NASA Technical Memorandum 104589

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Charles R. Vaughn

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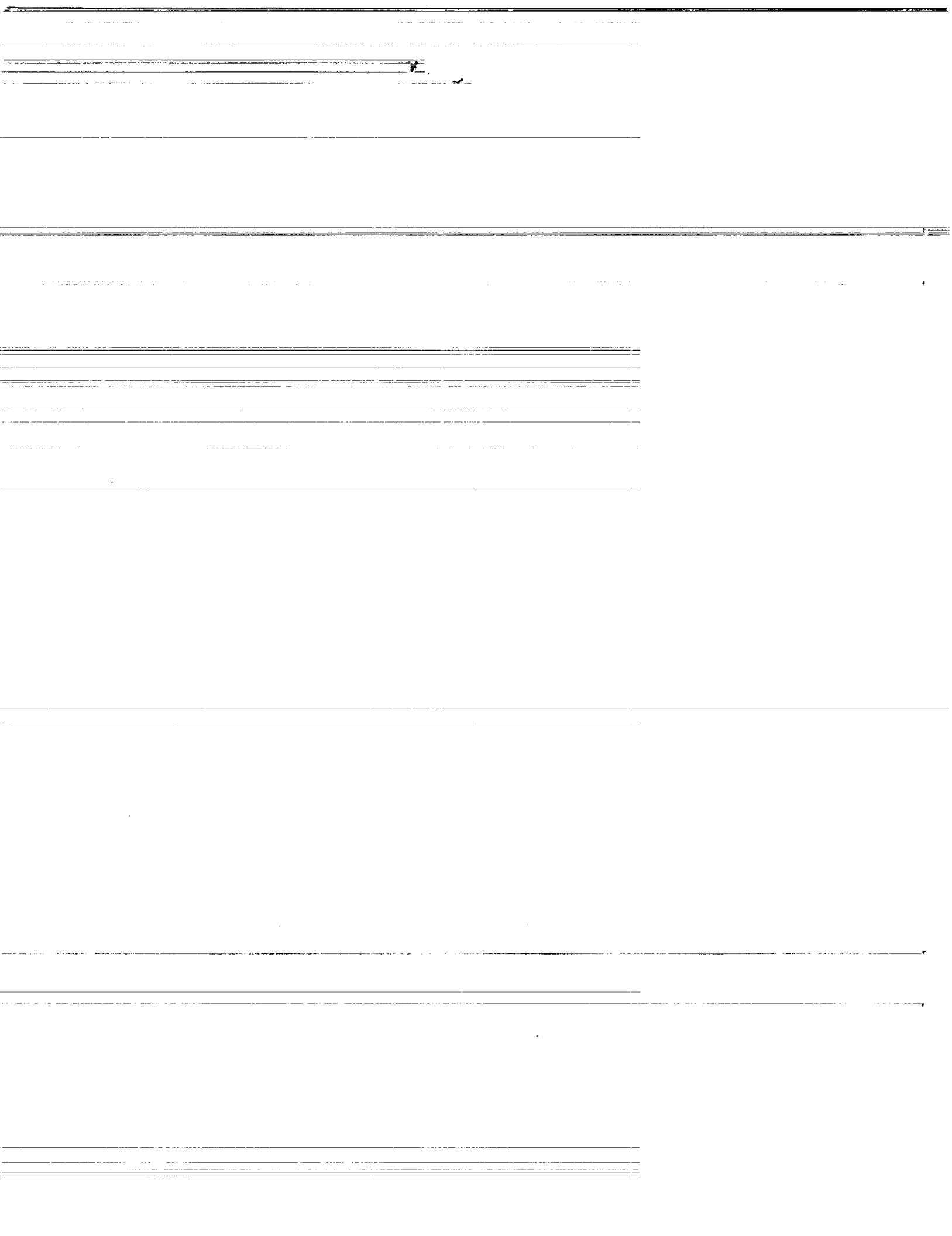

NASA Technical Memorandum 104589

Birds of Wallops Island, Virginia 1970–1992

Charles R. Vaughn
Laboratory for Hydrospheric Processes
Wallops Flight Facility
Wallops Island, Virginia

National Aeronautics and
Space Administration

Goddard Space Flight Center
Greenbelt, Maryland 20771

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INTRODUCTION

From late 1970 through 1992, I made somewhat regular trips to Wallops Island (WI), Virginia – an Atlantic Ocean barrier island that is a rocket launch range of the Goddard Space Flight Center, National Aeronautics and Space Administration. During these trips I recorded the numbers of most of the birds I saw. My records provide some of the most extensive data on the birdlife of a mid-Atlantic barrier island. Undoubtedly, some of this data adds little to our knowledge of the birdlife of the central Atlantic coast. However, along a north-south axis on the Delmarva Peninsula the variation in the distribution and abundance of many species of birds is considerable. Some of these variations may be significant; some species may be using the only places on the peninsula that are suitable for them. For other species, the variations may simply represent a random choice of spots within an abundant habitat. Whether or not these variations are significant will depend on future analyses of all available data. Without the data, though, no such analyses can be done. Rather than let my data sit, eventually, no doubt, to be discarded, I decided to summarize the aspects of the data I consider most useful, hence this report. I also include all historical data on the birds of WI that I could find.

The number of trips I made to the island varied from a low of four in 1979 and 1984 to 20 or more in 1974 and 1987 through 1989. I took most trips around midday during the week and stayed less than one to one-and-a-half hours. There were also visits lasting two to four or five hours. On those occasions I led bird watching trips, or, during the last week in December, I walked the north end of WI with several other people for the annual Chincoteague Christmas Bird Count. During the 22-year period covered by this report, there were 366 trips, with the following breakdown by season: 124 in the spring, 61 in the breeding season, 104 in the fall, and 77 in the winter.

My intention in writing this report is to provide more than a simple list of dates of occurrence and general abundance of all the species of birds known to use Wallops Island and the Wallops Mainland (WM). This report covers a period of 22 years. Significant changes in the abundance of some species have occurred during these 22 years. In some cases I have been able to give a reason for this change. Wallops Island and the Mainland have a diverse habitat structure. Many species are found in only one of these habitats and often in a restricted portion of the habitat. I also include such information when it seems useful. Until recently, the idea of the "environmental health" of a "site", from a regulatory perspective, was almost synonymous with how healthy the place is for a person; the health of other forms of life now get at least lip service from government agencies. The environment of a region includes everything in that region and, more fundamentally, the way those things interact with each other. A government agency, now required to consider the environment when planning and conducting its activities, needs details about the local conditions. I hope this report helps with this requirement.

HISTORY

Wallops Island, Virginia, has been a concern of bird conservationists since at least the turn of the century. In 1901 there appeared in *The Auk* (18:81–82) the following:

> Capt. Whealton was thoroughly in sympathy with our movement and stated that he had stopped all summer shooting from a club house close to his station, and in the early part of the season had stopped two negroes who were egging on the marsh, and that since then the birds had not been troubled so far as he knew. The species protected were Clapper Rails or Mud Hens (Rallus crepitans), Willet (Symphemia semipalmata), Laughing or Black-headed Gull (Larus atricilla), Terns or Big and Little Strikers (Sterna hirundo et antillarum), and it is probable that the increase in numbers was very material.

This entry was part of the "Report of the A.O.U. Committee on the Protection of North American Birds." In 1902, in the same section of *The Auk* (19:52), there is this entry:

> VIRGINIA. – John B. Whealton, of the Wallops Beach Life Saving Station, estimates in his territory, a district of beach and marsh seven miles long, the following increase in birds; Marsh Hens (Rallus crepitans) and Willet (Symphemia semipalmata), large number; Black-headed Gull (Larus atricilla), 2000; Strikers (Sterna hirundo, S. forsteri, and S. antillarum), 3000.
>
> He had some difficulty in stopping egging, even after the close season commenced. He thinks that the law should be changed so that egging should not be permitted at any time.

And again in 1903 (Auk, 20:147):

> Capt. J. B. Whealton, of Wallops Beach, says: "Most of the people in this vicinity are in favor of protecting birds, but there is a class of baymen that will take eggs, and sometimes kill breeding birds. They give more trouble than any other persons. Prior to two years since the gulls were almost all destroyed, but now there is a big increase; I should judge they have doubled in numbers, and there is also a marked increase in the Willet; more young Willets were seen in August than in any time in five years past."

An additional quote from this last-quoted issue of *The Auk* (20:149) is appropriate. In reference to the general bird conditions along the Virginia barrier islands, the following was recorded by Mr. Frank C. Kirkwood of Baltimore, Maryland: "I did not see any Royal Terns, so they probably have been exterminated, so far as Virginia is concerned."

At least two people seriously interested in birds visited WI in the early part of the century and studied the birds. The appearance of one ornithologist, W. L. McAtee, is remembered by the 47 skins and skeletons now in the collection of The United States National Museum of Natural History (USNM), Division of Birds at the Smithsonian Institution. These are all shorebirds collected on WI between 23 May and 31 May 1913. The USNM apparently does not have any birds from WI that were collected between 1913 and 1975, although their computerized data base, from which I got the information, is not complete at this writing.

Other early work on WI was reported in 1922 when a note in *The Auk* (Poole, 1922) referred to a trip along the Virginia coastal barrier islands by E. L. Poole of Reading, Pennsylvania. Poole wrote:

> June 27 to 29 inclusive, were spent on Wallop's Island, Accomac [sic] County, where, under the protection of the Wallop's Island Association, the owners, a couple of colonies of possibly 40 pairs of Least Terns, and a somewhat smaller number of Common Terns were nesting. Piping Plovers were also rather plentiful, and we saw several of their half-grown young along the deep wind-swept beaches at either end of the island. Among the other breeding species of note we might mention the Boat-tailed Grackles, which were quite common, although this is about the northern limit of their breeding range.

It seems that during the first decade of this century the Common, Forster's, and Least Terns bred in large numbers on WI. If the 3000 number quoted in the 1902 entry is correct, their numbers decreased dramatically by the time of Poole's visit in 1922. The Common and Least Terns are now primarily limited to breeding on the sandbar in Chincoteague Inlet. The Royal Tern, which had been extirpated along the entire coast, now also breeds on the inlet sandbar; the Laughing Gull ("Black-headed Gull") no longer breeds, and the Forster's Tern is very hard to find as a breeder. Even accepting the possible inconsistencies between the above quotes, dramatic bird population changes have obviously taken place on WI since the early part of this century.

When comparing historical records with the records taken today, the question arises, "Are there obvious reasons for significant difference in bird populations?" The ubiquitous human, as predator and modifier of the environment, is one obvious reason. The human effect on birds changes with law and land use, and the effect is often readily seen. Predation by non-humans can also be significant. Two non-human mammalian predators on WI are the Red Fox (*Vulpes vulpes*) and Raccoon (*Procyon lotor*). It seems unlikely that any ground nesting colonial birds can survive with these predators present, especially the fox. Yet it is clear from the above accounts that ground nesting colonial birds were common at times on WI. None of the writers mention foxes or Raccoons as affecting the birds. However, Paradiso and Handley (1965) relate the following account:

> It is not known when or how red foxes first arrived on Assateague Island, but there is information about their appearance on Wallops Island ... U. S. Fish and Wildlife Service files contain a letter from B. H. Warren, dated February 2, 1921, which states: "About two years ago foxes in some unknown way got to Wallops Island. They harbor in the high land or hills, have increased and are doing much damage to little lambs, cottontail rabbits and ground nesting birds. They often take poultry from our keeper's yard. We have arranged to run them to dens with hounds, and dig the red coated robbers out."

The Red Fox is presently common on WI; either Warren's keeper failed his task, or the animal reinvaded WI. The early status of the Raccoon is still unknown. In the species account for the Willet (p. 19 below) there is a quote by Howe concerning the effects of these two animals (and the Fish Crow) on the Willet's breeding success.

Another source of information about birdlife on WI is "Life Histories of North American ...", by A. C. Bent. This series of books was published over a 50-year

period. From the late 1910s through the 1920s, especially, someone sent records of bird nestings and sightings on WI to the Unites States Biological Survey, now the Fish and Wildlife Service. Some of these records are in Bent. In the species accounts below, "Bent (19__)" refers to the particular volume – which was completed in the year stated – where useful information was found about the species being discussed.

I have been unable to find any other references to the birds that were seen on WI prior to 1970.

BIRDS OF WALLOPS

A total of 244 species of birds are recorded for Wallops Island or the Mainland. A summary of the records for these species are given in the Species Accounts or the Appendix. One of these species, the Henslow's Sparrow, is recorded by a single specimen in the Philadelphia Academy museum. I have confirmed, or am reasonably sure based on the evidence acceptable by Virginia's breeding bird atlas criteria, that 61 of these species have bred on WI or WM since 1970. An additional six species may have bred, but I consider the evidence scanty.

During the first 10 years that I recorded birds on WI, I did so basically as a birdwatcher. The major feature of WI for a birdwatcher is the species of birds that associate closely with water. The status of species in this report is, thus, most complete for loons through the Dovekie. Many species of songbirds, however, migrate north or south along the Delmarva Peninsula. An extensive banding program in Ocean City, Maryland in the late 1960s commonly caught many species thought to be rare based on scant sight records. On WI the Cape May Warbler has been seen only once – in the spring – while fall banding programs caught three birds in one year and six birds in another. Seven other species of songbirds have been seen only because they were caught in mist nets. It is clear that the true status on WI of many small songbirds will be determined only by conducting a regular banding program.

During the spring and fall migration periods, several practical problems arise for the field observer. Fall migration occurs when mosquitos are abundant. Anyone who has not worked in the shrubby wooded areas of WI during this period might be excused for not appreciating the problem with mosquitos; hundreds can land simultaneously on the face and hands of an observer who is foolish enough to be distracted by a bird. The pest-insect problem during spring migration is not as severe, but at times biting flies make mosquitos seem a petty annoyance. A second problem arises because of the transient nature of migration; most migrants are rarely present for more than a few days. An average of once-a-week visits in the spring and fall are not sufficient to detect migration with certainty. These problems are undoubtedly the major reason many songbirds species have been seen only once and many expected species are unrecorded. The Appendix lists these species.

The counts of birds in this report include those seen on or from WI and WM, including those seen over the ocean, in Chincoteague Inlet, over the extensive salt marshes to the west of WI, or over the marshes looking east from WM. I did not count birds identified on very clear days on the hook of Assateague Island; various easily identified large birds flying over Tom's Cove, Chincoteague Island, and the marshes to the west of Chincoteague Island; and birds actually on or flying over Assawoman Island. In addition, birds seen over the farmlands west of the NASA property on the mainland are excluded.

The primary result of the liberal counting policy described above is the inclusion of many birds I saw over the ocean or on the large sandbar in Chincoteague Inlet. This sandbar can dramatically change on an annual basis. During the mid-1980s through 1989, this sandbar (*ca.* 40 ha) was high enough for grasses to survive, and gulls, terns, and skimmers were able to develop a sizeable breeding colony. The west side of this sandbar sometimes grows to within 50 meters of WI. The dynamics of the north end of WI for the past 100 years (Reidenbaugh, 1978) suggests that this sandbar will attach itself to WI, thus continuing the natural accretion of land to the island. If the sandbar attaches itself to WI, there will probably be a rapid decline in colonial breeding birds because of the easy access to the area by predators such as foxes and Raccoons. Other birds included in this report, that were not on WI or WM proper, are loons, storm petrels, gannets, diving ducks, and many of the cormorants, pelicans, and gulls which use the ocean.

Wallops Island north of the Coast Guard house is within the 24.1 km (15 miles) diameter circle that defines the National Audubon Society's Christmas Bird Count at Chincoteague, Virginia. This part of WI has been surveyed during the counts from 1970 through 1992, except for two years. In most years there were two parties of observers who spent from lunch to dusk in the area. It should be emphasized, however, that even this intensity of coverage does not adequately count the songbirds. Most of the area between the dirt road and

the beach is impenetrable; access is restricted by tangles of shrubs interspersed with freshwater marsh, often knee-deep in water.

I also include observations from the Wallops Mainland. The NASA property just inside the NASA guard's gate at the island is referred to as the Wallops Mainland (WM). It runs approximately 1.3 km south, 0.5 km north and east to the bridge over the Intercoastal Waterway. Few observations were made on WM, although the Blue Grosbeak and Indigo Bunting are regular only in this area. Extensive observations were made along the causeway, especially of the freshwater pools scattered throughout the marsh. The years from about 1980 through about 1987 generally had hot, dry summers that left most marsh ponds dry. For several years the large pond at the east end of the causeway was dry in summer. These conditions seem to have particularly affected the numbers of waterfowl, long-legged waders, and shorebirds that used the marsh for feeding.

A number of terms require definition. "Winter", "spring", "breeding season", and "fall" refer to intervals peculiar to the species being discussed. The "breeding season" for a species starts when birds arrive in the area they use for breeding and lasts until the young fledge and leave. The other seasons are referenced to the breeding season. In sedentary or permanent resident species, the distinction between the other terms is problematic for casual observations. However, for migrants the migration periods before and after breeding are almost synonymous with "spring" and "fall". For some waterfowl "spring" begins in March; for shorebirds, "fall" begins as early as the end of June. "Fall" can also include, for many species, a period of postbreeding dispersal. "Winter" extends from the end of fall migration to the beginning of spring migration. For some species a considerable amount of movement still occurs in winter. In the local region, waterfowl and shorebirds can move hundreds of kilometers north and south along the coast as the availability of food changes. "Winter" refers to a time interval, while "winters" and "wintering" refer to a behavioral characteristic of at least some members of the species. A species "winters" in an area when some individuals remain in the area for the "winter" period.

A second group of terms relates to the abundance and/or probability of seeing a species during the appropriate season. "Abundant", "common", "uncommon", "irregular", "casual", and "accidental" are six terms used throughout the text. A species is "abundant" if there is a very high probability it will be seen (or heard, as with rails and owls) in moderate to large numbers on any trip to the appropriate habitat. A "common" species is seen almost every trip to the appropriate habitat, but only a few individuals may be recorded. Generally, a "common" species will be seen every year, unless qualified. An "uncommon" species will be missed up to 50–75 percent of the time, even in years when it is present. In some years the species will be absent. An "irregular" species is erratic in its presence; it may be uncommon to abundant at times, but absent most of the time and usually for many years at a time. A "casual" species may be anticipated but only a few times a decade at most. "Accidental" refers to those cases where only one or two records exist, and the species is not reasonably expected to occur.

In a report spanning more than 20 years it is difficult to summarize in a few sentences the local abundance of a species. Except for a few species, I did not attempt to completely count the numbers of a species during any trip. Because of this the terms defined in the previous paragraph should be understood as qualitative rather than quantitative.

In some of the species accounts, there is an abbreviation in brackets following the scientific name. This abbreviation is taken from the Virginia Natural Heritage Program listing as published in Terwilliger (1991). The only abbreviations included are those for species that have a state rank of S1 (extremely rare) or S2 (very rare) and that were seen during the breeding season, even though there is no direct evidence the species nests on WI or WM. Also included is the state status, when it has been assigned. The status abbreviations are LE (listed endangered), LT (listed threatened), and SC (special concern). Most status listings are recommendations for inclusion on the state endangered species list and are so indicated with an "R" preceding the actual status.

The following additional abbreviations are used:

ANSP – Academy of Natural Sciences of Philadelphia bird skin collection.

[B] – Breeds on Wallops Island or the Mainland.

[B?] – Probably breeds on Wallops Island or the Mainland but there is some question about the exact status.

BBA – Breeding bird atlas.

CBC – Audubon sponsored Christmas Bird Count located at Chincoteague, Virginia. Such reference refers strictly to the Wallops

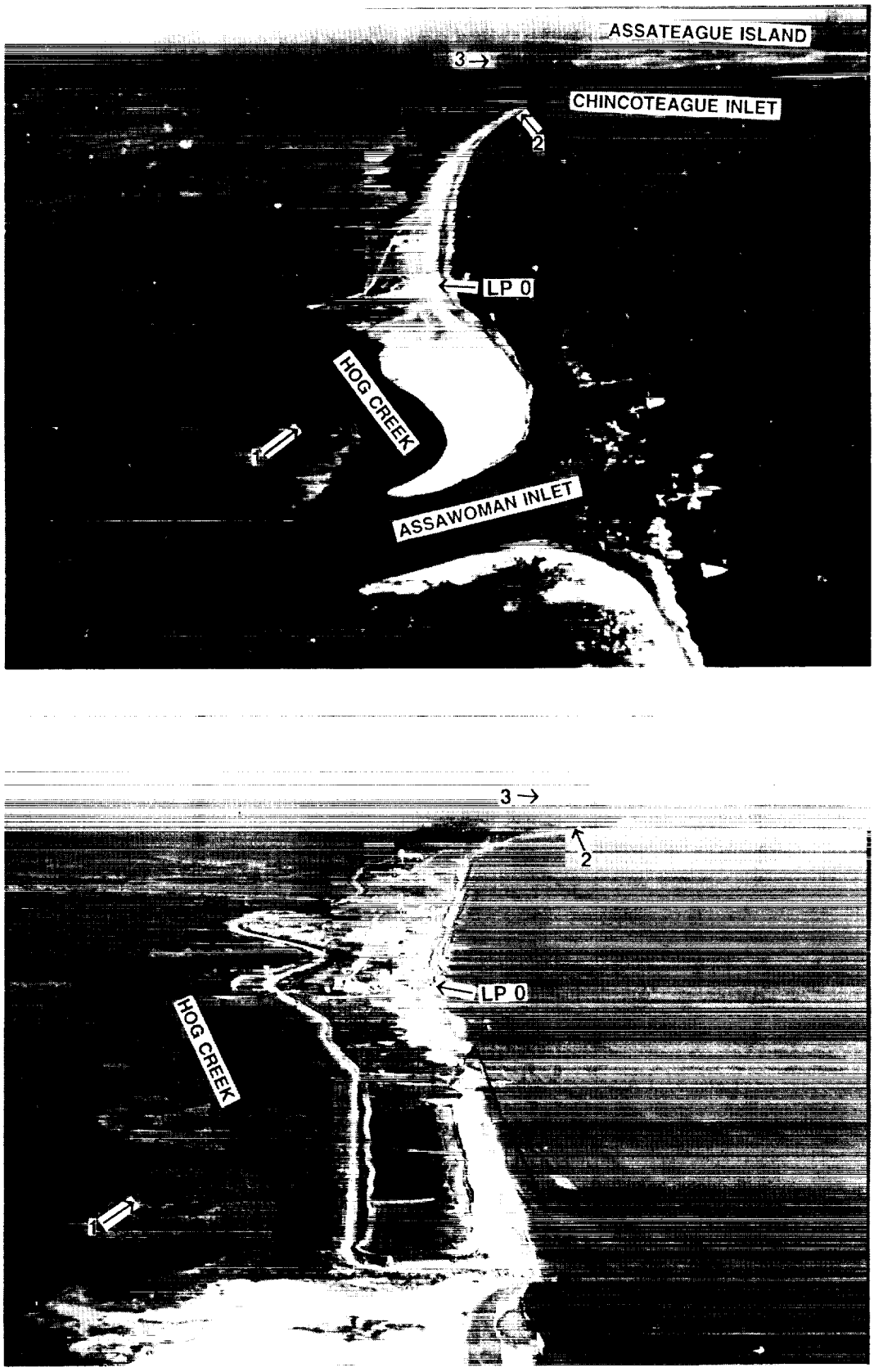

FIGURE 1. Two oblique aerial photographs of Wallops Island taken looking northeast. The top photograph was taken in 1946, the lower in 1993. Arrows point to several common locations in both views. Point 1 is a shallow pool west of NASA property. Point 2 shows the island boundary in 1946; by 1993 this boundary shows as a sand dune west of the main beach. Point 3 is the town of Chincoteague.

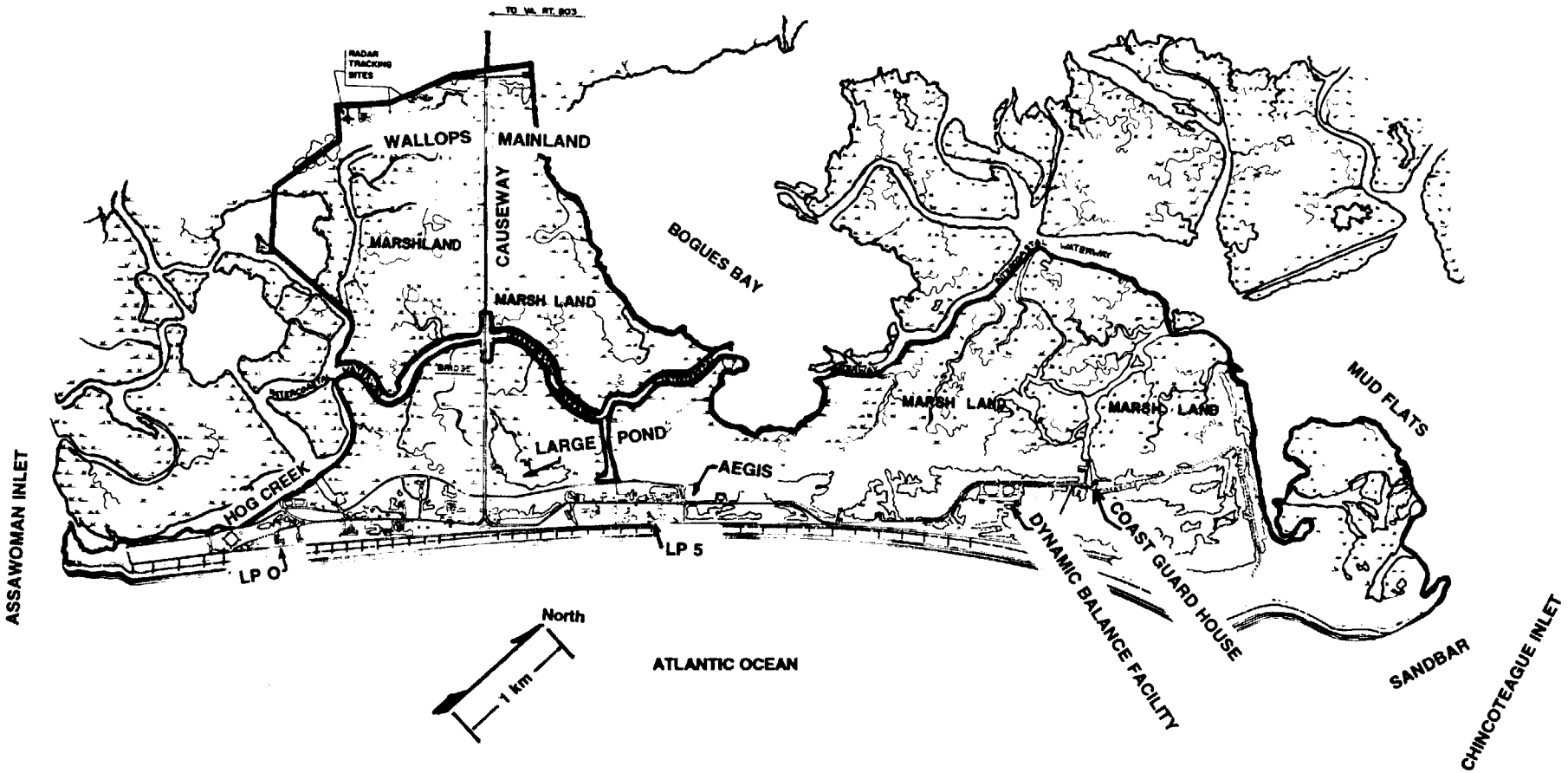

FIGURE 2. Wallops Island, Virginia and the NASA Mainland. The bold black line shows the approximate boundaries of the NASA properties. The NASA Mainland and Wallops Island are separated by the Intercoastal Waterway.

Island portion of the count.

CIS – Chincoteague Inlet sandbar

ha – hectares (1 ha = 2.47 acres)

HHB – H. H. Bailey, The Birds of Virginia

km – kilometers (1 km = 0.621 miles)

NWR – Chincoteague National Wildlife Refuge

USNM – United States Fish and Wildlife Service bird collection at the National Museum of Natural History, Smithsonian Institution in Washington, D. C.

VSO – Virginia Society of Ornithology, Virginia's Birdlife. An Annotated Checklist

WI – Wallops Island proper

WM – The area referred to by NASA as the Mainland.

Many species reports have an addendum in brackets. For instance, under the Great Egret entry there appears [HHB – formerly quite common, still a few breeding]. This is a reference to Bailey's description of the status of the species for the entire state of Virginia. Such an entry has been included when I felt the historical data is useful for comparison with the present in the Wallops area.

Other observers kept records for WI during the period of my observations. In the early 1970s bird banding on WI was part of an ornithology class taught at The Marine Science Consortium, Inc. Some of those records are included. Also included are waterfowl counts done on a regular basis in the early 1980s by personnel from the Chincoteague National Wildlife Refuge, and various notes taken by environmental personnel of the on-site Navy facilities. When they are known, I also include all records of birds found dead on WI that have been deposited in a museum. As mentioned above, the Smithsonian has skeletons and skins in their collection. To date 91 specimens from WI can be located in their catalog. More may be found when their computer database is completed. The National Academy of Science in Philadelphia has 12 specimens from WI. A few other specimens exist at the Irish Grove Sanctuary of the Maryland Ornithological Society. No attempt was made to locate specimens in other museums.

DESCRIPTION OF WALLOPS ISLAND AND THE NASA "MAINLAND"

Wallops Island, Virginia (37 40'N, 75 20'W) is an Atlantic Ocean barrier island (Figure 1) owned by NASA. It is about 11 km long with a total area of 1250 ha (3085 acres). The maximum width is about 2.5 km and the average width about 1 km, including salt marsh. In 1960 a causeway 3.5 km long, with a bridge over the Intercoastal Waterway, was completed to connect WI with the mainland. North of WI, across Chincoteague Inlet, lies Assateague Island, the southern portion of which is composed of the Chincoteague National Wildlife Refuge and the Assateague Island National Seashore. Assawoman Island is immediately south of WI.

To the west of the Intercoastal Waterway, both north and south of the island causeway, is the 505 ha WM, more than 90% of which is marsh, mudflats, and dredge spoils. The remaining 10% is upland and includes radar sites and other facilities. West of the NASA WM are extensive farmlands.

In the last 40 years WI has undergone extensive change, both manmade and natural. Figure 1 shows two oblique aerial photographs of WI, the upper one taken in January of 1946 and the lower one taken in February of 1993. Assawoman Inlet shows in the foreground of the top view, while the 1993 view shows a large washover area at the bottom that is part of the closed inlet. Point 1 in the two photographs shows the same shallow pond in the marsh west of WI. This pond is easily observed from the road along the south end of WI. Chincoteague Inlet was very wide in 1946 because the north end of WI and the hook of Assateague Island were much smaller. By 1980 more than 1.5 km of beach had been added to WI along Chincoteague Inlet (Reidenbaugh, 1978). To the north and west of the new beach line are 100–125 additional hectares of mudflats and sandbars. The Chincoteague Inlet sandbar shows as a long thin line in the 1993 photograph.

Historically, WI was bounded on the south by Assawoman Inlet. Figure 1 shows Hog Creek flowing into Assawoman Inlet and an extensive sandspit forming the south end of WI. A 1962 spring storm washed over the spit several hundred meters north of the inlet. In 1963 NASA filled across the washover and closed Hog Creek so that it no longer flowed directly into Assawoman Inlet. Starting at the spot where the washover was filled and extending for almost 7.5 km,

NASA has developed extensively to support rocket launches. The southernmost rocket launch pad is designated as LP 0. During 1986–1987 Assawoman Inlet closed through natural causes. Slingerland (1977, 1983) describes the dynamics of the south end of WI and Assawoman Inlet.

Several attempts to stabilize the beach against erosion have been made since 1960. A wooden bulkhead with groins was built that was eventually more than 6.2 km long. The 1993 photograph shows a battered bulkhead with the southern portion in the ocean. In the late 1980s, NASA began construction of a rock seawall to replace the bulkhead. The seawall will extend for more than 5.5 km when completed in late 1996. Various photographs in Shortal (1978) show the undisturbed nature of WI prior to the 1960s.

Figure 2 is a recent map of Wallops Island and Wallops Mainland. The heavy line shows the approximate boundary of WI and WM. The Intercoastal Waterway separates WI from WM. Launch Pads 0 and 5 are shown as LP 0 and LP 5 respectively.

The natural vegetation of WI and WM has been classified into four major categories, Dune Vegetation (20%), Man-induced Communities (10–20%), Thickets and Forests (10%), and Marshes (>50%); three to five subcategories are recognized within each category (Turgeon and Turgeon, 1980; Klotz, 1986).

The largest category is Marsh, with tidal salt marshes, interspersed with tidal creeks and small brackish pools, comprising 53% of WI and 59% of WM. Lower Salt Marsh, dominated by Saltmarsh Cordgrass (*Spartina alterniflora*), makes up 80 to 90% of the salt marshes. The remaining salt marshes have a variety of species with Salt Meadow Grass (*Spartina patens*) dominating the Upper Salt Marsh. On the north end of WI, especially, there is a large nontidal Fresh-brackish Marsh which has a wide variety of vegetation, the abundant species being Narrow-leaf Cattail (*Typha angustifolia*) and Common Reed (*Phragmites australis*). Also common is the Common Cattail (*Typha latifolia*).

Thickets and Forests cover a substantial part of the non-marsh areas. Upland Forest is dominated by Loblolly Pines (*Pinus taeda*) with Sassafras (*Sassafras albidum*) and Black Cherry (*Prunus serotina*) dominating the understory. Abundant in the Swamp Forest is Black Willow (*Salix nigra*). Wax Myrtle (*Myrica cerifera*), Dwarf Sumac (*Rhus copallina*), Poison Ivy (*Rhus radicans*), Marsh Elder (*Iva frutescens*), Common Greenbrier (*Smilax rotundifolia*), and Blackberry (*Rubus argutus*) are the abundant plants in the Swamp Thickets and Upland Thickets, while Groundsel Tree (*Baccharis halimifolia*) and Climbing Hempweed (*Mikania scandens*) are common.

Dune communities exist primarily on the northern third and southern ends of WI. American Dunegrass (*Ammophila breviligulata*), Salt Meadow Grass, Short Dune Grass (*Panicum amarum*) and Tall Dune Grass (*P. a.* var. *amarum*), and Salt Marsh Fimbristylis (*Fimbristylis spadicea*) are common to abundant in these communities.

The last category, the Man-induced Community, comprises 10%–20% of the total area of WI and WM. Meadows and extensive lawn in varying degrees of vegetative thickness surround the buildings and roadways.

ACKNOWLEDGEMENTS

A number of people provided important information for this article. M. Ralph Browning of the U. S. National Museum provided the list of specimens at the National Museum that were collected on WI. Mark Robbins provided a similar list of birds from The Academy of Natural Sciences in Philadelphia. Danny Bystrak at the Bird Banding Laboratory of the U.S. Fish and Wildlife Service provided a listing of all birds banded in the ten minute block that contains most of WI. John Weske helped identify the birds actually banded on WI and the Chincoteague Inlet sandbar. I am especially indebted to Teta Kain, who gave extensive editorial help with an early draft of this report, and to Harry Armistead, and Claudia Wilds who provided extensive comments on a later version. Robert Cross reviewed the report and provided additional information on the status of the Peregrine Falcon and Piping Plover, and the sight record for the Lapland Longspur.

SPECIES ACCOUNTS

RED-THROATED LOON (*Gavia stellata*)

The Red-throated Loon is common to abundant in fall and spring migration and common to uncommon in winter. In winter it is found primarily at the ocean end of Chincoteague Inlet. This species was also common at the mouth of Assawoman Inlet until the inlet closed in 1987. Mid-November is the normal early fall arrival period, with the earliest date being 6 Nov. 1984 when one loon was seen. From 5 to 75 Red-throated Loons typically winter, many of which apparently stay until early April.

I have only three Red-throated loon records between the second week of April and the beginning of November. These are in May when single birds appeared. The peak fall migration occurs between the end of November and the first couple of weeks of December. On 12 Dec. 1978 more than 200 birds were seen migrating south, and on 7 Dec. 1980 there were more than 50 birds swimming close to shore, with many other loons migrating south far at sea.

From 1971 through 1974 an interesting feature of the population was noted. An increase in abundance occurred during the first two weeks of March, after which the number of loons decreased to the wintering levels.

In 1971 good island coverage on 7 Mar. showed an estimated 400 loons (based on several counting points) resting on the water. By March 9th more than 5000 Red-throated Loons were estimated by sampling at several points from one end of WI to the other (Kain, 1987, p.1). Small groups of up to 15 loons were scattered along the island and out to an estimated one km from shore. The peak loon count during this period is also the peak for Virginia (Kain, 1987, p.1). A trip to Ocean City, Maryland on 6 Mar. showed a number of loons flying south, just the opposite of what loons in migration would be doing. Before the visit to Wallops on 7 Mar., a stop on Assateague Island five to six km north of Chincoteague Inlet produced no loons.

In 1972 counts during the same period produced the following: 27 Feb., 80+; 2 Mar., 42 (partial check); 6 Mar. 563 (good coverage); 9 Mar., 153 (good coverage); and 11 Mar., 71 (good coverage). Counts comparable with the 11 March number were recorded on several dates during the rest of the month.

In 1973 there was no coverage during the appropriate weeks. In 1974 a maximum count of 35 loons on 6 Mar. (with 6 on 28 Feb. and 3 on 9 Mar.) was not spectacular but the increase was real.

During the period when loons increased in number, small commercial fishing boats appeared and set nets close-by in the ocean, presumably to catch the same food as the loons. Loons could have died in significant numbers after getting tangled in the nets. McIntyre (1988, p.178), while working in the Chincoteague area, asked watermen to bring her loons they caught in their nets. On one day she was brought 13 dead loons, 12 Red-throateds and one Common.

After 1974 I did not visit WI sufficiently often from late February through early March to determine whether or not the reported event continued to occur.

COMMON LOON (*Gavia immer*)

The Common Loon is common around WI from fall migration through the end of spring migration. The peak fall migration often appears to coincide with the Red-throated Loon migration, although it may actually occur a week or so earlier. First fall arrivals often appear by mid-October. This species is typically seen in small numbers through the first week in May, the last stragglers departing the last week of May. In 1979 one Common Loon was seen on 25 Aug.

In the 1970s the Common Loon wintered abundantly in Tom's Cove at the south end of Assateague Island. On calm days some of these loons were easily seen from WI. A maximum of 30 loons were seen on one trip during the 1971–2 winter. Since 1980 I have only one record of seeing more than ten Common Loons in one day in winter. McIntyre (1988) reports that Common Loons that winter on the Atlantic coast south of Delaware likely breed in central Canada. It is unlikely that there are serious population problems originating in this breeding region. Chincoteague Inlet and Tom's Cove are becoming more shallow. The large numbers of this species seen in the earlier years were usually in these sheltered areas rather than at sea. This filling of the protected areas may account for the declining numbers of Common Loons seen wintering in the local area.

PIED-BILLED GREBE (*Podilymbus podiceps*)

The Pied-billed Grebe is uncommon around WI from its normal fall arrival during the first or second week in October through mid-April. This species was seen each year from 1970 through 1976. After 1976 it went unrecorded during seven years. Early fall dates include one grebe seen on 12 Aug. 1973 and one grebe seen on 28 July 1974.

This grebe is seen primarily in the large pond along the causeway and at the end of the dirt road to the north. In the early 1970s, however, a small flock arrived each winter and stayed in the canal on the west side of WI near launch pad 4.

Migrant and wintering grebes have declined significantly since the early 1970s. Each year from 1970 through 1975 I found 10–35 grebes present at least one day from mid-October through December. After 1978 no more than one to three grebes were seen at one time.

HORNED GREBE (*Podiceps auritus*)

The Horned Grebe is common to uncommon around WI from the end of December through mid- to late March. The earliest fall date is two birds seen on 5 Oct. 1975 and the

latest spring date is one bird seen on 14 May 1978.

Until 1976 the Horned Grebe was very common in winter, with a peak annual count of 20–30 birds being typical. On 9 Apr. 1972 a peak count of 85 was recorded. Between 1983 and 1989 no more than 2–3 grebes were seen at one time. Intensive searching on CBCs produced eight birds in 1982 and no more than three birds since then. On 8 Mar. 1990, 12 birds were seen.

GREATER SHEARWATER (*Puffinus gravis*)

The Greater Shearwater is accidental on WI. On 30 June 1984 I found a dead Greater Shearwater on the beach. This species is uncommon to abundant far offshore during July and August.

SOOTY SHEARWATER (*Puffinus griseus*)

The Sooty Shearwater is accidental on WI.

Specimens: USNM: #502733. I picked up dead juvenile on 13 June 1976 in good condition on the beach near the south end of WI.

AUDUBON'S SHEARWATER (*Puffinus lherminieri*)

I saw a small shearwater flying out of Chincoteague Inlet during August of 1970. It was most likely an Audubon's Shearwater, although the possibility of a Manx Shearwater cannot be excluded. The Audubon's Shearwater is uncommon in summer in the warm Gulf Stream waters well offshore (Kain, 1987), but onshore the species is casual.

WILSON'S STORM-PETREL (*Oceanites oceanicus*)

The Wilson's Storm-petrel is irregular on WI in summer. I have three records: two birds were seen on 9 June 1974, a minimum of five were seen on 8 June 1985, and 30 were seen on 13 June 1986. My scarcity of records for the Wilson's Storm-Petrel is likely due to a lack of effort scanning the ocean with a telescope.

NORTHERN GANNET (*Morus bassanus*)

The Northern Gannet is common close to shore from November through mid-December and again from March through early May. The peak count is 305 gannets seen on 6 Apr. 1988. The gannet winters abundantly at the mouth of the Chesapeake Bay; at times many thousands can be seen from the Chesapeake Bay Bridge and Tunnel. Because of the large wintering population south of WI, it seems likely that persistent observations would reveal thousands of gannets moving past WI in the spring and fall.

On 22 June 1987 I saw a single booby flying within 200 meters of the beach. Moderate fog inhibited getting a good look at the bird; however, it was either an adult Brown Booby or a second year Northern Gannet.

I found a second-year gannet partially decomposed on the beach on 3 Aug. 1984.

AMERICAN WHITE PELICAN (*Pelecanus erythrorhynchos*)

The American White Pelican is irregular to casual on WI. From 1984 through 1989 a single bird was occasionally present on the CIS or the adjacent beach on WI in October, November, and March. During this same period one or two of this species were regularly seen at the NWR. The WI sightings are probably these same birds. On 5 Oct. 1988 I saw two birds on CIS. On 25 June 1987 one bird was in the large pool along the causeway.

BROWN PELICAN (*Pelecanus occidentalis*) [S1, RSC]

The Brown Pelican is common in spring and summer and abundant in fall on WI. This species was first seen on WI on 18 July 1982 when 18 were recorded. The currently abundant status of this summer resident is attributable to the unprecedented range expansion that started in the early 1980s. Brown Pelicans generally begin to arrive in mid-May, with spring counts of typically less than 25 birds. The highest numbers occur in Chincoteague Inlet from mid-September through mid-October when the area seems to be used for a post-breeding staging area. Peak counts include 300 birds seen on 22 Sept. and 150 seen on 5 Oct. and 13 Oct. respectively, in 1988. In 1990, I saw 85 pelicans on 17 Aug.; on 21 Sept. there were 560 present and by 3 Oct. there were only 35.

GREAT CORMORANT (*Phalacrocorax carbo*)

The Great Cormorant is casual on WI in fall migration. I have one record: four birds were seen on 6 Nov. 1984. More than 50 Great Cormorants now winter on the rock "islands" of the Chesapeake Bay Bridge and Tunnel. These birds presumably come from the breeding colonies in northern New England and eastern Canada. Diligent watching during the spring and fall migration periods will likely show this species is a regular transient along the coast.

DOUBLE-CRESTED CORMORANT
(*Phalacrocorax auritus*)

The Double-crested Cormorant is an abundant spring and fall migrant on WI that irregularly winters. It increased dramatically in numbers from 1971 through 1982. Spring migrants first arrive between the last week in March and the first week in April. Migration typically lasts through the first week of June, with the 10 birds seen on 15 June 1986 being my late spring record. E. L. Poole (1922) reported seeing a flock of 10 birds on 29 June 1921. Puzzling is the 1987 season when groups of 15–50 birds were seen throughout June and July.

Fall migrants are common by mid- to late August. Peak counts in 1971 of 400 on 24 Apr. and 300 on 14 Oct. are dwarfed by 2000 to 6000 cormorants often seen in October during the 1980s. Peak fall numbers always exceed spring numbers, apparently because the fall birds use CIS as a staging area. Spring migrants fly past WI, with peak counts typically reflecting the time spent counting flocks of ten to thirty birds migrating overhead. There are two CBC records, both of single birds seen in the 1970s.

AMERICAN BITTERN (*Botaurus lentiginosus*)

The American Bittern is presently irregular on WI. From 1970 through 1976 I regularly saw one to three birds each year from October through April. By the 1980s the American Bittern had become quite scarce, with only four records from 1980 to date. These were single birds.

LEAST BITTERN (*Ixobrychus exilis*) [S2] [B?]

The status of the Least Bittern on WI should be considered unknown. I have one record: one bird was seen by another observer on 13 June 1990. This date is within the BBA safe date period for breeding. It seems reasonable that the Least Bittern breeds somewhere in the freshwater cattail marshes near the Spin Test facility.

GREAT BLUE HERON (*Ardea herodias*)

The Great Blue Heron is common to uncommon on WI from the start of fall migration in August through the end of spring migration in May. In the early 1970s, 10–20 herons would be seen at least one day a year. The Great Blue Heron seems to have become less common in recent years. Numbers now rarely exceed one to three birds. There are no nearby breeding colonies, so the bird is casual from the end of May through July.

On 25 May 1979 I saw a flock of 25 birds migrating north over the ocean at an altitude of about 75 meters.

[HHB – large colonies formerly bred on the offshore islands. Lumbering and fires, along with disturbance from gunners, drove the birds off the islands.]

GREAT EGRET (*Casmerodius albus*) [S2, RSC]

The Great Egret is uncommon to common on WI from spring through fall and irregular in winter. First spring Great Egrets arrive the first two weeks of April. This species does not flock in large numbers on WI like it does on the NWR. The maximum count is 23 birds seen on 22 Nov. 1975. More typically, one to five birds are seen scattered throughout the marshes. There are eight CBC records, with a maximum count being six birds seen in 1978.

[HHB – formerly quite common, still a few breeding]

SNOWY EGRET (*Egretta thula*)

The Snowy Egret is common to abundant on WI from late March through October. Peak counts of 50–125 birds can occur from June through September. I have two CBC records during the 1970s, one of two birds and the other of a single bird. After 1979 I did not see Snowy Egrets between the third week in November and the last week of March.

[HHB – rare, diminished by millinery trade]

LITTLE BLUE HERON (*Egretta caerulea*) [S2, RSC]

The Little Blue Heron is uncommon to common on WI from mid-April through October and irregular in winter. From 1970 through 1977, Little Blue Heron numbers peaked in July and August, with maximum counts of 30–40 birds. After 1978 the annual peak count never exceeded 10 birds, with one to five herons being a typical number.

Late fall and winter sightings of this species are usually the all white immature. There are three CBC records, all of immatures. Except for the three CBC records, I have no records between early November and the second week of April.

[HHB – status on Eastern Shore unrecorded]

TRICOLORED HERON (*Egretta tricolor*) [S2, RSC]

The Tricolored Heron was common on WI in the early 1970s through 1975, after which it became uncommon. Records exist for all months, with two to three birds sometimes seen in late January through February during the 1970s. Diligently conducted surveys throughout 1990 and 1991 produced a peak of five birds on 27 July 1991, with

scattered records of one to four birds at other dates in the spring and fall. A postbreeding peak of more than 40 birds was found 29 July 1973.

This is the small heron most likely to be seen during the winter. From 1970 through 1982, Tricolored Herons were seen on all but two CBCs. Since then there is only one CBC record. Peak winter counts are 10 birds found on the 1970 and five found on the 1982 CBCs.

CATTLE EGRET (*Bubulcus ibis*)

The Cattle Egret is an uncommon spring and fall migrant on WI that is usually found in the grasses along the roads. Spring records are from the third week in April through the third week in May. Most postbreeding season records are from July and August. The Cattle Egret generally passes along the island, rarely stopping for more than a day or so. Peak numbers of 10–20 birds are regularly recorded in spring, while 30–35 birds are not uncommon in the fall. During the breeding season, birds from nearby colonies are not seen on WI. There are no records of this species in eight of the 22 years of records.

GREEN-BACKED HERON (*Butorides striatus*) [B]

The Green-backed Heron was uncommon to common on WI from spring migration through fall migration until 1979. First birds of the season arrived from the third week in April through the second week of May. Last birds, which are probably migrants, were seen from early to mid-October. Peak counts throughout the 1970s were two to five birds, with a high of 10 on 17 July 1970 and again on 16 Sept. 1978. In the 1980s the peak count was three birds on 9 May 1987. In 1984 and again in 1986 no Green-backed Herons were seen during the entire year.

Although I never found a nest of the Green-backed Heron, it is likely that at least several pairs bred on WI in the 1970s. Bent (1927) lists WI as a breeding location.

[HHB – quite numerous on islands along coast with proper cedar, pine shrub habitat]

BLACK-CROWNED NIGHT HERON (*Nycticorax nycticorax*)

From the late 1980s through 1992 the Black-crowned Night Heron was uncommon to irregular on WI from April through August. Three birds seen on 25 June 1991 were the maximum for this period. A diligent search usually finds at least one bird using WI to feed during the breeding season.

In the early to mid-1970s this species typically arrived on WI from mid-March through early April when groups of 5–15 birds were seen. Since then there is only one record of before the last week in April. Most records from the 1980s are in early June. The peak count occurred on 17 Oct. 1973 when more than 75 birds were seen.

Since 1979 single birds have been the rule, with a peak of four on 14 June 1983. On four CBCs one or two birds have been recorded. Nine birds were seen on the 1974 CBC.

[HHB – breeds on the mainland of the Eastern Shore]

YELLOW-CROWNED NIGHT HERON (*Nyctanassa violacea*) [S1, RT]

The Yellow-crowned Night Heron is irregular on WI during the breeding season. I have sightings of single birds scattered throughout the 22 years of this report. All records are from May through September and occur at the north end of WI. These birds are most likely visitors from the breeding colony near the south end of Chincoteague Island.

[HHB – not listed as breeding]

WHITE IBIS (*Eudocimus albus*)

The White Ibis is casual on WI. I have two records: one bird was seen the last week of May 1977 and an immature bird was seen on 22 Sept. 1992.

GLOSSY IBIS (*Plegadis falcinellus*) [S2, RSC]

The Glossy Ibis is common to abundant on WI from spring migration through fall migration. In the warm winters of the early 1970s, migrant Glossy Ibis flocks often arrived by the end of the third week in March. On 30 March 1975, 135 Glossy Ibis were counted, although all other March records during that period were for less than 30 birds. Since the severe winters of 1976–77 and 1977–78, birds have not been seen until at least the third week of April.

The breeding colony less than 1.5 km from the northwest end of WI is the most likely source of the 50 to more than 100 birds often seen from May through August. This species generally leaves by the end of August, although I have scattered fall records through November in the early 1970s. Records exist for four CBCs, with 11 birds seen in 1971.

The depressed population of this species on WI since the early 1980s, relative to the 1970s, reflects the general condition throughout the Eastern Shore (Williams et al. 1992).

On 1 July 1987 an albinic Glossy Ibis was in a feeding flock of glossys. The bird, except for bill and legs, was a slightly off-white color, not the pure white of the Snowy Egrets that were also present. The bird did not fly during the observation period, so the wing pattern was not noted.

Specimens: USNM: #502162, #502163 (both 17 June 1977).

TUNDRA SWAN (*Cygnus columbianus*)

The Tundra Swan is an uncommon winter transient on WI, with records from November through the first week of March. I have no records in five years, and only one sighting in eight other years. Tundra Swans were seen on five CBCs, the peak being 42 seen in 1982.

SNOW GOOSE (*Chen caerulescens*)

The Snow Goose is irregular but often abundant on WI from late fall through winter as it stops to feed in the marshes. Peak numbers often exceed 500 birds in any year, with 2200 recorded 1 Feb. 1974.

On 22 Nov. 1975 a Snow Goose with a yellow-orange neck collar was seen in a flock of 950 birds. The bird had been banded 1 Aug. 1975 at the head of Admiralty Inlet, Baffin Island, Canada.

BLUE GOOSE: One to four birds were recorded in five years during November through March.

BRANT (*Branta bernicla*)

The Brant is common to abundant on WI from fall through spring and casual in summer. First Brant arrive the second week of October and commonly linger until the second week of May, though small flocks can be found in some years through the third week of May. In 1974 two Brant were seen on 9 June and one was seen on 7 July.

CBC records show 2600 in 1984, 6000 in 1986, 7000 in 1987, and 4525 in 1988. The peak number on counts between 1970 and 1977 is 850 seen in 1976.

During the severely cold January of 1977, more than 10,000 Brant were on the beach at the north end on 17 Jan. More were migrating south in small flocks. Chincoteague Inlet and all waters on the west side of WI were frozen. On 6 Feb. more than 50 birds were feeding on the grass around some of the buildings.

CANADA GOOSE (*Branta canadensis*)

The Canada Goose is uncommon on WI and is usually seen only one or two days a year in fall or winter. I have two winter records: 10–20 geese were regularly present in December and January of 1973–74, and 6 geese were seen on 11 Jan. 1990. Maximum numbers are 180 on 25 Nov. 1977 and 141 on 17 Nov. 1989.

[HHB – breeds regularly along coast from descendants of captive birds]

GREEN-WINGED TEAL (*Anas crecca*)

The Green-winged Teal is an abundant spring and fall migrant on WI and is irregularly winter. Peak numbers typically occur in November and again from late February through April. The use of WI depends on the water depth in the large pond along the causeway. From 100 to more than 500 teal can be present on most days during migration. The peak count of 750 was recorded on 19 Apr. 1991.

COMMON TEAL: A male of the European race of the Green-winged Teal was seen in 1972 on 9 Apr. and again on 15 Apr.

AMERICAN BLACK DUCK (*Anas rubripes*) [B]

The American Black Duck is common to abundant on WI throughout the year. The population of this duck is very likely much higher than I normally record. Many individuals use the small pools throughout the marsh and thus are not visible from the road. As with all the puddle ducks, counts of this species depend on the level of water in the large pool at the northeast corner of the causeway. Peak numbers from May through July are 10–20 birds. On 19 May 1974 a female with seven downy young was seen.

The usual winter peak is about 100 birds, although 395 were recorded on the 1977 CBC.

[HHB – breeds sparingly on coastal islands]

MALLARD (*Anas platyrhynchos*) [B]

The Mallard is common to uncommon on WI throughout the year, with most records in the winter. Peak numbers include 60 Mallards seen on 12 Dec. 1973 and 57 seen on 24 Nov. 1989. A female with a brood of eight chicks was seen on the north end on 19 May 1974.

[HHB – sparse breeder in upper James River and possibly Back Bay]

NORTHERN PINTAIL (*Anas acuta*)

The Northern Pintail is common to abundant on WI in spring migration and common in fall migration. Peak counts reach 75 to almost 200 birds during the third week of February. There are no records from June through the first week of October. Fall peaks are typically 10–20 birds. Small numbers winter in some years.

BLUE-WINGED TEAL (*Anas discors*) [B?]

The Blue-winged Teal is common on WI in spring migration and abundant in fall migration. The spring peak occurs in March when up to 50–60 are seen. Fall migration starts as early as the end of July, with more than 100 seen 30 July 1978. Peak counts can reach 100–300 in August. There are no records for the period 5 Nov. through 7 Mar.

On 30 June 1984 I observed a male/female pair in a borrow pit at the north end of WI. There are three other years with June records. Although no young have been seen, it seems likely that this species occasionally breeds.

NORTHERN SHOVELER (*Anas clypeata*)

In most years the Northern Shoveler is common to abundant on WI in spring migration and uncommon to irregular in fall migration. Peak counts occur in late February to early March when 100–150 birds can be present. The peak fall count was 82 on 22 Nov. 1975.

GADWALL (*Anas strepera*) [B]

The Gadwall is a common to abundant spring and fall migrant on WI and an irregular breeder and winterer. The peak count occurs in February when 50–300 birds are present in most years. The peak count is 365 Gadwalls seen on 22 Feb. 1974. It is difficult to tell exactly when fall migration begins on WI, but Gadwalls are uncommon from the end of August through mid- to late October. The peak fall count is more than 100 birds seen on 13 Nov. 1971. The Gadwall generally leaves WI in mid-December and does not begin to reappear until the end of January or early February. This disappearance may simply be a response to duck hunting that is allowed on the island. I have CBC records for 1976 when 27 Gadwalls were counted, and 1978 when seven were counted.

From 1971 through 1976 the Gadwall probably bred each year. An adult with downy young was seen in August of 1973. The peak summer count is 16 birds seen on 7 July 1974. The dry summers of the late 1970s through early 1980s severely limited breeding habitat in the marshes.

AMERICAN WIGEON (*Anas americana*)

The American Wigeon is common in spring migration on WI and uncommon in fall migration. In most years I found the wigeon only from mid-February through mid-March, with a peak abundance of normally less than 50 birds. The spring peak count is 150 birds seen on 12 Feb. 1991. In the 1970s some birds lingered until the first week of April and in 1975, I saw two birds on 4 May. I saw the wigeon in only 7 of 22 years during the fall period, with a peak of 85 birds seen on 24 Nov. 1989. Records from CBS exist for the three years from 1978 through 1980.

CANVASBACK (*Aythya valisineria*)

The Canvasback is casual on WI. I have three records: single birds were seen on 11 Mar. 1972 and 29 Nov. 1973, and four were seen on 23 Jan. 1979.

REDHEAD (*Aythya americana*)

The Redhead is casual on WI. I have two records: one bird was seen on 29 Nov. 1973 and two were seen on 4 Feb. 1977.

RING-NECKED DUCK (*Aythya collaris*)

The Ring-necked Duck is casual on WI. I have three records: five birds were seen on 28 Dec. 1985, three were seen on 22 Mar. 1989, and one was seen on 16 Nov. 1989.

SCAUP (*Aythya sp.*)

Scaup are irregular offshore during winter in small to moderate numbers. The difficulty in separating the Greater from the Lesser Scaup precludes definitive statements concerning actual numbers of either one. Peak numbers can reach 100–200 scaup in February and March.

COMMON EIDER (*Somateria mollissima*)

The Common Eider is casual on WI in winter and accidental in summer. On 7 July 1974 I saw a first year male about 50–100 feet offshore at the north end. The bird was present on 24 Aug. when a second male arrived. Both birds stayed until at least 29 Sept. (Kain, 1987, p.23). In 1980 I saw a subadult male on 10 May and again on 19 May.

I have two winter records: a second-year male was seen on 13 Jan. 1990 and another second-year male was seen on 2 Mar. 1992.

KING EIDER (*Somateria spectabilis*)

The King Eider is casual on WI in winter and accidental in summer. I have two records: a subadult male was seen on 18 Aug. and again on 30 Aug. 1986. The second record is of three King Eiders first seen along one of the wooden groins at the south end of WI on 6 January 1990, one bird was a subadult male. The birds remained until at least 13

Jan.

HARLEQUIN DUCK (*Histrionicus histrionicus*)

The Harlequin Duck is casual in winter and irregular in spring migration around the wooden groins near the south end of WI. In 1977 two were present from 11 Mar. through 8 May, with one still present on 15 May. Additional sightings include one seen on 25 Nov. 1977; two seen in early Apr. 1978; six seen on 2 Mar. 1989 (all of which were males sitting on a groin at the south end); and one seen on 11 Jan. 1990.

OLDSQUAW (*Clangula hyemalis*)

The Oldsquaw is uncommon around WI in fall migration, and winter; common in spring migration; and accidental in summer. The earliest fall records for this species are from the third week in November, although in many years they are often not recorded before the last week in December. From 1970 through 1977 Oldsquaws were common in winter in the channels on the west side of WI. Sixty-six were recorded on the 1970 CBC. In general, though, this species was uncommon in winter except in February and March when 10–40 birds were often found. Since 1982 the Oldsquaw has been uncommon to irregular near WI in winter, even though the entire Chincoteague CBC numbers have not declined.

I saw one Oldsquaw on 15 June 1986.

SCOTER, sp.

It is virtually impossible to identify most scoters while they are sitting on a choppy ocean or migrating well off shore. Although male Surf Scoters are recognizable by their white cap, most other birds are essentially dark ducks. Up to 1000 unidentifiable scoters are normally counted during the winter months. During spring and fall migrations, tens of thousands of scoter are visible from shore as they pass by the island.

BLACK SCOTER (*Melanitta nigra*)

The Black Scoter is common around WI from fall migration through spring migration and accidental in summer. The peak count occurred on 9 Mar. 1974 when I recorded 500 birds. All other records throughout the period, however, are of less than 100 birds. Some scoters arrive by mid-October, with numbers fluctuating through May. The peak CBC count of 60 occurred 1981.

In 1978 I saw a flock of 25 Black Scoters throughout July; by 27 Aug. the flock had decreased to 12. In 1986, I saw 19 Black Scoters the second week of June and seven to eight were present throughout August.

Although any of the three scoter species may be found along the length of the ocean side of WI, most birds are found north of the Dynamic Balance Facility.

SURF SCOTER (*Melanitta perspicillata*)

The Surf Scoter is abundant around WI from fall migration through spring migration and casual in summer. Fall migrants start to appear from late October through mid-November. Two hundred to 300 Surf Scoters typically spend the winter on the ocean just north of the Dynamic Balance Facility. This species is also regularly seen in the channels to the northwest of WI. The peak number recorded is more than 1300 on 25 Feb. 1973. On 20 Feb. 1977 there were 5000+ unidentified scoters offshore. The scoters that were close enough to be identified were Surf Scoters. The last spring records occur the second week in May.

I have several summer records. One bird was sighted on 30 July 1978 and another single bird was sighted on 20 July 1987. Two birds were sighted on 27 Aug. 1978.

WHITE-WINGED SCOTER (*Melanitta fusca*)

The White-winged Scoter is uncommon around WI from the CBC period through mid-March, with one to six birds being the usual numbers seen. The earliest fall record is one bird on 17 Nov. 1989, while the latest spring migrant is one on 9 Apr. 1972. The peak count is 25 birds seen on the 1970 and 1980 CBCs.

COMMON GOLDENEYE (*Bucephala clangula*)

The Common Goldeneye is an uncommon migrant and wintering bird around WI from late December through March. Peak counts of 15 birds were found on 27 Dec. 1975 and again on 8 Mar. 1984. This species was not recorded in five years of the period.

BUFFLEHEAD (*Bucephala albeola*)

The Bufflehead is common to uncommon on WI from the fall migration through spring migration. This species is generally present in Chincoteague Inlet and the channels along the west side of the island in small flocks of one to 35 birds from late November through early January. My earliest date is 16 Nov. 1989. My records seem to indicate that Buffleheads disappear from the area in early January, at the latest, only to reappear in mid-February. Peak counts include 45 birds seen on the 1973 CBC and 40 seen on 11 Mar. 1972. The latest spring record is one Bufflehead seen on 20 May 1972.

The Bufflehead was common on most CBCs, although it went unrecorded on five of the 22 counts.

HOODED MERGANSER (*Lophodytes cucullatus*)

The Hooded Merganser is common to uncommon on WI from fall migration through spring migration. It appears from late October to mid-November and typically stays until mid-March. In the early 1970s and from 1989 through 1992 the Hooded Merganser was common with peak numbers being 51 on 6 Dec. 1991 and 45 on 15 Feb. 1974. From 1978 through 1988 there were never more than one or two days when I saw this species, although by 1989 it was again common from the fall migration period through spring migration.

The Hooded Merganser is probably much more common on WI than records indicate. It tends to use the small marsh ponds and tidal guts to the west of WI where it often escapes detection.

RED-BREASTED MERGANSER (*Mergus serrator*)

The Red-breasted Merganser is common on WI from fall migration through winter, abundant in spring migration, and casual in summer. Fall birds arrive from early to late November. At CBC time more than 100 mergansers can be found in Chincoteague Inlet. By late March, when the local waters are apparently used as a staging area during spring migration, this species becomes abundant. Peak counts include 250 on 25 Mar. 1973, and 312 on 30 Mar. 1975, and 285 on 22 Feb. 1991. Spring migrants generally leave by the 3rd week in April although a few linger until mid-May. In 1986 two Red-breasted Mergansers were present on 8 June.

RUDDY DUCK (*Oxyura jamaicensis*)

The Ruddy Duck is an irregular visitor on WI from fall migration through spring migration. Peak counts include 15 on 14 Nov. 1970 and again on 12 Dec. 1973. This species went unrecorded in 15 of 22 years. Single Ruddy Ducks were present on 4 May 1977 and 10 May 1980.

BLACK VULTURE (*Coragyps atratus*)

The Black Vulture is irregular on WI throughout the year. I first saw this species on WI in 1981. Since then one to four birds were seen a few days each year. The earliest record is two Black Vultures seen on 8 Feb. 1989, and the latest record is three seen on 13 Dec. 1981.

TURKEY VULTURE (*Cathartes aura*)

The Turkey Vulture is uncommon on WI throughout the year. Small numbers of Turkey Vultures were recorded from one to ten days each year. Fewer than five birds were normally seen at one time, except in 1988 when groups of up to 20 were occasional present. These vultures spent much of their time at a dead whale that washed onto beach at the north end of WI.

OSPREY (*Pandion haliaetus*) [B]

The Osprey is common on WI during the breeding season and uncommon during fall migration. Four to eight pairs of Ospreys have nested each year throughout the period. The local breeding birds typically leave by mid- to late August. In the early 1970s, several pairs nested in snags of dead trees. By the mid-1980s, however, all nests were found on manmade structures.

The earliest recorded spring arrival was on 1 Feb. 1982 when four birds appeared, two of which occupied one of the nests that had been in use for several years. The usual spring arrival period is 21 Mar. through 23 March. Fall migrants have been observed as late as the second week of October.

BALD EAGLE (*Haliaeetus leucocephalus*)

The Bald Eagle is an irregular visitor on WI from fall migration through winter. On 4 Oct. 1989 four adults were seen migrating south at a very high altitude as part of a general raptor migration. There is one CBC record, that of a single immature seen in 1978.

Starting in the mid-1980s, a pair of this species has nested to the west of the north end of WI on the mainland. Presumably these eagles regularly visit the WI area.

[HHB – breeds in suitable places along coast]

NORTHERN HARRIER (*Circus cyaneus*) [S2, LE] [B]

The Northern Harrier is common to uncommon on WI from October through March and irregular during the breeding season. Three to eight harriers are often seen in the winter, the maximum count being nine birds on 7 Dec. 1980.

During ten years of the period Northern Harriers were recorded in May and June. In 1982 Erica Nol found two nests, one on the north end of WI with four eggs (10 May), the other at the very south end of WI (12 May) just west of the NASA boundary. Neither nest produced young. Terwilliger (1991, p.496) states that "only five to 10 pairs are believed to breed annually in the state."

[HHB – breeds in suitable places along coast]

SHARP-SHINNED HAWK (*Accipiter striatus*)

The Sharp-shinned Hawk is an uncommon to common fall migrant that irregularly winters. In most years the fall migration of this species is very light along WI. However, on 2 Oct. 1980, 463 were counted migrating south between 12:30 and 1:30 pm. The next highest count was on 5 Oct. 1988 when 38 were observed migrating south. Most of these birds were heading onto WI from the ocean at an angle that would have brought them from the south end of Assateague.

COOPER'S HAWK (*Accipiter cooperii*)

The Cooper's Hawk is an uncommon to irregular fall migrant on WI. I recorded this species in five years, the earliest date being 16 Sept. and the latest being 18 Dec.

RED-SHOULDERED HAWK (*Buteo lineatus*)

The Red-shouldered Hawk is casual to irregular on WI during fall migration and winter. I have three records: two birds were seen on 29 Dec. 1979, one was seen on 24 Jan. 1989, and one was seen on 4 Oct. 1989.

RED-TAILED HAWK (*Buteo jamaicensis*) [B]

The Red-tailed Hawk is uncommon on WI throughout the year. A maximum of one to two Red-tailed Hawks are typically seen a few times per year. One pair probably nested each year from 1986 through the end of the period in a pine tree near the Dynamic Balance Facility.

AMERICAN KESTREL (*Falco sparverius*)

The American Kestrel is common to uncommon on WI from October through late April. One to five kestrels typically winter. Peak counts occur during fall migration, with more than 30 recorded on 10 Oct. 1976. I have no records between the end of April and early October except for one bird on 14 July 1980.

MERLIN (*Falco columbarius*)

The Merlin is uncommon on WI from fall migration through spring migration. This species is certainly more common during fall migration than my records indicate. Although unrecorded in nine years, this species uses the coast as one of its primary fall migration routes in the eastern United States. My earliest fall sighting occurred in mid-September and the latest spring sighting occurred the first week of May. The peak count is three birds seen on 16 Sept. 1978.

While I was on the causeway leaving WI on 2 Mar. 1989, a Merlin left a post and flew along the causeway not more than 10 meters to the right of my car. I paced the bird for about 1.5 km at a speed of 79 km per hour (49 miles per hour). The bird stayed within one meter of the ground and generally below the level of the road. It was sheltered from any wind, so the speed should be an accurate measurement of the true airspeed of the bird.

Specimens: USNM: #554205 (two-year old female obtained 03 Feb. 1979).

PEREGRINE FALCON (*Falco peregrinus*) [S1, LE] [B]

The Peregrine Falcon is an uncommon resident and a common fall migrant on WI, with a maximum of 12 recorded on 16 Sept. 1978. Such an early peak date is a bit unusual. Ward *et al.* (1988) report that on Assateague Island 90 percent of the falcons are seen between 21 Sept. and 18 Oct., with the peak occurring near the end of the first week in October.

A pair of this species was active under the causeway bridge during May of 1980. The next year a peregrine "hacking" tower was placed in the marsh on WI and to the northwest of the Coast Guard house. Throughout the 1980s one or two peregrines regularly used the tower, but there was no apparent courtship activity until 1988. In 1990 a pair of peregrines was very active throughout the spring but no eggs were laid. Eggs were laid in 1991 and 1992, but they did not hatch (Bob Cross, per. comm.).

NORTHERN BOBWHITE (*Colinus virginianus*) [B]

The Northern Bobwhite is presently an uncommon resident on WI. This species bred commonly on WI throughout the 1970s, with a high count of 28 (including chicks) on 17 Aug. 1975. The bobwhite was much less common in the 1980s, and often became difficult to find from spring through fall. Peak counts are obtained late in the evening when bobwhites actively call; the only time I conducted such counts was during CBCs. On the 1984 CBC 25 birds were heard.

Specimens: USNM: #502428 (8 Oct. 1977).

BLACK RAIL (*Laterallus jamaicensis*)

Bent indicates that the Black Rail probably breeds on WI. However, Bailey (1927) states:

> On page 331, in his outline of the breeding range of this species, Mr. Bent says: 'Probably Virginia (Wallops

> Island)." On page 60 of my 'Birds of Virginia,' published in 1913, I mentioned an incomplete set having been taken by my father in 1911. This set was taken, however, on Cobbs Island, Northampton County, and not on Wallops Island... On May 22, 1917, my father found a small colony of six or seven nests on Hog Island, bordering a small fresh water pond.

I have no records for the Black Rail on WI, although I have not visited the island at night to search specifically for this species. There are several large areas of *Spartina patens* on the north end of WI with adjacent fresh water marsh. It would be worthwhile to listen at night in these areas at the appropriate time of year.

CLAPPER RAIL (*Rallus longirostris*) [B]

The Clapper Rail is abundant during the breeding season and uncommon at other times on WI. During the 1970s I have high counts of more than 50 birds on 15 Apr. 1972 and more than 75 birds on 21 Apr. 1974. Since 1974 there has been only one April record: two Clapper Rails were seen on 15 Apr. 1988. In recent years this rail has become much less abundant during the breeding season, perhaps as a result of the very harsh winters of 1976–77 and 1977–78 which affected populations throughout the East Coast.

Records exist for three CBCs: three Clapper Rails were seen in 1971, five were seen in 1975, and four were seen in 1978.

[HHB – very numerous on Eastern Shore islands]

KING RAIL (*Rallus elegans*)

The King Rail is casual on WI. I have one record: one bird was seen on 11 May 1975. Bent (1927) lists the King Rail as breeding on WI, while under the heading of winter range he has the entry for WI: Jan. 9, 1921 – Feb. 3, 1921.

VIRGINIA RAIL (*Rallus limicola*) [B?]

The Virginia Rail is uncommon to irregular on WI from spring migration through fall migration. Although only seven sightings of the Virginia Rail were recorded from 1970 through 1992, two were in June, thus suggesting breeding. The other sightings were in May and August. Bent (1927) lists WI as a breeding location.

COMMON MOORHEN (*Gallinula chloropus*) [S1] [B]

The Common Moorhen is casual on WI in spring and summer. I confirmed breeding in one year. On 29 July 1973 an adult was observed with three downy young. I have three other records: one moorhen was seen on 17 July 1971, one was seen on 10–11 May 1980, and one was seen on 8 June 1985.

[HHB – the first Virginia breeding record was found 17 June 1911 on Hog Island]

AMERICAN COOT (*Fulica americana*)

The American Coot was an abundant spring and fall migrant on WI from 1971 through 1976. Since then I have only three sightings. As with the puddle ducks, sightings of this species are dependent on a high water level in the large pond along the causeway.

Peak counts were 280 coots on 22 Nov. 1975 and 225 on 13 Nov. 1971. The only CBC record is of one coot seen in 1971. Since 1976 there have been only three sightings: one coot was seen on 14 May 1978, one was seen on 1 Apr. 1986, and three were seen on 16 Nov. 1989. There are no records between the second week in May and the second week in August.

SANDHILL CRANE (*Grus canadensis*)

The Sandhill Crane is accidental in winter on WI. I saw one bird flying south in formation with a flock of Snow Geese on 17 Jan. 1977 (Vaughn, 1982). This was the day after the passage of a severe Canadian cold front that froze virtually all water north of Norfolk, Virginia – other than the open ocean and the middle of the Chesapeake Bay. Another single crane appeared on 4 Dec. 1985 and reappeared intermittently until 10 Mar. 1986. It was always seen in the pool at the northeast end of the causeway (Kain, 1987, p.38), where it was photographed.

BLACK-BELLIED PLOVER (*Pluvialis squatarola*)

The Black-bellied Plover is common to abundant on WI from the second week in July through December and from February until the end of May. Late spring migrants often linger into June, with 36 birds seen on 3 June 1972 and 31 seen on 9 June 1974. Peak counts occur in October when 300 or more birds can be seen on the north mudflats. An unusually high count was 135 birds seen on 7 July 1974. Like other shorebirds, this species is casual in January.

The peak CBC count was 143 plovers seen in 1973.

Specimens: USNM: #240249 through #240254 (late May 1913), #502434 (8 Oct. 1977), #553639 (11 Nov. 1978), and #553640 (08 Oct. 1978).

LESSER GOLDEN PLOVER (*Pluvialis dominica*)

The Lesser Golden Plover is casual on WI in spring and fall migration. On 14 May 1977 Marshall Howe (per. comm.) saw a single bird at the south end. I saw eight plovers in juvenile plumage on the north mudflat on 21 Sept. 1990. Under casual records Bent (1929) lists WI as having several records between 12 Aug. and 3 Oct.

WILSON'S PLOVER (*Charadrius wilsonia*) [S1, LE] [B]

The Wilson's Plover is presently seen only on the south end of WI and only during the breeding season, at which time it is common. This species arrives on WI in April and leaves by the last week in August. The earliest arrival date occurred in 1987 when two birds were seen on 8 Apr.

As many as six pairs bred annually on WI from 1970 through 1992. In a 1990 search for breeding birds, six or seven pairs were found at the far south end of the island, including the filled-in area of Assawoman Inlet. Possibly three of these pairs were actually breeding on Assawoman Island, although the exact boundary between the two islands is not well defined. In 1991 the Virginia Department of Game and Inland Fisheries placed wire enclosures around five Wilson's Plover nests to prevent predators from taking the eggs. Ten of 11 eggs hatched. On 12 July of that year, a flock of 10 fledged juvenile and 11 adults were seen on the beach between WI and Assawoman Island.

In the spring of 1971 or 1972, five males challenged me in a cooperative manner on the far north end of WI. Their behavior was distinctly territorial, although no nests were found. I did not return to the area during the breeding season; breeding was not verified. No evidence of breeding on the north end of WI has been observed since that year.

Howe (1981) was unable to confirm breeding anywhere on WI, although he observed defensive behavior at three different sites on the south end. On a 7 July 1981 survey, Howe found no Wilson's Plovers on WI.

In the early 1970s postbreeding Wilson's Plovers used the north end of WI for feeding and resting prior to migration. The peak count of 35 was recorded on 27 Aug. 1972 (Kain, 1987, p.39). At that time, Wilson's Plovers bred on the south end of Chincoteague Island. That area became unsuitable for breeding in the late 1970s when a boat basin and campground were built. The lack of breeding birds north of WI is likely the reason for the disappearance of Wilson's Plovers on the north end of WI in July and August. Bent (1927) lists breeding as far north as New Jersey, but it is likely that the birds breeding in Assawoman Inlet now represent the northernmost breeding site along the east coast of the United States.

Specimens: USNM: #502171 (17 June 1977), #502172 (18 June 1977).

[HHB – still abundant breeder as recent as 1896, but fast becoming uncommon]

SEMIPALMATED PLOVER (*Charadrius semipalmatus*)

The Semipalmated Plover is an abundant spring and fall migrant on WI, with counts of 150–250 birds in both seasons. The normal spring migration occurs throughout May with a few birds often present into the second week of June. It is problematic whether the eight birds seen on 27 June 1984, and the three birds seen on 25 June 1987, were late spring or early fall migrants, or birds that didn't move further north in those years. Fall birds typically arrive near the end of the third week in July, with large numbers of individuals being seen through early September.

Winter records of this species include three seen on CBCs in 1970, 1977, and 1985. There are no records from early January through the start of spring migration, which is typically the first week in May for this plover.

Specimens: USNM: #240258, #240259, #240260 (all three in late May 1913), and #571160 (8 Oct. 1978).

PIPING PLOVER (*Charadrius melodus*) [S2, LT] [B]

The Piping Plover is a common spring migrant and nesting bird on WI. Migrant birds often arrive by early March, my earliest date being 9 Mar. 1974 when 10 were found. The peak count in spring occurred that same year on 6 Apr. when 42 were active on the beach less than one hundred meters south of the point where the dirt road meets the beach at the north end of the island.

On 22 Mar. 1989, two Piping Plovers were seen on the north end. Each bird had a red colored flag over a band, thus indicating they had been banded on Assateague or Metompkin Islands the previous year.

A few pairs have probably nested on WI each year throughout the period. In the early 1970s several pairs bred on the outer beach at the north end of the island and around the long dredge lines just inside the dunes at the end of the northern dirt road. By the late 1970s most of this area had become overgrown with vegetation. Howe (1981) found "one definite and 3 probable nesting sites" in 1981 in a survey of the entire island. Two of the sites were along Chincoteague Inlet. With the closing of Assawoman Inlet in the mid-80s, the Piping Plover breeding population at the south end increased to at least five pairs in most years, with some of these pairs probably being within the boundary of Assawoman Island.

Peak fall counts of Piping Plovers include a minimum of 55 seen on 12 Aug. 1973 and 60 seen on 28 July 1974. The latest date is 3 Nov. 1973 when four were seen.

As quoted in the introduction, E. L. Poole (1922) reported that in late June of 1921 Piping Plovers were also

rather plentiful.

Banding: Four birds, three in 1976 and one in 1978. A bird banded on 5 July 1976 was caught on 20 May 1982 while nesting on the south hook of Assateague Island. On 19 July 1975, my wife and I caught a bird that had been banded as a chick on 12 July 1971 near Stone Harbor, New Jersey.

[HHB – fast becoming extinct on coast]

KILLDEER (*Charadrius vociferus*) [B?]

The Killdeer is uncommon on WI throughout the year. Peak counts include 14 seen on 14 May 1977 and 11 seen on 22 Nov. 1975. Most other records are of one to five birds. There is one CBC record, that of one bird seen in 1975.

[HHB – formerly common breeder throughout state but only a few pairs remain on the Eastern Shore]

AMERICAN OYSTERCATCHER
(*Haematopus palliatus*) [B]

The American Oystercatcher is common to abundant throughout the year on WI. In the non-breeding season the oystercatcher roosts abundantly on the mudflats at the north end. Fifty to 300 or more oystercatchers are commonly encountered from August through December. The oystercatcher seems to reach a population minimum in January.

The peak count is 381 seen on 25 Oct. 1991 when small groups of birds were scattered over the broad shallow mudflats that are inside Chincoteague Inlet. At least a few local breeders stay as late in the year as food conditions allow. One oystercatcher banded on WI on 19 June 1982 was recovered on WI on 15 Jan. 1983. By the first of March many birds that breed locally have returned to their territories and migrants are common.

I have never counted breeding pairs of oystercatchers for the entire island, but during some years at least ten to fifteen pairs likely breed. Starting in the late 1980s there was a definite increase in territorial pairs on the north end, including the inlet sandbar.

Two graduate students used WI for their graduate thesis field work on the oystercatcher (Cadman, 1979; Nol, 1984). Nol *et al.* (1984) found oystercatchers laying eggs as early as 6 Apr. First clutch attempts extended for 25 days after that date for all pairs breeding from Assawoman Island northward to southern Chincoteague Island. Eggs were laid as late as the start of the third week of June, if earlier clutches failed.

Banding: One hundred seventeen birds were banded between 1977 and 1983. The only recovery is one bird in January, as noted above.

Specimens: USNM: #502175, #574931 (both 17 June 1977).

[HHB – Formerly fairly plentiful all along coast. So scarce now that no island can boast more than 1 or 2 pairs breeding]

BLACK-NECKED STILT (*Himantopus mexicanus*)

The Black-necked Stilt is uncommon on WI during spring migration. Records of this species exist for seven years between 1970 and 1992, with most records in May. The peak count is four stilts seen on 19 Apr. 1991, which is also the earliest date recorded for the year. The latest record is two birds seen on 7 June 1972.

AMERICAN AVOCET (*Recurvirostra americana*)

The American Avocet is an irregular spring and uncommon fall migrant on WI. I have records for nine years, most being in July and August. A maximum number of 20 avocets were seen on 25 July 1976. The earliest and latest spring dates were of two birds seen on 21 Apr. 1974 and one seen on 23 May 1976. In fall the earliest date is 20 July 1982 when four avocets were seen. My latest recorded date is 15 Oct. 1974 when one bird was seen.

Specimens: Warren (1925) states, "... September, 1925 ... I secured two Avocets from a flock of four. They were young of the year." I do not know if these birds are presently in a museum.

GREATER YELLOWLEGS (*Tringa melanoleuca*)

The Greater Yellowlegs is common on WI in spring and fall migration. It is absent only in June and from mid-December through February. Peak counts of 25–50 birds are not uncommon, while 80 birds seen on 25 July 1976 is the maximum for the period. During several CBCs three to five Greater Yellowlegs have been counted.

Most yellowlegs (both species) are found in the large pools along the causeway. Although single birds are often scattered throughout the marsh, the presence of flocks containing 10–20 birds during July and August depend strongly on the water level in the large pond along the causeway.

Specimens: USNM: #240326, #240327 (both late May 1913).

LESSER YELLOWLEGS (*Tringa flavipes*)

The Lesser Yellowlegs is common on WI as a spring and fall migrant and irregular in winter. It is usually as common as the Greater Yellowlegs, although peak counts are often higher. The spring peak count is typically 25–30 birds, with 31 seen on 26 Apr. 1988. I have records throughout June for several years. In fall the peak counts were 120 seem on 1 Aug. 1971 and 150 seen on 12 Aug. 1978. Unusual were five birds seen on 6 Jan. 1976. Single Lesser Yellowlegs were seen on CBCs in 1976 and 1978.

SOLITARY SANDPIPER (*Tringa solitaria*)

The Solitary Sandpiper is uncommon to irregular on WI in spring and fall migration. I recorded the species in seven years, with one bird being the usual number. The earliest spring migrant date is 26 Apr., while the latest fall migrant date is 13 Sept. The maximum count occurred on 29 Aug. 1976 when three were present.

Specimens: USNM: #240320 (24 May 1913).

WILLET (*Catoptrophorus semipalmatus*) [B]

The Willet is an abundant nester and irregular fall migrant on WI. The Willet is seldom seen before the second week of April, at which time it arrives in moderate numbers. The year 1983 was very unusual in that first birds arrived on 1 Feb at which time 34 were seen. Howe (1982) found that the first Willets arrived on 8 Apr. in 1978 and 11 Apr. in 1979. The major influx of birds normally occurs during the third week of April.

From 1970 through the early 1980s the Willet was an abundant breeder in the marshes and the infrequently mowed grassy areas around the buildings on the island. Spring counts usually yielded 100–150 birds; the peak count occurred on 6 June 1971 when 161 were counted. By the late 1980s, however, the numbers were significantly lower. Because the general breeding habitat appears to be stable, it is not clear why this population decline has taken place. The possibility that Red Foxes, Raccoons, and Fish Crows are partially responsible for the decline can be inferred from Howe (1982, p.97):

> "In 1977 raccoons (*Procyon lotor*) were abundant ... One nest ... was taken by a raccoon within 1/2 h of my initial visit... Evidence of raccoon predation was found only in lowland sites and in dunes adjacent to tidal channels. All lowland nests were taken by either raccoons or Fish Crows (*Corvus ossifragus*)... Most of the 21 upland nests found in 1977 were taken by a resident red fox (*Vulpes vulpes*) and only one hatched. Thus, only one of 66 nests ... was successful in 1977...
>
> In 1978, following an extremely cold winter, there were no red foxes and very few raccoons ... Of 77 located nests, 36 ... hatched successfully. Thirty-three ... were taken by predators, principally Fish Crows. In 1979, 11 of 83 nests ... hatched. Twenty-five ... of the lowland nests were lost to a pack of feral dogs, and a torrential rainstorm at the end of May caused desertion of 16 ... of the upland nests, all in the disturbed habitat on a relatively impermeable clay substrate.
>
> ... It is clear that Fish Crows actively search for Willet nests and are important predators. Moreover, raccoons and foxes are capable of inflicting serious losses in some years."

Howe found that first eggs were laid no earlier than the first week in May, with peak egg laying between 5 May and 15 May. Egg laying could occur as late as the end of June, presumably because of earlier clutch failure or late nesting by inexperienced young.

Peak counts in the 1970s were usually in mid-July when several hundred Willets were easily counted. Although Willets are irregular after early September, 10 were seen on 12 Dec. 1970. One Willet was seen on the 1984 CBC.

Banding: Between 1975 and 1986, 69 birds were banded. The only recovery is of one bird in Trinidad on 11 Aug. 1978 which was banded as a chick on 18 May 1978.

Specimens: ANSP: #81836 male (18 Sept. 1914).

[HHB – formerly abundant but now uncommon due to hunting]

SPOTTED SANDPIPER (*Actitis macularia*)

The Spotted Sandpiper is an uncommon migrant on WI from late April through late May and again from mid-July through the end of August. Peak counts are five to six birds during both the spring and fall migration periods. Single Spotted Sandpipers were seen during early October in three years. Bent (1927) lists this species as breeding on Cobb Island, Virginia, which is about 60 km south of WI.

UPLAND SANDPIPER (*Bartramia longicauda*)

The Upland Sandpiper is casual on WI during migration. I have two records: one bird was seen on 1 May 1973 and another was seen during the fall of 1985. Bent (1929) lists the Upland Sandpiper as breeding on WI! There does not presently seem to be any habitat on WI that would entice this species to breed. However, during the period of private ownership, cattle and "Chincoteague" ponies grazed on the island. High areas of grazed marsh might have supported the Upland Sandpiper.

WHIMBREL (*Numenius phaeopus*)

The Whimbrel is common to abundant on WI from the last week in April through the last week in May and again from the end of the second week in July through August. Peak counts are 100 seen on 11 May 1980 and more than 62 seen on 30 July 1978.

Most Whimbrel are found feeding along the ocean tide line during migration. However, a careful search of the shorter grassy marsh areas has often revealed feeding birds.

On 10 Aug. 1980 I saw an albinal Whimbrel flying north in a flock of 15. The birds came from the ocean and flew directly overhead at a height of less than 20 meters. From careful observation with binoculars, a trace of dusky tan could be seen only on the lesser secondary coverts. The rest of the bird's feathering was white.

Bent (1929) states some individuals remain in summer far south of their breeding grounds and lists WI as one such location. A late fall departure date of 23 Sept. is also listed.

LONG-BILLED CURLEW (*Numenius americanus*)

The Long-billed Curlew is accidental on WI. One bird was seen in early June 1978 by Marshall Howe (per. comm.).

During the last century this species was fairly common along the east coast north to Massachusetts. Bent (1929) states "... the long-billed curlew is now of casual or accidental occurrence east of the Mississippi River, although it was formerly fairly plentiful on the Atlantic Coast." Bent lists 6 Sept. as a late date of departure from WI. It would seem from this record that someone must have been interested in the birds of WI in the last century.

MARBLED GODWIT (*Limosa fedoa*)

The Marbled Godwit is uncommon on WI in fall migration and casual as a spring migrant and wintering bird. From one to three birds were seen in ten years, with all but two records from the fall migration period. All sightings are from the mudflats at the north end. The only spring record is of one bird seen on 11 May 1975. Most fall records occur in August, although three godwits were seen on 13 Dec. 1970. One bird was seen during the 1972 CBC.

RUDDY TURNSTONE (*Arenaria interpres*)

The Ruddy Turnstone is common to abundant as a spring and fall migrant and uncommon in winter on WI. Peak numbers occur the last two weeks of May and the first week of June when up to 131 turnstones have been seen feeding along the beach and on the north mudflats. I have no records between 15 June and 7 July. As many as 12 turnstones have been present on CBCs.

Like the Sanderling, this species often disappears just after the CBC period and does not reappear until spring migration starts in mid-April. Turnstones can be found, however, throughout the winter when the weather is mild.

Specimens: USNM: #240283 through #240287 (late May 1913), #502435 (8 Oct. 1977).

RED KNOT (*Calidris canutus*)

The Red Knot is an abundant spring and common fall migrant and a casual wintering bird on WI. The peak count is 6000 knots seen on 15 May 1972. More usual annual peak counts are from several hundred to about 1000. The largest numbers of knots are found along a 2 km stretch of beach near the tide line east of the Dynamic Balance Facility and on the northern mudflats.

From the second through the fourth weeks of May small flocks of up to 25 knots are seen migrating north along the tide line and out over the water for several hundred meters. On active days these flocks pass by every few minutes. A bit unusual is the 300 knots counted on 6 June 1981. Bent (1927) lists June 27 as a late departure date for spring, while my latest date is 15 June when one knot was seen in 1986.

The fall peak counts are between 100 and 200 birds. First fall knots start arriving near the beginning of the second week of July, with the peak occurring sometime between late July and the end of August. Bent (1927) lists 29 Sept. as the late fall departure date, although I have scattered records from October through December.

Recorded during six CBCs, with a maximum of three knots seen in 1976, 1978, and 1980.

Specimens: USNM: #240268 through #240270, and #240272 through #240280 (24 May through 31 May 1913).

SANDERLING (*Calidris alba*)

The Sanderling is very common to abundant on WI in all months except January and June, at which time it is rare. The peak count occurred on 5 Oct. 1975 when a tight swarm, estimated at 10,000, was observed flying just above the water to the west of the north mudflats. The usual high count is 300 to 1000 birds. CBCs during the 1970s typically yielded from 100 to 500 Sanderlings. After 1985, however, the peak CBC count was less than 75 birds.

Specimens: USNM: #240299 through #240309, #241017 (both late May 1913). ANSP:#81830 male (16 Sept. 1913).

SEMIPALMATED SANDPIPER (*Calidris pusilla*)

The Semipalmated Sandpiper is an abundant spring migrant from the start of May through the first week of June and again in fall migration from the third week of July through mid-October. Actual numbers depend on the water level in the large pond along the causeway. Peak spring counts include 2000 seen on 3 June 1972 and 3000 seen on 15 May 1982. The peak fall count is 300 seen on 12 Aug. 1978 and 300 seen on 27 Aug. 1988.

Harrington and Morrison (1979), using birds caught on WI and elsewhere along the east coast of the United States, inferred that Semipalmated Sandpipers that use the mid-Atlantic in fall breed primarily from central Canada west to Alaska, while those that use the mid-Atlantic in spring include a large proportion that breed in eastern Canada.

Banding: Of the 460 birds banded there are no recoveries.

Specimens: USNM: #240311, #240312 (24 and 26 May 1913), #502295 (2 Aug. 1975), #573612 (17 Aug. 1975), #599238 (9 May 1980).

WESTERN SANDPIPER (*Calidris mauri*)

The Western Sandpiper is a common to abundant fall migrant and an irregular wintering and spring migrant on WI. Because of the difficulty of separating this species from the Semipalmated Sandpiper, it is likely that some Western Sandpipers have been included inadvertently with Semipalmated Sandpiper estimates. Wilds (1991), however, confirms the rarity of this species in the spring throughout the Maryland – Virginia region.

Peak numbers occur in late July through August when up to 500 Western Sandpipers have been seen. CBC numbers include 11 seen in 1973, 40 seen in 1977, and 8 seen in 1979. Lesser numbers were recorded on three other counts. I have no records for January, February, or June.

Specimens: USNM: #553135 (15 Aug. 1975), #553136 (9 Oct. 1974).

LEAST SANDPIPER (*Calidris minutilla*)

The Least Sandpiper is common on WI from the end of April through the third week in May and again from late July through October. The peak count is 100 birds seen on 20 May 1972. The one bird seen on 3 June 1972 is unusual. One CBC record: 12 Least Sandpipers were seen in 1971.

It is very likely that the numbers of individuals are much higher than I recorded because this species feeds in grassy areas where it is often difficult to observe.

WHITE-RUMPED SANDPIPER (*Calidris fuscicollis*)

The White-rumped Sandpiper is an uncommon spring migrant on WI. I have records for ten years, primarily during the second and third weeks of May. The peak count occurred, however, on 15 June 1986 when 30 were found. The only fall records are of two birds seen on 27 Aug. 1972 and three birds seen on 10 Aug. 1980.

PECTORAL SANDPIPER (*Calidris melanotos*)

The Pectoral Sandpiper is an uncommon spring migrant and common fall migrant on WI. Records for this species exist for March through May and July through October. This species is most abundant in August, with 71 seen on 29 Aug. 1976. One to five individuals are the typical number seen in spring.

PURPLE SANDPIPER (*Calidris maritima*)

The Purple Sandpiper is accidental on WI. I have one record: I found a single bird on 10 May 1975 in the rubble on the beach at the south end of the island road. The rock seawall being constructed through 1996 may provide good habitat for this species.

DUNLIN (*Calidris alpina*)

The Dunlin is abundant on WI from early to mid-October through mid-May. In some years, a few Dunlin linger until mid-June. Each year from 1971 through 1974 there were scattered records of up to 20 seen in late July through August. However, there are no September records. During the winter many thousands of Dunlin use the mudflats in Chincoteague Inlet. Peak counts are in late November when more than 10,000 Dunlin can be seen. Like other wintering shorebirds in this area, the Dunlin often disappears during the first two to three weeks of January, only to reappear in mid- to late March, at which time several thousand birds may be present. Typical CBC counts are less than 1000 Dunlin.

Specimens: USNM: #240288 (12 May 1913), #502436 (8 Oct. 1977). The two specimens are cataloged as different races, the first as *C. a. hudsonia*, the later as *C. a. pacifica*.

ANSP: #81829 male (24 May 1911).

CURLEW SANDPIPER (*Calidris ferruginea*)

The Curlew Sandpiper is accidental on WI. I have two records: I first saw a Curlew Sandpiper on WI on 20 Aug. 1973 and photographed the bird on 26 Aug. at the north end (Vaughn, 1973). The second Curlew Sandpiper, in full breeding plumage, was seen by many people on 15 May 1977 in the large pool at the northeast end of the causeway (Kain, 1987, p.48). It was not found several days later.

STILT SANDPIPER (*Calidris himantopus*)

The Stilt Sandpiper is an uncommon to common spring and fall migrant on WI. This species generally arrives the second week of May. On 11 May 1974 and 11 May 1980, a spring peak of 30 birds was observed (Kain, 1987, p.49). The earliest record is one Stilt Sandpiper seen on 22 Apr. 1988. Fall migrants are often found from July through mid-October, if the water levels in the large pond along the causeway are favorable. On 10 Aug. 1980, 125 birds were seen.

BUFF-BREASTED SANDPIPER (*Tryngites subruficollis*)

The Buff-breasted Sandpipers is casual in fall on WI. Two birds were seen on 16 Sept. 1978 in the grass along the beach road just north of the causeway. Bent (1929) lists 5 Sept. as an early fall arrival date for WI.

SHORT-BILLED DOWITCHER (*Limnodromus griseus*)

The Short-billed Dowitcher is an abundant spring and fall migrant on WI, with peak numbers occurring in late-May and mid-July. The number of this species visiting WI seems limited only by the habitat available for feeding throughout the marsh and north mudflats. On 24 May 1972 more than 10,000 were counted in a very short period of time as they migrated north across the causeway at dusk (Kain, 1987, p.50). I saw 10 Short-billed Dowitchers on 25 June 1980. Whether they were spring or fall migrants is problematic. Fall migrants are rarely seen before the third week in July, although nine were seen on 7 July 1974. The peak fall count is 1800 birds seen on 16 July 1972. In the 22 years covered by this report, I have only eight records of dowitchers past the end of August.

Specimens: USNM: #240291 (23 May 1913). ANSP: #81820 female (5 Sept. 1910).

LONG-BILLED DOWITCHER
(*Limnodromus scolopaceus*)

I have no definite records of the Long-billed Dowitcher on WI, although it is a regular fall visitor on the NWR.

COMMON SNIPE (*Gallinago gallinago*)

The Common Snipe is uncommon on WI as a spring and fall migrant. Scattered sightings of up to seven birds exist from March through May and from September through October.

AMERICAN WOODCOCK (*Scolopax minor*)

The American Woodcock is irregular on WI from winter through spring migration. I have four records: four birds were seen on 7 Mar. 1971, one was seen on 3 Apr. 1971, one was found dead on the road on 4 Dec. 1985, and two were seen on 29 Dec. 1991.

WILSON'S PHALAROPE (*Phalaropus tricolor*)

The Wilson's Phalarope is a casual spring and uncommon fall migrant on WI. A single bird seen on 10 May 1980 is the only spring record. Fall numbers are concentrated from late July through late August, with a maximum of 14 phalaropes seen on 15 Aug. 1975. In 1986 a single Wilson's Phalarope was seen on 13 June and again on 15 June.

RED-NECKED PHALAROPE (*Phalaropus lobatus*)

The Red-necked Phalarope is an irregular spring and fall migrant on WI. I have five records: one bird was seen on 2 Aug. 1974, one was seen on 15 Oct. 1974, two were seen on 23 May 1976, one was seen on 14–15 May 1977, and one was seen during the first week of June 1979.

LAUGHING GULL (*Larus atricilla*)

The Laughing Gull is common to abundant on WI from spring migration through fall migration and casual in winter. This species often arrives in small numbers the last week in March and is common at least through September. There is no evidence that the Laughing Gull breeds on WI. However, the nearest breeding colony is only seven to eight km north of WI along the causeway to Chincoteague. This colony is the likely source of the birds seen throughout the summer. Peak summer numbers rarely exceed 50–100 birds. The fall departure date is between mid-September and the first week in December. Three birds were seen on 7 Dec. 1974 and two birds were seen on 24 Nov. 1989. All other late fall dates are from September through mid-October. Five Laughing Gulls were seen on the 1988 CBC.

Specimens: USNM: #140191, #489499 (both 27 May 1913); #502178, #502179 (both 17 June 1977).

[HHB – they have now become so common that colonies become a continuous chain]

BONAPARTE'S GULL (*Larus philadelphia*)

The Bonaparte's Gull is an uncommon fall and spring migrant and winter visitor on WI, with maximum counts of 50 to 150 seen in some years. Virtually all records are from Chincoteague Inlet. The earliest fall record is 3 Nov. when 15 were seen in 1973. The latest spring record occurred when I saw three birds on 22 May 1976.

RING-BILLED GULL (*Larus delawarensis*)

The Ring-billed Gull is common to abundant on WI from fall migration through spring migration. Most of this species leave by early May, although some birds are seen through early June. Fall migrants begin to arrive in early to mid-August, with the main influx occurring in October and November.

Specimens: USNM: #502177 (18 June 1977).

HERRING GULL (*Larus argentatus*) [B]

The Herring Gull is abundant all year on WI. Peak counts of up to several thousand occur along the beach in some years from late December through March. In the late 1980s several pairs nested on CIS.

LESSER BLACK-BACKED GULL (*Larus fuscus*)

The Lesser Black-backed Gull is accidental in spring on WI. On 20 Apr. 1988 I saw a Lesser Black-backed Gull near a dead whale that beached on the north end of WI. This species is becoming more common along the mid-Atlantic coast; a careful search should reveal that one or more birds regularly visit the beach during migration.

GLAUCOUS GULL (*Larus hyperboreus*)

The Glaucous Gull is accidental on WI in winter and in spring migration. I have two records: one immature bird was seen on 28 Dec. 1980 and another single bird was seen on 30 Mar. 1988.

GREAT BLACK-BACKED GULL (*Larus marinus*) [B]

The Great Black-backed Gull is abundant on WI throughout the year along the outer beach. Peak numbers occur in mid-winter when 200 or more birds sometimes use the north end. Summer peak counts are usually of fewer than 10 birds. At least one pair of this species nested on the CIS in 1992.

Banding: A chick of this species was banded on the CIS on 11 July 1992.

BLACK-LEGGED KITTIWAKE (*Rissa tridactyla*)

The Black-legged Kittiwake is accidental on WI. I have one record: an immature bird, with its entire breast and belly covered with oil, was sitting with gulls on a spoil-pile on the south end on 7 Dec. 1974. When I approached the kittiwake, it flew without apparent difficulty. This species is highly pelagic away from the breeding grounds and thus should not be expected to be seen from land.

GULL-BILLED TERN (*Sterna nilotica*) [S2, RT] [B]

The Gull-billed Tern is common to uncommon on WI from the end of the first week in May through the middle of August. My earliest record is one bird seen on 14 Apr. 1978, while nine birds seen on 24 Aug. 1974 is the latest record. The Gull-billed Tern can be seen daily throughout the late spring and summer feeding along the sand dunes. The maximum count is 17 birds seen on 7 May 1972. From 1986 through 1990 at least a few pairs bred on the CIS.

[HHB – there is probably not over a dozen pairs now breeding along our entire coastline]

CASPIAN TERN (*Sterna caspia*) [S1, RSC] [B]

The Caspian Tern is irregular on WI in spring migration and common in fall migration. The maximum count is 110 Caspian Terns seen on 3 Oct. 1971. Usually from two to less than 20 birds are seen from August through mid-November on the mudflats at the north end. The Caspian Tern breeding status in Virginia through 1975 is well documented (Weske *et al.* 1977).

Banding: A chick was banded on CIS the first week of Aug. 1986.

[HHB – a few pairs still breed]

ROYAL TERN (*Sterna maxima*) [S2] [B]

The Royal Tern is common to abundant on WI from mid-April through late October. The earliest arrival date is 28 March 1989 when two birds arrived. On 5 Oct. 1975 I saw a flock of 354 Royal Terns sitting on the WI beach; nine had color bands (indicating banding in North Carolina) and another 20 had U.S. Fish and Wildlife Service bands. In 1985 there were nine nests with 10 eggs on the CIS on 19 June. From 1985 through 1990 I regularly observed 500–1000 Royal Terns in mid-summer, mostly in association with the breeding colony in Chincoteague Inlet.

At the turn of the century, the Royal Tern had disappeared from the Eastern Shore of Virginia because of commercial killing for feathers.

Banding: From 1985 through 1989 a total of 3009 chicks were banded on CIS by John Weske, John Buckalew, and myself. Through 1992 twenty of these birds have been recovered away from the banding site. One bird was recovered at Cape May, New Jersey in mid-October of the year it was banded and another was recovered in Spain in December of the year it was banded. The other birds were recovered from southern Florida through the Caribbean south to Ecuador and east to Guyana in South America, and west to Belize and El Salvador in Central America.

[HHB – a large colony still breeds on one coastal island]

SANDWICH TERN (*Sterna sandvicensis*) [S1, RSC] [B]

The Sandwich Tern is uncommon on WI. I first observed this species on the north end of WI on 11 July 1976. My next record for WI is 1986 when at least one pair bred on CIS. Breeding occurred after that for each year through 1989, at which time the colony suffered the same fate as the other CIS breeding birds. The Virginia breeding status through 1975 of this species is well documented (Weske *et al.* 1977)

Banding: Twenty-five chicks on CIS from 1986 through 1989. No recoveries.

[HHB – extremely rare, it was not until the summer of 1912 that a set of two eggs was secured]

COMMON TERN (*Sterna hirundo*) [B]

The Common Tern is common to abundant on WI from the first week of May through mid-August. The earliest record is of four birds seen on 22 Apr. 1985. The latest date the Common Tern was seen is 6 Sept. 1975, but a count was not recorded. Prior to 1984, fewer than 50 birds were seen in any one day in the summer. Starting in 1984, the Common Tern has bred on the CIS, with 20 pairs counted the first year. The colony increased in size for the next several years. On 15 June 1985, NWR personnel counted 509 nests with 919 eggs. In the winter of 1989–1990 CIS suffered extensive erosion. From the summer of 1990 through 1992, few if any Common Terns nested on the sandbar.

E. L. Poole (1922) reported that in late June of 1921 there were somewhat less than 40 breeding pairs of this species on WI.

Banding: From 1985 through 1987 John Weske and John Buckalew banded 225 birds on CIS. On 5 Aug. 1986, three adult birds were caught on CIS that had non-local bands. The oldest of the three birds was banded as a chick in Stone Harbor, New Jersey, on 23 July 1970. Another bird had been banded in a colony in Ocean City, Maryland, on 9 July 1977, while the third bird had been banded at the same Ocean City, Maryland, colony on 30 June 1980. One bird banded 5 Aug. 1986 on the CIS was recaptured 14 June 1988 at the Ocean City, Maryland, colony. A second bird banded at CIS on 5 Aug. 1986 was recovered near Barnegat Light, New Jersey, on 2 July 1990.

[HHB – several scattered large breeding colonies along coast]

FORSTER'S TERN (*Sterna forsteri*) [B]

The Forster's Tern is common on WI from mid-March through early November, with scattered records through December. Typical peak counts are 100–150 birds seen in April and October, while more than 250 birds seen on 13 Nov. 1971 was unexpected. Six Forster's Terns were found on the 1973 CBC.

The Forster's Tern is hard to find nesting on WI. However, a diligent search by Howe (1981) produced four nests. He writes, "The few Forster's Tern nests found on NASA property were divided between a small intertidal cordgrass island ... and the edge of an extensive segment of high marsh, both adjacent to the intracoastal waterway. All nests were found on 27 May [1981] and the eggs were freshly laid."

Specimens: USNM: #502176 (17 June 1977).

[HHB – rather scarce breeder]

LEAST TERN (*Sterna antillarum*) [S2, RT] [B]

The Least Tern is common on WI from spring migration through early September. This species generally arrives the first week of May and is common through mid- to late August. Small nesting colonies have been found in four years, with the largest colony (11 nests) found on 22 May 1976 on the beach just north of the point where the dirt road meets the beach at the north end. Howe (1981) found two nests on 28 May 1981 "on a small shell-covered flat inside the dunes near the southern tip..." On 19 June 1985 the NWR staff found 48 nests with 96 eggs on the CIS. In 1987 a colony of at least ten pairs nested in Assawoman Inlet, but no young successfully fledged. Two nest scrapes at this latter colony were found on 18 May 1992.

E. L. Poole (1922) reported that in late June 1921 there were at least two breeding colonies of Least Terns on WI, with a total of as many as 40 pairs.

Specimens: USNM: #502164 through #502166 (all obtained 17 June 1977).

[HHB – formerly one of most abundant seabirds, a few pairs still breeding]

BLACK TERN (*Chlidonias niger*)

The Black Tern is casual on WI in spring migration and irregular in fall migration, with records of one to three birds in July and August. An unusually high count occurred on 17 Aug. 1975, when 30 were present. The only spring record is in 1975 when five birds were present on 11 May.

E. L. Poole (1922) reported seeing this species on both the 29th and 30th of June 1922.

BLACK SKIMMER (*Rynchops niger*) [B]

The Black Skimmer is common to abundant on WI from spring migration through fall migration. Early arrivals include four skimmers seen on 7 Mar. 1971 and one seen on 30 Mar. 1975. On 21 Apr. 1974, 65 Black Skimmers were seen. After 1975 I have only one skimmer sighting before the second week in May. In most years the local skimmers seem to leave by late August. From the time the local breeders leave there is a gap in skimmer sightings until mid-October when migrants arrive. It is not uncommon that more than 100 skimmers are then seen in Chincoteague Inlet through early November.

Starting in 1984, a colony of skimmers began to breed on the CIS. On 7 June 1985 the NWR personnel counted 319 nests with 714 eggs and 11 young. The colony was not surveyed each year, but more than 1000 birds were seen at one time from WI on 23 June 1987. In 1991 the colony was greatly reduced in numbers because the sandbar had decreased in size the previous winter. On 11 July 1992, 10 skimmer eggs and some additional nest scrapes were found.

On 1970 a very weak skimmer was observed during the CBC on the mudflats at the north end.

Banding: Five recoveries from the 494 birds banded from 1985 through 1988 by John Weske and John Buckalew. Three of these recoveries are in winter from the southeastern coast of Florida.

[HHB – increasing and common]

DOVEKIE (*Alle alle*)

The Dovekie is accidental on WI. On 15 Nov. 1970 a live Dovekie was found in a small rain pool alongside a road on WI. The next day the bird was found dead within a meter of the pool.

Specimens: The bird described above was given to the Maryland Ornithological Society where it is now a mounted specimen at their Irish Grove Sanctuary.

ROCK DOVE (*Columba livia*)

The Rock Dove is irregular on WI, although at times a few can be seen near the entrance gate on WM.

MOURNING DOVE (*Zenaida macroura*) [B]

The Mourning Dove is common to uncommon on WI from March through October and irregular through December. There is one CBC record, that of a single bird observed in 1978.

The continual presence of calling doves from mid-March through June strongly suggests breeding. Bent (1932) lists WI for breeding and wintering range.

YELLOW-BILLED CUCKOO (*Coccyzus americanus*)

The Yellow-billed Cuckoo is an irregular spring and uncommon fall migrant on WI. The peak count is four birds seen on 28 Aug. 1977.

BARN OWL (*Tyto alba*) [B]

The Barn Owl annually bred in a wooden cistern at the old Coast Guard station until 1975 when the tower was removed. In 1974 an adult was found nesting on 23 Mar.; later that same year on 24 Aug. an adult with several eggs was found in the nest. The Barn Owl probably also bred in

1985, and possibly for the previous few years, in the now removed aerobe rocket launch tower. There are no records after 1985.

GREAT HORNED OWL (*Bubo virginianus*) [B]

The Great Horned Owl is uncommon on WI throughout the year. This species probably bred in the pine woods around the Dynamic Balance Facility, at least in the early 1970s. On 22 Dec. 1988 a Great Horned Owl was electrocuted on the wires near Launch Pad 1, several km from any woods. There are two CBC records.

SHORT-EARED OWL (*Asio flammeus*)

The Short-eared Owl is an uncommon to irregular winter visitor to WI that was found on CBCs in 1972, 1974, 1978, and 1981 in the extensive grassy dunes at the far north end of WI. Peak counts of two Short-eared Owls were recorded on 30 Mar. 1975 and on 28 Dec. 1978.

CHIMNEY SWIFT (*Chaetura pelagica*)

I have only one record of a Chimney Swift on WI; one bird was seen on 22 May 1976. The scarcity of records for this species during migration (fall especially) is likely due to insufficient observing.

RUBY-THROATED HUMMINGBIRD
(*Archilochus colubris*)

The Ruby-throated Hummingbird is an uncommon to migrant on WI in May and August, although the peak count is five birds recorded on 8 June 1985 along the causeway.

BELTED KINGFISHER (*Ceryle alcyon*)

The Belted Kingfisher is an uncommon spring and fall migrant on WI that apparently over-winters in some years. The peak count is seven birds seen on 14 Oct. 1972. Most records are of single and, less frequently, two birds.

Banding: One banded on 15 Aug. 1975 by C. and G. Vaughn and subsequently shot on 1 Nov. 1975 near Pine Bush, New York.

RED-HEADED WOODPECKER
(*Melanerpes erythrocephalus*)

The Red-headed Woodpecker is casual on WI. I have two records: a single bird was seen on 11 May 1974, and another was seen 8 May 1986.

RED-BELLIED WOODPECKER (*Melanerpes carolinus*)

The Red-bellied Woodpecker is uncommon on WI, with records of single birds scattered throughout the year in five years.

YELLOW-BELLIED SAPSUCKER (*Sphyrapicus varius*)

The Yellow-bellied Sapsucker is an uncommon fall migrant on WI from late September through October, with a maximum of three birds recorded 14 Oct. 1972 and 5 Oct. 1975. I have no records of sapsuckers after 1975.

DOWNY WOODPECKER (*Picoides pubescens*)

The status of the Downy Woodpecker on WI should be considered uncertain. Records from nine CBCs indicate the Downy Woodpecker regularly winters on WI. The only other records are of single birds in March and April and one in August.

HAIRY WOODPECKER (*Picoides villosus*)

The Hairy Woodpecker is casual on WI. I have two records: one bird was seen on 9 Apr. 1972 and another was seen on the 1979 CBC.

NORTHERN FLICKER (*Colaptes auratus*) [B]

The Northern Flicker is common throughout the year on WI. It is very common as a fall migrant, with a peak count of 65 recorded on 5 Oct. 1975. At other times of the year the flicker is also common except from late December through January, when it is sometimes absent. Flickers breed in small numbers in the woods and telephone poles around the Dynamic Balance Facility.

EASTERN WOOD-PEWEE (*Contopus virens*) [B?]

The Eastern Wood-Pewee is an uncommon spring and fall migrant on WI, with a maximum of six seen on 6 June 1981. A single pewee calling on 25 June 1991 indicates that this species may occasionally breed on WI. The latest recorded date is one pewee netted on 25 Sept. 1974.

EASTERN PHOEBE (*Sayornis phoebe*)

The Eastern Phoebe is an uncommon to common spring and uncommon fall migrant on WI, with a maximum of eight seen on 30 Mar. 1975 and on 1 Oct. 1974.

GREAT-CRESTED FLYCATCHER (*Myiarchus crinitus*)

The Great-crested Flycatcher is an uncommon spring and irregular fall migrant on WI, with a maximum count of four birds on 23 May 1976. Two records are in August.

WESTERN KINGBIRD (*Tyrannus verticalis*)

The Western Kingbird is casual on WI. I have one record: one bird was seen on 16 Sept. 1978.

EASTERN KINGBIRD (*Tyrannus tyrannus*) [B]

The Eastern Kingbird is common on WI from spring migration through the breeding season and is sometimes an abundant fall migrant. This species normally arrives the second week of May when peak counts of up to 12 have occurred. There are three April records, the earliest being one bird seen on 11 Apr. 1973. Several pairs probably breed each year on WI and WM. Peak fall counts occur the last week of August; 69 birds were seen on 28 Aug. 1977 and 75 birds were seen on 26 Aug. 1990. The latest date recorded is 29 Sept. 1974 when seven kingbirds were seen.

[HHB – breeds sparingly on Eastern Shore]

HORNED LARK (*Eremophila alpestris*) [B]

The Horned Lark is uncommon on WI throughout the year. On 5 June 1973 a female with brood patch was netted. The peak count of 17 occurred on 13 Dec. 1970. There is only one record of more than six larks seen at one time other than in December.

PURPLE MARTIN (*Progne subis*) [B]

The Purple Martin is an uncommon migrant and common breeder on WI. Four records of one to four Purple Martins exist prior to 1984, three of these being the last week of August and the fourth in May. In late 1984, two hotel-type martin houses, with twelve houses each, were erected by the Navy on the middle of WI. In 1985 both hotels housed several breeding pairs. By the early 1990s there were six houses with a minimum of five active pairs in each.

[HHB – breeds mostly on barrier islands of Accomack and Northampton Counties]

TREE SWALLOW (*Tachycineta bicolor*) [B]

The Tree Swallow is a common spring migrant and nester on WI and an abundant fall migrant. The high spring count of 50 birds occurred on 25 Apr. 1971. Since the late 1980s at least 25 pairs of Tree Swallows have nested, each in nesting boxes installed by Navy personnel. Bent (1942) lists WI as a breeding site.

The truly spectacular migration of the Tree Swallow is witnessed each fall when conservative daily counts of 10,000 birds are obtained from early to late October. On 2 Oct. 1980 more than 10,000 were seen migrating north at a very high altitude above southbound Sharp-shinned Hawks. At times large numbers of Tree Swallows rest on the warm roads and die in small numbers when high speed car traffic fails to slow for them. It is likely that a normal count of several hundred-thousand Tree Swallows can be tallied each fall during the peak migration period, because upwards of three-quarters of a million can congregate at the south end of the Eastern Shore peninsula (Kain, 1987).

In 1971, and again in 1983, a flock of Tree Swallows was found during the CBC, with 107 birds counted in 1983.

Specimen: USNM: #502432 (8 Oct. 1977).

NORTHERN ROUGH-WINGED SWALLOW (*Stelgidopteryx serripennis*) [B]

The Northern Rough-winged Swallow is irregular on WI from spring migration through fall migration. Diligent searching of Tree Swallow flocks, however, would probably yield a few of this species each year, especially in October. The earliest date is 2 May 1976 when three birds were recorded, while 27 Aug. 1978 is the latest recorded date.

In 1985 several pairs appeared to nest in small open pipes projecting from the ground at the very south end of the island road.

BANK SWALLOW (*Riparia riparia*) [B]

The Bank Swallow is an uncommon fall migrant on WI, although like the rough-winged swallow, it can go undetected in the large fall flocks of Tree Swallows. In the mid-1980s a pile of sand from a dredge operation was left undisturbed near a construction site on WI. Five to ten pairs of Bank Swallows were reported to me as nesting here until the pile was removed a few years later. Kinzie and Scott (1983) reported that there were no known colonies of Bank Swallows on the Eastern Shore of Virginia (as of 1981).

The Bank Swallow was recorded during five other

years as a non-breeder. Peak counts of 10 birds occurred on 27 Aug. 1972 and 10 Aug. 1975.

[HHB – abundant on Smith Island]

BARN SWALLOW (*Hirundo rustica*) [B]

The Barn Swallow is common on WI from spring migration through fall migration. This species is common to abundant as a nester around buildings where appropriate nest supports are present. Peak counts occur from late July through the end of August when more than 300 birds can be seen. The latest fall record is 30 Oct. 1971 when five birds were seen. The maximum spring counts occur in late April through mid-May when 50–200 birds can be found.

BLUE JAY (*Cyanocitta cristata*)

The Blue Jay is an irregular to uncommon spring migrant and casual fall migrant on WI. The peak count of six jays occurred on 9 May 1976. Other counts are of single birds, mostly occurring in May. I have one fall record: one Blue Jay was seen on 5 Oct. 1988.

AMERICAN CROW (*Corvus brachyrhynchos*)

The identification of crows by sound indicates the American Crow is uncommon on WI from late fall through winter. Most identified American Crows occur from November through February, with a peak of seven on 7 Dec. 1980. Five American Crows were recorded on the 1978 CBC.

FISH CROW (*Corvus ossifragus*)

The Fish Crow is common on WI from spring through fall. Unless crows are actively calling during this period, I assume them to be the Fish Crow. Most identified crows are Fish Crows. From May through August there are typically 10–25 birds present. It is probably an oversight on my part, but I have no evidence that the Fish Crow breeds on WI.

By late October Fish Crows generally disappear from WI. In 1975 the peak count of 150 Fish Crows occurred on the CBC.

CAROLINA CHICKADEE (*Parus carolinensis*) [B]

The Carolina Chickadee is uncommon on WI throughout the year, with most records occurring in winter. Records exist for five CBCs with a peak of six birds in 1982. Several pairs may breed. During the Accomack County breeding bird foray in 1981, WI was the only barrier island that reported chickadees (Kinzie and Scott, 1983).

RED-BREASTED NUTHATCH (*Sitta canadensis*)

The Red-Breasted Nuthatch is an irregular spring and fall migrant on WI. I have three records: two birds were seen on 8 May 1982, two were seen on 5 Oct. 1975, and three were seen on 17 Oct. 1982.

CAROLINA WREN (*Thryothorus ludovicianus*) [B]

The Carolina Wren is a common year-round resident and nester on WI. The peak count of 15 birds taken on 2 May 1986 indicates the Carolina Wren probably breeds. The peak CBC count occurred in 1986 when six birds were seen.

HOUSE WREN (*Troglodytes aedon*) [B]

The House Wren is common during the breeding season, with 10 recorded on 22 May 1976. This species typically arrives the first or second week of May. The peak count of 15 birds occurred on 2 May 1976. The earliest record is three birds counted on 14 Apr. 1974. I have no records after mid-July, although a netting program would probably show that the House Wren is common in fall migration.

Bent (1948), quoting a Forbush report from 1916, has the following entry: "At a sanctuary located on Wallops Island, Virginia, 24 empty cow skulls found bleaching on the island were hung up or lodged in the trees and shrubbery. Almost immediately 23 of the gruesome skulls were occupied by house wrens, who were quick to accept these unusual nesting boxes."

MARSH WREN (*Cistothorus palustris*) [B]

The Marsh Wren is common on WI during the nesting season and uncommon during fall migration. This species probably nests more commonly than records indicate. One or two nests were regularly found in the bushes along the road by the large pond along the causeway from 1979 through 1987.

The latest fall record is two Marsh Wrens found on 7 Dec. 1980. The earliest spring records are in the first week of May.

GOLDEN-CROWNED KINGLET (*Regulus satrapa*)

The Golden-crowned Kinglet is an uncommon to irregular spring and fall migrant on WI. One bird was netted on 16 Apr. 1973. Three other records exist, all during

October. The peak count is five birds seen on 17 Oct. 1982.

RUBY-CROWNED KINGLET (*Regulus calendula*)

The Ruby-crowned Kinglet is an uncommon spring and fall migrant on WI. The peak count of five kinglets occurred 14 Oct. 1972. There is only one CBC record, although this kinglet is certainly more common than this one record implies.

EASTERN BLUEBIRD (*Sialia sialis*)

The Eastern Bluebird is irregular on WI. I first saw this species on WI in 1988 when one bird was recorded on 16 March. The only other records are for 1989 when two bluebirds were seen on three occasions, once in February, once in April, and once in November. The status of the bluebird on WM should be considered unknown.

AMERICAN ROBIN (*Turdus migratorius*) [B]

The American Robin is an uncommon to common spring and fall migrant on WI and uncommon nester. In spring a few birds are sometimes present as early as February. Spring and fall flocks of more than twenty robins are rare. The peak count is more than 200 birds seen on 17 Oct. 1982. There is one CBC record, that of four birds seen in 1982.

GRAY CATBIRD (*Dumetella carolinensis*) [B]

The Gray Catbird is common on WI from spring migration through fall migration and is uncommon in winter. Peak counts include 29 seen on 8 May 1975 and 20 seen on 7 July 1974. The common occurrence in June indicates the Gray Catbird breeds. The Gray Catbird likely winters in some years. On 22 Jan. 1973 seven catbirds were recorded. I have four CBC records, with four catbirds recorded in 1985.

NORTHERN MOCKINGBIRD (*Mimus polyglottos*)

The mockingbird is uncommon to irregular on WI, although there are records for eleven years. One unusual sighting occurred when a lone mockingbird was seen migrating south during the fall at an altitude of about 10 meters. The bird kept a straight flight path for the 500 meters of flight that I was able to observe it.

BROWN THRASHER (*Toxostoma rufum*) [B]

The Brown Thrasher is a common spring and fall migrant and nester on WI. The peak count of 12 thrashers occurred on 8 May 1977. Records for thirteen years during the "safe date" period of the Virginia BBA suggest the thrasher nests commonly. Two winter records exist, each from CBCs: three birds were recorded in 1977 and 1978.

WATER PIPIT (*Anthus spinoletta*)

The Water Pipit is casual on WI. I have one record: one Water Pipit was seen on 17 Jan. 1977.

CEDAR WAXWING (*Bombycilla cedrorum*)

The Cedar Waxwing is irregular on WI. I have three records: one bird was seen on 14 Oct. 1972, one was seen on 27 Aug. 1978, and four were seen on 4 Oct. 1989.

[HHB – breeds on Eastern Shore]

EUROPEAN STARLING (*Sturnus vulgaris*) [B]

The European Starling is an abundant year-round resident on WI, with a normal flock size of 100–200 birds. The peak count of more than 1000 starlings occurred on 5 Oct. 1990.

WHITE-EYED VIREO (*Vireo griseus*) [B]

The White-eyed Vireo is a common breeder in the thickets on WI. It arrives in mid-April and leaves by the end of August. Peak counts include 14 vireos on 7 May 1987 and seven on 28 Aug. 1977.

RED-EYED VIREO (*Vireo olivaceus*)

The Red-eyed Vireo is an irregular spring and fall migrant on WI. I have three records: one bird was netted 30 Apr. 1973 and one was seen on 28 Aug. 1977. A single Red-eyed Vireo was heard actively singing in the small wooded area just north of the Coast Guard Station on 4 June 1992.

NORTHERN PARULA (*Parula americana*)

The Northern Parula is an irregular spring and fall migrant on WI. I have three records: single birds were seen on 14 Apr. 1974, 23 May 1976, and 5 Oct. 1988.

YELLOW WARBLER (*Dendroica petechia*) [B]

The Yellow Warbler was previously a very common breeder in the area where the AEGIS facility is now located. Some pairs still nest around the periphery of the site. Peak counts include 20 on 11 May 1975, and 15 on 12 May 1979. Since 1984 I have only two records of more than two Yellow Warblers, that of six to eight birds from 7–9 May 1987 and six birds on 12 May 1992. Yellow Warblers also nest along the dirt road north of the Coast Guard house, but I have not made an effort to count them in this area.

In 1973 a netting operation caught three male Yellow Warblers on 23 Apr. The first female was not caught until 4 May, thus hinting that the males arrive a week or so before the females.

CAPE MAY WARBLER (*Dendroica tigrina*)

The Cape May Warbler is an uncommon spring and common fall migrant on WI. I have one sight record: one bird was seen on 2 May 1976.

Banding: Three birds in September, 1974; six birds the first week of October, 1975.

BLACK-THROATED BLUE WARBLER (*Dendroica caerulescens*)

The Black-throated Blue Warbler is an uncommon fall migrant on WI. I have two sight records: one bird was seen on 27 Oct. 1973 and another was seen on 28 Aug. 1977. The Black-throated Blue Warbler is likely much more common in fall migration than these two records indicate because it is abundant at the banding station at Kiptopeake and is seen regularly at the NWR.

YELLOW-RUMPED WARBLER (*Dendroica coronata*)

The Yellow-rumped Warbler is the abundant wintering phenomenon in the wax myrtle shrub areas throughout the island. Peak CBC numbers regularly exceed 1000 for the masochistic counter. The peak count is 2281 birds seen on 28 Dec. 1981. The normal period of residence is from the first week of October through late April, with a few birds lingering through the first week of May.

BLACK-THROATED GREEN WARBLER (*Dendroica virens*)

The status of the Black-throated Green Warbler should be considered unknown on WI.

Specimens: USNM: #502234 as a whole skeleton (25 Sept. 1974).

PINE WARBLER (*Dendroica pinus*) [B]

One or two Pine Warbler pairs breed in the pine woods near the Dynamic Balance Facility. The peak count is 10 birds seen on 28 Aug. 1977, and six on 14 Apr. 1974. Surprisingly I have no records between the end of June and the end of March.

[HHB – abundantly distributed, even to barrier islands]

PRAIRIE WARBLER (*Dendroica discolor*) [B]

The Prairie Warbler is a common spring and uncommon fall migrant and a common breeder on WI. This species typically arrives during the last two weeks of April and becomes a common breeder north of the Coast Guard house. Peak counts include 20 on 7 May 1987 and 11 on 2 May 1976. The peak summer count of five birds occurred on 6 June 1981. One bird was seen on 7 Dec. 1980.

[HHB – wooded islands have a good number of breeders]

PALM WARBLER (*Dendroica palmarum*)

The Palm Warbler is an uncommon spring and fall migrant on WI, with scattered records of one to four birds in April and again in September and October. Two Palm Warblers were seen on 17 Jan. 1977. The peak count of eight Palm Warblers occurred on 25 Apr. 1971.

BLACK-AND-WHITE WARBLER (*Mniotilta varia*)

The Black-and-White Warbler is an uncommon to irregular spring and fall migrant on WI. Two birds were netted on 10 May 1973.

AMERICAN REDSTART (*Setophaga ruticilla*)

The American Redstart is probably a very common migrant on WI, although few actual sight records exist. This species is one of the most abundantly banded migrants at Kiptopeake. In 1974 six redstarts were netted, two each on 13 Sept., 16 Sept., and 19 Sept.

COMMON YELLOWTHROAT (*Geothlypis trichas*) [B]

The Common Yellowthroat is common on WI from the end of the third week of April through fall migration. It breeds commonly throughout the dense thickets on WI, WM, and along the causeway. The peak count of 25 occurred on 6 June 1981. I have no records past the end of October.

YELLOW-BREASTED CHAT (*Icteria virens*) [B]

The Yellow-breasted Chat is a common to uncommon spring migrant and nester in small numbers on WI. Peak counts include five chats on 11 May 1975, 7 May 1987, and 2 May 1990. The latest record is one chat seen on 24 July 1991.

SCARLET TANAGER (*Piranga olivacea*)

The Scarlet Tanager is an irregular spring and fall migrant on WI. I have one sight record: two birds were seen on 15 May 1972. A single Scarlet Tanager was netted on 19 Sept. 1974. This species is probably a more common migrant than these records imply.

NORTHERN CARDINAL (*Cardinalis cardinalis*) [B]

The Northern Cardinal is an uncommon resident on WI. Peak counts include a maximum of seven cardinals seen on 29 Dec. 1979 and eight on 28 Dec. 1986 and again on 30 Mar. 1975. Peak counts during April and May are usually four to six birds.

ROSE-BREASTED GROSBEAK
(*Pheucticus ludovicianus*)

The Rose-breasted Grosbeak is an uncommon spring migrant, with single birds recorded either the last week of April or the first week of May in six years. I have no fall records, although this species is undoubtedly a regular migrant during this period.

BLUE GROSBEAK (*Guiraca caerulea*) [B]

The Blue Grosbeak is an uncommon spring and fall migrant on WI and an uncommon nester on WM. The earliest record is one bird on 2 May 1990; the latest record is three birds seen on 24 Aug. 1974.

INDIGO BUNTING (*Passerina cyanea*) [B]

The Indigo Bunting is an uncommon spring and fall migrant on WI. The earliest arrival date is 22 Apr. 1987 when four were seen. This species migrates along WI in small numbers in early May. Nesting has occurred just north of the AEGIS facility. This species probably also nests on WM. There is one fall record: a single Indigo Bunting was seen on 14 Oct. 1972.

RUFOUS-SIDED TOWHEE (*Pipilo erythrophthalmus*) [B]

The Rufous-sided Towhee is common on WI from early April through early winter, with some wintering. Peak numbers include 11 towhees on 8 May 1976 and 14 on 9 May 1987. Found on 10 CBCs, with a maximum count of six in 1977.

CHIPPING SPARROW (*Spizella passerina*)

The Chipping Sparrow is a common spring and fall migrant on WI, with a maximum of 30 recorded on 25 Apr. 1971. Surprisingly I have no breeding season records for the Chipping Sparrow. The latest spring record is one bird on 8 May 1982, while the earliest fall record is one bird on 30 Aug. 1986. The Chipping Sparrow should be listened for in the breeding season near the Dynamic Balance Facility.

FIELD SPARROW (*Spizella pusilla*) [B]

The Field Sparrow is a common spring migrant and nesting bird on WI and an irregular winterer. First birds arrive from the last couple of days in March through April. The peak count of 11 birds occurred on 30 Mar. 1975. The Field Sparrow nests commonly on the northern half of WI. Single Field Sparrows were recorded on CBCs in 1979 and 1982.

VESPER SPARROW (*Pooecetes gramineus*)

The Vesper Sparrow is casual on WI. I have two records: one bird was seen on 30 Mar. 1975. Another sparrow, apparently of this species, was seen on 17 May 1985. This bird did not have a white eye ring but its outermost tail feathers were white. A notched tail and a slight yellowish brown wing patch were also seen.

LARK SPARROW (*Chondestes grammacus*)

The Lark Sparrow is accidental on WI. I have one record: a bird, first seen 1 Aug. 1974, stayed for about one week.

SAVANNAH SPARROW (*Passerculus sandwichensis*)

The Savannah Sparrow is a common to abundant spring and fall migrant on WI and a common winterer. Fall birds have arrived as early as 27 Sept. and spring birds have stayed as late as 11 May. Peak numbers include an unusually high count of more than 200 on 14 Oct. 1972. The Savannah Sparrow has been found on ten CBCs, with a maximum number of 17 in 1977 and again in 1980.

Specimens: ANSP: #81575 female and #81582 male (both on 20 Sept. 1919).

– IPSWICH SPARROW (*P. s. princeps*)

Diligent searching during the CBCs shows that the Ipswich Sparrow, previously considered a distinct species, is uncommon in winter in the denser dune-grass areas north of where the dirt road meets the beach. A maximum of four birds was found on 28 Dec. 1980, on 13 Dec. 1981, and again on 28 Dec. 1986.

HENSLOW'S SPARROW (*Ammodramus henslowii*) [S1, RE]

The Henslow's Sparrow is accidental on WI. This species is recorded by a single specimen in the Academy of Natural Sciences of Philadelphia.

Specimens: ANSP: #81590 female (25 Sept. 1919).

SHARP-TAILED SPARROW (*Ammodramus caudacutus*) [S2, RSC] [B?]

The Sharp-tailed Sparrow is an uncommon to irregular nester and uncommon fall migrant and winterer on WI. A small colony of this species may have nested for several years (at least) in the patch of *Spartina patens* at the southeast end of the causeway. Sharp-tailed Sparrows nest relatively late and most of my records are in May. I have one record during the Virginia BBA safe dates (June 1 – August 10); this is two birds seen on 28 July 1974. However, the same small patch of Upper Salt Marsh dominated by *S. patens* was used each year, and the birds exhibited territorial behavior. Typical maximum counts in this area are from two to four birds. The maximum count along the causeway is ten Sharp-tailed Sparrows found on 11 May 1974. I have no records after 1983, although the extensive patches of Upper Salt Marsh will need to be searched carefully to determine the present status of this species.

On 12 Nov. 1978 a flock of 15 birds was found in *S. alternaflora* along the mudflats at the very north end of WI. There are records from seven CBCs, with a maximum count of three birds in 1977.

Bent (1968) lists the local breeding birds as the *A. c. diversa* subspecies and gives WI as the southernmost breeding location. However, Norman P. Hill writing in Bent states, "Though the 1957 A.O.U. Check-List extends the breeding range south to Pea Island, N.C., the marshes south of Chincoteague Island, Va., and those in North Carolina have been vainly searched for breeding colonies of this species by Montagna ... and, independently, by me."

From Hill's statement it is evident that the Sharp-tailed Sparrow will have a precarious local breeding existence regardless of the availability of apparently appropriate habitat.

Specimens: ANSP: #81595 male (20 May 1912) listed as *A. c. caudacutus*, #81597 female (1 Oct. 1919) listed as *A. c. nelsoni*.

SEASIDE SPARROW (*Ammodramus maritimus*) [B]

The Seaside Sparrow is a common spring migrant, common to abundant breeder, and uncommon winterer on WI, the earliest spring record being one bird on 20 Apr. 1989. The maximum count of 24 birds occurred during the Accomack Country breeding bird foray on 6 June 1981 (Kinzie and Scott, 1983).

Records exist for six CBCs, with a maximum of two birds seen in 1972 and again in 1980.

Specimens: USNM:#502167 through #502170 (17–18 June 1977), #502422 through #502425 (8 Oct. 1977). ANSP: #81602 male (10 Sept. 1914), #81603 female (20 May 1912). Both of these birds are *A. m. maritimus*.

[HHB – common along barrier islands]

FOX SPARROW (*Passerella iliaca*)

The Fox Sparrow is an uncommon fall migrant and wintering bird on WI. I have five records: two birds were seen on 13 Dec. 1970, and single birds were seen on 27 Mar. 1977, 9 Nov. 1982, and 28 Dec. 1986.

SONG SPARROW (*Melospiza melodia*) [B]

The Song Sparrow is a common to abundant migrant and a common breeding and wintering bird on WI. Peak counts include 50 in migration on 14 Oct. 1972, 25 on the 1981 CBC, and 27 on 30 Mar. 1975.

Specimens: USNM: #502158 through #502161 (17–18 June 1977).

SWAMP SPARROW (*Melospiza georgiana*)

The Swamp Sparrow is a common to abundant fall migrant and winterer on WI. The fall peak count of 125 birds occurred on 14 Oct. 1972. The Swamp Sparrow has been recorded on nine CBCs, with a peak count of 31 on 28 Dec. 1986. The lack of migrant and winter records for the Swamp Sparrow, other than during CBCs, likely reflects its secretiveness rather than its scarcity.

WHITE-THROATED SPARROW (*Zonotrichia albicollis*)

The White-throated Sparrow is an occasionally common spring and fall migrant and wintering sparrow in areas with dense undergrowth interspersed with trees. Peak counts include a minimum of 50 on 1 May 1973, and 34 on 28 Dec. 1982. It has been recorded on 11 CBCs.

WHITE-CROWNED SPARROW
(*Zonotrichia leucophrys*)

The White-crowned Sparrow is irregular in spring and fall migration on WI. I have three records: single birds were seen on 14 Oct. 1972, 10 May 1975, and 8 May 1982.

DARK-EYED JUNCO (*Junco hyemalis*)

The Dark-eyed Junco is an uncommon to abundant fall migrant and an uncommon spring migrant and winterer on WI. Peak counts include more than 100 on 14 Nov. 1971 and 125 on 27 Oct. 1973. The peak count in spring is 10 birds seen on 3 Apr. 1971. Recorded on six CBCs, with a maximum count of 20 in 1986.

BOBOLINK (*Dolichonyx oryzivorus*)

The Bobolink is an uncommon to irregular spring and fall migrant on WI. Peak numbers include 30 seen on 27 Aug. 1978 and 28 seen on 12 May 1979.

RED-WINGED BLACKBIRD (*Agelaius phoeniceus*) [B]

The Red-winged Blackbird is an abundant breeder and spring and fall migrant on WI. The spring arrival date varies from early February through early May. Peak spring counts are from 100 to 200 birds. The red wing has been recorded from only six CBCs, with a maximum of 30 in 1977. This species has not been recorded in January.

EASTERN MEADOWLARK (*Sturnella magna*) [B]

The Eastern Meadowlark is uncommon to common all year on WI. A nest with four eggs was found on 13 May 1978 in the regularly mowed grass along the causeway. Peak counts are normally less than 15 birds, although 42 meadowlarks were recorded 22 Nov. 1975. I have records for the CBCs from 1975 through 1982 inclusive and again in 1984.

BOAT-TAILED GRACKLE (*Quiscalus major*) [B]

The Boat-tailed Grackle is abundant from mid-February through November on WI. It nests abundantly around the edges of the marsh where small trees and dense high shrubbery prevail. This species is often absent in December and January when birds gather at colonial roosts on the mainland. I have records for only ten CBCs, with a peak of 15 in 1979. Peak counts at other seasons include 300 on 11 Apr. 1971, 105 on 8 May 1976, and more than 100 on 10 Aug. 1980.

> Specimens: USNM: #502173 (18 June 1977), #502418 through #502420 (8 Oct. 1977). ANSP:#81502 female (23 May 1914), #81503 male (22 Sept. 1914), #81504 female (18 May 1912). These birds are listed as *Q. m. torreyi*.

[HHB – lumbering on barrier islands considerably reduced preferred nesting habitat of cedars and pines. Formerly large breeding colonies existed on most islands.]

COMMON GRACKLE (*Quiscalus quiscula*)

The Common Grackle is a common spring migrant on WI, with a peak count of 100 birds on 19 Apr. 1981. This grackle is rarely seen before mid-April and after late May. There are four years when the Common Grackle went unrecorded. To date there is no evidence of breeding.

BROWN-HEADED COWBIRD (*Molothrus ater*) [B?]

The Brown-headed Cowbird is a common spring and irregular fall migrant on WI. Peak counts are usually less than 20 in any year. The cowbird may breed, as evidenced by records in 1974 on 4 Apr. (3), 21 Apr. (2), 11 May (2), 19 May (6), 9 June (1), and 30 June (3).

NORTHERN ORIOLE (*Icterus galbula*)

The Northern Oriole is an irregular spring and fall migrant on WI. I have three records: two birds were seen on

7 May 1973, one was seen on 28 Aug. 1977, and one was seen on 8 May 1982.

PURPLE FINCH (*Carpodacus purpureus*)

The Purple Finch is a casual to irregular spring migrant on WI. Two birds have been netted; a male on 30 Apr. 1973 and a female on 1 May 1973.

HOUSE FINCH (*Carpodacus mexicanus*)

The House Finch is irregular throughout the year on WI. Flocks up to 100 birds occasionally invade WI in December and January. This finch was first recorded during the very cold winter of 1976–77 when 30 birds appeared on 17 Jan. 1977. More than 30 finches were seen on the unusual date of 25 June 1991.

AMERICAN GOLDFINCH (*Carduelis tristis*)

The American Goldfinch is uncommon to irregular throughout the year on WI. One or two goldfinches were counted during five CBCs. The peak count is 50 birds seen on 6 February during the cold winter of 1977.

HOUSE SPARROW (*Passer domesticus*)

The House Sparrow is accidental on WI and WM. One House Sparrow was seen trapped in a building on WI on 17 Aug. 1975. The only other record is of one bird just inside the guard's gate on WM.

APPENDIX

The following species are not recorded from WI or WM, but they undoubtedly occur at least occasionally in fall migration, and to a lesser extent in spring migration: **Acadian Flycatcher** (*Empidonax virescens*), **Alder/Willow Flycatcher** (*Empidonax alnorum/traillii*), **Least Flycatcher** (*Empidonax minimus*), **Brown Creeper** (*Certhia americana*), **Gray-cheeked Thrush** (*Catharus minimus*), **Solitary Vireo** (*Vireo solitarius*), **Yellow-throated Vireo** (*Vireo flavifrons*), **Philadelphia Vireo** (*Vireo philadelphicus*), **Blue-winged Warbler** (*Vermivora pinus*), **Tennessee Warbler** (*Vermivora peregrina*), **Orange-crowned Warbler** (*Vermivora celata*), **Blackburnian Warbler** (*Dendroica fusca*), **Yellow-throated Warbler** (*Dendroica dominica*), **Bay-breasted Warbler** (*Dendroica castanea*), **Blackpoll Warbler** (*Dendroica striata*), **Cerulean Warbler** (*Dendroica cerulea*), **Worm-eating Warbler** (*Helmitheros vermivorus*), **Louisiana Waterthrush** (*Seiurus motacilla*), **Canada Warbler** (*Wilsonia canadensis*), and **Lincoln's Sparrow** (*Melospiza lincolnii*). Non-songbirds that probably occur but have been missed to date include: **Red-necked Grebe** (*Podiceps grisegena*), **Mute Swan** (*Cygnus olor*) (The Mute Swan breeds regularly less than 10 km away on the NWR.), **Rough-legged Hawk** (*Buteo lagopus*), **Hudsonian Godwit** (*Limosa haemastica*), and **Chuck-will's Widow** (*Caprimulgus carolinensis*).

Other species have been recorded only once or twice, but they are likely to be more frequent. These include: **Broad-winged Hawk** (*Buteo platypterus*), one bird seen on 5 Oct. 1988; **Whip-poor-will** (*Caprimulgus vociferus*), one bird heard singing on 3 June 1981 (Kinzie and Scott, 1983); **Common Nighthawk** (*Chordeiles minor*), one bird seen on 2 May 1976; **Yellow-bellied Flycatcher** (*Empidonax flaviventris*), one bird was well seen by many people on a V.S.O. bird club trip on 28 Aug. 1977; **Tufted Titmouse** (*Parus bicolor*), one bird seen on 28 Dec. 1982; **Brown-headed Nuthatch** (*Sitta pusilla*), one bird seen on 30 June 1986; **Winter Wren** (*Troglodytes troglodytes*), one bird seen on 24 Nov. 1989 and another on 6 Dec. 1991; **Sedge Wren** (*Cistothorus platensis*) one bird seen on 28 Aug. 1977 (HHB – common breeder); **Blue-gray Gnatcatcher** (*Polioptila caerulea*), one bird seen on 9 Apr. 1972; **Veery** (*Catharus fuscescens*), one bird netted on 16 Sept. 1974; **Swainson's Thrush** (*Catharus ustulatus*), one bird seen on 4 Oct. 1974; **Hermit Thrush** (*Catharus guttatus*), one bird netted on 20 Apr. 1972 and one bird seen 23 Mar. 1974; **Wood Thrush** (*Hylocichla mustelina*), one bird seen on 14 Oct. 1972; **Nashville Warbler** (*Vermivora ruficappila*), one bird seen on 4 May 1988; **Chestnut-sided Warbler** (*Dendroica pensylvanica*), one bird seen on 2 May 1976; **Magnolia Warbler** (*Dendroica magnolia*), one bird banded on 16 Sept. 1974; **Prothonotary Warbler** (*Protonotaria citrea*), one bird netted on 30 Apr. 1973; **Ovenbird** (*Seiurus aurocapillus*), one bird netted on 20 Apr. 1973 and another on 4 May 1973; **Northern Waterthrush** (*Seiurus noveboracensis*), one bird netted on 18 Sept. 1974; **Kentucky Warbler** (*Oporonis formosus*), one bird netted on 23 Apr. 1973; **Hooded Warbler** (*Wilsonia citrina*), two birds netted one on 16 Apr. 1973 and one on 7 May 1973; **Wilson's Warbler** (*Wilsonia pusilla*), one bird seen on 8 May 1977 and

one bird netted 19 Sept. 1974; **Summer Tanager** (*Piranga rubra*), one bird seen on 9 May 1982; **Grasshopper Sparrow** (*Ammodramus savannarum*), one bird seen foraging along the oceanside of the outer sand dune line on the north end of WI on 3 Oct. 1971; **Lapland Longspur** (*Calcarius lapponicus*), two birds seen in December 1990; **Snow Bunting** (*Plectrophenax nivalis*), five birds seen on 28 Dec. 1976 and 15 on 28 Dec. 1981; and **Orchard Oriole** (*Icterus spurius*), one bird seen the first week of May 1976.

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13. ABSTRACT *(Maximum 200 words)*

This Technical Memorandum provides extensive data on birdlife at Wallops Island, a mid–Atlantic barrier island, and home to NASA Wallops Flight Facility's launch range. Variation in the distribution and abundance of many species is considerable in this region, which is centered along the north–south axis of the Delmarva Peninsula. This report provides data (date of occurrence and general abundance) and analysis of the Island's diverse habitat structure. A total of 244 species of birds are recorded; a summary of the records are given in the Species Accounts and the Appendix.

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