
Ruddy Duck	461	13	200 Little Quittacus, Lakeville
Ring-necked Duck	427	8	300 Little Quittacus, Lakeville
Scaup (sp.)	322	6	200 Pocksha Pond, Lakeville
Bufflehead	205	13	65 Pocksha Pond, Lakeville
Green-winged Teal	183	5	150 Crystal Lake, Wakefield
American Wigeon	179	11	87 Great Meadows NWR, Concord
American Coot	152	8	78 Great Pond, Braintree
Canvasback	146	6	110 Fresh Pond, Cambridge
Common Merganser	90	7	54 Cambridge Reservoir, Waltham
Hooded Merganser	61	6	25 Winter Pond, Winchester
Common Goldeneye	31	6	8 Nagog Pond, Acton
Pied-billed Grebe	28	9	10 Little Quittacus, Lakeville
Wood Duck	21	6	10 Big Springs Pond, South Peabody
Mute Swan	15	1	15 Billington Sea, Plymouth
Pintail	12	3	9 Great Meadows NWR, Concord
Northern Shoveler	12	1	12 Great Meadows NWR, Concord
Lesser Scaup	7	2	5 Nagog Pond, Acton
Horned Grebe	6	2	3 Great Quittacus, 3 Lake Assawampsett
Gadwall	5	2	4 Niles Pond, Gloucester
Common Loon	5	4	2 Lake Assawampsett, Lakeville
Double-cr. Cormorant	3	3	1 at 3 sites
Redhead	3	3	2 Fresh Pond, Cambridge
Blue-winged Teal	3	1	3 Arlington Reservoir, Arlington
Oldsquaw	2	1	2 Pocksha Pond, Lakeville
Red-breasted Merganser	2	1	2 Niles Pond, Gloucester
White-winged Scoter	1	1	1 Pocksha Pond, Lakeville
Great Cormorant(imm.)	1	1	1 Broken Stone Quarry, Weston
Goose Hybrid	1	1	1 Lake Quannapowit, Wakefield
(Canada/White-fronted?)			

objectives, censusing of a wider variety of sites will be necessary, and further study of the critical physical and ecological parameters for the individual bodies of water must be pursued. Efforts will continue over the next few years. Inspection and analysis of the 1981 census data, however, yielded the following observations and questions as to how species distributions vary:

1. Populations at most sites were heavily weighted toward either diving or dabbling waterfowl. Of the twenty most populated sites, fifteen had a ratio of greater than 20:1.

Question: Why aren't there more sites with balanced populations?

2. There was a tendency for a single species to account for a large fraction of the total population at a site. In Table 1, the most abundant species accounts for more than 40 percent of the total in nineteen cases, more than 50 percent in fourteen cases, and more than 90 percent in five cases.

3. For many species, the site with the maximum count for that species had severalfold greater numbers of the species than the site with the second highest count. For example, Fresh Pond had 110 Canvasbacks while the runner-up for this species had only fifteen. Question: Is this due to flocking instinct, or is it due to ecological characteristics of the site?

The author would like to thank all observers for their participation, especially Bob Stymeist and Ollie Komar for helping recruit observers. The complete list of observers follows: John Andrews, Dorothy Arvidson, Thomas Athearn, George Gove, Bruce Hallet, Richard Heil, Janet Heywood, Craig Jackson, Oliver Komar, John Hines, Al Levine, John Loring, Edmund Newton, Rosamond Parks, Wayne Petersen, Martha Reinstein, Robert Stymeist, Lee Taylor, Richard Walton.

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